



Entergy Arkansas, LLC
425 West Capitol Avenue
P. O. Box 551
Little Rock, AR 72203-0551
Tel 501 377 3571
Fax 501 377 3599

J. David Palmer
Vice President
Regulatory Affairs

May 1, 2023

Ms. Jennifer Ivory, Secretary
Arkansas Public Service Commission
P.O. Box 400
1000 Center Street
Little Rock, Arkansas 72201

Re: Docket No. 07-085-TF
In the Matter of the Application of Entergy Arkansas, Inc.
For Approval of Energy Efficiency Programs and Energy
Efficiency Cost Rate Rider

Dear Ms. Ivory:

Please find attached for filing with the Arkansas Public Service Commission, Entergy Arkansas, LLC's Energy Efficiency Program Portfolio Annual Report for the 2022 Program Year and the accompanying Program Portfolio Annual Report Excel Workbook. This Annual Report and Workbook are filed pursuant to the provisions of Section 9 of the Commission's Rules for Conservation and Energy Efficiency Programs approved in Docket No. 06-004-R.

If you have any questions or need anything additional concerning this filing, please call me at (501) 377-3571 or Spencer Whitfield at (501) 377-5884.

Sincerely,

/s/ J. David Palmer

JDP/sw
Attachments

c: All parties of record w/ attachments



ENTERGY ARKANSAS, LLC

Arkansas Energy Efficiency Program Portfolio Annual Report

Docket No. 07-085-TF

2022 PROGRAM YEAR

May 1, 2023

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1.0 Executive Summary

Entergy Arkansas, LLC (“Entergy Arkansas” or the “Company”) submits its Energy Efficiency Program Annual Report for the 2022 program year. This Annual Report demonstrates that the Company has developed and offered cost-effective energy efficiency programs to all classes of its customers, as it has since the Arkansas Public Service Commission (“APSC” or the “Commission”) adopted its Rules for Conservation and Energy Efficiency Programs (“C&EE Rules”) and comprehensiveness guidance. The 2022 Annual Report provides information for the 2022 program year.

Overall, the Annual Report demonstrates:

- Entergy Arkansas’ successful implementation of its energy efficiency programs continued for the 2022 program year, with the Company maintaining its overall energy efficiency savings through its portfolio of energy efficiency programs.
- Energy savings of 302,315 MWh (gross or *ex ante*¹) for the 2022 program year, which is comparable to the 319,928 MWh energy savings achieved by the Company for the 2021 program year.²
- Entergy Arkansas achieved net savings³ of 292,926 MWh which is comparable to the 311,158 MWh achieved in 2021 by effectively working with its program implementers and evaluation contractor to expand offerings to low-income households and identify deeper savings for commercial customers. The overall portfolio net-to-gross factor increased from 95 percent in 2021 to 97 percent in 2022.
- The 2022 program year was designed to achieve 120% of the Commission-established target for achieved savings of 1.2% of 2018 retail sales. Entergy Arkansas exceeded that goal with an overall achievement of 133% of the Commission-established goal, which allows the programs to meet the performance incentive thresholds established by the Commission in Docket No. 13-002-U.
- Entergy Arkansas’ energy efficiency programs continue to receive national recognition. Below are the latest awards being issued to various programs:

¹ For purposes of this Annual Report, Entergy Arkansas uses the term “*ex ante*” to refer to the actual savings achieved by Entergy Arkansas prior to application of a number of adjustments that are applied to the Company’s achieved savings figures.

² See *infra* Table 1.1.2 for additional details regarding the figures for this and other program years

³ Net savings refers to the application of the EM&V researched net-to-gross ratio to *ex post* savings.

- Manufactured Homes – ACEEE Exemplary Program 2019.
- Agricultural Energy Solutions – ACEEE Exemplary Program 2019.
- Residential Lighting & Appliances – EPA ENERGY STAR® Partner of the Year Award 2019-2022.

In prior annual reports, Entergy Arkansas discussed the challenges inherent in running energy efficiency programs. In 2022, several steps were taken to overcome current challenges, while also exploring new avenues to lower the barriers facing customer adoption of the measures offered through the Company's energy efficiency programs. Those steps are enumerated below:

- Non-Energy Benefits (NEBs)
 - 2022 saw the continued application of NEBs, per Order Nos. 7 and 30 in Docket No. 13-002-U.
 - Entergy Arkansas, in collaboration with the Parties Working Collaboratively (“PWC”) and its evaluator, Tetra Tech, refined the presentation and application of NEBs in 2018 through a NEBs working group. The NEBs working group established consensus definitions, methodologies and protocols for the identification and calculation of avoided and deferred replacement costs across the Company's portfolio, including processes for efficiently identifying, estimating and/or verifying avoided or deferred replacement costs associated with custom projects. These protocols were followed for the 2022 program year NEBs.
- Consistent Weatherization Act and Act 1102
 - Order No. 7 in Docket No.13-002-U requires all investor-owned utilities (“IOUs”) to implement a consistent approach to providing weatherization services to eligible Arkansas residents. Order No. 7 identified key programmatic features that this consistent weatherization approach must include, features that were further developed and refined into a recommended framework – referred to as the Core Program – for implementation by the IOUs. The APSC approved the Consistent Weatherization Approach on December 9, 2014 with Order No. 22 in Docket No. 13-002-U. Beginning in 2016 and continuing through 2022, Entergy Arkansas' Home Energy Solutions, Manufactured Homes, Multifamily Homes and now Low-Income Solutions programs offered the “core” weatherization measures to residential customers.
 - Act 1102 of 2017, concerning Ark. Code Ann. § 23-3-405(a) and the authority of the APSC over energy efficiency programs and measures provided by IOUs, states that the APSC is “permitted to order, require, promote, or engage in energy conservation

programs and measures for the benefit of utility customers” that fall into one or both of two key segments:

1. Utility customers who are 65 years of age or older, or
2. Utility customers who meet the income eligibility qualifications for the Low-Income Home Energy Assistance Program (“LIHEAP”) administered by the Department of Human Services (administration since transferred to the Arkansas Energy Office).

Entergy Arkansas began offering a Low-Income Program in 2020 in accordance with Act 1102 guidelines.

- The PY2020 process evaluation found the new Low-Income Solutions successful, and this success continued in its third year of implementation, once again exceeding its energy savings filed goal. The program effectively served the intended customers with approximately three-quarters (71.1%) of customers LIHEAP eligible⁴ and almost half (45.2%) of customers 65 or older.
- In addition to the Low-Income Solutions program, other Entergy Arkansas residential programs also serve the Arkansas low-income and senior population. The Home Energy Solutions (“HES”) Program, Manufactured Homes and Multifamily Homes are the other primary programs providing services to these customer segments. About a quarter of HES and Manufactured Homes participants are 65 or older (23.6% of HES participants, 23.9% of Manufactured Homes participants). In addition, about a quarter of Manufactured Homes and Multifamily Homes participants are LIHEAP eligible (21.5% of Manufactured Homes participants, 26.3% of Multifamily Homes). With a total of 12,071 unique participants enrolled, the four residential programs installed 90,209 energy-saving units. While the programs addressed multiple end-uses including lighting, HVAC, hot water, envelope and appliances, weatherization improvements continue to be one of the most popular measures, with duct sealing representing over half of savings in the programs, and ceiling insulation and air infiltration representing the next most energy saving measures.
- Common Commercial and Industrial (“C&I”) Approach

⁴ Combining data collected on household size and household income, the EM&V team generated an estimate of the number and share of survey respondents that were eligible for assistance under LIHEAP. The EM&V team utilized a table of LIHEAP eligibility cutoffs provided by the State of Arkansas, where LIHEAP eligibility is determined through a combination of household size and household income.

- On June 8, 2015, the Commission, in Order No. 27 in Docket No. 13-002-U, approved the Common C&I Approach. This order directed the utilities to report on the performance of the Common C&I approach within their respective annual reports as data becomes available.
- On December 15, 2016, the Commission issued Order No. 49 in Docket No. 07-083-TF, finding that some questions remain regarding the reconciliation of the discrepancies noted by Staff in budgets and expenditures as between the Energy Efficiency Arkansas (“EEA”) Annual Report and the Annual Reports submitted by the utilities for PY2015. On May 1, 2022, the Arkansas Energy Office filed direct testimony in accordance with Order No. 52 in Docket No. 07-083-TF, which provides data and demonstration of the performance of the Common C&I Approach.

- Evolving Retail LED Lighting Market and Regulatory Uncertainties

While 2022 saw policy updates for General Service Lamps (“GSLs”), enforcement phases in during 2023, necessitating continued incentives for GSLs through mid-2023. On December 13, 2021, the Department of Energy (“DOE”) issued a Notice of Proposed Rulemaking (“NOPR”) to enact the “backstop” efficacy requirement of 45 lumens/watt for General Service Lamps (“GSLs”).⁵ Enforcement of the “backstop” is resulting in market transformation for all major bulb shapes (A-Line, Candle, Globe, Reflector) with the definition expansion and efficacy requirement being enacted. The rulemaking was completed in 2022 as DOE published two Final Rules related to GSLs. One rule concerned an update to the definitions of GSLs and General Service Incandescent Lamps. The second rule updated the energy efficiency of GSLs to the aforementioned 45 lumens per watt requirement. While the Final Rules went into effect in 2022, full compliance is phased in over 2023. The EM&V team conducted analysis of the impacts of the new baseline on Entergy Arkansas’ portfolio savings. The analysis of the EISA changes found that it would significantly decrease the residential lighting savings delivered through Entergy Arkansas’ residential energy efficiency programs in future program years. However, opportunities for savings through the commercial programs will continue.

- Economic Challenges

⁵ See 86 Fed. Reg. 70755 (Dec. 13, 2021)

o Residential

The residential portfolio is experiencing post pandemic effects that have presented challenges to program implementation and could be long lasting. With supply chain constraints and a surge of inflation, energy efficiency product and shipping costs are continuing to rise. The Home Energy Solutions, Low-Income Solutions, Manufactured Homes, and Multifamily Homes programs increased incentives for ceiling insulation and direct installation products to help offset the rise in costs. The Smart Direct Install program also increased incentives in 2022. The programs are increasing incentives again in 2023 for air sealing, audits, heat pump tune-ups, and Direct Installations (DI) measures. Entergy Arkansas continues to monitor these challenges as it could continue to create constraints on the program incentive budgets in 2023.

1.1 2022 Program Results and Achievements

For the 2022 program year, Entergy Arkansas achieved 94.6 MW⁶ of evaluated net demand reduction and 292,926 MWh⁴ of evaluated net energy savings.

In accordance with Order No. 17 in Docket No. 10-100-R, Entergy Arkansas' portfolio summary information, after independent EM&V and other adjustments are applied, is shown in Table 1.1.1:

Table 1.1.1

Portfolio Summary of 2022 Entergy Arkansas' energy efficiency Program Results⁷

2022 Portfolio Summary										
Net Energy Savings		Costs			Cost-Effectiveness			Goal Achievement		
Demand MW	Energy MWh	Actual Expenditures	LCFC	Performance Incentives	TRC Net Benefits (NPV)	TRC Ratio	PAC Ratio	Commission Established Target % of Baseline	Actual Savings Achieved % of Baseline	% of Target Achieved (%)
95	292,926	\$ 59,151,986	\$ -	\$ 5,548,361	\$137,308,341	2.94	2.67	1.20%	1.59%	133%

Applying the required adjustments to these savings estimates for the PY 2022, and comparing those net figures to Entergy Arkansas' targets (as adjusted to account for the loss of Self Direct ("SD") customers), the Company achieved savings of 133% of its savings target established by the Commission, as reflected in Table 1.1.2 below:

⁶ Energy savings and Demand Reduction do not include line losses as calculated by Tetra Tech.

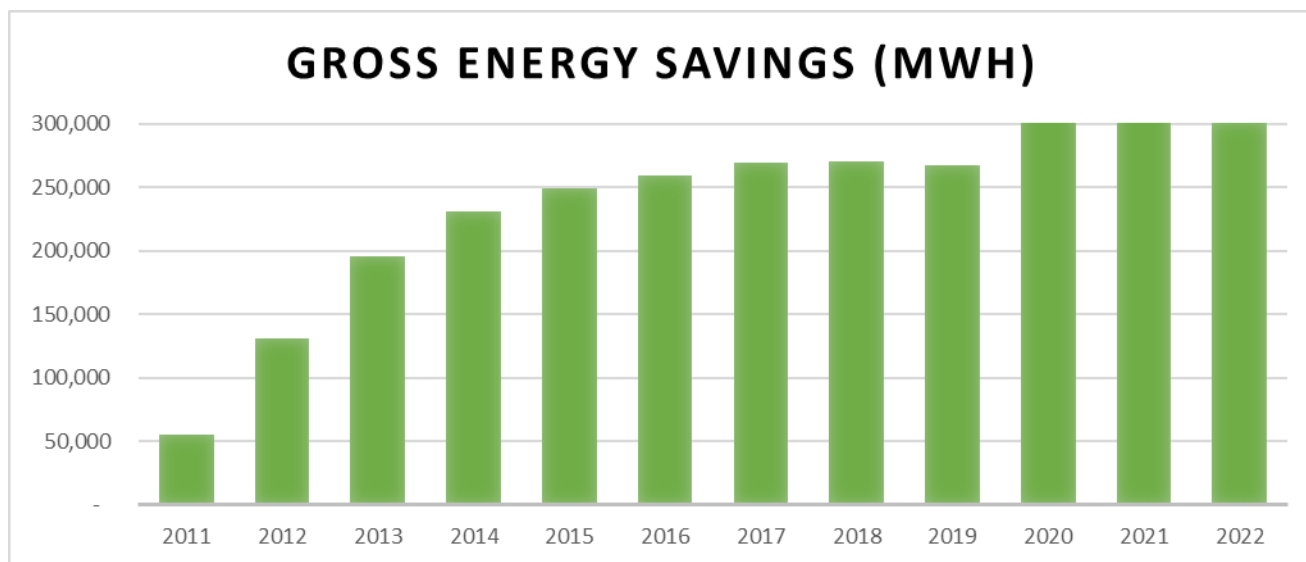
⁷ Demand and Energy values do not include transmission and distribution line losses.

Table 1.1.2
Evaluated Savings and Goal Achievement

Entergy Arkansas’ Gross Savings (<i>ex ante</i>)	302,315 MWh⁸
As adjusted by Tetra Tech for Realization Rate (<i>ex post</i>)	301,059 MWh
As adjusted for Net-To-Gross (“NTG”) ratios	292,926 MWh
Entergy Arkansas MWh Target adjusted for SD	220,845 MWh
% of Target Achievement Based on Evaluated Energy Savings	133%

The Commission’s initiatives have fostered significant growth in energy efficiency, as reflected in the unadjusted savings that Entergy Arkansas has realized for the program years 2011-2022. These initiatives have helped increase energy efficiency savings by approximately 449% over that 11-year time period.

Table 1.1.3 – Gross Energy Savings



For the 2022 Program Year, there were differences, as is normally the case, between budgeted and actual expenditures. These differences can be attributed to the following factors:

⁸ Unadjusted figures provide a good basis for comparing growth of Entergy Arkansas’ Energy Efficiency programs because that was the basis upon which the IOUs were required to report their energy efficiency savings prior to the Annual Report for the 2011 Program Year filed April 2012.

- The largest program in Entergy Arkansas' portfolio is the Large C&I Solutions Program, which also serves the class of the Company's customers who are eligible to self direct their EE efforts and opt out of the utility programs. This program is affected the most with respect to energy savings achievement because of the loss in the number and respective energy usage of the customers obtaining SD exemptions. In 2022, Entergy Arkansas customer accounts approved to opt out of the programs remained consistent to that of 2021. The sales to SD customers represents approximately 18.1% of Entergy Arkansas' total retail sales. Additionally, approximately 46% of C&I customer accounts eligible to self direct have done so, representing approximately 60% of MWh sales eligible to be exempted. These SD exemptions continue to have a negative impact upon the Large C&I Program's ability to meet targeted energy savings goals. Recognizing this difficulty, the Large C&I Program has focused on increasing the number of energy efficiency projects from smaller C&I customers, while continuing to reach the remaining large industrial customers in the program through account management and trade ally efforts. Due to levels of participation lower than anticipated, the Large C&I Program underspent its 2022 incentive budget.
- In general, the Company's energy efficiency portfolio benefited from economies of scale realized in the 2022 program year. As discussed throughout this Annual Report, Entergy Arkansas continually works to evaluate its programs and implementation plans to determine whether improvements can be made. Over the years, numerous innovations to program deliveries have been implemented, the results of which are now being seen. Programs are operating more efficiently in many respects, as evidenced by customers implementing multiple measures through their participation in programs.

As was mentioned earlier, all of Entergy Arkansas' energy efficiency programs were cost-effective on a TRC basis in 2022, except the Agricultural Irrigation Load Control, Smart Direct Load Control, and Residential Direct Load Control programs. Further explanation of these results, including how Entergy Arkansas intends to manage these programs, will be addressed herein.

1.2 Entergy Arkansas' 2022 Program Year Results and 2023 Program Changes and Goals

With another full year of information available regarding implementation of Entergy Arkansas' comprehensive programs from its three-year plan approved by the Commission, the Company achieved a significant amount of demand and energy savings. The Company's overall results for program year 2022 are shown in Table 1.2.1 below:

Table 1.2.1
Entergy Arkansas 2022 Results

Entergy Arkansas' Gross Savings	302,315 MWh
As adjusted by Tetra Tech for RR (<i>ex post</i>)	301,059 MWh
As adjusted for NTG and RR ratios ⁹	292,926 MWh

Indeed, Tetra Tech's Evaluation Report recognized Entergy Arkansas' continued success in its 2022 program year report and EM&V processes, stating:

Evaluation results are positive with EAL and its implementers demonstrating continuous improvement in its program design and delivery processes, tracking system, documentation, and savings tools, even as challenges from the pandemic persisted such as staff shortages and supply chain issues. Evidence of this continuous improvement is an improvement in net savings, as demonstrated through an increase in the overall portfolio's NTG from 90 percent in PY2020, 95 percent in PY2021, and now 97 percent in PY2022 as EAL continues to effectively serve harder-to-reach segments. This increase resulted from specific outreach and expanded delivery to low-income households of energy-efficient products through downstream residential and upstream point-of-purchase programs as well as realizing high net-to-gross results across all residential and commercial offerings. Both EAL and its implementation contractors have been responsive to evaluation recommendations and engaged with the EM&V contractor throughout the program. Of particular note, continual technical assistance and collaboration between EAL, its program implementers, and the EM&V team supported the programs and facilitated healthy gross savings realization rates. All in all,

⁹ Energy savings do not include transmission and distribution line losses.

evaluated savings were very close to *ex-ante* energy savings with an overall portfolio gross realization rates of 100.4% for energy savings and 100.1% for demand reductions. Program-level gross realization rates ranged from 96% to 107% for energy savings and 94% to 107% for demand savings.

The EM&V team calculates net-to-gross for all residential and C&I programs (outside of demand response, which are deemed from industry standard) at least once over the course of the program cycle. Net-to-gross remains strong across all programs with the majority of saving directly attributable its portfolio energy goals, achieving 103% of its filed goal and 133% of APSC targets. Entergy Arkansas fell short of its demand goals, meeting 58% of the demand goal. The performance difference between energy savings and demand goals is similar to prior years. While much of the difference is due to demand response programs not reaching their goals, investigations to better align energy savings and demand savings continue per a recommendation from prior evaluations and is part of planning for the next program cycle.

Individual program performance relative to program savings and demand goals varied. Six of the ten programs¹⁰ achieved their megawatt-hour savings goals. Four programs did not reach their energy savings goals. These four programs ranged between 58 percent and 88 percent of energy savings goals. EAL, the program implementer, and the EM&V team have discussed this shortfall and program changes to increase energy savings. In particular, Section 3 of the EM&V report summarizes key findings and recommendations from a Market Trends Study. Four of the 12 programs achieved their megawatt goals. While two programs met 90 percent or more of the demand savings goal, six met less than 90 percent of the demand savings goal. The Smart Direct Load Control pilot is still gaining momentum, meeting 58 percent of its energy savings and 14 percent of its demand reduction goals. The Agricultural Energy Solutions program was once again the highest performer across energy savings and demand reductions relative to program goals due to a few large new construction projects.

As discussed earlier, the SD option continues to impair Entergy Arkansas' ability to achieve savings with C&I customers. In 2022, there were 556 accounts that had been approved by the Commission to "opt out" of the Entergy Arkansas energy efficiency programs.

¹⁰ Residential Direct Load Control and Agricultural Irrigation Load Control programs had no megawatt-hour savings goals.

Accordingly, for 2022, the overall targets were reduced by 17% as a result of the SD accounts. Based upon Entergy Arkansas' assessment, and to preserve its ability to meet 2022 C&I program goals, Entergy Arkansas made minor adjustments to the C&I energy efficiency program budgets and the energy savings reductions for 2022.¹¹ Entergy Arkansas' 2020-2022 Energy Efficiency Plan forecasts higher participation in the upstream and midstream offerings for smaller commercial customers and an expanded measure mix to address the higher costs of C&I projects. The 2022 goals and the associated adjustments are shown in Table 1.2.2.

Table 1.2.2
Entergy Arkansas' 2022 Energy Savings Goals

Original 2022 Goal (MWh)	268,075
Adjustment due to SD (MWh)	47,230
New 2022 Goal (MWh)	220,845

Entergy Arkansas made changes to the commercial programs in 2022 based upon:

- 1) the number and magnitude of 2022 SD applications and approvals;¹²
- 2) the independent evaluation results; and
- 3) the impact of changes to lighting standards in the Arkansas markets.

The gross savings for all programs reported in this document were calculated using the Arkansas TRM 9.0 Deemed Savings and Protocols as adjusted by the Joint Recommendations of the Independent Evaluation Monitor ("IEM") and the PWC and approved by the Commission,¹³ or where appropriate, utilizing an International Performance Measurement & Verification Protocol ("IPMVP") approved method.

As indicated earlier, Entergy Arkansas' reported net savings reflect the final results of the independent EM&V analysis performed by Tetra Tech. Tetra Tech's EM&V Report of Entergy Arkansas' 2022 Energy Efficiency programs is attached as Appendix A.

¹¹ Entergy Arkansas will need to continue to monitor SD impacts as a result of the SD Legislation passed and implemented in 2013.

¹² Legislation has increased the uncertainties regarding the magnitude of industrial customers that will choose to SD.

¹³ Docket No. 10-100-R.

1.3 Cost Benefit Results

Entergy Arkansas performed a cost-benefit analysis in connection with the 2022 results, using the same modeling approaches that were used in prior annual reports and using the fixed avoided costs from the 2020-2022 program plan, in accordance with Order No. 7 in Docket No. 13-002-U,¹⁴ as well as accounting for any reasonably quantifiable NEBs. The results of these analyses are included in the table below:

Table 1.3
Entergy Arkansas' 2022 Cost-Effectiveness Results

Including NEBs	Total Resource Cost (TRC)		TRC Levelized Cost	Participant Cost Test (PCT)		Ratepayer Impact Measure (RIM)		Program Administrator Cost (PAC)	
	NPV (\$000's)	Ratio	\$/ kWh	NPV (\$000's)	Ratio	NPV (\$000's)	Ratio	NPV (\$000's)	Ratio
Program									
Home Energy Solutions	\$ 24,029	3.3	\$ 0.03	\$ 42,382	5.9	\$ (21,270)	0.5	\$ 14,688	2.4
Multifamily Homes	\$ 5,221	3.0	\$ 0.02	\$ 15,726	12.8	\$ (8,691)	0.5	\$ 4,728	2.8
Manufactured Homes	\$ 3,450	3.8	\$ 0.02	\$ 8,577	13.7	\$ (4,190)	0.5	\$ 3,089	3.5
Low Income Solutions	\$ 4,682	2.3	\$ 0.04	\$ 11,359	6.4	\$ (7,272)	0.5	\$ 2,403	1.7
Point of Purchase Solutions	\$ 62,591	6.0	\$ 0.01	\$ 94,922	8.9	\$ (48,087)	0.5	\$ 37,344	5.0
Commercial & Industrial	\$ 20,832	1.9	\$ 0.03	\$ 46,407	3.7	\$ (29,175)	0.6	\$ 24,154	2.6
Small Business	\$ 10,143	3.5	\$ 0.02	\$ 18,067	6.3	\$ (10,564)	0.5	\$ 8,090	3.7
Public Institution Solutions	\$ 8,116	3.1	\$ 0.02	\$ 18,703	7.9	\$ (11,269)	0.5	\$ 7,774	3.7
Agriculture Energy Solutions	\$ 4,462	3.5	\$ 0.02	\$ 7,859	8.5	\$ (3,187)	0.7	\$ 4,653	4.0
Smart Direct Load Control Pilot	\$ (480)	0.8	\$ 0.08	\$ 4,197	n/a	\$ (4,294)	0.2	\$ (1,708)	0.4
Direct Load Control	\$ (2,160)	0.0	\$ 126.84	\$ 484	n/a	\$ (2,643)	0.0	\$ (2,643)	0.0
Agriculture Irrigation Load Control	\$ (3,164)	0.0	\$ 131.05	\$ 378	n/a	\$ (3,542)	0.0	\$ (3,542)	0.0
Energy Efficiency Arkansas	\$ (266)	0.0	n/a	\$ -	n/a	\$ (266)	0.0	\$ (266)	0.0
Portfolio	\$ 137,456	2.9	\$ 0.03	\$ 269,061	6.5	\$ (154,449)	0.5	\$ 98,766	2.67

Note: Total Portfolio for the PCT Test does not equal sum of the programs because the PCT uses a discount rate based on customer class.

As can be seen from Table 1.3, all of Entergy Arkansas' programs are cost-effective, except for the demand response programs. As anticipated in the 2020-2022 EE Plan Filing testimony,¹⁵ Agricultural Irrigation Load Control, Smart Direct Load Control Pilot, and Residential Direct Load Control Programs were not cost effective. However, Entergy Arkansas currently has approximately 15,685 total installed end points for residential customers enrolled in the Res DLC program that provide capacity in the Midcontinent Independent Service Operator, Inc. ("MISO") for this program, as does the AILC program. Further, Entergy Arkansas has invested substantially in the success of these programs and expects that, even under the APSC's methodology, they could be cost effective in the future. However, as noted in Entergy Arkansas' Plan for 2020-22 in Docket No. 07-085-TF filed June 17, 2019, Entergy Arkansas is proposing to phase out the Res DLC program in the coming years. This overall cost-effectiveness for the portfolio is primarily due to two reasons. First, the 2022 program year

¹⁴ Entergy Arkansas' cost-benefit analysis method involves an in-depth analysis of the hours (e.g., on peak vs. off peak) in which the expected energy savings likely would be realized.

¹⁵ Docket No. 07-085-TF, Blankenship Direct Testimony at 19 (Document 566 filed June 17, 2019).

was planned considering the directives set forth by the Commission in Order No. 7 of Docket No. 13-002-U, including the Real Economic Carrying Charge Method (“RECC”) and market value capacity. The 2022 achieved results are evaluated based upon the directives in Order No. 150 in Docket No. 07-085-TF and Order No. 51 in Docket No. 13-002-U for the Three-Year Plan filing for the years 2020-2022. In addition, Entergy Arkansas included NEBs in the TRC test, as approved in the TRM 8.2. The NEBs had a Net Present Value of approximately \$49M in the 2022 TRC. Compared to the TRC without NEBs, this was an increase of approximately 36% of the total Net Present Value in the portfolio’s TRC.

1.4 2022 Budgets and Changes

The 2022 program year budget was originally approved by the Commission in Order No. 150 of Docket No. 07-085-TF, as part of the 2020-2022 Energy Efficiency Program Plan with an overall portfolio cost of \$69,354,507. In 2022, Entergy Arkansas revised the approved budget within the Commission’s budget flexibility guidelines and transferred budgeted dollars from underachieving programs to programs seeing more positive market acceptance. The details of the revised budget are provided in Table 1.4. In accordance with Order No. 62 in Docket No. 13-002-U, no program had more than 20% of its budget reduced, and the total portfolio budget remained within the 20% limit.

Table 1.4
Revised 2022 Budgets¹⁶

Program Name	Revised Budget*	Initial Budget	Difference	Change	Explanation for the Change
Home Energy Solutions	\$11,158,430	\$ 11,303,430	-\$145,000	-1%	145,000 of incentives were transferred from HES to MA. This represents 1.28% of the HES budget. Incentive funds were transferred to MA from HES so that the program could achieve additional kWh savings due to incentive dollars exceeding plan.
Multifamily Homes	\$2,790,169	\$ 2,650,169	\$140,000	5%	Incentive funds were transferred from SDLC to MF so that the program could achieve additional kWh savings due to incentive dollars exceeding plan.
Manufactured Homes	\$1,406,021	\$ 1,261,021	\$145,000	11%	Incentive funds were transferred to MA from HES so that the program could achieve additional kWh savings due to incentive dollars exceeding plan.
Low-Income Solutions	\$4,957,950	\$ 4,957,950	\$0	0%	N/A
Point of Purchase Solutions	\$9,162,638	\$ 7,888,520	\$1,274,118	16%	Increased the incentive budget to allow for Foodbank Overdrive.
Large Commercial & Industrial Solutions	\$20,318,245	\$ 21,779,439	-\$1,461,194	-7%	Decreased the incentive budget to allow for overdrive in Small Business and POPS.
Small Business Solutions	\$3,114,204	\$ 2,580,679	\$533,525	21%	Increased the incentive budget to allow for trade ally project overdrive.
Public Institutions Solutions	\$3,459,184	\$ 3,805,633	-\$346,449	-9%	Decreased the incentive budget to allow for overdrive in Small Business and POPS.
Agricultural Energy Solutions	\$1,637,798	\$ 1,352,798	\$285,000	21%	Incentive funds were transferred from SDLC to AES due to the higher Ag enrollment rate above plan and to offset savings deficits from MA and MF programs.
Residential Direct Load Control	\$3,547,988	\$ 3,547,988	\$0	0%	N/A
Smart Direct Load Control Pilot	\$3,580,439	\$ 4,005,439	-\$425,000	-11%	\$140,000 of incentives were transferred to MF and \$285,000 transferred to AES from SDLC totaling \$425,000 moved from SDLC. This represents 10.61% of the SDLC budget. MF burn rate exceeded plan, SDLC incentives were shifted to MF for program to achieve additional kWh savings. Incentive funds were moved from SDLC to AES due to the higher enrollment rate above plan and to offset savings deficits from MA and MF.
Agricultural Irrigation Load Control	\$3,918,060	\$ 3,918,060	\$0	0%	N/A
Energy Efficiency Arkansas	\$303,382	\$ 303,382	\$0	0%	N/A
Regulatory	\$ -	\$ -	\$ -	-	N/A
Total Portfolio:	\$ 69,354,508	\$ 69,354,507	\$ 0	0%	NA

Order # 150 approved the Initial Budget.

1.5 Planned Program Modifications for the 2023 Program Year

Entergy Arkansas continues to seek to achieve efficiencies and make improvements in the various energy efficiency programs that it offers to its customers, and numerous examples of these efforts are discussed in the specific program descriptions contained herein.

Entergy Arkansas proposed its three-year 2020-2022 Program Plan (“Plan”) in Docket No. 07-085-TF, filed March 15, 2019, which was approved by the Commission in Order No. 150 on June 17, 2019. Although Entergy Arkansas has made no significant modifications to the Plan as filed, it should be noted that the forecasted allocations of savings and budgets in that Plan reflect an anticipated shift from higher-cost programs to more cost-effective programs and delivery channels for 2023, which was approved as a bridge year in Order No. 62 in Docket No. 13-002-U.

The following three tables are from the tabular report workbook as required by the C&EE Rules, Section 9: Annual Reporting Requirements and Order No. 16 in Docket No. 10-010-U.

- “EE Portfolio Summary by Program” from Workbook Table 2, Table 1.5.1 below
- “EE Portfolio Summary by Cost Type” from Workbook Table 3, Table 1.5.2 below
- “Company Statistics” from Workbook Table 4, Table 1.5.3 below

¹⁶ The APSC approved the Budget in Order No. 150 in Docket No. 07-085-TF.

Table 1.5.1
EE Portfolio Summary Expenditures by Program

Program Name	Target Sector	Program Type	2022		% of Budget
			Budget (\$)	Actual (\$)	
Home Energy Solutions	Residential	Whole Home	11,303,430	10,639,863	94%
Low-Income Solutions	Residential	Market Specific/Hard to Reach	4,957,950	3,652,325	74%
Manufactured Homes	Residential	Whole Home	1,261,021	1,247,001	99%
Multifamily Homes	Residential	Whole Home	2,650,169	2,621,921	99%
Residential Direct Load Control	Residential	Demand Response	3,547,988	2,643,301	75%
Small Business Solutions	Small Business	Market Specific/Hard to Reach	2,580,679	3,048,245	118%
Smart Direct Load Control Pilot	Res/Small Business	Demand Response	4,005,439	2,986,435	75%
Large Commercial & Industrial Solutions	Commercial & Industrial	Custom	21,779,439	14,752,019	68%
Public Institutions Solutions	Municipalities/Schools	Market Specific/Hard to Reach	3,805,633	2,840,708	75%
Agricultural Energy Solutions	Agriculture	Prescriptive/Standard Offer	1,352,798	1,552,719	115%
Agricultural Irrigation Load Control	Agriculture	Demand Response	3,918,060	3,541,018	90%
Point of Purchase Solutions	All Classes	Consumer Product Rebate	7,888,520	9,214,545	117%
Energy Efficiency Arkansas Regulatory	All Classes	Other	303,382	264,359	87%
	-	-	-	147,528	-
Total			69,354,507	59,151,986	85%

Table 1.5.2
EE Portfolio Expenditure Summary by Cost Type

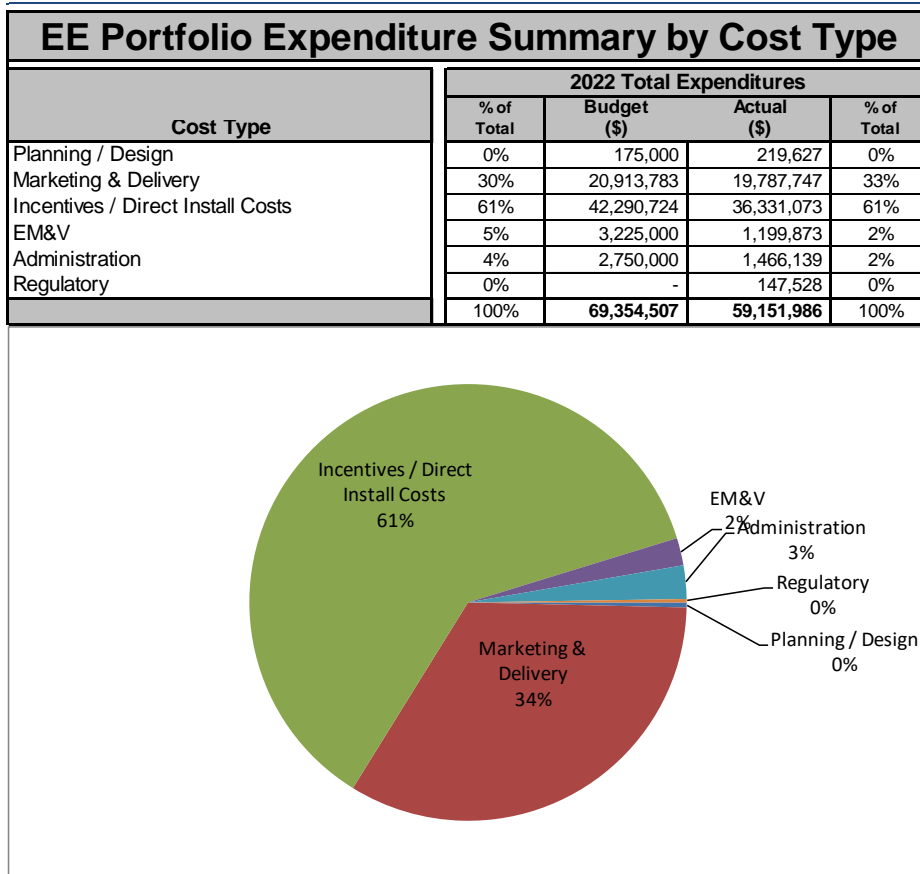
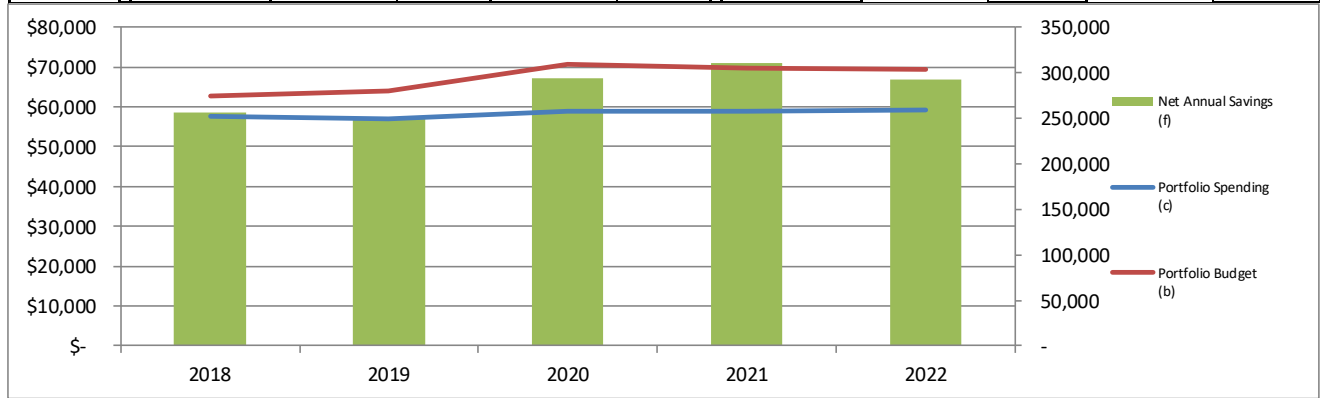


Table 1.5.3
Company Statistics

Company Statistics										
Program Year	Revenue and Expenditures					Energy				
	Total Revenue (a) (\$000's)	Budget		Actual		Total Annual Energy Sales (d) (kWh)	Plan		Evaluated	
		Portfolio Budget (b) (\$000's)	% of Revenue (% = b/a)	Portfolio Spending (c) (\$000's)	% of Revenue (% = c/a)		Net Annual Savings (e) (kWh)	% of Energy Sales (% = e/d)	Net Annual Savings (f) (kWh)	% of Energy Sales (% = f/d)
2018	\$ 1,667,424	\$ 62,812	3.8%	\$ 57,744	3.5%	22,524,809	239,878	1.06%	255,997	1.14%
2019	\$ 1,861,403	\$ 64,016	3.4%	\$ 56,919	3.1%	21,818,158	239,488	1.10%	248,663	1.14%
2020	\$ 1,787,352	\$ 70,658	4.0%	\$ 58,834	3.3%	20,748,190	285,557	1.38%	294,313	1.42%
2021	\$ 1,878,947	\$ 69,585	3.7%	\$ 58,872	3.1%	22,281,461	285,765	1.28%	311,158	1.40%
2022	\$ 2,056,565	\$ 69,355	3.4%	\$ 59,152	2.9%	22,326,106	285,149	1.28%	292,926	1.31%



2.0 Portfolio Programs

2.1 Home Energy Solutions

2.1.1 Program Description

Home Energy Solutions (“HES”) was designed to improve energy efficiency and benefit the owners and renters of single-family homes in Entergy Arkansas’ service territory. The HES Program will help homeowners achieve electricity savings by working with participating trade allies, who will help residential customers analyze their energy use, identify energy efficiency improvement projects and install no-cost, energy-saving measures at the home.

Design elements of HES include incentives to offset 100% of the cost of an energy evaluation provided by a certified trade ally. To determine eligibility, the trade ally will complete a home energy assessment. During the home energy assessment, the trade ally completes a walk-through inspection, identifies eligible direct install opportunities, secures customer permission to directly install equipment at the time of inspection (LED bulbs, advanced power strips, and high efficiency showerheads, kitchen and bathroom aerators for customers with electric water heating) and produces a written report based on the visual inspection.

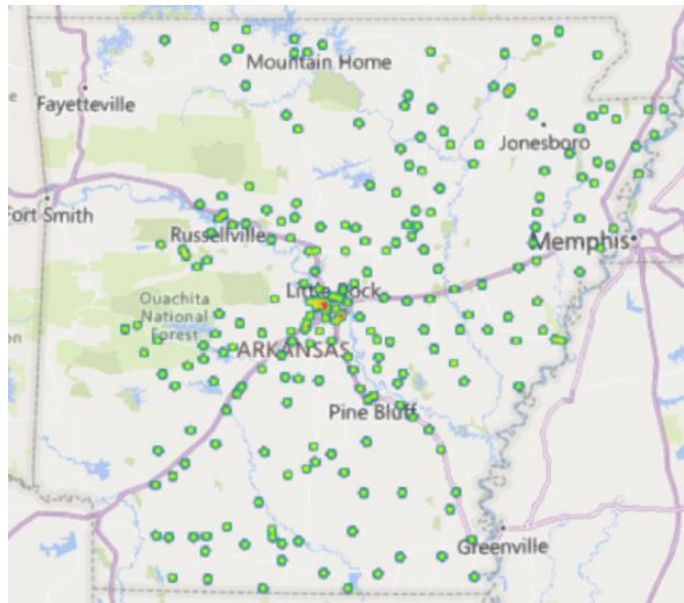
The trade ally also will perform diagnostic testing including a blower door test and duct blaster test to provide the customer with estimated energy savings and a list of prioritized recommendations. In 2022, the program achieved its energy savings by providing incentivized energy saving measures such as ceiling insulation, air conditioner tune-ups, duct sealing and air sealing measures to customers. These measures continue to make up the bulk of energy savings for the program. In addition, this program educates tenants and owners about the benefits of having energy saving measures installed on their property.

2.1.2 Program Highlights

- Saved 28,861 gross MWh in 2022 with a 97.7% realization rate and a net-to-gross ratio of 104%, resulting in 29,393 MWh net savings.
- Achieved 9.4 gross MW and 9.7 net MW savings in 2022 with a realization rate of 98.6%.
- Saw a total of 7,369 unique participants and 57,311 measures incentivized in 2022.

- Continued efforts on trade ally outreach with the challenge of COVID-19 and tracked the effect of the pandemic on the ability to implement the HES program. Each trade ally has a Point of Contact within the team, regular communications through email and telephone, a monthly electronic newsletter, monthly “coffee with the team” zoom video calls and the creation of the Trade Ally Council. Through these enhancements there has been a noticeable increase in trade ally communications and satisfaction with their participation in the HES program.
- The program continued to provide services throughout the Entergy Arkansas service territory. The geospatial map in Figure 2.1.2:2022 shows the location of work performed in 2022.

Figure 2.1.2: 2022 Participants



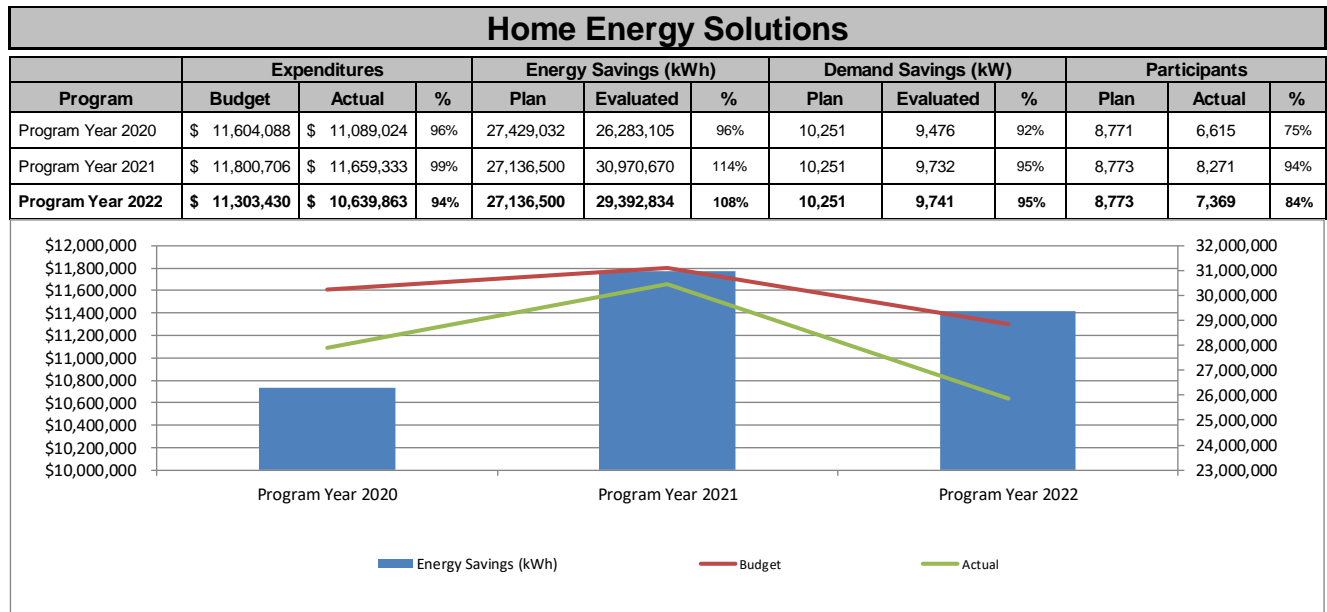
- 829 duct and air sealing projects went through the program’s virtual QA/QC process and 239 of the projects went through the program’s field inspection QA/QC process.
- 110 ceiling insulation projects went through the program’s virtual QA/QC process and 133 projects of the projects went through the program’s field QA/QC process.
- 85 air conditioner tune-ups went through the program’s virtual QA/QC process and 34 of the projects went through the program’s field inspection QA/QC process.
- 373 direct install projects went through the program’s virtual QA/QC process and 92 projects went through the program’s field inspection QA/QC process.
- The program account managers educated customers about other energy efficiency measures that they could implement and other Entergy Arkansas energy efficiency programs available to them.

- Promotion and outreach activities were executed in a variety of marketing channels. Paid media with print, digital and social media tactics were very successful in driving awareness and engagement. Entergy Arkansas' marketing channels also were used to promote this program via social media posts, the Entergy Solutions web page, the Entergy Circuit newsletter and Entergy bill inserts. Trade ally co-branded marketing materials and referrals also were used to reach out to customers to increase awareness and participation. Multiple community events were attended by program personnel to promote the programs to Entergy customers. These marketing efforts helped implement the program across the entire Entergy Arkansas service territory, rather than focusing on narrow areas.
- Incentives in the amount of \$145,000 were transferred from the HES program to the Manufactured Homes program. Measure cost have increased due to supply chain product price increases and inflation causing the Manufactured Homes program to exceed incentive budget.

2.1.3 Program Budget, Savings and Participants

Table 2.1.3 shows the program budget, annual energy savings and participants from Workbook Table 5 as required by the C&EE Rules, Section 9: Annual Reporting Requirements and Order No. 16 in Docket No. 10-010-U.

Table 2.1.3
Home Energy Solutions Program Budget, Energy Savings and
Participants



Program Events & Training:

The HES Program provided a wide variety of training sessions to educate Trade Allies on program requirements, measure installation best practices, and new tools, among others. This training is provided in both online and in-person meetings, on an ad-hoc basis as needed.

All technicians performing test-in and test-out on customer homes are required to hold one of several Building Performance Institute or RESNET energy professional certifications.

2.1.4 Description of Participants

Participant: Anyone with a valid Entergy Arkansas account number who lives in a single-family home. The home must be a minimum of one year old and have a central ducted heat and air conditioning unit. Participants (7,369) are counted on a per account basis. Participant’s homes must have an energy use of \$0.10 per square foot in the summer or be at least 10 years old to qualify for the core weatherization measures.

Participants who receive Entergy Arkansas electric service under a residential homes rate code qualify for fuel appropriate measures in this program.

Table 2.1.4, from the Entergy Arkansas, LLC Evaluation Report – Program Cycle 2022, highlights key demographic information for participants in the HES Program. Pertaining to Act 1102, approximately 23.6% of the HES participants were aged 65 or older and approximately 14% of the respondents were eligible for LIHEAP benefits. Approximately 31.5% of the participants had an annual income of \$50,000 or less.

Table 2.1.4 For Program Cycle 2022 Demographic Information from Process Surveys

*Participants may not sum to participant totals highlighted in bold due to rounding error.

Respondent characteristic		Percentage	Participants ¹⁷
Respondent age	18–24	0.9%	66
	25–34	15.1%	1,114
	35–44	19.8%	1,460
	45–54	21.7%	1,600
	55–64	18.9%	1,394
	65 or older	23.6%	1,741
	Participants (n)		7,375
Income	Less than \$25,000	11.1%	819
	\$25,000 to less than \$50,000	20.4%	1,505
	\$50,000 to less than \$75,000	18.5%	1,364
	\$75,000 to less than \$100,000	22.2%	1,637
	\$100,000 or greater	27.8%	2,050
	Participants (n)		7,375
LIHEAP status	LIHEAP-eligible	14.0%	1,033
	Not LIHEAP-eligible	86.0%	6,343
	Participants (n)		7,375

*Percentages are estimated from PY2020 process surveys.

2.1.5 Program Challenges and Opportunities

Challenges:

With the supply chain constraints and recent surge in inflation, EE product and shipping costs are rising. The program is increasing incentives for air sealing, audits, heat pump tune-ups, and Direct

¹⁷ Participant count includes all participants reported in each program including those that did not claim energy or demand savings such as duplicate smart thermostat measures claimed in the Smart DLC program, health and safety measures, and audit measures.

Installation (DI) measures to offset the rise in costs. If this continues, it could create constraints on the program incentives budgets.

Opportunities:

It can be difficult for trade allies to identify customers who have or have not participated in the program while out in the field. It is important for trade allies to identify if a home has participated in the past to avoid submission of duplicate measures. In 2023, trade allies will continue to use the past participation tool to verify customer eligibility. If past participation did occur, the tool provides exactly what measures were installed so that other opportunities may be identified and duplicate efforts of other measures are avoided.

EM&V Recommendations:

- Increase internal QA/QC process on duct sealing to ensure all cooling and heating variables are captured.
- For measures that have heating and cooling type dependent factors with a home having multiple HVAC systems, using the more conservative HVAC option is generally the approach when calculating savings. Documentation should confirm which system types are present and that both are in operation.
- Follow memo: EAL Tune-ups Methodology Recommendations for Residential Programs.
- Ensure trade allies are submitting key savings project documentation consistently.

2.1.6 Planned or Proposed Changes to Program and Budget

- An increase in rebates for air sealing, audits, heat pump tune-ups and DI products will be implemented in 2023 to account for the supply chain product price increases. An increase in audit incentives will also be implemented in 2023 due to inflation and fuel costs rising.
- The HES Program will continue to look for new ideas and channels to market the benefits of the program to Entergy Arkansas customers to increase participation.

2.2 Multifamily Homes Program

2.2.1 Program Description

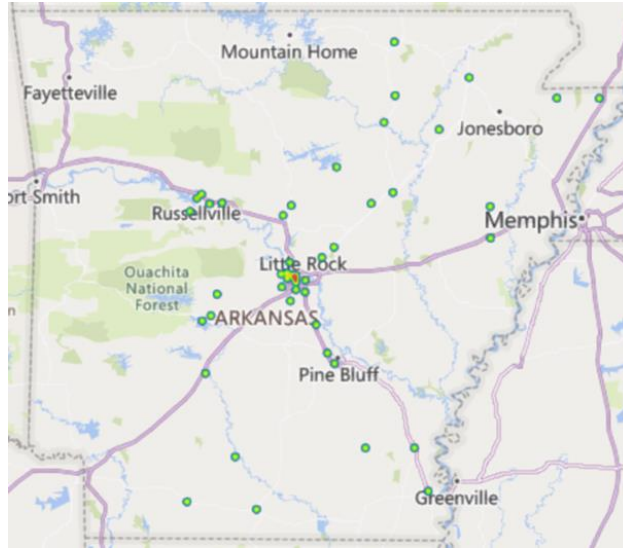
The Multifamily Homes (MF) Program continues to provide cost-effective energy efficiency measures to the multifamily residential and commercial markets throughout the Entergy Arkansas service territory. The program is designed to benefit both the property owners and residents of multifamily dwellings in the Company's service territory through increased energy efficiency in their homes and at their properties. The Multifamily Homes Program helps overcome the split incentive barrier by making it easy for property owners to enroll and participate at little to no additional cost. The program continues to offer comprehensive energy saving incentivized measures such as air conditioner tune-ups, duct sealing, air sealing and direct install measures. In addition, the Multifamily Homes Program now offers commercial, common area measures such as lighting, pool pumps and central HVAC replacement. These energy efficient measures continue to improve apartment communities by increasing comfort and reducing maintenance for property staff. Through providing a more comprehensive approach to the multifamily market, the program has evolved to provide an all-inclusive approach for multifamily property owners making the enrollment process more streamlined.

2.2.2 Program Highlights

The 2022 Multifamily Homes Program:

- Saved 11,128 in gross MWh in 2022 with a 95.7% realization rate and a net-to-gross ratio of 100%; this resulted in 10,646 MWh net energy savings.
- Achieved 1.9 gross MW and 1.8 net MW savings in 2022 with a realization rate of 94.4%.
- The program completed energy efficiency upgrades for 2,348 unique participants.
- The program continued to provide services throughout the Entergy Arkansas service territory. The geospatial map in Figure 2.2.2.1 shows the location of work performed in 2022.

Figure 2.2.2.1: Map of 2022 Properties



- 106 air sealing and duct sealing projects went through the program’s virtual QA/QC process and 59 projects of the projects went through the program’s field QA/QC process.
- 17 ceiling insulation projects submitted through the program went through the program’s virtual QA/QC process and 29 projects of the projects went through the program’s field QA/QC process.
- 3 AC tune-up projects submitted through the program went through the program’s virtual QA/QC process and 87 projects of the projects went through the program’s field QA/QC process.
- 94 direct install projects submitted through the program went through the program’s virtual QA/QC process and 30 projects of the projects went through the program’s field QA/QC process.
- A summary of the energy savings by measure category are found in Table 2.2.2.2 below.

Table 2.2.2.2 Summary of the Products Installed

Measure category	Reported kWh	Sampled kWh	Percentage kWh sampled	Reported kW	Sampled kW	Percentage kW sampled
Appliances	101,040	1,261	1.2%	12.0	0.15	1.2%
Domestic hot water	73,668	607	0.8%	7.7	0.06	0.8%
Envelope	1,246,775	32,753	2.6%	235.6	5.43	2.3%

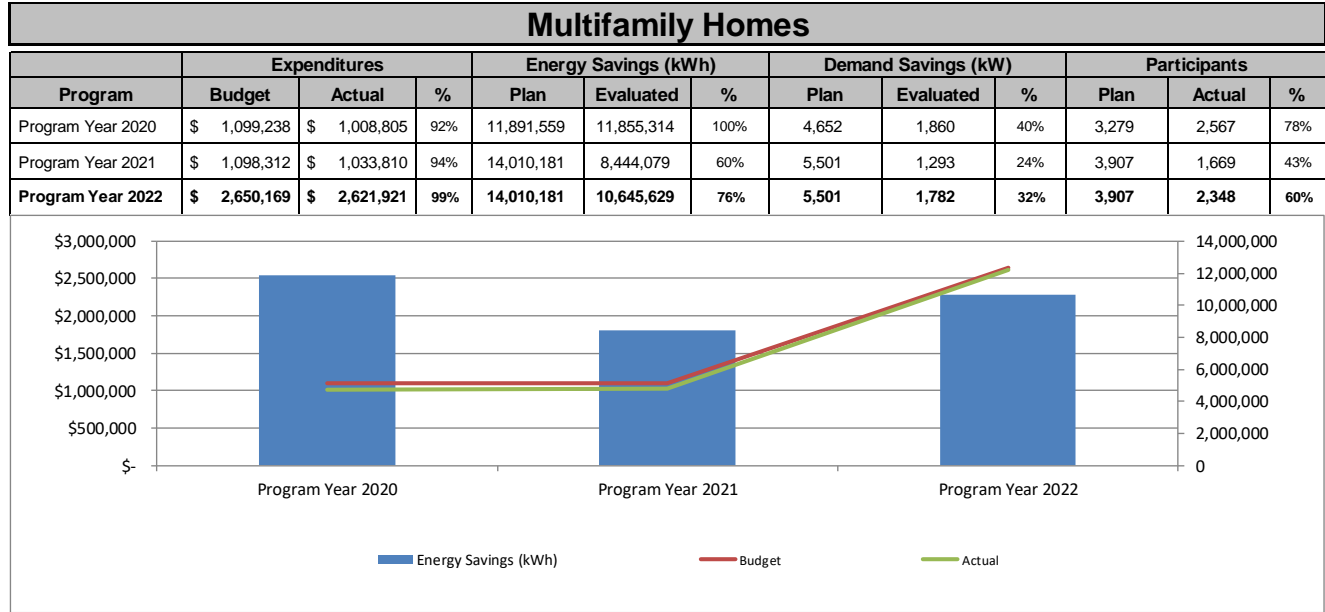
Measure category	Reported kWh	Sampled kWh	Percentage kWh sampled	Reported kW	Sampled kW	Percentage kW sampled
HVAC	6,689,868	97,125	1.5%	1,073.8	11.57	1.1%
Lighting	170,477	3,144	1.8%	32.1	0.60	1.9%
Total	8,281,827	134,890	1.6%	1,361.3	17.8	1.3%

- Promotion and outreach in 2022 were primarily through Entergy Arkansas’ marketing channels, social media posts, the Entergy Solutions web page, the Circuit Newsletter and trade ally marketing efforts. Networking through the Arkansas Apartment Association and property management companies generated leads that were shared with the Trade Ally Network.
- Continued effort on trade ally outreach with the challenge of COVID-19 and tracked the effect of the pandemic on the ability to implement the MF Program. Each trade ally has a Point of Contact within the team, regular communications through email and telephone, monthly electronic newsletter, quarterly COVID-19 survey, monthly “coffee with the team” Zoom videocalls and the creation of the Trade Ally Council. Through these enhancements, there has been a noticeable increase in trade ally communications and satisfaction with their participation in the MF Program.
- Both field and virtual trainings were provided for the Trade Allies who performed air conditioner tune-ups and weatherization measures. The program account manager worked with the trade ally field technicians, office personnel and owners to provide in-depth training and verification of quality procedures. Additional classroom and field trainings were provided as needed, based upon the 100% desktop review of all applications.
- Incentives in the amount of \$140,000 were transferred from the Smart Direct Load Control (SDLC) program to the Multifamily Homes (MF) program. Measure cost have increased due to supply chain product price increases and inflation causing the MF program to exceed incentive budget.

2.2.3 Program Budget, Savings and Participants

Table 2.2.3 is the program budget, annual energy savings and number of participants from Workbook Table 5 as required by the C&EE Rules, Section 9: Annual Reporting Requirements and Order No. 16 in Docket No. 10-010-U.

Table 2.2.3
Multifamily Homes Program Budget, Savings and Participants



2.2.4 Description of Participants

Multifamily properties that are duplexes, triplexes and large complexes located within the Entergy Arkansas electric service territory are eligible as participants in the Entergy Arkansas Multifamily Homes Program. Currently, properties under a residential or multifamily rate code all qualify for this program. There are no maximum limits on the size of a building or number of qualifying buildings in a single multifamily property. Funds are limited and services are available throughout the Entergy Arkansas service territory.

Table 2.2.4, from the Entergy Arkansas, LLC Evaluation Report – Program Cycle 2022, highlights key demographic information for participants in the Multifamily Homes Program. Pertaining to Act 1102, in the Program Cycle, approximately 8.7% of the Multifamily Homes participants were aged 65 or older and approximately 26.3% of the respondents were eligible for LIHEAP benefits. Approximately 84.2% of the Multifamily Homes Program participants had an income of less than \$50,000. This is based on the most recent process evaluation survey estimates, which were conducted in 2018.

Table 2.2.4

Program Cycle 2022 Demographic Information estimated from 2018 Process Surveys – Multifamily Homes

*Participants may not sum to participant totals highlighted in bold due to rounding error.

Respondent characteristic		Percentage*	Participants ¹⁸
Respondent age	18–24	4.3%	101
	25–34	21.7%	510
	35–44	30.4%	714
	45–54	17.4%	409
	55–64	17.4%	409
	65 or older	8.7%	204
	Participants (n)		
Income	Less than \$25,000	57.9%	1,360
	\$25,000 to less than \$50,000	26.3%	618
	\$50,000 to less than \$75,000	5.3%	124
	\$75,000 to less than \$100,000	5.3%	124
	\$100,000 of greater	5.3%	124
	Participants (n)		
LIHEAP status	LIHEAP-eligible	26.3%	618
	Not LIHEAP-eligible	73.7%	1,731
	Participants (n)		

*Percentages are estimated from PY2018 process surveys.

2.2.5 Program Challenges and Opportunities

Challenges:

With the supply chain constraints and recent surge in inflation, EE product and shipping costs are rising. The program is increasing incentives for, air sealing, audits, heat pump tune-ups, and Direct Installations (DI) measures to offset the rise in costs. If this continues, it could create constraints on the program incentives budgets.

Ownership turnover within the multifamily market is high, which can create a gap in the

¹⁸ Participant count includes all participants reported in each program including those that did not claim energy or demand savings such as duplicate smart thermostat measures claimed in the Smart DLC program, health and safety measures, and audit measures.

communication chain between program staff and trade allies. To mitigate this issue, the program will continue to utilize ALN apartment data software which provides updates in management turnover at the property and district levels. This will allow program representatives to identify new ownership and property staff members that will be used to build new relationships and equip trade allies with contact leads for multifamily properties.

Opportunities:

It can be difficult for trade allies to identify customers who have or have not participated in the program while out in the field. It is important for trade allies to identify if a home has participated in the past to avoid submission of duplicate measures. In 2023, the trade allies will continue to use the past participation tool to verify customer eligibility. If past participation does occur, the tool provides exactly what measures were installed so that other opportunities may be identified, and duplicate efforts of other measures are avoided.

EM&V Recommendations:

- Increase the internal QA/QC process on the duct sealing measure for all heating types to ensure all cooling and heating variables are captured.
- Collect documentation that verifies the installation location of the smart strip or use “average APS” consistently in the program.
- Follow BPI standards for minimum ventilation rate when performing blower door tests.
- Utilize the rated or measured capacity to calculate AC/HP tune-up savings.
- Ensure contractors are submitting key savings project documentation consistently.

2.2.6 Planned or Proposed Changes to Program and Budget

Proposed changes:

- An increase in rebates for air sealing, audits, heat pump tune-ups and DI products will be implemented in 2023 to account for the supply chain product price increases. An increase in audit incentives will also be implemented in 2023 due to inflation and fuel cost rising.

2.3 Manufactured Homes Program

2.3.1 Program Description

The Manufactured Homes Program was designed to improve energy efficiency and benefit the owners and residents of manufactured homes and parks in the Entergy Arkansas service territory.

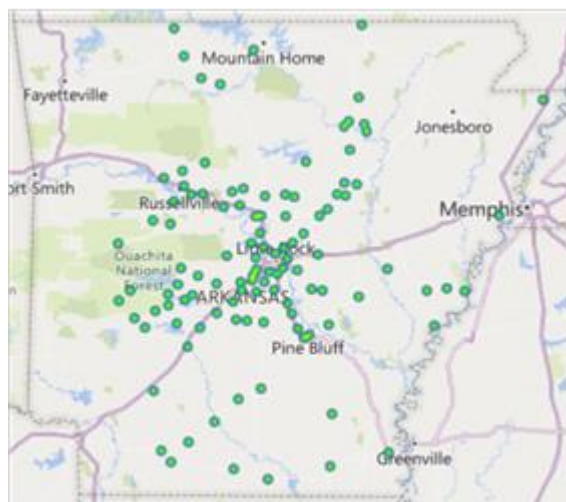
This program provides much needed services for a hard-to-serve customer segment, where customers paying the electric bill often do not have the ability to make energy efficiency upgrades. The program overcomes the upfront cost hurdle by making it easy for the occupant to participate at little to no cost. Another hurdle to overcome is the split incentive, where the landlord pays for the energy efficiency improvement, while the tenant benefits by immediate improvement in comfort. The program incentivizes energy saving measures such as air conditioner tune-ups, duct sealing and air sealing measures to customers. These measures continue to make up the bulk of energy savings for the program. Direct install measures such as LED bulbs, advanced power strips, and high efficiency showerheads, kitchen and bathroom aerators for customers with electric water heating, are still offered under the program. In addition, this program educates tenants and owners about the benefits of having energy saving measures installed on their property. After the direct install measures are installed, the tenants receive personalized tips on how to improve their homes' efficiency. At the end of the process, direct install participants complete a customer satisfaction survey. Residents are informed of other Entergy Arkansas energy efficiency programs, as well as other programs available to them if they use natural gas energy.

2.3.2 Program Highlights

- Saved 5,799 gross MWh in 2022 with a 107.4% realization rate and a net-to-gross ratio of 100%, resulting in 6,226 MWh net savings.
- Achieved 0.8 gross MW and 0.8 net MW savings in 2022 with a realization rate of 99.8%.

- In 2022, a total of 627 manufactured homes participated in the program, some receiving more than one measure.
- The program continued to provide services throughout the Entergy Arkansas service territory. The geospatial map in Figure 2.3.2 shows the location of work performed in 2022.

Figure 2.3.2: 2022 Participants



- 240 duct and air sealing jobs went through the program's virtual QA/QC process and 122 projects went through the program's field QA/QC process.
- 3 air conditioner tune-ups performed went through the program's virtual QA/QC process and 87 projects went through the program's field QA/QC process.
- 94 total direct install projects went through the program's virtual QA/QC process and 30 projects went through the program's field QA/QC process.
- The program account manager educated customers about other energy efficiency measures that they could implement and other Entergy Arkansas energy efficiency programs available to them.
- The effort on trade ally outreach continued. Each trade ally has a Point of Contact within the team, regular communications through email and telephone, monthly electronic newsletter, quarterly COVID-19 survey, monthly "coffee with the team" zoom video calls and the creation of the Trade Ally Council. Through these enhancements there has been a noticeable increase in trade ally communications

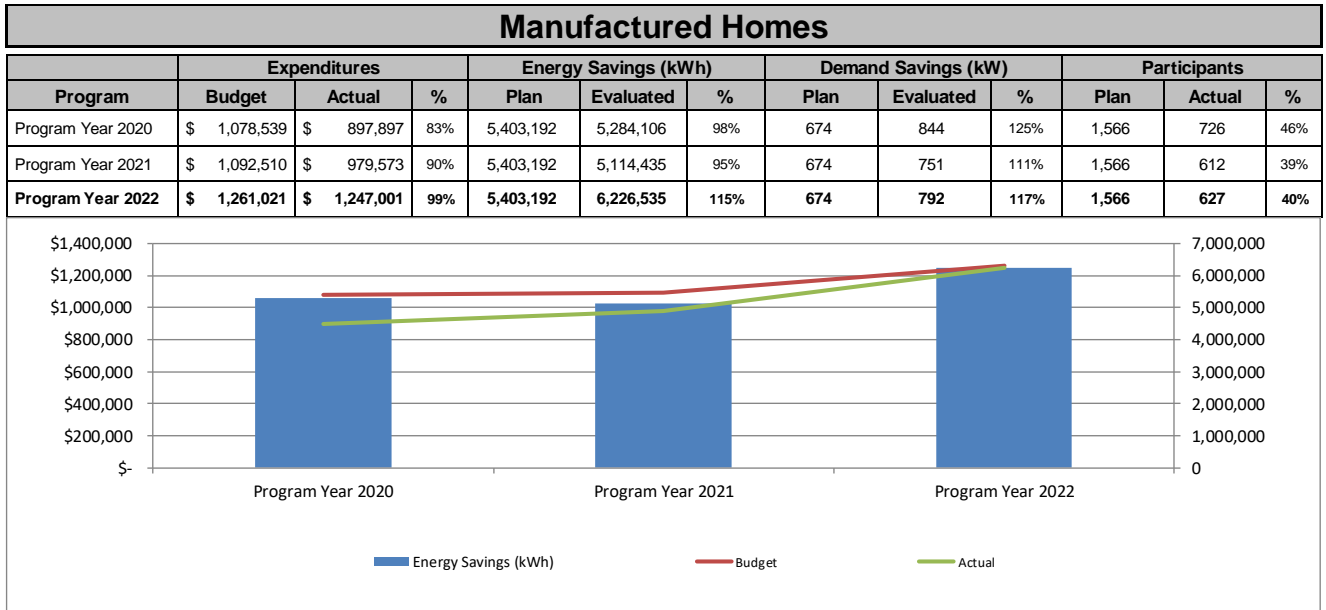
and satisfaction with their participation in the Manufactured Homes Program. Both field and virtual trainings were provided for the trade allies who performed air conditioner tune-ups and weatherization measures. The program account manager worked with the trade ally field technicians, office personnel and owners to provide in-depth training and verification of quality procedures. Additional classroom and field trainings were provided as needed, based upon the 100% desktop review of all applications.

- The program continued to be more accessible to the Hispanic populations by having marketing collateral available in both English and Spanish in order to target this market.
- Promotion and outreach activities were executed in a variety of marketing channels. Paid media with print, digital and social media tactics were very successful in driving awareness and engagement. Entergy Arkansas' marketing channels were also used to promote this program via social media posts, the Entergy Solutions web page, the Entergy Circuit Newsletter and Entergy bill inserts. Trade ally co-branded marketing materials and referrals were also used to reach out to customers to increase awareness and participation. These marketing steps helped implement the program across the entire Entergy Arkansas service territory, rather than focusing on narrow areas.
- Incentives in the amount of \$145,000 were transferred from the HES program to the Manufactured Homes program. Measure cost have increased due to supply chain product price increases and inflation causing the MA program to exceed incentive budget.

2.3.3 Program Budget, Savings and Participants

Table 2.3.3 is the program budget, annual energy savings and number of participants from Workbook Table 5 as required by the C&EE Rules, Section 9: Annual Reporting Requirements and Order No. 16 in Docket 10-010-U.

Table 2.3.3
Entergy Solutions for Manufactured Homes Program Budget, Savings and Participants



2.3.4 Description of Participants

Participants who receive Entergy Arkansas electric service under a residential homes rate code qualify for fuel appropriate measures in this program. These are typically located within a park or complex and there are no maximum limits to the size of a park or complex. Manufactured homes comprise roughly 14% of the Company’s housing stock, which is twice the national average, but there are still challenges reaching the market and generating leads.

Table 2.5.4, from the Entergy Arkansas, LLC Evaluation Report – Program Cycle 2022 highlights key demographic information for participants in the Manufactured Homes Program. Pertaining to Act 1102, approximately 23.9% of the Manufactured Homes Program participants

were aged 65 or older and approximately 21.5% of the respondents were eligible for LIHEAP benefits. Approximately 83.1% of the participants had an income of \$50,000 or less. This is based on the most recent process evaluation survey estimates, which were conducted in 2018.

Table 2.5.4
Program Cycle 2022 Demographic Information estimated from 2018 Process Surveys
Manufactured Homes Program

*Participants may not sum to participant totals highlighted in bold due to rounding error.

Respondent characteristic		Percentage*	Participants* ¹⁹
Respondent age	18–24	2.8%	18
	25–34	11.3%	71
	35–44	18.3%	115
	45–54	23.9%	150
	55–64	19.7%	124
	65 or older	23.9%	150
	Participants (n)		627
Income	Less than \$25,000	44.6%	280
	\$25,000 to less than \$50,000	38.5%	241
	\$50,000 to less than \$75,000	10.8%	68
	\$75,000 to less than \$100,000	4.6%	29
	\$100,000 of greater	1.5%	9
	Participants (n)		627
LIHEAP status	LIHEAP eligible	21.5%	135
	Not LIHEAP eligible	78.5%	492
	Participants (n)		627

*Percentages are estimated from PY2018 process surveys.

*Percentages are estimated from PY2018 process surveys.

¹⁹ Participant count includes all participants reported in each program including those that did not claim energy or demand savings such as duplicate smart thermostat measures claimed in the Smart DLC program, health and safety measures, and audit measures.

2.3.5 Program Challenges and Opportunities

Challenges:

With the supply chain constraints and recent surge in inflation, EE product and shipping costs are rising. The program is increasing incentives for air sealing, audits, heat pump tune-ups, and Direct Installation (DI) measures to offset the rise in costs. If this continues, it could create constraints on the program incentives budgets.

Residents of manufactured homes are part of a particularly hard-to-reach market for a number of reasons. In general, residents of manufactured homes are less likely to invest in energy efficiency upgrades to their home because the out-of-pocket cost is simply too high to perform these upgrades. The renters of manufactured homes don't have disposable income to invest in these upgrades, even though the long-term effects can be very beneficial. This program helps not only to provide beneficial upgrades at no cost to the residents, but it also educates the customer about the fundamentals of energy efficiency and energy usage.

The most effective means of reaching customers is direct outreach from the trade ally to mobile home park owners. Bilingual and co-branded marketing material is available for use in the Manufactured Homes Program. This material helps the trade allies sell the program to prospective mobile home parks and individual owners.

Opportunities:

It can be difficult for trade allies to identify customers who have or have not participated in the program while out in the field. It is important for trade allies to identify if a home has participated in the past to avoid submission of duplicate measures. In 2023, the trade allies will continue to use the past participation tool to verify customer eligibility if past participation does occur, the tool provides exactly what measures were installed so that other opportunities may be identified, and duplicate efforts of other measures are avoided.

EM&V Recommendations:

- Increase the internal quality assurance/quality control (QA/QC) process on the *duct sealing* measure for all heating types to ensure all cooling and heating variables are captured correctly.
- Collect documentation that verifies the installation location of the smart strip or use “average APS” consistently in the program.
- Ensure contractors are consistently submitting key savings project documentation that is legible and that key parameters are identifiable.

2.3.6 Planned or Proposed Changes to Program and Budget

- An increase in rebates for air sealing, audits, heat pump tune-ups and DI products will be implemented in 2023 to account for the supply chain product price increases. An increase in audit incentives will also be implemented in 2023 due to inflation and fuel costs rising.

2.4 Low-Income Solutions

2.4.1 Program Description

The Low-Income Solutions (LIS) Program was launched in Entergy Arkansas' residential portfolio in 2020, and was designed to serve income-qualified customers, as defined under Act 1102 of 2017 and in accordance with Order No. 30 in Docket No. 13-002-U from the Commission. Like Entergy Arkansas' other home energy efficiency programs in the Entergy Arkansas portfolio, the LIS Program offers many energy efficiency opportunities for owners and renters of single-family homes, manufactured homes, and multi-family dwellings in Entergy Arkansas' service territory.

The LIS Program helps income-qualified residents achieve electricity savings by working with participating trade allies and Community Based Organizations (CBOs). Trade allies help residential customers analyze their energy use, identify energy efficiency improvement projects and install low- or no-cost energy-saving measures in the home. CBOs help the LIS Program identify eligible customers and distribute program information to the local communities they serve.

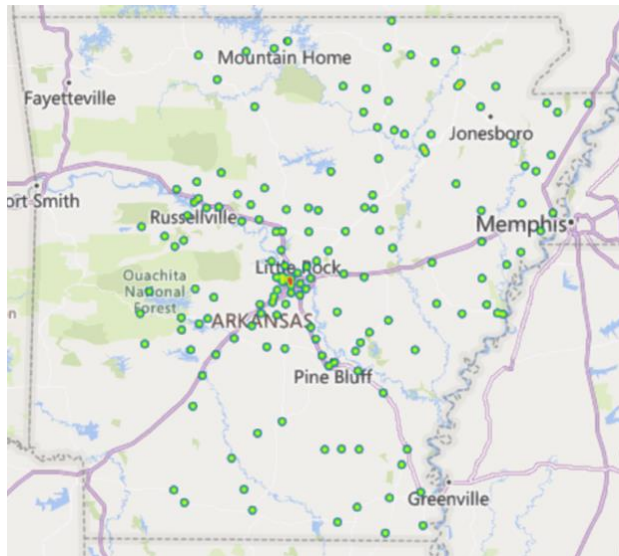
Design elements of the LIS Program include incentives to offset up to 100% of the cost of an energy evaluation provided by a certified trade ally. In addition, LIS customers may receive minor health and safety products or repairs for eligible homes, such as bathroom ventilation, smoke detectors, etc. To determine eligibility and receive an incentive, the trade ally completes both a home energy assessment and asks the resident to self-certify their income eligibility for participation. If the home is a candidate for health and safety measures, the trade ally documents the opportunity during the initial visit and submits the proposed health and safety work to the program manager for approval. The program offers comprehensive energy-saving measures such as air conditioner tune-ups, duct sealing, air sealing, attic insulation, LEDs, advanced power strips and high efficiency showerheads and aerators for all electric properties.

2.4.2 Program Highlights

In 2022, the LIS Program:

- Saved 7,936 gross MWh in 2022 with a 99.0% realization rate and a net-to-gross ratio of 100%, resulting in 7,856 MWh net savings.
- Achieved 1.9 gross MW and 1.9 net MW savings in 2022 with a realization rate of 99.5%.
- Served 1,763 individual Entergy account holders of which:
 - 77% were single-family homes.
 - 18% were multifamily apartments.
 - 5% were manufactured homes.
- Installed at least one health and safety measure in 83% of participating properties.
- 137 duct and air sealing jobs went through the program's virtual QA/QC process and 94 projects went through the program's field QA/QC process.
- 37 ceiling insulation performed went through the program's virtual QA/QC process and 9 projects went through the program's field QA/QC process.
- 17 air conditioner tune-ups went through the program's virtual QA/QC process and 19 projects went through the program's field QA/QC process.
- 99 direct install projects went through the program's virtual QA/QC process and 49 projects went through the program's field QA/QC process.
- 55 health and safety projects went through the program's virtual QA/QC process and 34 projects went through the program's field QA/QC process.
- The program continued to provide services throughout the Entergy Arkansas service territory. The geospatial map in Figure 2.4.2 shows the location of work performed in 2022.

Figure 2.4.2: 2022 Participation



One of the LIS Program's missions is to increase opportunities for low income and elderly customers to access energy efficiency services. In 2022, the LIS Program continued to grow the partnerships with both CBOs and outside agencies established during the first year of the program. The pilot project with the Arkansas Energy Office and the Better Community Development (BCD) Group, a non-profit CBO who receives Weatherization Assistance Program (WAP) funding to weatherize homes and apartments in Arkansas, continued to provide braided incentives in 2022 and increased the number of homes utilizing both LIS incentives and WAP funding. Working together, the LIS program and BCD successfully funded projects for 11 single family and manufactured homes, and 28 apartments. In 2021, Entergy Arkansas produced a video of Mary Lowe, a satisfied customer, which used both the WAP and LIS Program, which gave a firsthand account of its savings benefits and effect on the community. This testimonial video was shared by the Arkansas Energy Office (AEO), BCD, and Entergy Arkansas across multiple platforms and at virtual conferences in 2021. In June 2022, the video was incorporated into a presentation called the 'Arkansas Weatherization Braiding Project.' This was presented by a speaker panel that included staff from the AEO, BCD, and Entergy at the National Energy & Utility Affordability Coalition (NEUAC) conference held in New Orleans.

In the fall of 2022, the LIS Program supported Entergy Arkansas' Inflation Sweep effort. By working with five CBOs from around the state, ten high-need houses were identified and provided with both weatherization services through the LIS Program and with additional health and safety work funded through Entergy Arkansas' special projects grants. Participants received a range of health and safety measures via these grants, including new HVAC systems and HVAC system repairs, roof repairs and replacement, floor insulation, window repairs, and several other significant improvements that would not have happened without the support of the grants. The participating CBOs included BCD, the Mississippi County Arkansas Economic Opportunity Commission, The Delta Center, Habitat for Humanity – Pope County, and Habitat for Humanity – Russellville.

Traditional promotion and outreach activities were also executed through a variety of marketing channels, including paid media with print, digital and social media tactics. Entergy Arkansas' marketing channels were also used to promote this program via social media posts, the Entergy Solutions web page, the Entergy Circuit newsletter and Entergy bill inserts. These marketing efforts helped promote the LIS program across the entire Entergy Arkansas service territory. The Entergy Arkansas Energy Efficiency employees also attended multiple customer supporting events including Depot Days (Newport, AR) Bryant Air Show, and Dassault Falcon Jet.

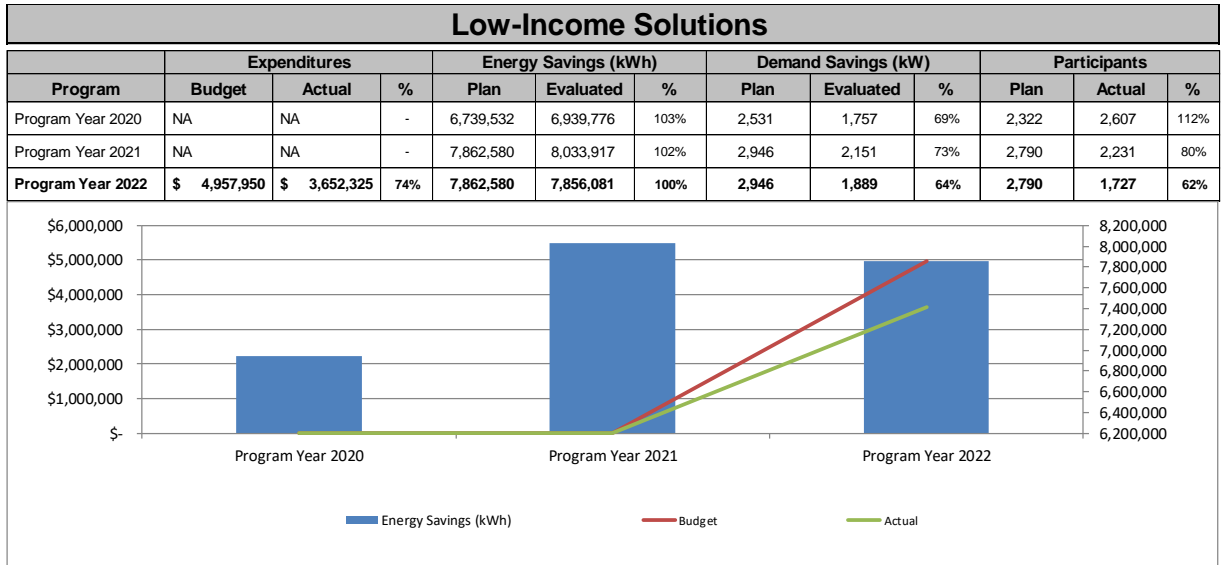
The increased number of completed health and safety projects provided by the LIS Program contributed to improving living conditions for the participating Arkansans by reducing minor hazards inside the home. The percent of Entergy customers receiving health and safety measures increased 40% from 2021 to 2022 due to continued focus on health and safety specific training and workforce development efforts with the trade allies.

2.4.3 Program Budget, Savings and Participants

Table 2.4.3 is the program budget, annual energy savings and participants from Workbook Table 5 as required by the C&EE Rules, Section 9: Annual Reporting Requirements and Order

No. 16 in Docket 10-010-U.

Table 2.4.3 Low-Income Solutions



- Program Events & Training
 - The LIS Program continued to provide education and feedback to trade allies on program requirements, health and safety measures, and identifying income-qualified customers. The LIS Program also participated in the annual Trade Ally Kickoff in tandem with the other residential Entergy Solutions programs. This summit for business principals and crew leaders included training on program updates, policy/procedural updates, and program performance rewards.
 - All technicians performing test-in and test-out on customer homes are required to hold a Building Performance Institute professional certification. Trade allies with allocations in the LIS Program are strongly encouraged to pursue additional training on home health and safety, such as the Building Performance Institute’s Health Housing Principles Certificate of Knowledge. In 2022 the program confirmed that 25% of the companies enrolled as participating LIS trade allies had at least one technician earn the Healthy Housing Principles Certificate of Knowledge.

2.4.4 Description of Participants

Participant: Anyone with a valid Entergy Arkansas account number who is 65 years of age or older or who meets the income eligibility qualifications for the Low Income Home Energy Assistance Program (LIHEAP) administered by the Department of Human Services. Participants include anyone meeting this description who lives in a single-family home, manufactured home or multifamily dwelling. Large multifamily complexes can be qualified for the LIS Program at the property level if the property manager certifies that 60% or more of the residents meet the LIHEAP income requirements or the complex receives federal aid from the U.S. Department of Housing and Urban Development (“HUD”). The property must have a central ducted heat and air conditioning unit to receive one of the core weatherization measures, an air conditioner tune-up or a thermostat. Properties without a central ducted heat and air conditioning system are eligible for direct install measures and health and safety measures. Participants are counted on a per account basis.

Table 2.4.4, from the Entergy Arkansas, LLC Evaluation Report – For Program Cycle 2022, highlights key demographic information for participants in the Low-Income Solutions Program. Pertaining to Act 1102, in the Program Cycle, approximately 45.2% of the low-income participants were aged 65 or older and approximately 71.1% of the respondents were eligible for LIHEAP benefits.

Table 2.4.4

For Program Cycle 2022 Demographic Information from Process Surveys Low-Income Solutions

*Participants may not sum to participant totals highlighted in bold due to rounding error.

Respondent characteristic		Percentage	Participants ²⁰
Respondent age	18–24	2.40%	42
	25–34	4.80%	85
	35–44	7.10%	125
	45–54	7.10%	125
	55–64	33.30%	587
	65 or older	45.20%	797
	Participants (n)		1,763
LIHEAP status	LIHEAP-eligible	71.10%	1,253
	Not LIHEAP-eligible	28.90%	510
	Participants (n)		1,763

*Percentages are estimated from PY2020 process surveys.

2.4.5 Program Challenges and Opportunities

Challenges:

With the supply chain constraints and recent surge in inflation, EE product and shipping costs are rising. The program is increasing incentives for air sealing, audits, heat pump tune-ups, and Direct Installation (DI) measures to offset the rise in costs. If this continues, it could create constraints on the program incentives budgets.

Increasing the number of CBO partnerships in 2021 continued to be limited by CBOs' low bandwidth to engage in any activities beyond their core service offerings. Staffing challenges, constrained administrative support, and low operating budgets combined to limit the number of CBOs that could partner with the LIS program in promoting energy efficiency services.

²⁰ Participant count includes all participants reported in each program including those that did not claim energy or demand savings such as duplicate smart thermostat measures claimed in the Smart DLC program, health and safety measures, and audit measures.

Opportunities:

In 2022, the program added a LIHEAP-eligibility chart and customer signature line to the Enrollment Form required for all program participants. This helped to standardize the process for both Trade Allies and customers to self-certify the participants' LIHEAP eligibility and enroll in the LIS Program.

The program worked with three CBOs in 2022 for the first time through the LI Sweep, and continued existing partnerships with two CBOs.

The program significantly increased the amount of health and safety measures offered to Entergy customers again in 2022 by building off the streamlining completed in 2021, continuing to train trade allies, and providing clear and consistent feedback to trade allies on the health and safety goals of the program.

EM&V Recommendation:

- Increase QAQC on the APS measure to ensure contractors are educated on installing the APS and collecting documentation that clearly verifies the installation location of the smart strip.
- Ensure contractors are consistently submitting key savings project documentation.
- Increase training and QAQC of air and duct sealing measures to ensure all leaks are thoroughly sealed.
- Consider ways to increase participation in the ceiling insulation measure for low-income customers.

2.4.6 Planned or Proposed Changes to Program and Budget

An increase in rebates for air sealing, audits, heat pump tune-ups and DI products will be implemented in 2023 to account for the supply chain product price increases. An increase in audit incentives will also be implemented in 2023 due to inflation and fuel costs rising.

2.5 Point of Purchase Solutions

2.5.1 Program Description

The Point of Purchase Solutions Program is an energy efficiency program designed to educate and influence Entergy Arkansas residential customers to purchase and use ENERGY STAR® qualified lighting, appliances, advanced thermostats and advanced power strips (APSs) in their homes, and to provide commercial customers with a convenient option for participation when completing smaller renovations or ongoing maintenance and repair. In 2022, as in past years, the Point of Purchase Solutions Program sought to minimize market barriers to participation for Entergy Arkansas' residential and customers. These barriers include lack of information about and access to ENERGY STAR® qualified products, as well as higher first-cost for these products and the time it takes to research products prior to purchase. The two main program activities include (1) retailer and distributor recruitment and merchandising, and (2) administration of the incentive payment process.

Working with manufacturers, distributors and retailers, the program provided residential customers with discounts on qualified products at participating retail locations via rebates delivered after purchases and instant discounts at retail. The online marketplace, where residential customers can purchase discounted energy efficiency products, was originally launched in late 2020, and continued to be offered in 2022.

The program also continued working with non-profit organizations such as schools, food banks and other organizations across the state to distribute free energy efficiency products to their constituents.

In 2022, residential customers interested in purchasing qualifying advanced thermostats had three methods for participating: purchase online with a discount (only available January through July), log into a web portal and receive an instant discount code after filling out a form with information about their home, or purchase at full price and receive a rebate post-purchase. This approach gives customers maximum flexibility to participate in the way they feel most

comfortable, with the widest possible range of product choices. A low-cost online purchase option where customers could order directly from the manufacturer was also available in 2022. In the third year in which the program offered incentives on smart thermostats, the measure continued to have robust participation, with 905 units incentivized, a 38% decrease over 2021.

In 2022, the program continued relationships with L'Image, Globe, Greenlite and Maxlite, to ensure deeply discounted products were available year-round at participating retailers such as Dollar Tree, Dollar General, Habitat for Humanity, Goodwill, Salvation Army and independent retailers across the state. These market partners rely on utility sponsorships for these promotions, which bring in high quality ENERGY STAR® certified products outside of the retailer's normal inventory procurement process. The products, because they are not on the retailer's planogram, typically get prominent placement and sell quickly because of the clear value. These combined efforts resulted in over 378,900 LED lighting unit sales and 20,900 APS unit sales in 2022 to customers the utility considers to be "hard to reach."

Electrical distributors participating in the program have largely recovered from the impact of COVID-related business shut-downs and project delays, as well as difficulty getting some products due to supply chain disruptions. As a result, discounted sales to commercial customers in 2022 increased 46% from previous years. In an effort to evolve the program offerings beyond solid state lighting, work on new measures continued in 2022, and three new measures were launched.

In 2022, a portion of program resources were allocated to non-lighting measures such as advanced thermostats, APSs, pool pumps, air purifiers, dehumidifiers, and freezers, a measure introduced in 2020. A diverse measure mix that includes non-lighting measures will keep the program relevant and establish a solid foundation for its ongoing success.

Table 2.5.1

Year Over Year (2019-22) Participation for All Measures

Measure					YOY % change		
	2019	2020	2021	2022	2019-20	2020-21	2021-22
LEDs	1,358,848	1,868,848	2,170,880	2,489,287	38%	+16%	+15%
Fixtures	43,418	54,822	41,463	23,601	+14%	-24%	-43%
Advanced Power Strips	68,465	73,907	105,696	63,641	+8%	+43%	-40%
Clothes Washers	39	0	0	0	0%	0%	0%
Pool Pumps	70	127	112	55	+81%	-12%	-51%
Air Purifier	20	49	114	38	+145%	+133%	-67%
Dehumidifier	25	49	45	33	+96%	-8%	-27%
Smart Thermostats	842	1,217	1,473	905	+45%	+21%	-39%
Freezers	0	1	5	11	-	+400%	+120%
Room AC	0	0	46	158	-	-	+243%
HPWH	0	0	44	57	-	-	+30%
Weatherization	0	0	0	27	-	-	100%



Lastly, the program continued training sales associates using the existing toolkit for retailers to enable them to promote the energy- and cost-saving benefits of such products to their customers. The continued strength of this program reflects high customer and trade ally satisfaction as well as Entergy Arkansas' success in expanding the program through a diverse marketing and outreach strategy.

2.5.2 Program Highlights

The program achieved an evaluated annual energy savings of 87,690 MWh, 131% of the net savings goal. To put this in perspective, the energy saved by this program in 2022 is equivalent to the greenhouse gas emissions from 6.9 million gallons of gasoline consumed, or 12,092 homes' electricity use for one year. The program also achieved approximately 14 MW of evaluated demand savings. The widespread distribution of lighting products to those most impacted by macroeconomic and environmental factors continued to drive the volume of product units reported in 2022.

In 2022, Entergy Arkansas engaged in an initiative aimed at providing small communities across the state with energy efficient products for their homes. Certified LED bulbs and APSs were donated and shipped to interested food pantries, ministries, and colleges for distribution. Along with the products, organizations included an educational flyer with additional Entergy Arkansas program offerings. Through the end of October, almost 3,600 customers across the state had received 14,400 certified LED bulbs and 3,600 APSs. Community partners see the promotion as an opportunity to educate those they serve about energy efficiency along with the real-life experience of changing out inefficient lighting technology at home.

In 2022, distributors participating in the commercial program continued using the web portal introduced in 2020 for validating and submitting sales reports. The site, called Program Partner Central (PPC), enables the verification of customer and product eligibility, and provides real-time feedback on submitted sales data so the trade ally has the assurance that their report is error-free, reducing time spent communicating and correcting issues. The site also provides dashboards so trade allies can track their participation and processing status and payment information, one of the most frequently requested items from trade allies.

Figure 2.5.2 Program Partner Central online tool

File ID	File Name	Worksheet Name	Date Uploaded	Invoice File	Upload Status	Processing Status
119401	MULBERRY STORAG...	Template	2/1/2021 8:06:28 AM	view delete	●	Processed
119482	Seary Schools ...	Template	1/28/2021 9:30:27 AM	view delete	●	Processed
119447	Elbert Cabot ...	January (2)	1/28/2021 12:19:04 PM	view delete	●	Processed
119445	Elbert LA.pdf ...	January	1/28/2021 11:36:48 AM	view delete	●	Processed
119440	LEAK HEARTY RESI ...	Template	1/28/2021 10:27:24 AM	view delete	●	Processed
119235	White County Co ...	Template	1/25/2021 8:46:02 AM	view delete	●	Processed
119158	Elbert LA.pdf ...	January	1/22/2021 8:00:52 AM		●	upload failed
119152	Elbert LA.pdf ...	January	1/22/2021 7:45:11 AM		●	upload failed
119128	Elbert Cabot ...	January	1/21/2021 1:53:49 PM	upload	●	invoice needed
119037	Garrison Sho ...	Template	1/21/2021 5:06:07 AM	view delete	●	invoice sent

Our Review Process

- 1 Received
Your upload was successful
- 2 Processing
Submission under review
- 3 Processed
Submission was approved
- 4 Funds Sent
Check is in the mail
- 5 Complete
Processed and pocket closed

The program was recognized by the EPA for the first time in 2022 in the Excellence in ENERGY STAR Marketing category, following four years of award-winning performance in Program Delivery. POPS program marketing was comprehensive in 2022 and used various tactics to drive awareness and demand – reaching both new and past program participants. Rather than focusing solely on the incentives offered for measures, messages were designed to capture attention and educate customers on product energy and non-energy benefits, as well as financial incentives.

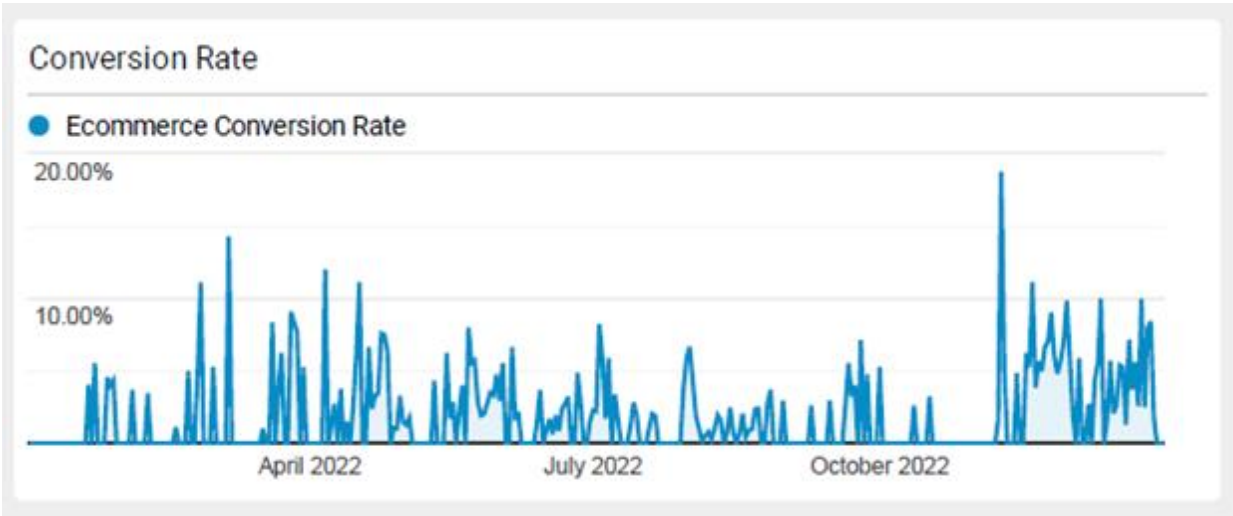
Email marketing proved to be a very effective marketing tactic in 2022. Most of the emails deployed to residential customers primarily drove to the online marketplace but included secondary cross promotion of the retail coupon and rebate offerings. Likewise, emails deployed through the Entergy Solutions commercial program included cross promotion of the commercial POPS program offerings. Subject lines continued to be tested and best practices leveraged such as the inclusion of emojis, questions and deadlines to increase customer engagement.

The online marketplace continued to provide residential customers in every part of the state the ability to make contactless purchases of energy efficiency products from the safety of their home. All measures in the residential program were offered via this channel, except for room air conditioners, heat pump water heaters and pool pumps.

The site is linked to many pages on Entergy Arkansas' website for a seamless and convenient customer experience. The residential program's online marketplace provides the convenience of a discounted purchase available anywhere in the state, including for customers who are in areas where no brick-and-mortar retailers participate in utility incentive programs. This means the utility can reach more of their customer base. Additionally, the utility can validate discounted purchases while gleaning valuable demographic information about who is shopping the site. Compared to the previous year, focused marketing drove 9.3% more energy efficient product purchases through the online marketplace. In 2022, insights from a data analysis were leveraged to drive customer engagement and demand more efficiently to the online marketplace. Marketing segmentation approaches included reach back campaigns to past participants as well as targeted campaigns to demographic groups that showed underperformance compared to national averages

Figure 2.5.3 POPS Online Marketplace



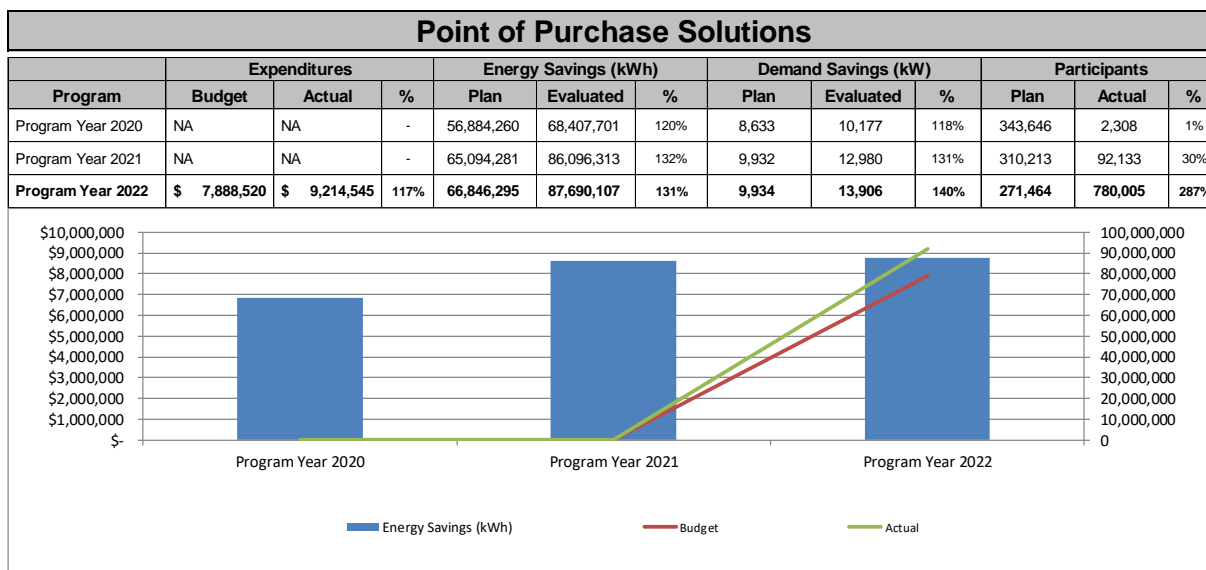


In 2022, an online rebate application portal was once again available for electronic submission of rebate applications. Any customer interested in submitting their application digitally could do so for pool pump, air purifier, dehumidifier, smart thermostat, and new for 2022, freezer rebates.

2.5.3 Program Budget, Savings and Participants

Table 2.5.3 is the program budget, annual energy savings and number of participants from Workbook Table 5 as required by the C&EE Rules, Section 9: Annual Reporting Requirements and Order No. 16 in Docket No. 10-010-U.

Table 2.5.3
Point of Purchase Solutions Budget, Energy Savings and Participants



Program Events & Training:

The 2022 annual Trade Ally Summit and Awards was held in person in Little Rock. Distributors attending the summit heard from team leaders for all of the commercial programs in Entergy’s portfolio, as well as representatives from the engineering and marketing teams. Trainings on the PPC portal were held virtually throughout the year. A total of 8 trainings on commercial offerings and tools took place in 2022.

The Point of Purchase Solutions field team engaged with retail sales associates throughout the year, and the team led training sessions for 387 sales associates in participating retail locations, which focused on program participation, product technical details and processes to support seamless implementation. Retailers were encouraged to display program products in prominent locations throughout the store.

2.5.4 Description of Participants

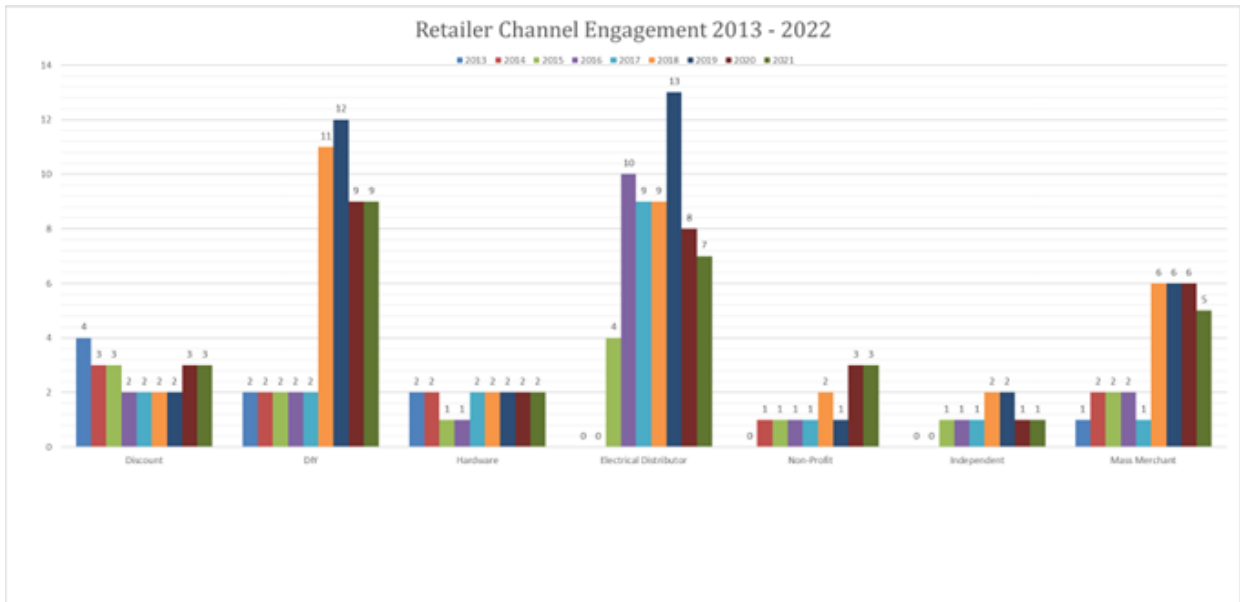
Participants included a diversified group of manufacturers, retail stores, electrical distributors and Entergy Arkansas customers across the state that purchased the discounted energy efficiency measures. In 2022, the program continued working with electrical distributors and independent retailers, such as small grocery markets, hardware stores and rural general stores, as well as Energy Federation Incorporated, the partner implementing the online marketplace. Three electrical distributors which did not participate in the 2021 program participated in the 2022 program. Consolidated Electrical Distributors Little Rock, Entegriety Partners, and Levior Energy LLC, were participants in the commercial promotions in 2022, but not in 2021.

In 2022, the program continued a large focus on recruiting participation from market partners that could provide low- or no-cost measures to customers who were impacted by COVID-19. Examples are Maxlite, who provided at-home learning kits to schools; Megalight, with the provision of kits containing energy efficient lighting and advanced power strips to non-profit organizations; and Greenlite, who provided products to food banks for distribution to their constituent pantries. While 2022 continued to be a challenging year for recruiting traditional types of retailers, the program team was able to find creative ways to work with existing partners to offer products in new impactful ways.

For purposes of counting participants, the quantity of units subsidized for each energy efficiency measure is used, depending on the measure type. To illustrate, the estimate of participation for the program in 2022 is 831,682. This breaks down to 2,489,287 LEDs, 23,601 fixtures, 63,641 APSs, 38 air purifiers, 33 dehumidifiers, 905 smart thermostats, 55 pool pumps, 11 freezers, 158 room air conditioners, 57 heat pump water heaters, and 27 weatherization products subsidized through the program. Despite the pandemic, the program saw an 8% increase in the number of incentivized units over 2021. This is due to large-scale distribution of products as described below, as well as increased participation in non-lighting product offerings as these become more well-known due to ongoing marketing efforts. Examples are freezers, which saw a 120% increase over 2021 levels; room air conditioners, at a 243% increase, and heat pump water heaters, which saw a 30% increase over 2021 participation levels. For the purpose of evaluating the program's reach, Entergy Arkansas

looks at both the areas served, and the demographic targets reached by the various retailers participating in the program. A chart showing the changes in participation of retailers and distributors over the past ten years is shown below

Table 2.5.4.1
Retailer Channel Engagement



2.5.5 Program Challenges and Opportunities:

In the third year of the Point of Purchase Solutions Program, recruitment was focused on solidifying existing relationships with retailers, manufacturers, community partner organizations and online fulfillment partners to more closely align with the way customers were making purchases in 2022. To address the cost and accessibility barriers for residential customers (particularly low-income and rural customers), the program continued a partnership with Feeding America, first established in 2020. The partnership with Feeding America is designed to bring LED lighting and APSs



to those who utilize the food donation services offered by their partner agencies. Individual pantries at small organizations such as churches or local development agencies receive food and other goods from regional food banks, who warehouse and distribute to the pantries weekly. In 2022, the program continued to expand the geographic area for donations by reaching out and shipping products directly to food pantries located in rural parts of the state. This portion of the program grew significantly in 2022, by 298% over 2021 levels, to 1,028,064 bulbs donated directly to pantries across the state. This is significant because, according to Feeding America, food insecurity rates are higher in rural areas (those primarily served by the direct to pantry program) than in suburban areas. In fact, 9 out of 10 counties with the highest food insecurity rates are rural. In Arkansas, according to Feeding America, 444,130 people are facing hunger, and 138,410 of them are children.

The program was also able to continue partnerships with manufacturers Maxlite and Megalight to offer free lighting and load-control products to those most in need. In the case of Maxlite, students and faculty at schools and universities across the state received direct shipments that they distributed to students either in person during the school day or with meals delivered

curbside. Megalight recruited non-profit organizations across the state to distribute free kits to their patrons who receive the organization's primary services. Recipient non-profits ranged from large to small. These interactions provided the opportunity to distribute information for Entergy Arkansas' programs, driving increased awareness of the program. In addition to traditional DIY and mass merchant retailers, independent retailers also displayed rebate application forms and educated customers about the availability of pool pump, thermostat, air purifier, dehumidifier and freezer rebates. While more than 87 percent of the program's annual savings still comes from lighting products, the program continued to lay the groundwork for expansion of non-lighting measures in future years.

While customer participation increased in 2022, trade ally participation in the commercial portion of the program took a slight dip in 2022. Comparing 2021 to 2022, three new distributors were recruited and participated in the program, while seven distributors who submitted reports in 2020 did not participate in 2022, for a net loss of five trade allies. For five of the five distributors who did not participate in 2022, the loss of a key staff member drove the change in participation, and the remaining two distributors went out of business. The contribution to overall commercial energy savings by the five distributors who did not return in 2022 is 0.5%. As is the case in most commercial trade-ally-driven programs, a small percentage of those enrolled in the program submit the majority of the reported activity.

Table 2.5.5.2
 Energy Efficiency Measures Changes

Existing Measures	Removed from 2022 Program	Added to the 2022 Program
<p>Commercial and Residential: LED bulbs and fixtures Commercial only: Electric Hand Dryers Variable Frequency Drives VSD Air Compressors</p> <p>Residential only: Advanced Power Strips Advanced Thermostats Room Air Purifiers Dehumidifiers Pool Pumps Freezers Heat Pump Water Heaters ES Most Efficient Room Air Conditioners</p>	<p>no measures removed</p>	<p>Commercial: Horticultural Lighting</p> <p>Residential: Weatherization</p>

EM&V efforts resulted in largely positive results. In addition to almost across-the-board 100+% realization rates, the program received an overall NTG ratio of 81% due to 100% NTG values assigned to residential low-income measures. There was no change to the NTG ratio for APSs, air purifiers, and dehumidifiers. The NTG ratio for pool pumps declined almost 10%, from 97% to 88%. No spillover was identified for the program in PY 2022. Non-energy benefits were again applied in 2022.

2.5.6 Planned or Proposed Changes to Program and Budget

In 2022, Entergy Arkansas will continue to explore new cost-effective measures, expansion of non-lighting measures already in the program and continue those direct outreach and product sales methods which proved successful in 2022. Focus will be placed on expanding the measures offered online and continuing to reach underserved customers with low or no cost product offerings.

In 2022, the program will continue utilizing a database for residential offerings, which has led to more automation and enhanced reporting capabilities and will build upon successful data management processes already in place, ensuring reported savings and evaluated savings are closely matched. This will also facilitate successful program planning for Entergy Arkansas.

The independent evaluator's 2020-21 recommendations for the program were all completed or are in progress. Additionally, all 2022 recommendations are in progress.

2.6 Large Commercial and Industrial Program 2022

2.6.1 Program Description

The 2022 Large Commercial and Industrial Program (C&I) is designed to provide Entergy Arkansas' C&I customers with technical assistance and financial incentives for implementation of efficiency measures. This program encourages C&I customers to maximize the efficiency of their facilities by upgrading their energy consuming equipment and improving their energy management practices.

Project energy savings may be quantified either through deemed savings calculations as outlined in the Arkansas TRM or through standard measurement and verification (M&V) methodologies. In addition to financial incentives, the program offers technical assistance to participants and trade allies in the form of facility assessments, information on viable technologies, support in evaluating financial metrics and assistance in completing program documentation. Deemed savings estimates, as well as measurement and verification of savings for "custom" measures, are also provided.

Incentive rates remained the same for the 2022 program year. The program continued the same structure to allow for retroactive and excess incentives to be applied in 2022. Retroactive incentives could be leveraged against other projects back to January of the previous year. Excess incentives could be leveraged against other projects and could carry forward to the end of the following year. The incentive rate structure is depicted in the below figure.

Figure 2.6.1.1 2022 Large C&I Tiered Incentive Structure

Large C&I	1 measure	2 measures	3 measures	4+ measures	Cap
PC Power Management:	\$0.10	\$0.10	\$0.10	\$0.10	100%
Gaskets and Strip Curtains:	<i>Paid per LF (or SF) of damaged gasket/strip (contact program staff)</i>				100%

All other measures:	\$0.14	\$0.15	\$0.16	\$0.18	Up to 100%
*** Measures must be 30k kWh each for tier credit					
*** Measure credits for tiers are only retroactive to January of the previous program year					
*** Program Direct Install measures will count as only one tier, even if different end uses exist					
*** Excess incentives can be leveraged against other projects (up to the cap) and can carry forward to the end of the following year					
*** Retroactive incentives can be leveraged against other projects (up to the cap) back to January of the previous year					

2022 Large C&I Measure Categories

Eligible Measure Categories for Tier Credits:

- Lighting and On/Off Controls (Interior, Exterior, Specialty Lighting).
- Advanced Lighting Controls (Multi-step Controls, Dimming, Task Scheduled Controls, etc.).
- Comfort Cooling HVAC/Chiller Replacement.
- CoolSaverSM Air Conditioner Tune-up.
- Chiller Tune-up.
- Retrofit VFD Drives for Air Handler Fans.
- Commercial Wi-Fi Thermostats.
- Building Automation Controls and Retro-Commissioning.
- Retro-Commissioning Lite (RCx Lite).
- Motor Replacement (including DC/AC Conversion and EC Motors).
- Motor Drive or VFD Upgrades.
- Computer Power Management (PCPM, Server Virtualization, Server Consolidation, Data Center UPS Upgrades).
- Commercial Refrigeration Upgrades (G/SC, ASHC, Zero Energy Doors, Night Covers, Open Cases to Solid Doors).
- Direct Install (Aerators, PRSV, Showerheads, LEDs, Weather Stripping).
- Compressed Air Upgrades (Leak Fixes, Demand Side, Supply Side, Air Treatment, Storage, Distribution, VFD Driven Compressors, etc.).
- Industrial Controls and/or Compressed Air System Controls (Installation or Modification of Process or Compressor Controls).
- Industrial Pump/Fan Upgrades.

- Injection Molding System Upgrades (Heater Barrel upgrades, Heater Band Replacement, Heater Barrel Blankets, Injection Machine Cooling, etc.).
- Industrial Heating (Kilns, Ovens/Heaters, Drying Processes, etc.).
- Industrial Cooling (Process Chillers, Industrial Refrigeration, etc.).
- Other Industrial Process Upgrades (Non-Heating/Cooling).
- Behavioral Savings (Continuous Energy Improvement).
- All Other Measures (Envelope Measures, Data Center Hot Aisle/Cold Aisle, etc.) that could be measured and verified.

Projects submitted to this program may include prescriptive and/or custom measures; however, custom measures must pass a cost-effectiveness test to be eligible for incentives. This test takes the form of an analysis performed by Entergy Arkansas as shown in the following table.

Figure 2.6.1.2
2022 Large C&I Entergy Arkansas Cost-Effectiveness Test Example

PROJECT ==>	Example Customer Lighting	
A. PARTICIPANT COST TEST	PASS	6.01
B. RATEPAYER IMPACT MEASURE ("RIM") TEST	PASS	2.33
C. TOTAL RESOURCE COST ("TRC") TEST	PASS	2.48
D. PROGRAM ADMINISTRATOR COST ("PAC") TEST	PASS	2.73
Overall Assessment ==>	PASS	

The Large C&I Program relies mostly on trade allies for direct marketing to eligible customers. Trade allies are contractors or distributors in the state who are educated about the program and use the technical assistance and incentives to enhance their business offerings. In addition to trade allies, the program utilizes account managers on the implementation staff. The outreach efforts from these account managers continue to improve Entergy Arkansas' ability to market directly to participants as well as support the trade allies in their marketing efforts. These outreach efforts included trade ally outreach, presentations at public/professional

organizations, outreach with Entergy Arkansas customer service staff and direct outreach via program staff.

Feasibility study co-funding was continued for C&I customers in the 2022 program year. This co-funding allows for some costs of energy efficiency studies to be offset by program incentives, thus making studies for complex projects more affordable. These studies are targeted to develop comprehensive solutions by identifying projects that might not otherwise happen due to the initial cost to investigate and quantify the energy savings potential. Feasibility co-funding rates for the 2022 program year remained the same, utilizing a tiered structure to promote increased custom savings per study (see Figure 2.6.1.3 below). Since this change, the program has seen increased participation in the feasibility study co-funding for higher custom savings (*i.e.*, compressed air and advanced lighting controls). The program’s feasibility study co-funding was changed to incentivize more comprehensive audits and custom projects. Therefore, the new tiered structure rewards trade allies that provide more comprehensive feasibility studies that include custom savings. The payout structure remained at 40% payout upon the delivery of the feasibility study and the remaining 60% once the project is complete. This approach seeks to encourage the trade ally to follow through with completing the project(s). The percentage of co-funding available for studies remained at a maximum of 100% of study funding.

Figure 2.6.1.3

2022 Feasibility Tiered Incentive Table

Feasibility Study Savings**		
Min kWh	Max kWh	Incentive*
50,000	100,000	\$3,000
100,001	200,000	\$6,000
200,001	300,000	\$9,000
300,001	500,000	\$12,000
500,001	1,500,000	\$15,000
1,500,001	5,000,000	\$20,000

*Full payout amounts with a total feasibility budget of \$300,000

*Payout 40% for study submission and the remaining 60% upon project completion for cost savings

**Must be M&V projects. Savings excludes "deemed" measures from the current version of the Arkansas TRM

2.6.2 Program Highlights

- Continuous Energy Improvement (CEI) and CoolSaverSM continued as measures in 2022. After a successful year in 2022, CEI contributed over 32 MWh in the second full year of implementation within the program. These measures had a successful year within the programs in 2022 in providing extra incentive tiering opportunities while contributing to more program comprehensiveness.
- Figure 2.6.2.1 indicates trade ally participation in the program. In 2022, 47 trade allies contributed to around 56% of the goal attainment.
- To show the continued program measure mix transformation, Figure 2.6.2.2 represents the measure mix from 2012, and Figure 2.6.2.3 represents the measure mix from 2022. This improved measure mix over the last eight program years points to the continued comprehensive gains within the program portfolio of measures.
- Figure 2.6.2.4 shows the geographical distribution of installed projects in the Large C&I Program. Note that most of the Entergy Arkansas service area map highlighted in yellow, continues to have successful activity in the program.

Figure 2.6.2.1 - Large C&I Top Trade Ally Participation

Trade Ally	% of Total Savings	% of Total Incentives
Trade Ally 1	18.87%	12.89%
Trade Ally 2	12.26%	8.37%
Trade Ally 3	4.55%	2.02%
Trade Ally 4	3.16%	1.72%
Trade Ally 5	1.49%	1.02%
Trade Ally 6	1.47%	1.55%
Trade Ally 7	1.34%	0.93%
Trade Ally 8	1.29%	0.88%
Trade Ally 9	1.18%	0.80%
Trade Ally 10	0.98%	0.71%
Trade Ally 11	0.85%	0.58%
Trade Ally 12	0.77%	0.52%
Trade Ally 13	0.68%	0.43%
Trade Ally 14	0.52%	0.36%
Trade Ally 15	0.51%	0.34%

Trade Ally 16	0.46%	0.69%
Trade Ally 17	0.45%	0.24%
Trade Ally 18	0.43%	0.29%
Trade Ally 19	0.42%	1.14%
Trade Ally 20	0.41%	0.40%
Trade Ally 21	0.39%	0.27%
Trade Ally 22	0.35%	0.23%
Trade Ally 23	0.34%	0.21%
Trade Ally 24	0.33%	0.23%
Trade Ally 25	0.31%	0.49%
Trade Ally 26	0.30%	0.19%
Trade Ally 27	0.27%	0.12%
Trade Ally 28	0.23%	0.16%
Trade Ally 29	0.22%	0.14%
Trade Ally 30	0.20%	0.28%
Trade Ally 31	0.19%	0.12%
Trade Ally 32	0.18%	0.12%
Trade Ally 33	0.16%	0.11%
Trade Ally 34	0.13%	0.09%
Trade Ally 35	0.12%	0.08%
Trade Ally 36	0.12%	0.08%
Trade Ally 37	0.10%	0.07%
Trade Ally 38	0.09%	0.10%
Trade Ally 39	0.09%	0.06%
Trade Ally 40	0.09%	0.06%
Trade Ally 41	0.08%	0.10%
Trade Ally 42	0.07%	0.05%
Trade Ally 43	0.06%	0.04%
Trade Ally 44	0.05%	0.08%
Trade Ally 45	0.04%	0.03%
Trade Ally 46	0.03%	0.04%
Trade Ally 47	0.00%	0.00%

Figure 2.6.2.2 Large C&I Program Measure Mix (2012 kWh percentage)
 For Comparison to 2022 Measure Mix Below in Figure 2.6.2.3.

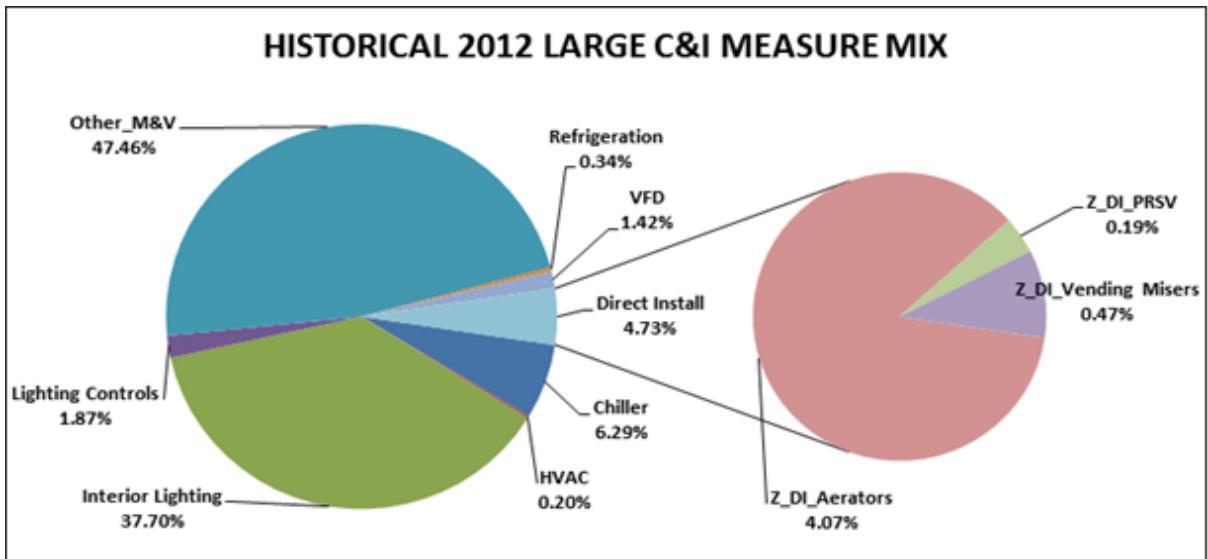


Figure 2.6.2.3

Large C&I Program Measure Mix (2022 kWh percentage)

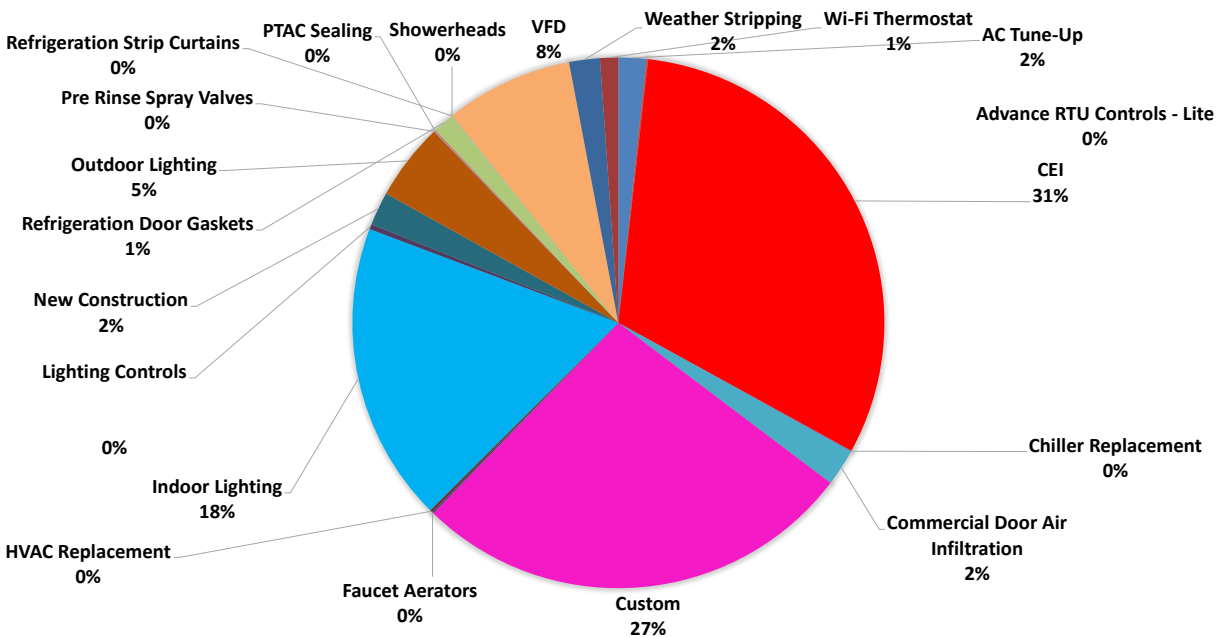
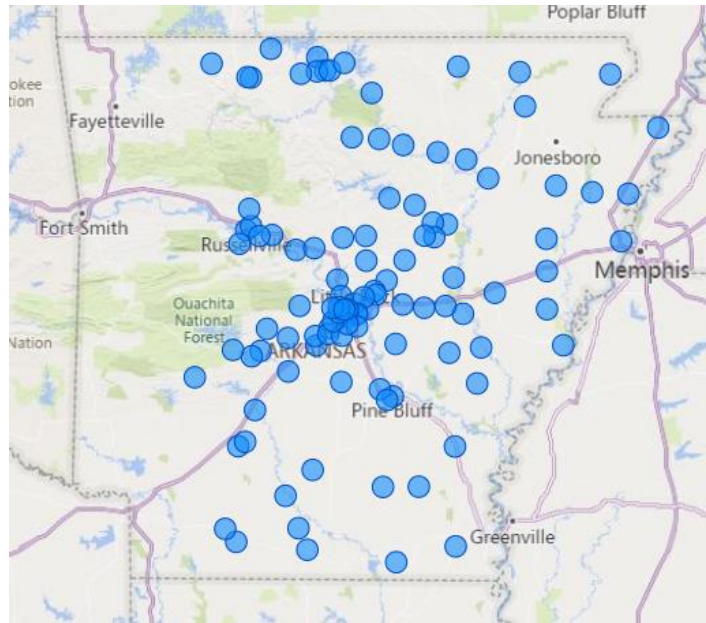


Figure 2.6.2.4

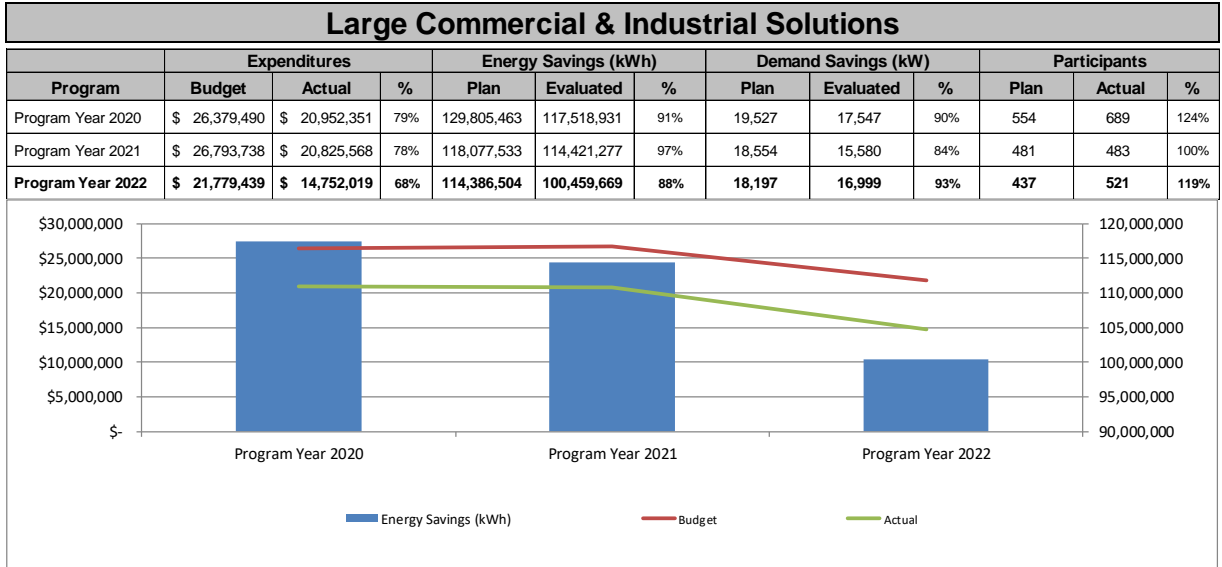
Distribution of Projects in Entergy Arkansas Service Area (Heat Map)



2.6.3 Program Budget, Savings and Participants:

Table 2.6.3 presents the program budget, annual energy savings and number of participants from Workbook Table 5 as required by the C&EE Rules, Section 9: Annual Reporting Requirements and Order No. 16 in Docket No. 10-010-U.

Table 2.6.3
Large C&I Solutions Program Budget, Savings and Participants



2.6.4 Description of Participants

A participant is any non-residential Entergy Arkansas customer, which is not classified under Public Institutions Solutions, with a demand greater than or equal to 100 kW that has enrolled in the energy efficiency programs and will exert best efforts to approve, fund, and install projects during the program year. Participants were qualified and defined by a unique Entergy Arkansas account number. Implementation staff used the Entergy Arkansas assigned Business Partner (BP) number to combine like participants for reporting in order to identify unique participants with multiple participating account numbers. Non-residential customers with a demand less than 100 kW, which are not classified under the Public Institutions Solutions, are encouraged to participate in the Small Business Solutions Program unless a custom measure or new construction is performed, in which case they would participate in this Large C&I Program.

2.6.5 Program Challenges and Opportunities

The 2022 Large C&I Program strived to deliver successful prescriptive and custom energy efficiency projects even during a challenging year. The challenges of supply chain issues and longer lead times for products caused increased project timelines. This caused many projects to push to the next program year. The incentive structure continued to allow for tiered incentives and assisted customers in completing energy efficiency projects that may not have happened without the increased incentives. The feasibility study co-funding continued to be an avenue that trade allies used to evaluate facilities and develop complex projects that included compressed air measures. In 2022, co-funding was successful in helping in the development of additional compressed air measures and pump VFD technology studies from multiple contractors that resulted in successful custom projects.

Implementation staff continued efforts to help SD customers be well informed when considering participation in the program. These efforts resulted in continued success of customers either requesting in the program after having filed for SD status or remaining in the program while having the option to file for SD status. These efforts are ongoing as implementation staff continues to communicate participation options to customers for the purposes of facilitating more informed decisions.

2.6.6 Planned or Proposed Changes to Program and Budget

The program will continue to allow the payment of back tier incentive credits to January of the previous program year. Excess bonus incentives, derived from projects that earned more incentive than the project cost, will continue to carry forward to December of the following program year instead of the current program year. Continuing to encourage multiple year participation and removing barriers for longer equipment ordering lead times and budget constrained projects will remain a program focus.

2.7 Small Business Solutions

2.7.1 Program Description

Small Business Solutions is offered to commercial customers with less than 100 kW of peak demand. Certified participating contractors (trade allies) provide no-cost energy assessments to identify qualifying energy efficiency improvement projects and install cost-effective energy-saving equipment. Incentives for these projects are either passed directly to the customer on the trade ally's invoice or the customer may choose to receive the incentives directly. Trade allies or customers are paid from the incentive budget after reporting and QA/QC is completed. Small Business Solutions participants may also take advantage of no-cost direct install measures, including low-flow showerheads, low-flow faucet aerators, pre-rinse spray valves, LED lamps and commercial door air infiltration measures (weather stripping).

2.7.2 Program Highlights

In 2022, an expanded Trade Ally Network and continued direct install efforts contributed significantly to the success of the program. This Trade Ally Network consists of program trained and certified contractors, electrical distributors, manufacturer representatives and energy services companies that conduct no-cost energy efficiency assessments and complete energy efficiency projects through the program. Figure 2.7.2.1 below shows the location of the home offices of all 2022 trade allies in the network. Additionally, 39 different trade allies completed non-direct install projects in 2022. Figure 2.7.2.2 shows the approximate location of those projects.

Figure 2.7.2.1 Location of 2022 Trade Ally Home Offices

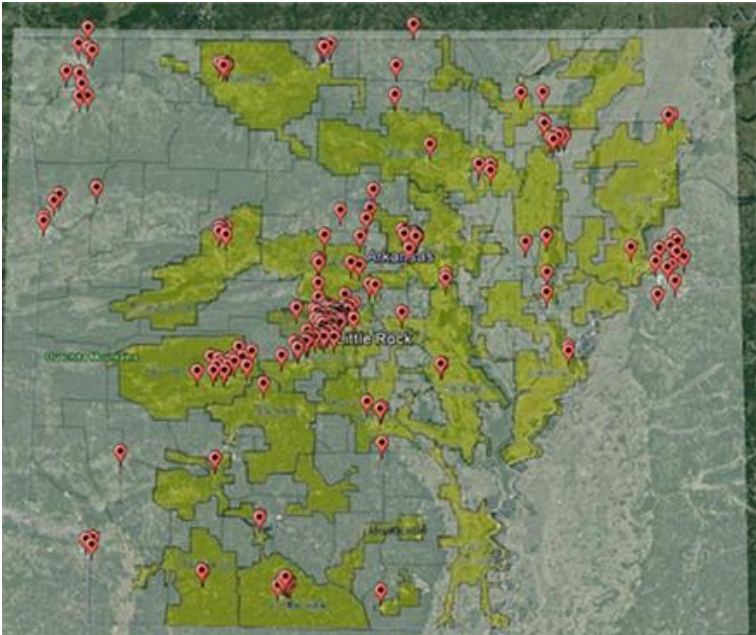


Figure 2.7.2.2 Distribution of Projects in Entergy Arkansas Service Area

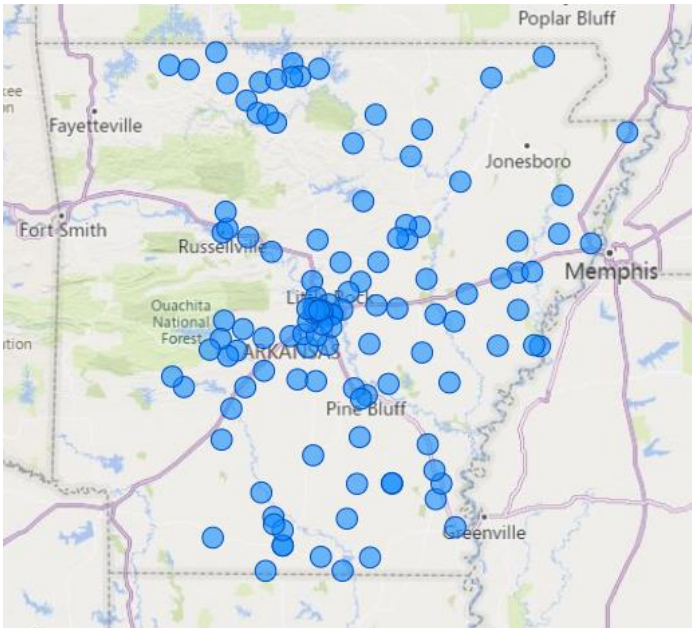


Table 2.7.2.3 represents 2022 Trade Ally achievement for non-direct install projects.

Table 2.7.2.3

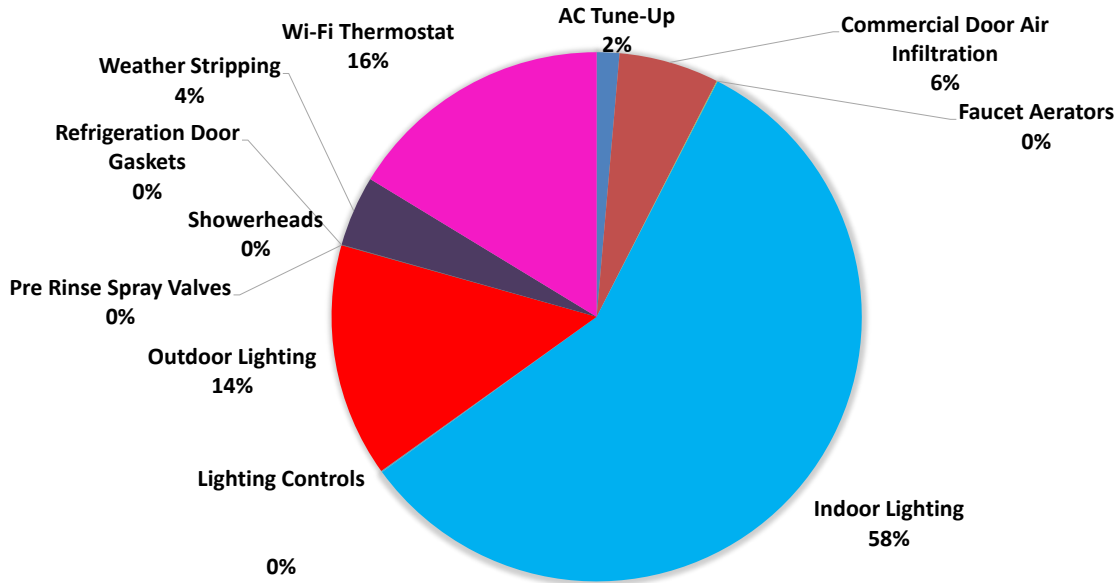
	% of Total Savings	% of Incentive Total
Trade Ally 1	40.61%	48.74%
Trade Ally 2	10.28%	11.96%
Trade Ally 3	9.22%	4.14%
Trade Ally 4	4.63%	3.67%
Trade Ally 5	3.13%	3.75%
Trade Ally 6	3.00%	3.38%
Trade Ally 7	2.79%	1.45%
Trade Ally 8	2.43%	2.92%
Trade Ally 9	2.20%	2.65%
Trade Ally 10	1.79%	2.15%
Trade Ally 11	0.83%	1.00%
Trade Ally 12	0.79%	0.95%
Trade Ally 13	0.72%	0.86%
Trade Ally 14	0.68%	0.42%
Trade Ally 15	0.68%	0.81%
Trade Ally 16	0.50%	0.60%

Trade Ally 17	0.45%	0.54%
Trade Ally 18	0.38%	0.46%
Trade Ally 19	0.34%	0.40%
Trade Ally 20	0.32%	0.39%
Trade Ally 21	0.31%	0.38%
Trade Ally 22	0.31%	0.37%
Trade Ally 23	0.30%	0.36%
Trade Ally 24	0.30%	0.34%
Trade Ally 25	0.30%	0.34%
Trade Ally 26	0.29%	0.35%
Trade Ally 27	0.27%	0.32%
Trade Ally 28	0.23%	0.12%
Trade Ally 29	0.23%	0.24%
Trade Ally 30	0.16%	0.19%
Trade Ally 31	0.09%	0.10%
Trade Ally 32	0.07%	0.08%
Trade Ally 33	0.06%	0.10%
Trade Ally 34	0.05%	0.06%
Trade Ally 35	0.05%	0.08%

Trade Ally 36	0.05%	0.05%
Trade Ally 37	0.03%	0.04%
Trade Ally 38	0.01%	0.03%
Trade Ally 39	0.01%	0.01%

The Small Business Solutions Program had a filed savings target of 13,599 MWh for the 2022 program year. Small Business Solutions achieved 17,404 MWh in evaluated energy savings. Direct installation of low-flow faucet aerators, pre-rinse spray valves, LED lamps, commercial door air infiltration (weather stripping), overhead door air infiltration and shower heads provided more opportunities to increase measures and reach more businesses through lighting assessment leads for trade allies.

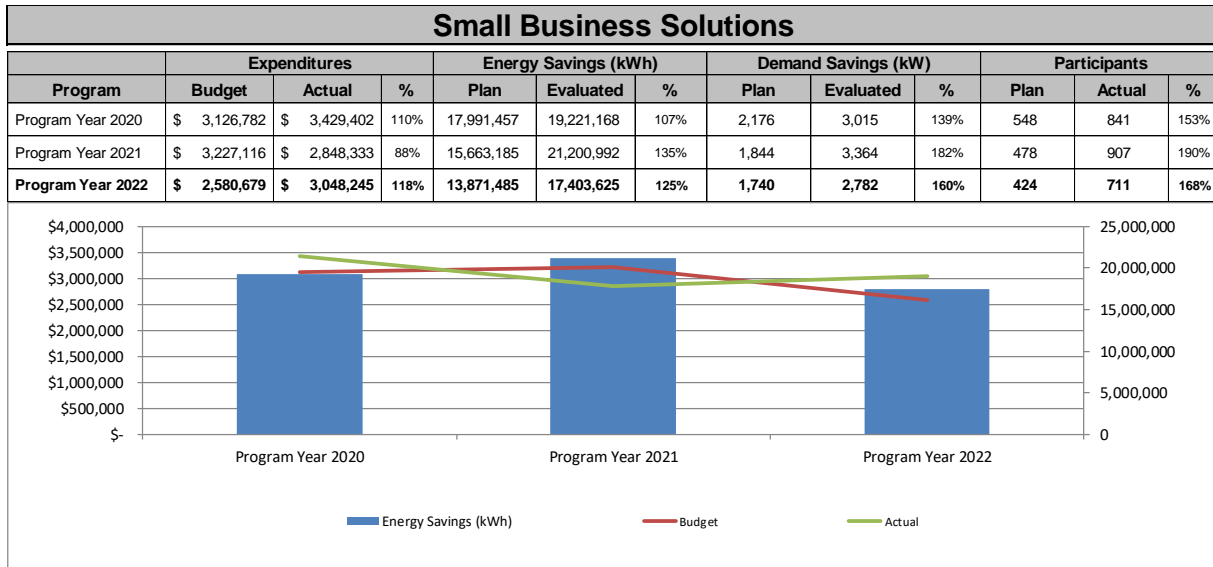
Figure 2.7.2.4
Small Business Solutions Measure Mix (2022 kWh)



2.7.3 Program Budget, Savings and Participants

Table 2.7.3 shows the program budget, annual energy savings and number of participants from Workbook Table 5, as required by the C&EE Rules, Section 9: Annual Reporting Requirements and Order No. 16 in Docket No. 10-010-U.

Table 2.7.3
Small Business Solutions Budget, Savings and Participants



Program Events & Training:

The Small Business Solutions Program conducted 52 recruitment and training events in the 2022 program year. The training events included instructions on program participation, calculator training, trade ally enrollment for training on field inspections and program best practices/processes. See the Annual Report Workbook for training details.

Providing adequate and effective training is essential to the success of the trade allies in the Small Business Solutions Program. In addition, it is important to provide trade allies with proper ongoing support and efficient processing of incentives.

2.7.4 Description of Participants

A program participant is defined as any Entergy Arkansas commercial customer with less than 100 kW of peak demand that receives electric service from Entergy Arkansas. Participants were qualified and defined by a unique Entergy Arkansas account number. Implementation staff also estimated unique Small Business Solutions Program participants with multiple participating account numbers for reporting to be approximately 711.

2.7.5 Program Challenges and Opportunities

With market saturation increasing in 2022, the challenge will be to provide more measures to the small business market sector while maintaining cost-effectiveness and comprehensiveness. Therefore, the development of more measures will be important for continued success beyond 2022. This challenge will be met through focusing staff resources to provide more development for new measures, which has already begun. Direct installation has again proven to be a great success in the Small Business Solutions Program for 2022.

2.7.6 Planned or Proposed Changes to Program and Budget

There are currently no major changes planned for the Small Business Solutions Program.

2.8 Public Institutions Solutions

2.8.1 Program Description

The Public Institutions Solutions Program provides technical assistance, energy planning recommendations and financial incentives to public entities (state, federal, cities, counties and public/private schools/colleges) for the installation of cost-effective energy efficiency measures. The program helps public entities operate their buildings more efficiently by explaining the technical and financial benefits of investing in energy efficiency, developing a plan to make energy efficiency improvements and providing support in completing projects.

The program provides technical assistance, manages program incentive funds, verifies that the savings claimed through the program are accurate and appropriate, and uses appropriate M&V methods to prove savings (where necessary). Energy Benchmarking and Energy Master Planning Workshops are provided for participants specified within the program.

Whether retrofitting an existing building or incorporating energy efficiency technologies into new construction, the program helps participants identify and implement cost-effective projects that will help them facilitate using energy more efficiently. After upgrades are completed and verified, the program provides cash incentives for projects that save energy. The projects submitted under the Public Institutions Solutions Program can be single measure projects through a trade ally or comprehensive projects, including multiple, complex measures which require M&V.

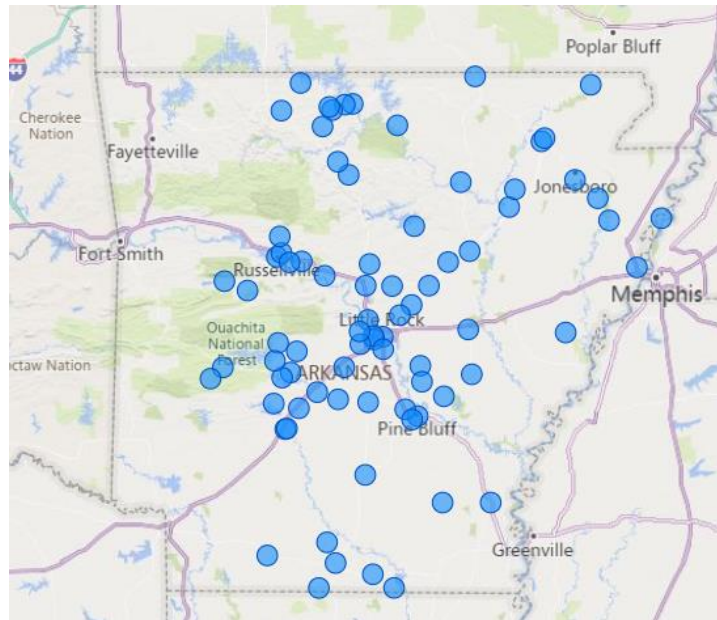
2.8.2 Program Highlights

- Public Institutions Solutions achieved 20,398 MWh in gross energy savings, which is 79% of the 2022 kWh savings goal. The program was able to shift kWh savings in order for other programs to overachieve on total savings goals.
- Program Participation – The Public Institutions Solutions Program had customer participation throughout the Entergy Arkansas service area. Entergy Arkansas

developed a map showing that the program achieved savings in a geographically diverse range of participants. (See map in Figure 2.8.2.1).

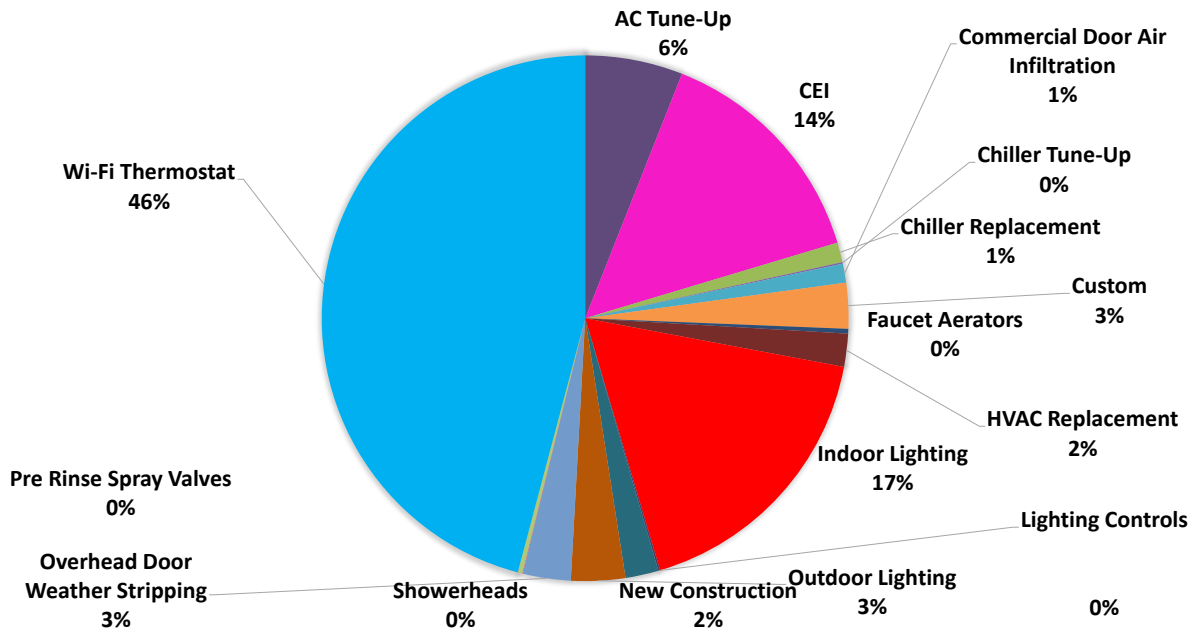
Figure 2.8.2.1

Distribution of Projects in Entergy Arkansas Service Area (Heat Map)



- Benchmarking and Energy Master Planning - The Public Institutions Solutions Program benchmarked 20 buildings/sites for three participants using EPA's Portfolio Manager Tool. Energy Master Planning workshops were conducted for two participants to include improved learning environments, reducing energy expenditures, boosting the local economy (through upgrade projects) and enhancing community relations. Entergy Arkansas analyzed the efforts of benchmarking services to encourage participants to implement more energy efficiency upgrades in their facilities. The results of this analysis showed that those who participate in benchmarking services provided by the program implement, on average, 1.5 times more energy efficiency upgrades than those that do not participate.

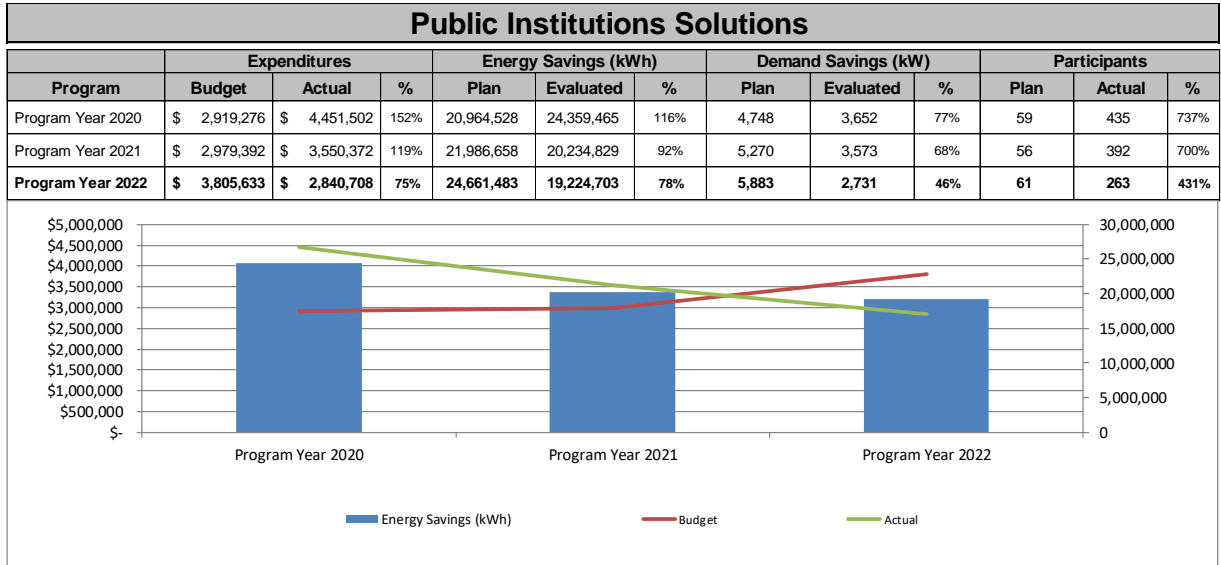
Figure 2.8.2.2
Public Institutions Solutions Measure Mix (2022 kWh)



2.8.3 Program Budget, Savings and Participants

Table 2.8.3 is the program budget, annual energy savings and number of participants from Workbook Table 5 as required by the C&EE Rules, Section 9: Annual Reporting Requirements and Order No. 16 in Docket No. 10-010-U.

Table 2.8.3
Public Institutions Solutions Budget, Energy Savings and Participants



Program Events & Training:

In 2022, the Public Institutions Solutions Program conducted Energy Master Planning Workshops for three customers and benchmarked 20 buildings/sites. Energy Master Planning Workshops addressed energy management issues and obstacles and questions common to schools, cities and counties to address the key focus areas of planning and decision making, evaluation and monitoring, funding energy efficiency, facility operations and energy awareness. In addition, these workshops presented energy performance benchmarking analysis to assist public entities in benchmarking their facility performance against other similar facilities.

Program staff also conducted presentations across various locations and participant face-to-face meetings. Program presentations were made, and information booths were set up at several key events and several other conferences. See more training details in the Annual Report Workbook.

2.8.4 Description of Participants

A participant is defined as any Entergy Arkansas customer that is a public and/or private entity customer (for example, state buildings, K-12 schools, higher education institutions, and municipalities) that receives retail electric service from Entergy Arkansas. Participants are counted by tax ID number, which is represented by Business Partner Number in Entergy's account data. Each participant can include multiple account numbers, projects and measures. Participants were qualified and defined by a unique Entergy Arkansas account number. Implementation staff also estimated unique participants with multiple participating account numbers for reporting to be approximately 263.

2.8.5 Program Challenges and Opportunities

The 2022 Program Year offered many opportunities and challenges. Customers in this market segment continue to be challenged by the economic climate and oftentimes find it difficult to fund projects. Entergy Arkansas worked with customers to identify short-term solutions, such as direct install and lighting solutions, and long-term solutions, including custom M&V projects, in order to gain rapid returns and savings that will persist.

Entergy Arkansas also continues to educate customers on other financial options, such as:

- Lease Agreements that offer low-rate (often tax-exempt) funding which allows financing of capital equipment over longer periods of time (10+ years) by utilizing "operating cost" dollars.
- Bond Issues through a taxpayer (public) approved mechanism that funds capital improvements over time at low rates (approvals can take substantial time); and
- Performance contracting through a guaranteed or shared savings agreement with a performance contractor that funds capital improvements over a period of time using energy and/or operational savings.

Developing more behavioral energy efficiency projects for this program remains important to continued success beyond 2022. Plans are currently underway to identify additional behavioral

energy efficiency projects for 2022 and beyond. Program staff is working to implement future behavioral opportunities.

2.8.6 Planned or Proposed Changes to Program

The program will continue to allow the payment of back tier incentive credits to January of the previous program year. Excess bonus incentives, derived from projects that earned more incentive than the project cost, will continue to carry forward to December of the following program year instead of the current program year. Continuing to encourage multiple-year participation and removing barriers for longer equipment ordering lead times and budget constrained projects will remain a program focus. In addition, the program will continue to implement CEI and CoolSaver as measures within the PY 2022 program year as it began being a part of the tiering structure beginning in PY 2020 with marked success.

2.9 Agricultural Energy Solutions Program

2.9.1 Program Description

The Agricultural Energy Solutions Program is designed to reduce energy usage among agribusiness owners in Entergy Arkansas' service territory through custom and prescriptive incentives, as well as farmer energy efficiency and agricultural suppliers education. The program seeks to accomplish these goals by lowering the barriers within this sector, such as: the lack of easy access to qualified vendors and installers; the lack of information and awareness of the benefits of participation; and financial incentives to overcome the first cost barriers of energy efficiency measures.

2.9.2 Program Highlights

- Saved 11,605 gross MWh in 2022 with a 97% realization rate and a net-to-gross ratio of 1.00, resulting in 11,605 MWh net energy savings.
- Achieved 3.0 gross MW and 2.9 net MW savings in 2022 with a realization rate of 98.1%.
- A total of 8,081 measures were incentivized for 15 unique participants. In 2022, the program continued to build and maintain relationships with numerous agricultural businesses, trade allies, contractors, government agencies, row crop farmers, indoor horticulture farmers and poultry farmers across Arkansas. These relationships heightened program awareness throughout the Entergy Arkansas service territory and were instrumental in achieving the 2022 MWh savings. Trade ally outreach generated 50.00% of program participation totals, farmer-to-farmer referrals generated 31.25% of program participation and the Entergy Solutions website generated 18.75% of program participation. See Figure 2.9.2.2 for a geospatial map of farms that participated in the Agricultural Program in 2022.

Figure 2.9.2.1 Referrals 2022

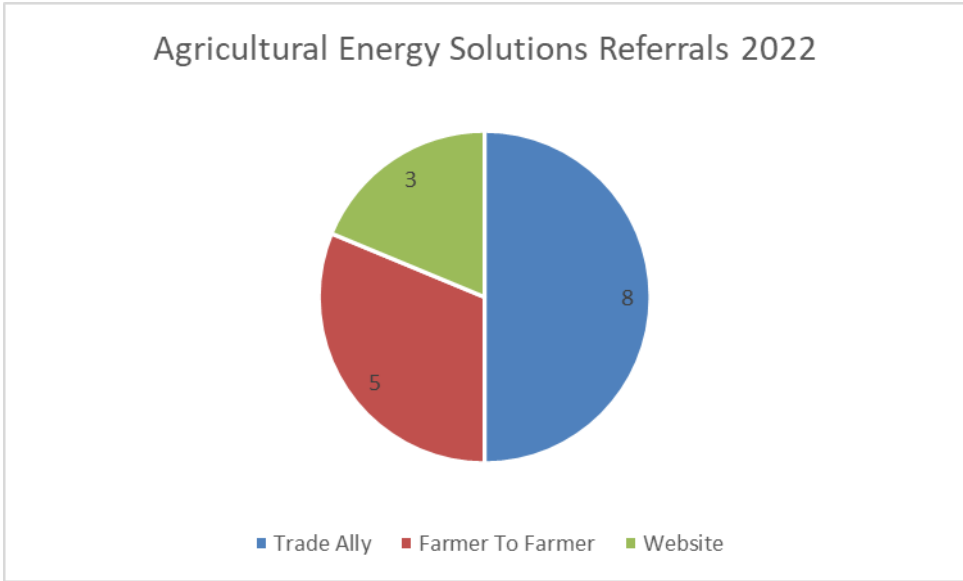
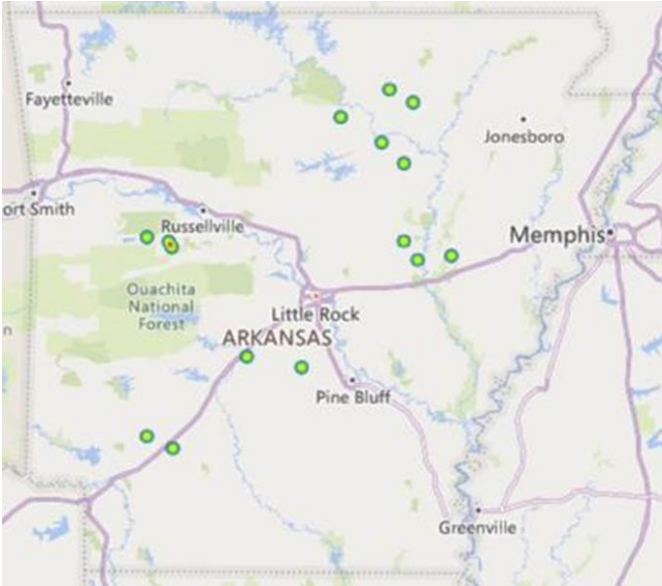


Figure 2.9.2.2 2022 Participants



- In 2022, 15 applications were received. 15 applications participated in Quality Control

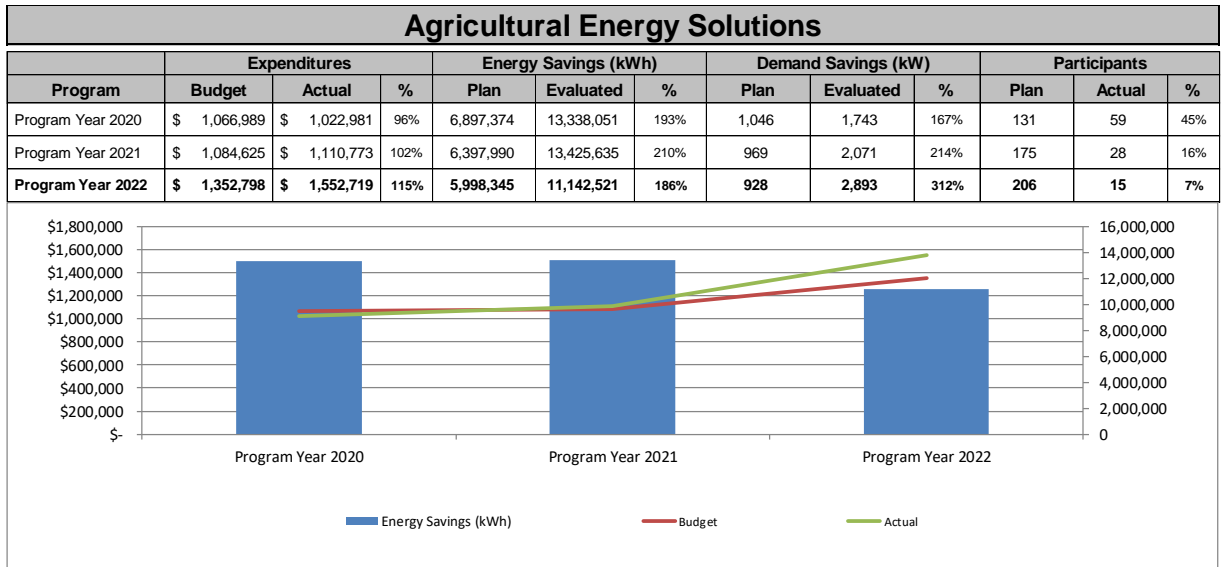
(QA/QC) with a pass rate of 100%. This consisted of 12 pre inspections and 15 post inspections.

- In 2022, a majority of savings were captured with 2 indoor horticulture facilities accounting for over 134.7% of the programs kWh savings goal.
- Incentives in the amount of \$285,000 were transferred from the Smart Direct Load Control (SDLC) program to the Agricultural Energy Solutions (AES) program. Incentive funds were transferred due to the higher AES enrollment rate above plan.

2.9.3 Program Budget, Savings and Participants

Table 2.9.3 is the program budget, annual energy savings and number of participants from Workbook Table 5 as required by the C&EE Rules, Section 9: Annual Reporting Requirements and Order No. 16 in Docket No. 10-010-U.

Table 2.9.3
Agricultural Energy Solutions Program Budget, Savings and Participants



2.9.4 Description of Participants

Any agricultural customer that receives electric service from the Company is eligible for the Agricultural Energy Solutions Program at its Entergy Arkansas serviced facilities. The following rate codes are eligible:

- Agricultural Pumping (AP)
- General Farm Service (GFS)
- Small General Service (SGS) customers that are classified as an agricultural business and
- Large General Service (LGS) customers that are classified as an agricultural business.

For purposes of this program, a participant is defined by a single Federal Tax ID number. Organizations with multiple locations are considered a single participant, regardless of how many Entergy Arkansas account numbers they may have.

2.9.5 Program Challenges and Opportunities

Savings opportunities are available for the Agricultural sector, but there are challenges and market barriers to overcome to accomplish these savings. The major challenges associated with the program include:

- The agricultural sector is hard to reach because this sector relies more on a word-of-mouth approach rather than traditional mass marketing.
- Weather conditions impact crop production, which creates financial hardship for the farm. This hardship can cause limited funding for energy efficiency investments.
- The agricultural sector is seasonal and requires precise timing to conduct proper marketing efforts.
- Energy efficiency improvements can be difficult for farmers leasing land. Typically, both the farmer and landowner must agree on the energy efficiency improvements. Split decisions can delay or terminate projects. Even with financial incentives, some farmers lack funds to invest in energy efficiency improvements.
- It can be difficult to gain trust in the tight-knit agricultural community.

- Biosecurity procedures are implemented in the poultry market to reduce the risk of transmitting infectious diseases due to outbreaks. Some protocols restrict site access to prevent transmittal of the disease from farm to farm. This can delay our outreach efforts and other field activities such as QA/QC.

Although there are many challenges, the program implemented strategies to overcome these barriers. Employee experience in agriculture is very important; farmers are more willing to listen and trust someone to whom they can easily relate. These barriers are being overcome by hiring an account manager with a strong agricultural background. The manager accessed the rural communities and gained the customers' trust through successful one-on-one meetings with farmers and the ability to relate to the farmers on a personal level.

Entergy Arkansas also developed solutions for the seasonal marketing barriers associated with agriculture. Row crop farmers are extremely busy during the planting and harvesting season. Marketing efforts were adjusted accordingly to address this issue. Marketing efforts now focus on row crop farmers during the winter and early spring months, and poultry farmers during the summer and fall months.

EM&V Recommendations:

- Continue to work collaboratively with the EM&V team and seek review of large or unique custom projects.
- Collect heating and cooling documentation when present on-site.
- Clearly define program requirements to determine if retrofit or new construction methodology should be used. If unclear which method should be used, consult the EM&V team to discuss and reach an agreement.
- Define additional measure descriptions to ArchEE to clarify measure type as the program expands with new measure offerings beyond lighting.
- Monitor the time it takes for incentive checks to be sent.
- Increase internal QA/QC practices.

2.9.6 Planned or Proposed Changes to Program and Budget

The Agricultural Energy Solutions Program will not change its net energy savings goal or incentive budget for 2023.

2.10 Residential Direct Load Control

2.10.1 Program Description

The Residential Direct Load Control program, referred to as the Summer Advantage Program, is designed to reduce peak electricity demand at the point of use in Entergy Arkansas' service territory. A Digital Control Unit ("DCU") that is installed on or near the customer's outside air conditioning or heat pump unit allows for cycling of the outside unit during peak electricity demand periods reducing electricity usage. The inside fan is allowed to operate normally to circulate cool air while the outside unit is cycled off.

Customers have a choice between 50% cycling and 75% cycling. Customer incentives are based on the customer's choice of 50% cycling or 75% cycling. All Summer Advantage participants will receive two incentive payments: an installation incentive and an annual incentive. Customers who are selected for the Measurement and Verification program will receive an additional annual incentive based on their participation rate.

- Installation incentive. Upon successful installation of the DCU, the customer receives an installation incentive based on participation rate; those at the 50% participation rate receive \$25 and those at the 75% participation rate receive \$40.
- Annual incentive. The annual incentive is offered to Summer Advantage customers as recognition for their participation in the program throughout the year. These incentives may be prorated based on the customer's participation during control season. Customers who have full participation at the 50% rate are eligible to receive a total of \$25, and those at the 75% rate are eligible to receive a total of \$40.

Customers who have more than one air conditioner or heat pump will be paid an installation and annual incentive for each outside unit that is installed on the program.

2.10.2 Program Highlights

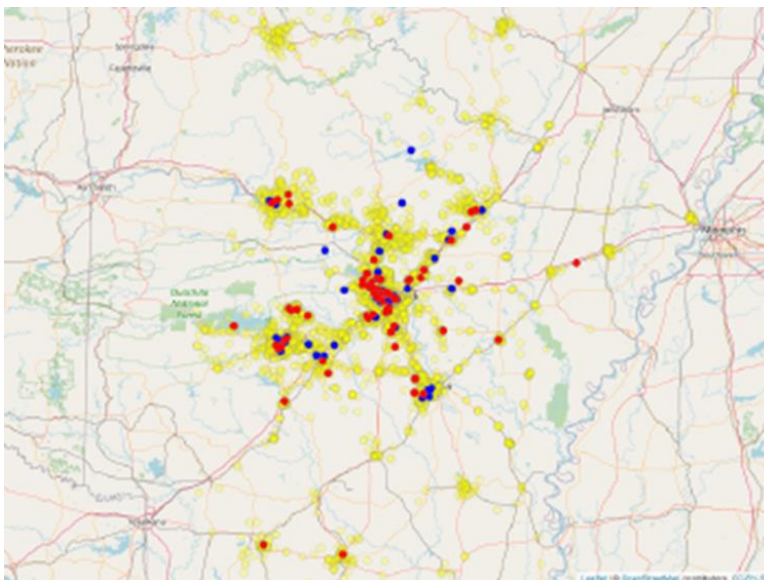
2022 was a very successful year for the Summer Advantage Program and included the following highlights:

- Demand savings results provided a 15-minute maximum of 15.84 MW of gross estimated demand response load reduction during control season.
- In the 2022 Summer Advantage Program curtailment season, there were a total of two curtailment events including one test event. The maximum hourly reduction for the Summer Advantage program for the season based on qualifying event hours was 1.01 kW/device. This reduction corresponds to the actual reduction as was obtained from the MISO baseline with weather adjustment method. This leads to 15.84 MW demand response reduction based on the total installed end points of 15,685 throughout the Entergy Arkansas service area.
- Necessary precautions and protocols continued in response to the COVID-19 pandemic. Itron communicated with local and federal agencies to maintain its designation as an Essential Service to allow outdoor work to continue.
- Itron CENTRON Monitoring and Verification system provided reliable and accurate kW data. This system combines cellular meter hardware, a proprietary curtailment algorithm, and an Itron Digital Control Unit (DCU) to provide load reduction data for analysis of energy curtailment events.

Geographical Presence:

Figure 2.10.2 shows a map of the Summer Advantage Load Control Program participant area and M&V site locations. Yellow colored circles show the 2022 Summer Advantage population installations, while the red (50% Curtailment strategy) and blue (75% Curtailment Strategy) circles represent the M&V sites.

Figure 2.10.2
Summer Advantage Participants



Independent Evaluator Reports

Key Findings:

- An M&V sample is maintained by Itron, with 120 participants having interval data loggers that provide five-minute readings of equipment kW.
- The M&V sample is structured to represent the program population.
- In PY2022, the Summer Advantage Direct Load Control program achieved 15.4 MW in gross demand savings.
- The EM&V team found that the approach to using the M&V sample deployed on direct control units in demand response curtailment calculations is appropriate.
- The evaluated savings using the MISO-based calculations differed slightly from Itron's calculations due to rounding differences in calculating per-device savings. These differences resulted in a realization rate of 97.0 percent.

EM&V Recommendations:

- Explore the effects of limiting the baseline to periods with similar weather.

- *Key Finding:* The current weather baseline uses data from the entire load control season (June 1 through September 30). Limiting the baseline to periods with weather that is more like event days could improve the model's accuracy. For example, limiting the weather baseline to days with an average temperature of at least 90 degrees would more accurately replicate the conditions experienced on event days.
- *Resolution:* Itron is using the contractual MISO baseline adjustment methodology, where the most recent 10 eligible days (non-weekend, non-holiday, and non-event days) are considered for the baseline load. The baseline adjustment approach is calculated by comparing total load usage during events to load usage calculated for a baseline taken from similar days prior to the event. Calculation of the avoided kW for the MISO program using the baseline adjustment methodology involves averaging the 5-minute load data into 15-minute intervals for each device. In the baseline adjustment approach, all sites are curtailed and the load data taken during events (Actual Load) is compared to the baseline data (Adjusted Baseline Load) taken from 10 eligible days prior to the event.

Planned Actions:

- Customers who are currently enrolled in the Summer Advantage Program will receive a pre-season letter describing the program and providing contact information for enrollment and incentive questions.
- Opt-in letters are sent to new customers that have an existing device installed at their premise with information on how to enroll in the program.

2.10.3 Program Budget, Savings and Participants

Table 2.10.3.1 is the program budget, annual energy savings and number of participants from Workbook Table 5 as required by the C&EE Rules, Section 9: Annual Reporting Requirements and Order No. 16 in Docket No. 10-010-U.

Table 2.10.3.1 Residential Direct Load Control Program Budget, Savings and Participants

Residential Direct Load Control												
Program	Expenditures			Energy Savings (kWh)			Demand Savings (kW)			Participants		
	Budget	Actual	%	Plan	Evaluated	%	Plan	Evaluated	%	Plan	Actual	%
Program Year 2020	\$ 3,021,748	\$ 3,389,811	112%	0	0	-	32,144	12,134	38%	19,720	19,946	101%
Program Year 2021	\$ 2,996,660	\$ 2,655,984	89%	0	0	-	30,536	18,328	60%	18,734	17,455	93%
Program Year 2022	\$ 3,547,988	\$ 2,643,301	75%	0	0	-	29,009	15,371	53%	17,797	15,685	88%

Program Events & Training:

All Itron field team members are required to meet annual OSHA compliance training.

1. Back Safety and Injury Prevention
2. Bloodborne Pathogens Awareness
3. Electrical Safety
4. HVAC Specific Safety and Regulatory
5. First Aid: Basic
6. Ladder Safety
7. Lockout/Tagout
8. Lockout/Tagout for Authorized Persons
9. NFPA 70E Electrical Safety in the Workplace
10. PPE: Personal Protective Equipment
11. Slips, Trips, and Falls
12. Sprains and Strains
13. Heat Stress Recognition and Prevention

Program Savings:

For the 2022 curtailment season, Entergy Arkansas called a total of two curtailment events including one test event on June 1st. The results are shown in Table 2.10.3.2 below. For this program, the entire M&V population was curtailed. The maximum hourly reduction for the Summer Advantage program for the season based on qualifying event hours was 1.01 kW/device. This reduction corresponds to the actual reduction as was obtained from the MISO baseline with weather adjustment method. This leads to 15.84 MW demand response reduction based on the total installed end points of 15,685 throughout the Entergy Arkansas service area.

Table 2.10.3.2 - Summary of Curtailment Events

Date	Start time (CDT)	End time (CDT)	Itron baseline temperature	EM&V team baseline temperature	Itron weather-adjusted reduction (per-device kW)	EM&V team weather-adjusted reduction (per-device kW)
06/01/2022	13:00	14:00	82.3	81.0	0.55	0.57
06/16/2022	14:00	15:00	81.0	82.6	1.01	0.98
06/16/2022	15:00	16:00	81.7	82.2	0.91	0.88

2.10.4 Description of Participants

Any Entergy Arkansas residential customer who has a central air conditioner or heat pump in good working condition is eligible to participate in the Summer Advantage Program and is eligible to receive program incentives. Summer Advantage Program participants who request to be removed from the program will no longer be counted as a participant.

2.10.5 Program Challenges and Opportunities

Starting in 2017, Entergy Arkansas has operated the capacity resource as a turnkey maintenance only program. The turnkey program will be evaluated annually to monitor customer retention. Itron remains responsible for any replacement, activation, and adjustments

to endpoints contributing to updated M&V annual kW evaluations. Itron will provide administrative support for MISO compliance calculations and filing.

In 2020, a set of independently monitored cellular metering devices were installed at 250 locations. The locations were selected to create a stratified image of the general device population. These metered locations were used to better estimate and integrate the available load under the same portal as the other demand response programs. The long-term plan is to have a single platform for all DR programs with accurate forecasting and verifiable baselines for evaluation. There are no other program or budget changes for 2023. As customers transition over to the Smart Direct Load Control Pilot, this program will continue to see diminishing participation and available demand. The long-term plan is to slowly absorb decommissioning costs through attrition and in future energy efficiency program plan budgets.

2.11 Smart Direct Load Control Pilot

2.11.1 Program Description

The Entergy Arkansas Smart Direct Load Control Pilot Program is designed to reduce peak electricity demand at the point of use in Entergy Arkansas' service territory. The Entergy Arkansas Smart Direct Load Control Pilot Program works with the Summer Advantage Program and the Agricultural Irrigation Load Control Program to help reduce high-energy demand. Customers can participate by enrolling their existing qualifying smart thermostat, applying for a self-installation or direct installation of a Sensi Touch smart thermostat.

The Smart Direct Load Control Pilot Program participants must meet the following criteria:

- Open to Entergy Arkansas residential and nonresidential customers who have central heating and air conditioning.
- Have an in-home or in-business Wi-Fi service.
- Have an existing Emerson Sensi Touch, Sensi Wi-Fi, Honeywell Lyric T5, T5 plus, T6, T9 and T10 smart thermostat or a thermostat that qualifies for a replacement of a professionally installed Sensi Touch at no additional cost to the customer.
- Are not already enrolled in the Summer Advantage Program. If enrolled, customers must unenroll from the Summer Advantage Program to participate.
- Must have a qualifying HVAC system.

2.11.2 Program Highlights

The Smart Direct Load Control Pilot Program achieved 3,308 gross MWh savings in 2022 with a 99.6% realization rate and a net-to-gross ratio of 88%; this resulted in 2,884 MWh net energy savings. For the 2022 curtailment season, there were a total of four curtailment events for the total population; this includes a test event on June 1. The curtailment strategies used were temperature rises up to three degrees and a pre-cool of negative two degrees.

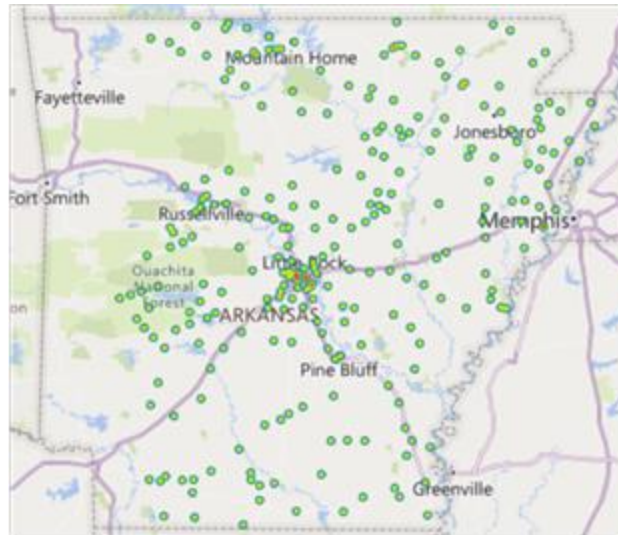
- Further event details can be found in figure 2.11.2.1.

Figure 2.11.2.1

Date	Start time (CST)	End time (CST)	Participating thermostats	Event type
06/01/2022	12:55	14:00	4,146	Test event
06/16/2022	13:55	16:00	4,203	Normal event
07/13/2022	13:55	16:00	4,373	Normal event
08/16/2022	12:55	16:00	4,679	Normal event

- In 2022, the Smart Direct Load Control Pilot Program implemented successful marketing efforts, such as emails, and media campaigns.
- Of the newly enrolled thermostat in 2022, 589 went through the program’s field QA/QC process.
- There were 53 M&V Devices installed. These devices will be used to validate the load reduction for each conservation event.
- In 2022, 4,679 thermostats were enrolled during the demand response season. This includes enrollments from the 2020 and 2021 program year.
- Incentives in the amount of \$140,000 were transferred from the Smart Direct Load Control (SDLC) program to the Multifamily Homes (MF) program. Measure cost have increased due to supply chain product price increases and inflation causing the MF program to exceed incentive budget.
- Incentives in the amount of \$285,000 were transferred from the Smart Direct Load Control (SDLC) program to the Agricultural Energy Solutions (AES) program. Incentive funds were transferred due to the higher AES enrollment rate above plan.
- Figure 2.11.2.2 represents new customer participating locations within Entergy Arkansas service territory.

Figure 2.11.2.2



Program Overview:

The Entergy Arkansas Smart Direct Load Control Pilot allows residential and nonresidential customers to enroll who have qualifying thermostats or replacement of a baseline thermostat with a Sensi Touch smart thermostat. Participants authorize Entergy Arkansas LLC to control the participating equipment (smart thermostat) on days when electricity demand is highest, helping to reduce demand when it counts most. These are known as “conservation periods.”

Customers may enroll by choosing a participating trade ally or by enrolling through the enrollment portal located at entergyarkansas.com/thermostat. Customers that qualify for a no-additional-cost installation receive a professionally installed thermostat, which is a \$225 value. In addition to the free thermostat, participating customers can receive an annual enrollment incentive up to \$40 for residential customers and up to \$100 for business customers. This is a \$265-\$325 value in the first year of participating.

For those who already have a qualifying Emerson or Honeywell thermostat (Sensi Touch, Sensi Wi-Fi, Honeywell Lyric T5, T5 Plus, T6, T9 or T10), the customer will receive an enrollment incentive of \$50 for residential and \$100 for non-residential for participating in the program. An additional annual participation incentive will also be issued to qualifying customers after the demand response conservation season with incentives up to \$40 for residential

customers and \$100 for business customers.

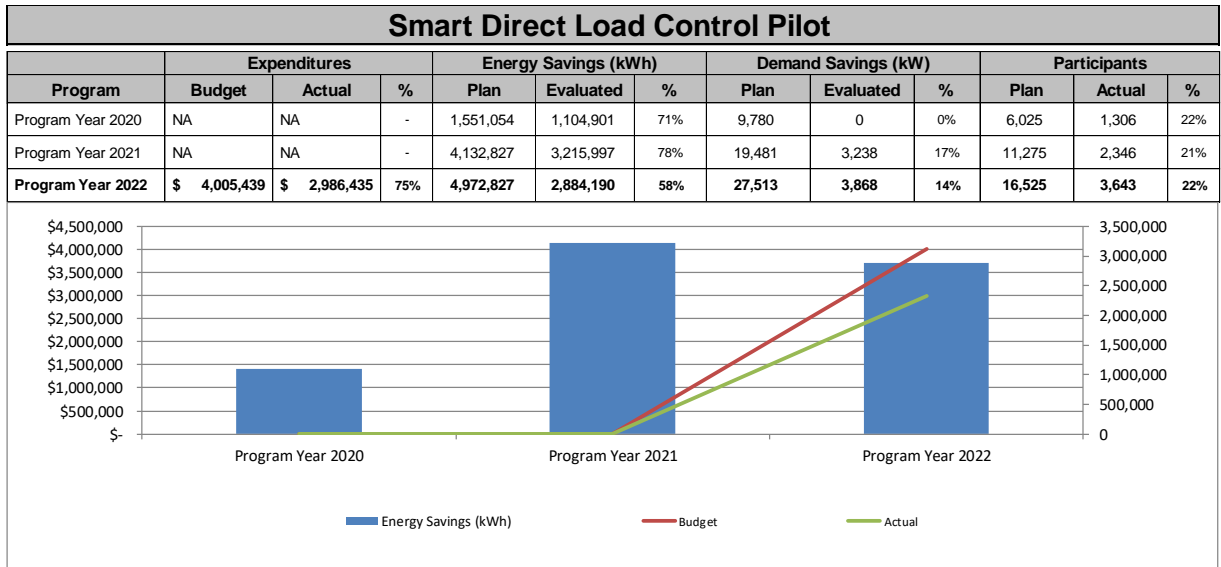
Conservation periods will occur from June 1 through September 30 on non-holiday weekdays (Monday-Friday), noon to 7 p.m. Central Standard Time. Conservation periods will last approximately four hours in any single day and occur for no more than three consecutive days in any one program season (June to September). Participants may override conservation periods by opting out; overriding conservation periods may reduce annual enrollment incentives.

The annual enrollment incentive is dependent on the number of events participated. If the customer's thermostat is disconnected due to Wi-Fi issues, or if the customer chooses to opt out of a conservation event, this could reduce the annual enrollment incentive amount. Thermostat disconnectivity and conservation period opt outs will be counted as an opt out. Both residential and non-residential customers may opt out one time without a reduction. If a customer opts out two or three times, the residential incentive will decrease to \$25 while the non-residential incentive will reduce to \$50. If a customer opts out four or more times, residential and non-residential customers will not receive an annual incentive.

2.11.3 Program Budget, Savings and Participants

Table 2.11.3 is the program budget, annual energy savings and number of participants from Workbook Table 5 as required by the C&EE Rules, Section 9: Annual Reporting Requirements and Order No. 16 in Docket 10-010-U.

Table 2.11.3
Smart Direct Load Control Solutions Budget, Savings and Participants



2.11.4 Description of Participants

Customers who have an Entergy Arkansas residential or non-residential account that meet the program eligibility requirements may participate. The program eligibility requirements can be found within the Program Description section.

2.11.5 Program Challenges and Opportunities

The Smart Direct Load Control Pilot Program is an innovative program that allows for several paths to participate. The pilot aims to reduce peak electricity demand while also capturing deemed kWh savings from thermostat installations for both residential and commercial

customers. The many paths of participation and thermostat models offered within the program can create customer confusion. As the pilot progresses, continued refinement to program information will improve the enrollment experience. M&V devices are vital to confirm load reduction during conservation events. The program experienced hesitancy in 2022 from the participating customer base in allowing M&V device installation. Program improvements such as offering an incentive for M&V device installation may be needed to achieve M&V goals in 2023.

EM&V Recommendations:

- Model the effect of weather on demand using a lagged time variable.

2.11.6 Planned or Proposed Changes to Program and Budget

The program's implementation and incentive budget and MWh savings will not change in 2023.

2.12 Agricultural Irrigation Load Control Program

2.12.1 Program Description

Entergy Arkansas’ Agricultural Irrigation Load Control (AIRC) Program is designed in accordance with the conservation and energy efficiency benefits and objectives set forth in the C&EE Rules. The Agricultural Irrigation Load Control Program year 2022 is the thirteenth year of the Agricultural Irrigation Load Control Program plan. The 2022 Agricultural Irrigation Load Control Program awarded cash incentives to eligible participants in return for allowing Entergy Arkansas the right to interrupt their irrigation pump motors during peak times of the day for the summer months. Since 2015, the Agricultural Irrigation Load Control Program has been implemented entirely by an Implementing Contractor, Connected Energy.²¹ Connected Energy supplies the control equipment, provides the communications modules, arranges and manages cellular service connections, provides the equipment installation and equipment maintenance activities, manages and operates the required software components and conducts all of the Agricultural Irrigation Load Control Program marketing.

Program rebate incentives are paid to Agricultural Irrigation Load Control Program participants based on Table 2.12.1 below:

Table 2.12.1
Agricultural Irrigation Load Control Incentive Structure

Agricultural Irrigation Load Control Incentive Structure	Tier 1	Tier 2	Tier 3	Tier 4	Tier 5	Tier 6	Tier 7	Tier 8	Tier 9
Motor HP	10-25	26-50	51-75	76-100	101-125	126-150	151-175	176-200	>200
Monthly Incentive*	\$50	\$100	\$200	\$250	\$350	\$450	\$550	\$650	Upon request

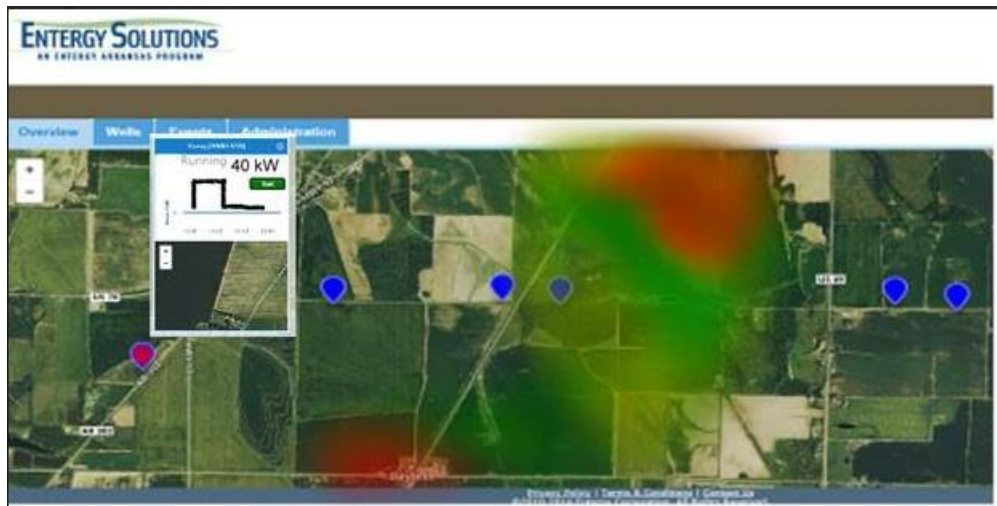
²¹ BPL Global, LLC does business as Connected Energy.

**Incentive void if customer actions interfere with event. Minimum of 64 run-time hours is required during summer months to receive incentive.*

In addition to cash incentives, the participants receive other benefits such as real-time notifications of the program interruptions and secure internet access to control systems which enable the participant to manage their participating pumps remotely year-round. The following screenshot is representative of the typical information and control systems participants may access. The participant portal first gives an overview of the participant’s farm and well locations overlaid with the most current weather radar information. The participant may select any colored well marker to operate the well. Red markers indicate an active irrigation pump and blue markers indicate pumps which are turned off. Yellow colored markers indicate trouble or inactive accounts with no electric service while green markers indicate the pump is under the control of Entergy Arkansas. Selecting any well marker opens up the control window for the pump with the option to turn an active pump off or an inactive pump on. Load consumption data is also displayed.

Figure 2.12.2

Farmer Secure Portal View 1



55 new pump installations and 245 LTE device conversions were completed in 2022. In addition to the 2022 installations and LTE conversions, Connected Energy maintained and managed over 3,500 previously installed well locations from 2014 through 2022. In 2022, the Agricultural Irrigation Load Control Program was registered for a ninth year as a MISO Load

Modifying Resource. The 2022 Agricultural Irrigation Load Control Program demand reduction target was 49.92 MW of curtailment and 1.5 MW firm service level.

2.12.2 Program Highlights

Connected Energy's Operations and Maintenance Highlights:

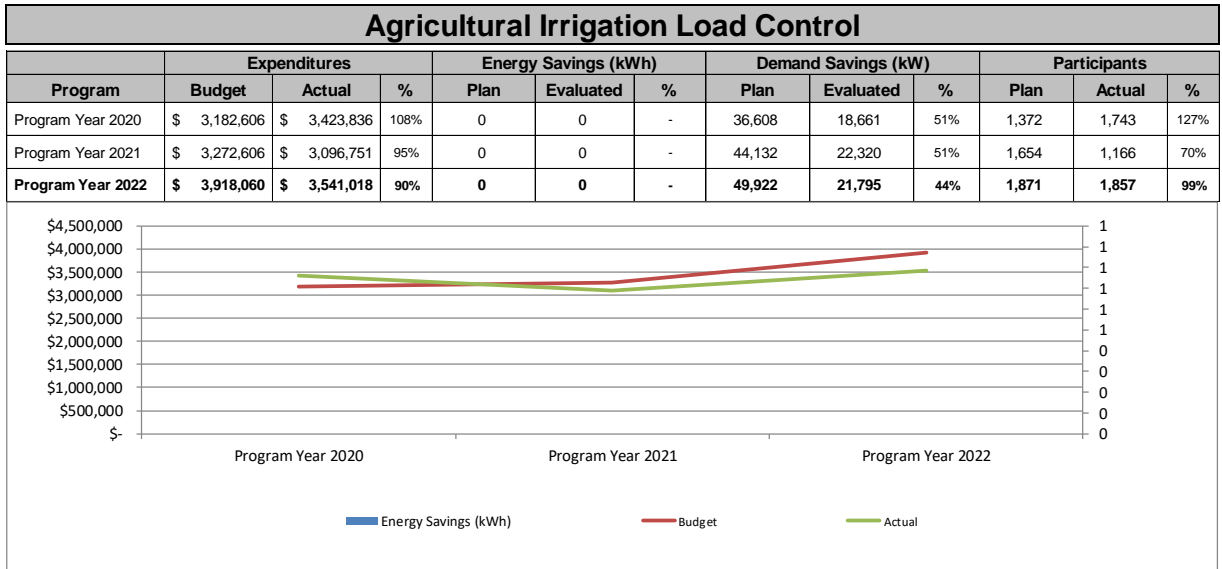
- New Equipment Installations and Conversions: The Agricultural Irrigation Load Control Program executed its 2022 plan of 55 new installations and 245 LTE device conversions.
- Software: Entergy Arkansas successfully executed 5 irrigation load management events in 2022 utilizing the Connected Energy-hosted CNRG-Demand Management and Farmer Portal solutions as the sole operating system.
- Maintenance: Connected Energy completed 154 field maintenance actions to ensure that the overall system performed as required.
- Technology: Connected Energy continued to prioritize 3G device conversions over to the Verizon LTE wireless communication network during all new installation, conversion, and maintenance activities in 2022 due to the termination of the Verizon 3G network on December 31, 2022.

2.12.3 Program Budget, Savings and Participants

Table 2.12.3 is the program budget, annual energy savings and number of participants from Workbook Table 5 as required by the C&EE Rules, Section 9: Annual Reporting Requirements and Order No. 16 in Docket No. 10-010-U.

Table 2.12.3

Agricultural Irrigation Load Control Program Budget, Energy Savings and Participants



Program Events & Training:

- Connected Energy continued to participate in irrigation and farming events in 2022 including the Arkansas Soil and Water Education Conference (virtual) in January 2022.
- AILC device installation and maintenance training was provided to our installation subcontractors on April 12, 2022 and April 26, 2022. Training included the review and reinforcement of all AILC device installation processes supporting new and legacy technology including a review of required PPE, wiring diagrams, mounting, wire termination, phase angle determination, CT orientation, reporting, site cleanup, CDC recommended COVID-19 guidelines, and electrical & environmental safety.

Program Savings:

There were no deemed savings in this program because it is a load control program. On July 12, 2022, a peak load of 24.78 MW was available on the system for curtailment, representing a load increase of 1.09% over 2021.

On July 12, 2022, an evaluated interrupted load of 22.887 MW was curtailed with 1,081 wells reporting as curtailable with 98.8% (total base of 1,094 wells) successfully reporting curtailments. All results were verified by an independent third party who used actual 15-minute interval data from each account with equipment installed to interrupt the loads. The MISO baseline methodology in BPM 26 for SMA continued to be utilized for 2022 evaluations.

In PY 2022, the AILC program responded to five load control events totaling 10 curtailment hours including a targeted 5 hour regional load reduction on June 23 to assist with emergency service repairs at the Harrisburg substation. The first of the events was a test event (June 1), used to verify equipment operability and verify M&V data collections, while the other 4 events occurring on June 16, June 23 and July 12 and July 27 were used to reduce loads during the event hour. The June 1, July 12, and July 27 events were each one hour in duration while the June 16 event lasted 2 hours and the June 23 (Harrisburg only) event lasted 5 hours. The data collected by the metering equipment allowed each participant to have their load metered in a 15-minute interval for the entire load-control season, providing highly granular data to support program baseline and event savings calculations.²²

2.12.4 Description of Participants

A participant is an Entergy Arkansas agricultural irrigation pumping account that is receiving Agricultural Irrigation Load Control Program rebate incentives as a result of being an active participating account controlled by Entergy Arkansas during an event. Program marketing and enrollment is primarily executed via direct mail, following up with a call. Other marketing channels included social media posts on Facebook and Twitter and farmer referrals.

2.12.5 Program Challenges and Opportunities

- Maximum curtailable AILC system load increased 1.09% between 2021 and 2022.
- Existing program participants, or “First Chance” farmers, made up the majority of new AILC program enrollment requests in 2022.

²² PY2022 Agricultural Irrigation Load Control Program Impact Evaluation Results, Evaluation Report, Tetra Tech, 18 April 2023, p. 316.

- Some AILC program participants misplace or delay depositing seasonal incentive checks beyond the 90-Day timeframe after which the checks may become void and must be reissued.
- Face to Face events with program stakeholders remained a challenge during 2022 due to the COVID-19 pandemic.
- Over 60 new installation requests were received in 2022 after the device deployment phase of the program had ended. These requests will carry over into 2023 for screening and fulfillment.

Program Outlook for Continuation, Expansion, Reduction or Termination:

2023 recruiting: Connected Energy will continue to support new pump enrollments in 2023 from existing program participants and the prioritization of larger motor well pump locations during 4LTE conversions to maximize the total load potential contributing to the Agricultural Irrigation Load Control Program.

2.12.6 Planned or Proposed Changes to Program and Budget

- AILC program concentration in 2023 will include the LTE device conversion of active and participating 3G devices due to the termination of the Verizon wireless 3G network on December 31, 2022.

2.13 Energy Efficiency Arkansas

- The Energy Efficiency Arkansas (EEA) Program's objective is to cost-effectively deliver relevant, consistent, and fuel neutral information and training that causes people to consume less energy through energy efficiency and conservation measures. By leveraging the knowledge, experience, and skills of the Arkansas Energy Office and the combined resources of the undersigned utilities, the EEA Program will be able to deliver that information and training in the most cost-effective manner as required for statewide energy efficiency.
- Orders No. 65 and 62 in Docket Nos. 13-002-U and 07-083-TF respectively, grants the Arkansas Energy Office (AEO) request to terminate the EEA Comprehensive Program no later than December 31, 2023. AEO intends to independently administer a separate and independent suite of energy education and training programs, similar to the EEA. The AEO will administer the expanded suite of programs with state and federal funding and will no longer need funding from the Arkansas utilities. No additional funding was administered for the program after December 31, 2022.
- For more information about this program please see the EEA report as filed by the Arkansas Energy Office on May 1, 2023 in Docket No. 07-083-TF.

3.0 Supplemental Requirements

3.1 Staffing

The 2022 programs had five full-time staff members, one of whom is an Energy Efficiency program manager, plus one full-time employee to assist in marketing and communications coordination, two part-time contract employees to assist in administrative and analysis activities, and three part-time contract employees to assist in quality assurance and control. The certifications, education and experience of the Entergy Arkansas staff makes for a strong team. Of the five full-time staffers, two are degreed engineers. Combined, the staff brings knowledge and experience in customer service, market planning, product development, construction and transmission project experience, transmission planning, accounting, regulatory affairs, and community and economic development. Three staff members have Association of Energy Engineers Business Energy Professional certification, and one staff member has an Association of Energy Engineers Energy Efficiency Practitioner Professional certification and another is an Association of Energy Engineers Certified Energy Manager. The staff includes a certified energy auditor that, also, holds a BPI certification. One staff member has a Master's degree in the area of business, and one has an accounting degree. The utility also leveraged many other non-incremental employees to promote the programs, provide benefit cost analysis, regulatory and legal support, back-office billing and contractor recruitment for the irrigation load control program.

None of the non-incremental employees used more than 50% of their annual man-hours supporting the programs.

3.2 Stakeholder Activities

Entergy Arkansas is involved in all of the Commission-ordered stakeholder processes. Entergy Arkansas considers stakeholders to be customers, trade allies, and state agencies that provide informative feedback to enhance program delivery and acceptance. Further, all training

activities provide opportunities for the collaborative exchange of ideas and enhancements. Those training sessions can be found below, as well as in the 2022 SARP tabular report.

EXTERNAL TRAININGS

Event No.	Start Date	Class
1.	1/3/2022	Retail Store Training
2.	1/3/2022	One on One Meetings
3.	1/27/2022	Arkansas Soil and Water Education Conference (Virtual)
4.	1/31/2022	Smart DLC Training
5.	2/1/2022	Retail Store Training
6.	2/2/2022	Comm Trade Ally Trainings
7.	2/2/2022	One on One Meetings
8.	2/9/2022	LIS TA Training
9.	2/12/2022	Trade Ally
10.	2/15/2022	Trade Ally
11.	2/16/2022	LIS H&S Training
12.	2/18/2022	Trade Ally
13.	2/18/2022	HES/LIS/MA/MF/SDLC Customer Service Training
14.	2/19/2022	LIS H&S Training
15.	2/19/2022	LIS H&S Training
16.	2/23/2022	Trade Ally
17.	2/24/2022	HES/LIS/MA/MF Field Tool Training
18.	2/25/2022	LIS H&S Training
19.	3/1/2022	Retail Store Training
20.	3/1/2022	One on One Meetings
21.	3/1/2022	LIS H&S Training
22.	3/1/2022	LIS H&S Training
23.	3/2/2022	Trade Ally
24.	3/2/2022	Trade Ally
25.	3/2/2022	Comm Trade Ally Trainings
26.	3/3/2022	Trade Ally
27.	3/3/2022	Trade Ally
28.	3/3/2022	LIS H&S Training
29.	3/4/2022	LIS Field tool training

30.	3/5/2022	LIS H&S Training
31.	3/8/2022	LIS H&S Training
32.	3/8/2022	LIS H&S Training
33.	3/9/2022	Trade Ally
34.	3/9/2022	LIS H&S Training
35.	3/9/2022	Energy Efficiency 101
36.	3/10/2022	Trade Ally
37.	3/10/2022	LIS H&S Training
38.	3/12/2022	LIS H&S Training
39.	3/12/2022	LIS H&S Training
40.	3/16/2022	Trade Ally
41.	3/16/2022	Energy Efficiency 101
42.	3/17/2022	Trade Ally
43.	3/22/2022	Darryl McCauley
44.	3/24/2022	Utility Program Services
45.	3/25/2022	Trade Ally
46.	3/25/2022	Trade Ally
47.	3/26/2022	Trade Ally
48.	3/30/2022	Trade Ally
49.	3/30/2022	Trade Ally
50.	3/31/2022	One on One Meetings - Trade Ally Training
51.	4/1/2022	Retail Store Training
52.	4/1/2022	One on One Meetings
53.	4/2/2022	Comm Trade Ally Trainings
54.	4/2/2022	LIS TA Training & H&S Training
55.	4/5/2022	LIS H&S Training
56.	4/7/2022	HES/LIS/MA/MF Field Tool Training
57.	4/7/2022	Seasonal AILC program update to Entergy NE and SE Service Centers
58.	4/14/2022	Trade Ally
59.	4/16/2022	Trade Ally
60.	4/16/2022	Home Energy Solutions Field tool Training
61.	4/21/2022	AILC Field Operations - Device Installation, maintenance, troubleshooting, safety
62.	4/28/2022	Trade Ally
63.	5/1/2022	Retail Store Training
64.	5/1/2022	One on One Meetings
65.	5/2/2022	Comm Trade Ally Trainings
66.	5/3/2022	AILC Field Operations - Device Installation, maintenance, troubleshooting, safety
67.	5/11/2022	Trade Ally
68.	5/13/2022	Trade Ally

69.	5/13/2022	Trade Ally
70.	5/18/2022	Trade Ally
71.	6/1/2022	Retail Store Training
72.	6/1/2022	One on One Meetings
73.	6/1/2022	One on One Meetings - Trade Ally Training
74.	6/2/2022	Comm Trade Ally Trainings
75.	6/4/2022	HES/LIS/MA/MF Field Tool Training
76.	6/10/2022	Trade Ally
77.	6/10/2022	Trade Ally
78.	6/11/2022	Trade Ally
79.	6/17/2022	Trade Ally
80.	6/18/2022	Trade Ally
81.	6/28/2022	Trade Ally
82.	6/30/2022	Trade Ally
83.	6/30/2022	HES/LIS/MA/MF Field Tool Training
84.	7/1/2022	Trade Ally
85.	7/1/2022	Retail Store Training
86.	7/1/2022	One on One Meetings
87.	7/2/2022	Comm Trade Ally Trainings
88.	7/6/2022	HVAC Professionals CE
89.	7/15/2022	Trade Ally
90.	7/20/2022	Trade Ally
91.	8/1/2022	Retail Store Training
92.	8/1/2022	One on One Meetings
93.	8/1/2022	One on One Meetings - Trade Ally Training
94.	8/2/2022	Comm Trade Ally Trainings
95.	8/4/2022	Trade Ally
96.	8/12/2022	Trade Ally
97.	8/18/2022	Trade Ally
98.	8/19/2022	Customer Service Training
99.	8/26/2022	Trade Ally
100.	8/27/2022	Trade Ally
101.	9/1/2022	Trade Ally
102.	9/1/2022	Retail Store Training
103.	9/1/2022	Comm Trade Ally Trainings
104.	9/1/2022	One on One Meetings
105.	9/1/2022	One on One Meetings - Trade Ally Training
106.	9/8/2022	Trade Ally
107.	9/14/2022	Robert Irby, Trade Ally
108.	9/14/2022	CLEAResult Energy Forum
109.	9/14/2022	HES/LIS/MA/MF/SDLC Customer Service Training
110.	9/16/2022	HES/LIS/MA/MF/SDLC Customer Service Training

111.	9/17/2022	Trade Ally
112.	9/20/2022	Trade Ally
113.	9/28/2022	Trade Ally
114.	9/28/2022	Trade Ally
115.	9/29/2022	International Mechanical Code Updates
116.	10/1/2022	Retail Store Training
117.	10/1/2022	One on One Meetings
118.	10/1/2022	HES/LIS/MA/MF Field Tool Training
119.	10/13/2022	Trade Ally
120.	10/13/2022	Trade Ally
121.	10/15/2022	Trade Ally
122.	10/15/2022	Trade Ally
123.	10/21/2022	Trade Ally
124.	10/26/2022	Trade Ally
125.	10/27/2022	2022 AILC Lessons Learned Meeting
126.	10/29/2022	Trade Ally
127.	11/1/2022	Retail Store Training
128.	11/1/2022	One on One Meetings
129.	11/2/2022	Comm Trade Ally Trainings
130.	11/12/2022	Trade Ally
131.	11/18/2022	Trade Ally
132.	11/30/2022	Trade Ally
133.	11/30/2022	Trade Ally
134.	12/1/2022	Retail Store Training
135.	12/1/2022	One on One Meetings
136.	12/7/2022	Trade Ally
137.	12/13/2022	Trade Ally
138.	12/16/2022	2022 Trade Ally Kick off
139.	12/16/2022	HES/LIS/MA/MF/SDLC Customer Service Training
140.	12/16/2022	HES/LIS/MA/MF Field Tool Training
TOTAL: 140 Trainings		

INTERNAL TRAININGS

Event No.	Start Date	Class
1.	1/2/2022	FERC Standards of Conduct and Affiliate Restrictions Training
2.	1/2/2022	Email Security
3.	1/2/2022	Non-Nuc Contract Manager Module 1

4.	1/12/2022	ENERGY STAR Partner Spotlight
5.	1/22/2022	Virtual Tools - Stream 101
6.	2/3/2022	2022 State Transportation Electrification Scorecard
7.	2/4/2022	ENERGY STAR webinar
8.	2/26/2022	ENERGY STAR HPWH training
9.	3/1/2022	AESP
10.	3/8/2022	Phishing training 2019 Nov Credential Phishing Training
11.	3/8/2022	Avoid Credential Emails Video
12.	3/8/2022	Introduction to Continuous Improvement
13.	3/10/2022	Anticompetitive Behavior
14.	3/22/2022	Developing a Continuous Improvement Mindset
15.	3/22/2022	Pandemic Awareness
16.	3/27/2022	Phishing 2020 Feb Link Training
17.	3/31/2022	S_Invoice_Verifier_Acknowledge
18.	3/31/2022	Course Code Invoice Verifier WBT FIN
19.	4/16/2022	BPI Healthy Housing Principles Exam
20.	5/4/2022	Smart Meters and EE
21.	5/4/2022	Smart Meters and EE
22.	5/4/2022	URL Training
23.	5/4/2022	Workplace Violence Prevention
24.	5/5/2022	Managing Entergy Records
25.	5/19/2022	Introduction to Customer Centricity
26.	5/19/2022	Code of Entegrity Acknowledgement Process
27.	5/28/2022	Discrimination and Harassment Prevention
28.	5/28/2022	Incident Response 101
29.	6/1/2022	General Ethics
30.	6/8/2022	Contractor Safety Management 1
31.	6/10/2022	Procurement
32.	7/13/2022	Understanding the Building Envelope Systems Impact on Energy Consumption
33.	7/13/2022	Understanding the Building Envelope Systems Impact on Energy Consumption
34.	7/13/2022	Leveraging the Continuous Improvement Toolkit
35.	7/13/2022	Heat Exhaustion Prevention
36.	7/26/2022	Energy Star Smart Thermostats
37.	7/27/2022	Corporate Risk Control Standards
38.	8/23/2022	S-Supply Chain_Diversity_CBT_2020
39.	8/23/2022	COVID-19 Exposure Control Guidelines
40.	8/23/2022	AirsWeb SCL Update
41.	8/24/2022	Bloodborne Pathogens
42.	8/26/2022	SCL Model
43.	9/8/2022	Hazard Communications

44.	9/9/2022	S-CIP-013_CBT
45.	9/9/2022	Insider Threat Awareness
46.	9/9/2022	Compliance Culture Training
47.	9/9/2022	Navigating PDCA in the Workplace
48.	9/9/2022	HUMM 1: How Utilities Make Money Overview
49.	9/9/2022	HUMM 2: How a Competitive Company Makes Money
50.	9/9/2022	HUMM 3: How and Why Utilities are Regulated
51.	9/9/2022	HUMM 4: Business Basics for Regulated Utilities
52.	9/10/2022	HUMM 5: Ratemaking
53.	9/10/2022	HUMM 6: Earnings
54.	9/11/2022	GRID MOD 101
55.	9/20/2022	Certified Energy Manager Training
56.	9/21/2022	Energy Thought Summit
57.	9/21/2022	Energy Thought Summit
58.	9/21/2022	Energy Thought Summit
59.	9/22/2022	Workflow Overview Video
60.	9/22/2022	GRID MOD 102
61.	9/22/2022	Non-Nuc Contract Manager Module 2
62.	9/23/2022	GRID MOD 102
63.	9/28/2022	ENERGY STAR 2022 Product Promotions Kick-off
64.	9/29/2022	Maximo Application Tour
65.	10/11/2022	Building Energy Professional
66.	10/13/2022	ENERGY STAR Home Upgrade: An Overview
67.	10/14/2022	AAEA conference
68.	10/18/2022	ACAAA Conference
69.	10/19/2022	Logistics 101
70.	10/19/2022	AEE World Conference
71.	10/26/2022	Stop Initiative Training Refresher
72.	11/8/2022	ENERGY STAR Partner meetings
73.	11/9/2022	ENERGY STAR Partner meetings
74.	11/9/2022	Excel Pivot Tables and Charts
75.	11/10/2022	ENERGY STAR Partner meetings
76.	11/11/2022	ENERGY STAR Partner meetings
77.	11/13/2022	Protection of Information
78.	11/23/2022	Basic Code Block Training
79.	12/1/2022	Heat Pump Water Heater training
80.	12/1/2022	BPI Building Analyst Training
Total: 80 Trainings		

3.3 Information Provided to Consumers to Promote Energy Efficiency

See Appendix D.

Appendix A: [EM&V Report](#)

Appendix D: [Marketing Collateral](#)



ENERGY ARKANSAS, LLC
Arkansas Energy Efficiency
Program Portfolio Annual Report

Docket No. 07-085-TF
2022 PROGRAM YEAR
May 1, 2023

Appendix A

EM&V Report for Entergy Arkansas, LLC Annual Report

Evaluation Report—Program Year 2022



April 24, 2023



TETRA TECH

6410 Enterprise Lane, Suite 300 | Madison, WI 53719
Tel 608-316-3700

tetrattech.com

ACKNOWLEDGEMENTS

We want to acknowledge the many individuals who contributed to the evaluation, measurement, and verification (EM&V) of the program year 2022. This evaluation effort would not have been possible without their assistance and support.

Entergy Arkansas, LLC (EAL) staff participated in ongoing evaluation deliverable reviews and discussions, attended multiple meetings, and responded to follow-up questions and program data and documentation requests. EAL staff included Sharnelle Allen, Santiago Asimbaya, Beau Blankenship, Heather Hendrickson, and Denice Jeter. The Independent Evaluation Monitor (IEM) led by Dr. Katherine Johnson also provided input and guidance throughout the evaluation process. We also wish to thank implementation contractor staff at CLEAResult, ICF Consulting, Itron, and Connected Energy, who provided program data and documentation and insight into program implementation. Also, CGI's team overseeing EAL's data-tracking system provided assistance throughout the year in understanding data extracts from EAL's program tracking system. It provided high-quality data that was user-friendly and readily available to the EM&V team.

EM&V team primary report contributors include:

Firm	Contributor	Role
Tetra Tech	Lark Lee	Project director and technical reviewer
	Jonathan Hoechst	Project manager, demand response and non-energy benefits lead
	Kendra Mueller	Commercial sector lead
	Katie Jakober	Residential sector lead
	Carrie Koenig	Process and net-to-gross lead
	Theresa Wells, Holly Farah, Nathan Kwan, Mohammad Qandil	Program leads
	Simran Padam, Graham Thorbrogger	Data analysis and reporting

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ACRONYMS/ABBREVIATIONS

Acronym/abbreviation	Term
AEE	Association of Energy Engineers
AC	Air conditioner
ADRC	Avoided and deferred replacement cost
AER	Automatic engineering review
AES	Agricultural Energy Solutions
AOH	Annual operating hours
AILC	Agricultural Irrigation Load Control
APSC	Arkansas Public Service Commission
ArchEE	Entergy Arkansas Energy Efficiency Tracking System
BR	Bulged reflector
C&EE	Conservation and energy efficiency
C&I	Commercial and industrial
CEE	Consortium for Energy Efficiency
CF	Coincidence factor
CCFL	Cold cathode fluorescent lamp (bulb)
CFL	Compact fluorescent lamp (bulb)
CFM	Cubic feet per minute
CPM	Computer power management
DCU	Digital control unit
DI	Direct install
DLC	DesignLights Consortium
EAL	Entergy Arkansas, LLC
ECM	Electronically-commutated motor
EER	Energy efficiency ratio
EFLH	Equivalent full-load hours
EISA	Energy Independence and Security Act
EL	Efficiency loss
EM&V	Evaluation, measurement, and verification
ESCO	Energy service company
GPM	Gallons per minute
HDD	Heating degree days
HEC	Home Energy consultants
HES	Home Energy Solutions

Acronym/abbreviation	Term
HID	High-intensity discharge
HOU	Hours of use
HP	Heat pump
HSPF	Heating seasonal performance factor
HVAC	Heating, ventilation, and air conditioning
IEF	Interactive effects factor
IEM	Independent Evaluation Monitor
IEER	Integrated Energy Efficiency Ratio
IPLV	Integrated part-load value
IPMVP	International Performance Measurement and Verification Protocol
ISR	In-service rate
IT	Information technology
kW	Kilowatt
kWh	Kilowatt-hour
LED	Light-emitting diode
LFL	Linear fluorescent lamp
LMR	Load modifying resource
LPD	Lighting power density
M&V	Measurement and verification
MR	Multifaceted reflector
NC	New construction
NEB	Non-energy benefit
MISO	Midcontinent Independent System Operator
MW	Megawatt
MWh	Megawatt-hour
NPV	Net present value
NTG	Net-to-gross
PAC	Program administrator cost
PAR	Parabolic aluminized reflector
PCT	Participant cost test
PG&E	Pacific Gas & Electric
PSE	Puget Sound Energy
PSI	Pounds per square inch
PSIG	Pounds per square inch in gauge

Acronym/abbreviation	Term
PTAC	Packaged Terminal Air Conditioners
PTHP	Packaged Terminal Heat Pumps
PY	Program year
QA	Quality assurance
QC	Quality control
QMP	Quality management process
RCA	Refrigerant charge adjustment
Res DLC	Residential Direct Load Control
RIM	Ratepayer impact measure
RLA	Residential Lighting and Appliances
ROB	Replace-on-burnout
SDLC	Smart Direct Load Control
SEER	Seasonal energy efficiency ratio
SMA	Symmetric multiplicative adjustment
TMY	Typical meteorological year
TRM	Technical reference manual
VFD	Variable frequency drive

1.0 EXECUTIVE SUMMARY

In program year (PY) 2022 (PY2022), Entergy Arkansas, LLC (EAL) provided a comprehensive range of customer options focused on energy efficiency and demand reduction coupled with education and training activities through 11 energy efficiency programs and 1 pilot. EAL designed its portfolio to meet the following objectives:

- achieve the net energy-savings target of 285,148 megawatt-hours (MWh) and demand reduction target of 162 megawatts (MW)¹;
- provide significant energy-savings opportunities for all customers and market segments, including low-income and senior customer segments as outlined in Act 1102, resulting in broad ratepayer benefits;
- meet comprehensiveness in seven areas (i.e., comprehensiveness factors) defined by the Arkansas Public Service Commission (APSC)²; and
- deliver the consistent weatherization approach (CWA) through its residential programs.

EAL selected an independent, third-party evaluation contractor under APSC Rules for Conservation and Energy Efficiency Programs (C&EE Rules). EAL selected Tetra Tech as its evaluation, measurement, and verification (EM&V) contractor. The PY2022 EAL evaluation included impact and process analyses specified in the APSC rules and follows the Arkansas Technical Reference Manual (TRM) Version 9.0 Volume 1 protocols and savings algorithms. Figure 1 highlights the primary evaluation activities. The independent evaluation monitor (IEM) reviews and provides feedback on Tetra Tech's evaluation plans.

Deviations from evaluation plan. The PY2022 Evaluation Plan³ included up to 315 desk reviews, 90 on-sites, and census meter analysis for three demand programs for gross impact evaluation activities. The EM&V team completed 404 desk reviews, 90 on-sites, and 37 meter analyses. Metered data analysis is included as an optional task for commercial evaluation plan if determined to be needed for custom projects. In PY2022, the EM&V team completed 26 custom project-level meter analyses for Large C&I Solutions and 8 for Public Institutions Solutions in addition to the census demand response program analysis. Agricultural Solutions only received 10 desk reviews in PY2022 instead of the planning estimate of up to 30 as large new construction cultivation projects resulted in fewer individual program participants. The EM&V team refines target competes throughout the evaluation period during sampling based on the results' confidence and precision. For each program, the EM&V team's impact results achieved better than the industry standard of 90 percent confidence ± 10 percent (the reader is referred to the Technical Appendix for precision calculations by program). Four programs and the cross-cutting commercial *AC tune-up* measure had process evaluations completed for this evaluation period. A total of 125 participant surveys and 15 market actor interviews were planned to support those efforts. The EM&V team completed 203 surveys and 24 market actor interviews to increase representation across different measures.

¹ The APSC approved EAL's 2020–2022 Energy Efficiency Plan in response to Commission Order No. 41 in Docket No. 13-002-U.

² As defined by the APSC in the C&EE Rules of Order No. 17 in Docket 08-144-U.

³ Entergy Arkansas, LLC Program Year 2022 Evaluation Plan, Tetra Tech, July 2022.

Figure 1. Highlights of the PY2022 Evaluation Activities

The impact evaluation resulted in a defensible lifetime and annual gross and net energy and demand estimates. Impact evaluations were used to calculate realization rates; these rates are determined by dividing evaluated savings (ex-post) by EAL reported savings (ex-ante savings). A net-to-gross (NTG) ratio was applied to the evaluated savings to determine the net evaluated or achieved savings. The overarching approach to impact evaluations was to:

- complete a tracking system review to assess if TRM 9.0 is correctly applied to calculate savings⁴ and assess data captured for new or expanded measure offerings;
- adjust program-reported gross savings using the results of evaluation research, relying primarily on tracking system and engineering desk reviews, metered data analysis, and on-site or independent verification;
- discuss evaluation adjustments for TRM deemed savings or custom measures in each program-level impact section, and document reasons for adjustments and how they directly inform impact recommendations;
- achieve a minimum precision of ± 10 percent of the gross realized savings estimate with 90 percent confidence;
- update program NTG values with primary or secondary data research for every program once over the PY2020–PY2023 program cycle⁵ as well as review and adjust NTG ratios annually for any changes in the program design or measure mix;
- provide complete documentation and transparency of all evaluated savings estimates⁶;
- provide ongoing technical reviews and guidance to implementers and EAL up-front;

⁴ Tracking system review realization rates provided in program-level detailed results are very close to or 100 percent. The EM&V team completes an interim census tracking system review mid-program-year to facilitate adjustment in savings calculations as needed. This proactive review supports corrections being made prior to final tracking data and supports healthier realization rates at the end of the program year.

⁵ In response to pandemic challenges, the three-year program cycle now also included a PY2023 bridge year.

⁶ For detailed desk review and on-site results, the reader is referred to the Technical Appendix to this report.

- calculate portfolio non-energy benefits (NEB); and
- conduct EM&V research to inform possible updates for the next version of the TRM.

The approach to the process evaluation was to:

- gain an in-depth understanding of program operations, challenges, and evaluation needs through interviews with EAL and implementation contractor key staff at both the beginning and end of the evaluation cycle, complemented with communication and program documentation reviews throughout the program year, including biweekly implementation contractor status meetings;
- conduct a comprehensive process evaluation for every program once over the three-year PY2020–PY2023 program cycle and assess other process evaluation needs annually;
- document EAL's progress in incorporating recommendations identified during the prior year evaluation; and
- update the assessment of EAL's success in achieving the goals and objectives established in the APSC's Comprehensiveness Checklist.

Table 1 provides a summary of EM&V activities by each program in the PY2022 portfolio.

Table 1. Summary of Evaluation, Measurement, and Verification Activities for EAL PY2022 Programs

Program	NTG approach	Process evaluation activities	Gross impact evaluation completes			
			Tracking system review	Desk reviews	On-site M&V or independent verification	Metered data analysis ⁷
Home Energy Solutions	Deemed from prior research	Program staff interviews (2) Material review	Census	70	15	None
Energy Solutions for Multifamily	Deemed from prior research, supported by PY2021 process evaluation research	Program staff interviews (2) Material review	Census	32	6	None

⁷ This column refers to EAL customer metered data provided to the EM&V team as opposed to primary metered data collected as part of the on-site measurement and verification (M&V).

Program	NTG approach	Process evaluation activities	Gross impact evaluation completes			
			Tracking system review	Desk reviews	On-site M&V or independent verification	Metered data analysis ⁷
Energy Solutions for Manufactured Homes	Deemed from prior research, supported by PY2021 process evaluation research	Program staff interviews (2) Material review	Census	26	6	None
Low-Income Solutions	Primary research with program participants	None	Census	41	5	None
Point of Purchase Solutions	Deemed from prior research, supported by PY2021 process evaluation research	Program staff interviews (2) Materials review	Census	100	None	None
Large Commercial & Industrial Solutions ⁸	Prior research and updates from the current evaluation	Program staff interviews (2) Materials review Participant surveys (30) Market actor interviews (2)	Census	70	30	26
Small Business Solutions	Updated from current evaluation research	Program staff interviews (2) Materials review Participant surveys (97) Market actors (12)	Census	25	11	None

⁸ Large Commercial and Industrial Solutions also included 24 early engagement reviews.

Program	NTG approach	Process evaluation activities	Gross impact evaluation completes			
			Tracking system review	Desk reviews	On-site M&V or independent verification	Metered data analysis ⁷
Public Institutions Solutions	Updated from current evaluation research	Program staff interviews (2) Materials review Participant surveys (59) Market actors (12)	Census	30	15	8
Agricultural Energy Solutions	Updated from current evaluation research	Program staff interviews (2) Materials review Participant surveys (17)	Census	10	2	None
Residential Direct Load Control	Deemed at 1.0 as industry practice	Program staff interviews (2) Materials review	Census	None	None	Census
Smart Direct Load Control Pilot	Deemed from prior research	Program staff interviews (2) Materials review	Census	None	None	Census
Agricultural Irrigation Load Control	Deemed at 1.0 as industry practice	Program staff interviews (2) Materials review Participant surveys (57)	Census	None	None	Census

1.1 KEY FINDINGS AND RECOMMENDATIONS

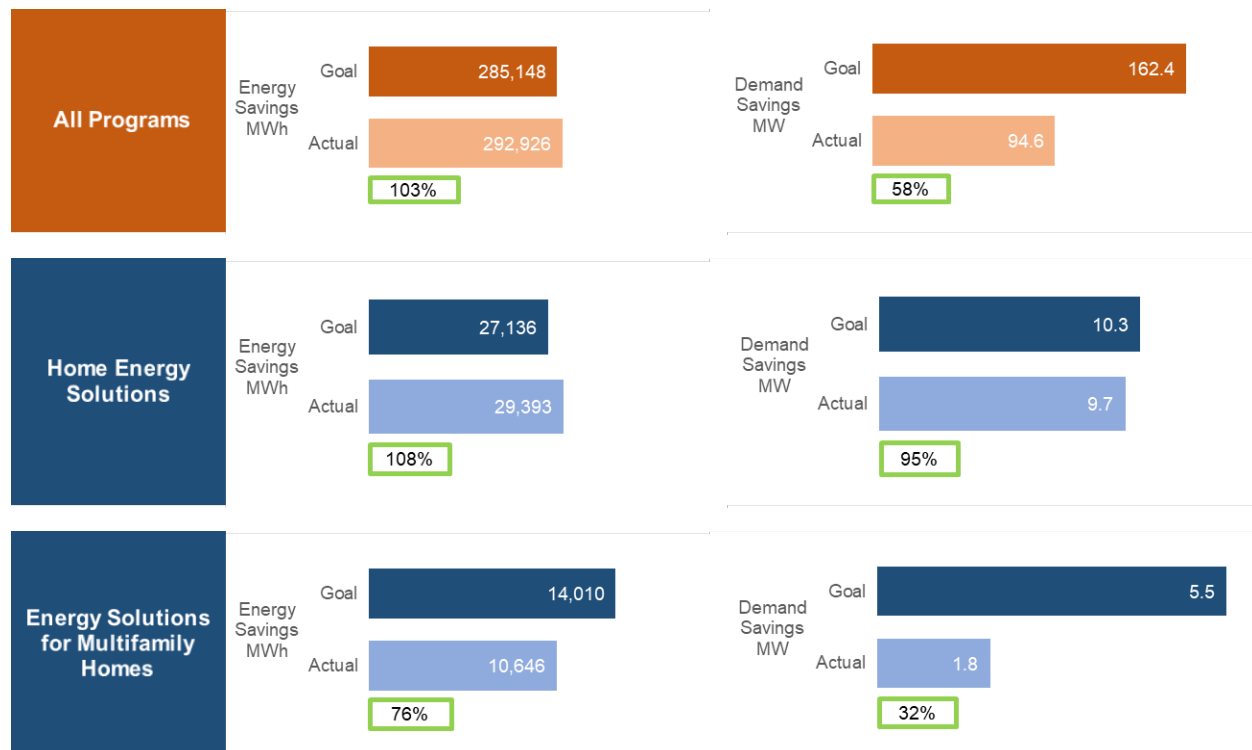
EAL exceeded its portfolio energy goals, achieving 103 percent of its filed goal and over 130 percent of APSC targets. EAL again fell short of its demand goals, meeting 58 percent of the portfolio demand goal. The performance difference between energy savings and demand goals is similar to the last few years; the demand reduction shortfall is driven primarily by the demand response programs not meeting their planning demand reductions as well as some of the energy efficiency programs as discussed below. Investigations into better aligning energy savings and demand savings in the next program plan continue per a recommendation from prior evaluations. The EM&V team has conducted measure-level analysis that provide additional insight into the kilowatt-hour and kilowatt performance differences. This measure-level analysis and a market trends study can be found in Section 3. An overarching theme from the market trends research is that the cost of energy efficiency is increasing. Primary causes of this are inflationary pressures, market saturation resulting from program efforts and the growth of solar, and decreasing profit margins affecting program partnerships across the distribution channel.

Individual program performance relative to program savings and demand goals varied. Six of the ten programs⁹ achieved their megawatt-hour savings goals. Four programs did not reach their energy savings goals; these four programs ranged between 58 percent and 88 percent of energy savings goals. EAL, the program implementer, and the EM&V team have discussed this shortfall and program changes to increase energy savings next year. Four of the 12 programs achieved their megawatt goals; two programs met 90 percent or more of the demand savings goal; and six met less than 90 percent of the demand savings goal.

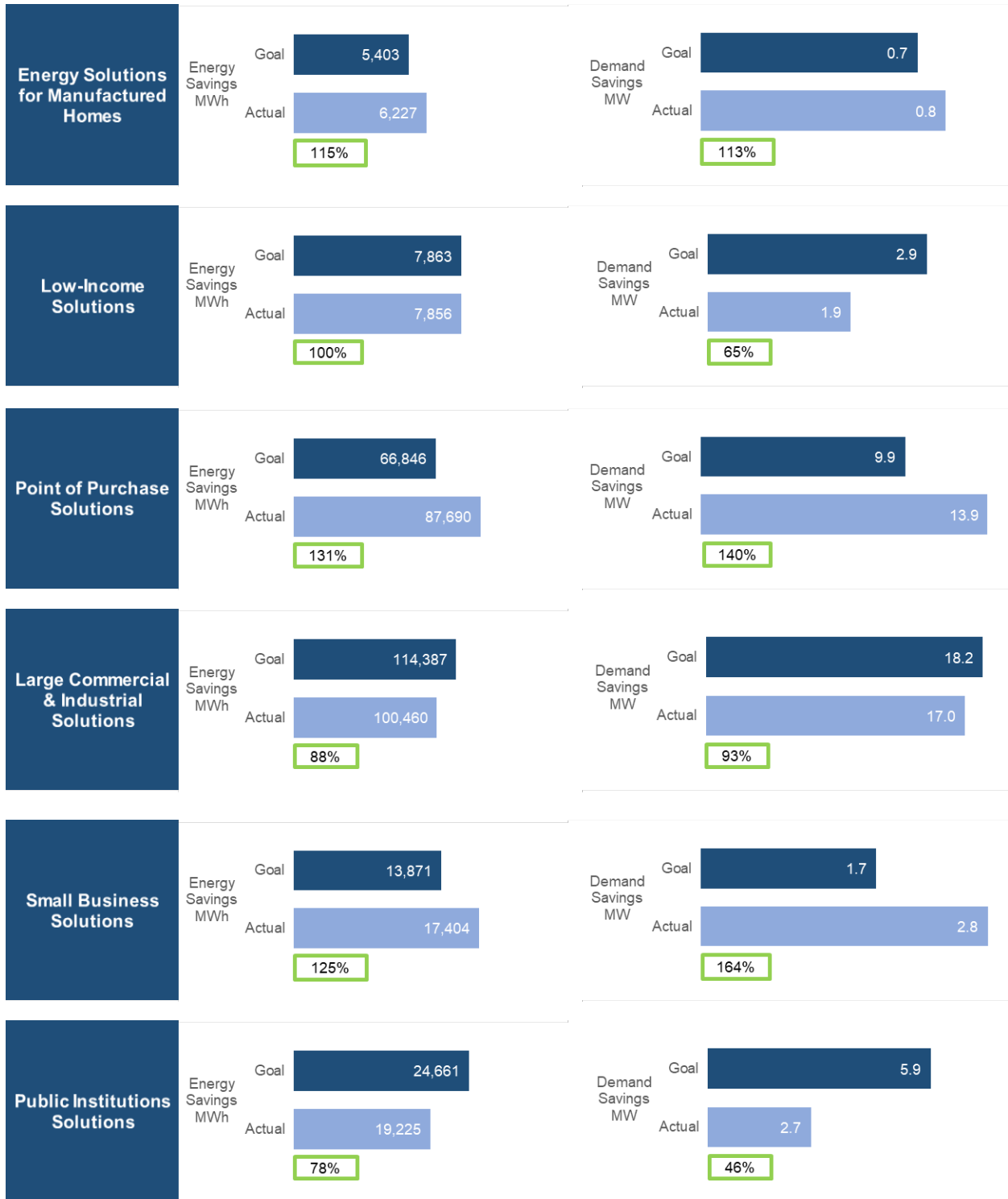
The Smart Direct Load Control pilot continues to struggle to gain momentum, meeting 58 percent of its energy savings and 17 percent of its demand reduction goals. While Energy Solutions for Multifamily Homes fell short of goal, all of the other residential programs met or exceeded energy savings goals. The largest commercial programs, Large Commercial and Industrial Solutions and Public Institutions Solutions, did not meet planned goals but this shortfall was made up by Small Business Solutions and Point of Purchase Solutions. The Agricultural Energy Solutions program continues to be the highest performer across energy savings and demand reductions relative to program goals as the program has seen a few large new construction projects in recent years.

Figure 2 shows the portfolio's total performance relative to program goals, followed by each program's achieved savings relative to program goals.

Figure 2. EAL PY2022 Achieved Savings Relative to Program Goals—Overall and by Program



⁹ Residential Direct Load Control and Agricultural Irrigation Load Control programs had no megawatt-hour savings goals.



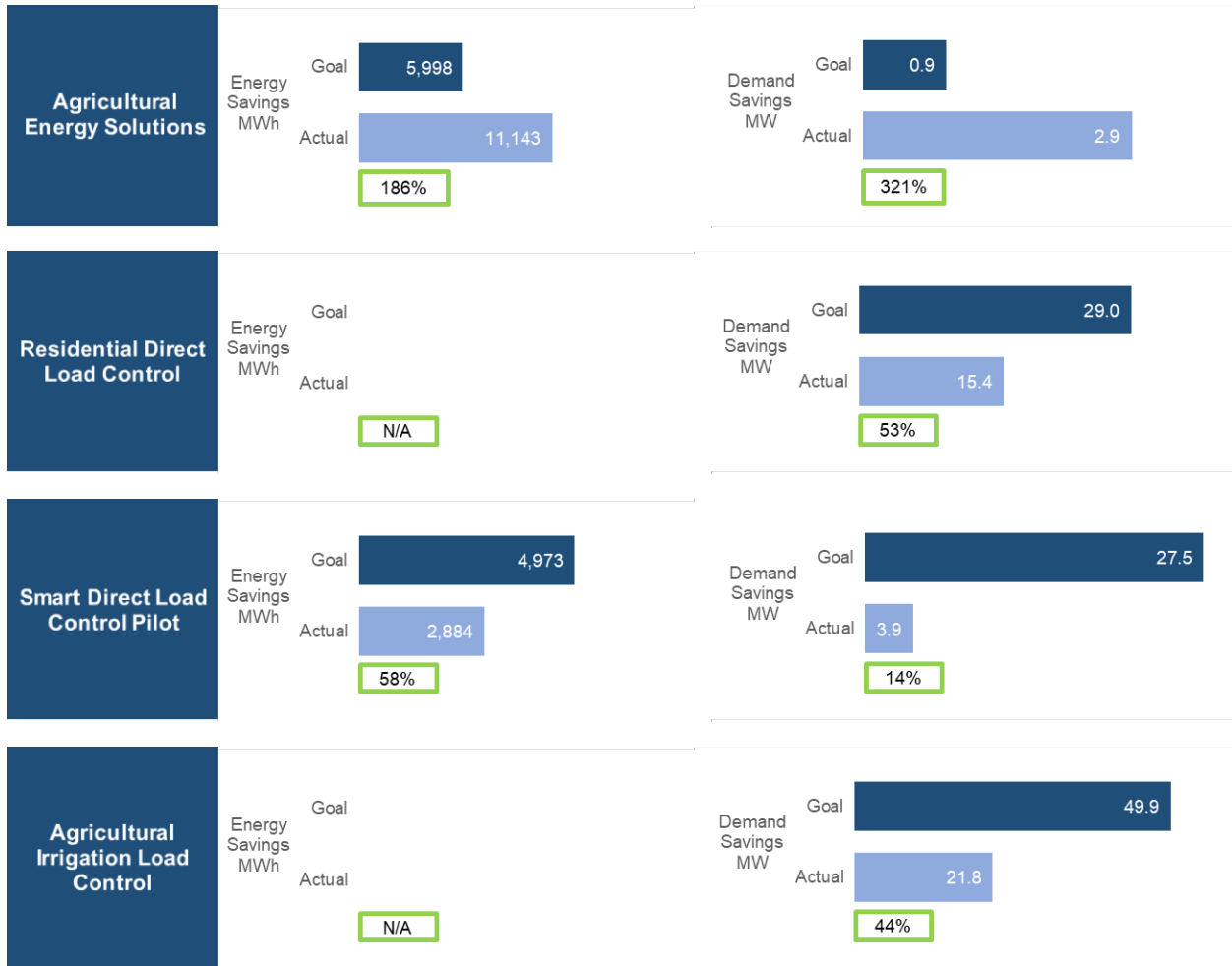
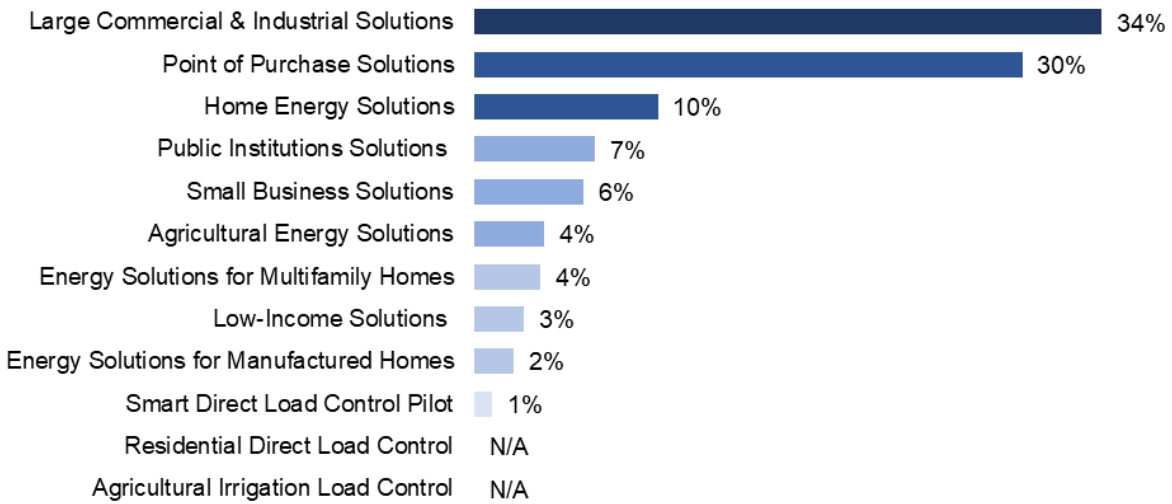


Figure 3 shows each programs’ contribution toward the total portfolio's net energy savings. Large Commercial and Industrial Solutions and Point of Purchase Solutions are the two most significant contributors toward energy savings goals, contributing over one-third (34 percent) and almost one-third (30 percent) of total portfolio energy savings, respectively.

Notably, over a quarter (26 percent) of portfolio savings are achieved through successfully reaching harder-to-reach sectors. EAL employs best practices in its portfolio design by including programs that specifically address the barriers to energy efficiency in these harder-to-reach sectors (public institutions, small businesses, agriculture, multifamily, low-income, and manufactured homes).

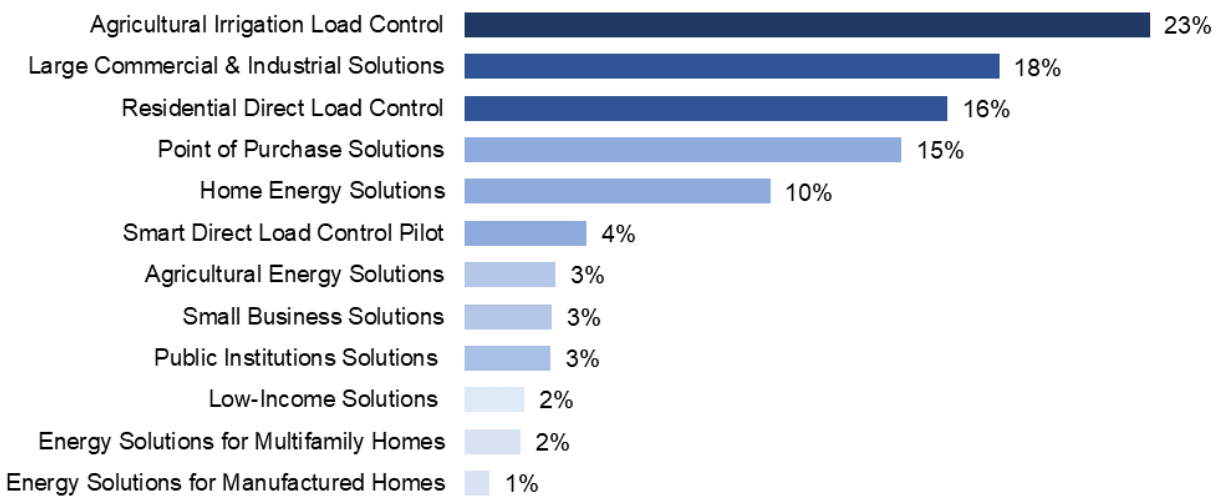
Figure 3. EAL PY2022 Program Contribution to Total Portfolio Kilowatt-Hour Energy Savings*



*Results are rounded to the nearest whole number and may not sum to 100 percent as a result.

Figure 4 shows each programs' contribution toward the total portfolio's net demand savings. The Agricultural Irrigation Load Control and Large Commercial and Industrial Solutions programs were the most significant contributors to net demand savings, accounting for 23 percent and 18 percent of kilowatt savings, respectively. EAL's Residential Direct Load Control program was the third-highest contributor at 16 percent kilowatt savings.

Figure 4. EAL PY2022 Program Contribution to Total Portfolio Kilowatt Demand Savings*



*Results are rounded to the nearest whole number and may not sum to 100 percent as a result.

Overall, evaluated savings matched claimed energy savings with an overall portfolio gross realization rate of 100 percent for energy savings and demand reductions, detailed in Table 2. Program-level gross realization rates ranged from 96 to 107 percent for energy savings and 94 to 107 percent for demand savings. Net savings are calculated based on multiplying evaluated gross savings by an NTG ratio that estimates the percentage of savings attributable to the program. We calculated NTG for all residential and C&I programs (outside of demand response, deemed from industry standard) at least once throughout the program cycle. NTG remains strong across all programs, with most savings directly attributable to the programs and an overall portfolio NTG ratio of 97 percent, a slight increase from last year's 95 percent. The Point of Purchase Solutions program had the lowest NTG ratio at 87 percent due to the transforming lighting market and the evolving industry standards but increased from last year's 81 percent. Home Energy Solutions and Large Commercial and Industrial Solutions programs saw over 100 percent NTG ratios due to reported spillover where participants installed additional energy efficiency measures because of the program.

Table 2. EAL PY2022 Gross Savings and Realization Rates¹⁰

Program	Reported kWh	Evaluated kWh	Gross realization rate (kWh)	Reported kW	Evaluated kW	Gross realization rate (kW)	NTG (kWh)
Home Energy Solutions	28,861,401	28,193,281	97.7%	9,462	9,333	98.6%	104%
Energy Solutions for Multifamily Homes	11,127,698	10,645,629	95.7%	1,887	1,782	94.4%	100%
Energy Solutions for Manufactured Homes	5,799,433	6,226,535	107.4%	793	792	99.8%	100%
Low-Income Solutions	7,936,302	7,856,081	99.0%	1,900	1,889	99.5%	100%
Point of Purchase Solutions	96,446,515	100,534,438	104.2%	15,065	16,177	107.4%	87%
Large Commercial & Industrial Solutions	99,353,362	96,165,716	96.8%	16,434	16,160	98.3%	104%
Small Business Solutions	17,478,253	17,406,720	99.6%	2,706	2,783	102.8%	100%
Public Institutions Solutions	20,397,791	19,479,440	95.5%	2,872	2,771	96.5%	99%
Agricultural Energy Solutions	11,605,460	11,255,071	97.0%	2,977	2,922	98.1%	99%

¹⁰ Results are rounded to the nearest whole number.

Program	Reported kWh	Evaluated kWh	Gross realization rate (kWh)	Reported kW	Evaluated kW	Gross realization rate (kW)	NTG (kWh)
Residential Direct Load Control Pilot	-	-	-	15,842	15,371	97.0%	100%
Smart Direct Load Control	3,308,465	3,296,032	99.6%	3,868	3,868	100.0%	88%
Agricultural Irrigation Load Control	-	-	-	21,958	21,795	99.3%	100%
Total portfolio	302,314,680	301,058,943	100.4%	95,765	95,644	100.1%	97%

* The Residential Direct Load Control and Agricultural Irrigation Load Control programs do not claim energy savings. Therefore, these cells are represented with a dash.

Evaluation results are positive with EAL and its implementers, demonstrating continuous improvement in its program design and delivery processes, tracking system, documentation, and savings tools, even as challenges from the pandemic persisted such as staff shortages and supply chain issues. Evidence of this continuous improvement is an improvement in net savings, as demonstrated through an increase in the overall portfolio's NTG from 90 percent in PY2020, 95 percent in PY2021, and now 97 percent in PY2022 as EAL continues to effectively serve harder-to-reach segments. This increase resulted from specific outreach and expanded delivery to low-income households of energy-efficient products through downstream residential and upstream point-of-purchase programs as well as realizing high NTG results across all residential and commercial offerings.

Both EAL and its implementation contractors have been responsive to evaluation recommendations and engaged with the EM&V contractor throughout the program year. Of particular note, continual technical assistance and collaboration between EAL, its program implementers, and the EM&V team supported the programs and facilitated healthier gross savings realization rates. The PY2022 evaluation effort did identify additional recommendations to continue to stabilize realization rates in the following program year; increase the transparency, accuracy, and evaluability of program savings in the future; and process improvements to further program performance and satisfaction. The tables below summarize EAL's programs and pilot, overviewing key findings and recommendations from the PY2022 evaluation. EAL's status in completing prior PY2020 and PY2021 evaluation recommendations are in each program-specific section. As mentioned above, a continuing portfolio-level recommendation better aligns energy savings and demand savings goals.

Table 3. Home Energy Solutions—PY2022 Summary Evaluation, Measurement, and Verification Findings and Recommendations

Program summary	This program targets single-family residences and is delivered through a trained group of home performance contractors. The program offers a comprehensive home inspection with diagnostic testing performed by a qualified contractor and direct installation of low-cost measures. <i>Duct sealing</i> is often performed and represents the most significant contributor to savings. The program also delivers the consistent weatherization approach (CWA).
Key findings	<ul style="list-style-type: none"> The program's gross evaluated savings were slightly lower than reported energy savings and demand savings with realization rates of 97.7 percent and 98.6 percent (megawatt-hour and megawatt, respectively).
	<ul style="list-style-type: none"> The program performed well, exceeding the energy goal (achieving 108 percent) and nearly achieving the demand goal (95 percent).
PY2022 impact recommendations	<ul style="list-style-type: none"> Increase the internal quality assurance/quality control (QA/QC) process on the <i>duct sealing</i> measure for all heating types to ensure all cooling and heating variables are captured correctly.
	<ul style="list-style-type: none"> Generally, homes with multiple HVAC systems should use the more conservative option when calculating savings for measures that have heating and cooling type dependent factors. Documentation should confirm which system types are present and that both are in operation.
	<ul style="list-style-type: none"> Follow the guidance set forth in the memo: EAL Tune-ups Methodology Recommendations for Residential Programs.
	<ul style="list-style-type: none"> Ensure contractors are consistently submitting key savings project documentation. Assess the need for additional QA/QC as outlined in impact recommendations.
PY2022 process recommendations	<ul style="list-style-type: none"> Continue education of contractors on project documentation needs.

Table 4. Energy Solutions for Multifamily Homes—PY2022 Summary Evaluation, Measurement, and Verification Findings

Program summary	The program targets multifamily property owners and managers, as well as tenants. This program offers both no-cost direct installation measures (such as <i>LEDs, low-flow showerheads, and low-flow faucet aerators</i>) and <i>envelope and weatherization</i> measures, including <i>AC tune-ups, air infiltration, and duct sealing</i> .
Key findings	<ul style="list-style-type: none"> Both energy-saving and demand-savings realization rates were a little lower than reported by the implementor at 95.7 percent and 94.4 percent (megawatt-hour and megawatt, respectively). The program fell short of energy and demand savings goals, achieving 76 percent of the planned energy goal and 32 percent of the planned demand goal.

PY2022 impact recommendations	<ul style="list-style-type: none"> • Increase the internal QA/QC process on the <i>duct sealing</i> measure for all heating types to ensure all cooling and heating variables are captured correctly. • Collect documentation that clearly verifies the installation location of the smart strip or use <i>average advanced power strips (APS)</i> consistently in the program. • Follow the Building Performance Institute (BPI) standards for minimum ventilation rate when performing blower door tests. • Utilize the rated or measured capacity to calculate <i>AC/HP tune-up</i> savings. • Ensure contractors are consistently submitting key savings project documentation. • Assess the need for additional QA/QC as outlined in impact recommendations.
PY2022 process recommendations	<ul style="list-style-type: none"> • Continue education of contractors on project documentation needs.

Table 5. Energy Solutions for Manufactured Homes—PY2022 Summary Evaluation, Measurement, and Verification Findings

Program summary	<p>This program targets manufactured and mobile homeowners, landlords, and community managers. The program offers a combination of incentives for <i>direct-install</i> measures, <i>envelope</i> measures, and <i>education services</i>. The program has recruited and trained partnering contractors to provide complete turnkey program delivery services to this hard-to-reach customer segment.</p>
Key findings	<ul style="list-style-type: none"> • The program's gross evaluated energy savings were greater than reported, while evaluated demand savings were slightly lower, resulting in realization rates of 107.4 percent and 99.8 percent (megawatt-hour and megawatt, respectively). • The program performed well against its planning goals, achieving 115 percent of the energy savings goal and 113 percent of the demand savings goal.
PY2022 impact recommendations	<ul style="list-style-type: none"> • Increase the internal QA/QC process on the <i>duct sealing</i> measure for all heating types to ensure all cooling and heating variables are captured correctly. • Collect documentation that clearly verifies the installation location of the smart strip or use <i>average APS</i> consistently in the program. • Ensure contractors are consistently submitting key savings project documentation that is legible and key parameters are identifiable. • Assess the need for additional QA/QC as outlined in impact recommendations.
PY2022 process recommendations	<ul style="list-style-type: none"> • Continue education of contractors on project documentation needs.

Table 6. Low-Income Solutions—PY2022 Summary Evaluation, Measurement, and Verification Findings

Program summary	The Low-Income Solutions program targets eligible low-income households and customers aged 65 or older to reduce energy use and lower bills. As part of the Low-Income Solutions program, EAL offers the following services at no cost to qualifying customers: home energy assessments by qualified field technicians, <i>LED bulbs, low-flow showerheads, low-flow faucet aerators, and smart strips</i> . EAL also offers the following services at no cost to the customer if an assessment identifies they are needed: <i>air sealing, duct sealing, ceiling insulation, advanced thermostats, and AC and heat pump tune-ups</i> . Also, the program helps with home repairs to correct minor problems that may otherwise prevent the building from receiving weatherization upgrades or pose a health or safety risk.
Key findings	<ul style="list-style-type: none"> • The program's evaluated savings were slightly lower than reported energy and demand savings, resulting in 99.0 and 99.5 percent realization rates for energy and demand savings, respectively. • The program achieved energy savings goals to assist low-income and elderly customers during the second year of the COVID-19 pandemic. However, the program is short of the demand savings goals. It reached 100 percent of the energy savings goal and 65 percent of the demand savings goal.
PY2022 impact recommendations	<ul style="list-style-type: none"> • Increase QA/QC on the <i>APS</i> measure and ensure contractors are educated on installing the <i>APS</i> and collecting documentation that clearly verifies the installation location of the <i>smart strip</i>. • Ensure contractors are consistently submitting key savings project documentation. • Increase training and QA/QC of <i>air</i> and <i>duct sealing</i> measures to ensure all leaks are thoroughly sealed.
PY2022 process recommendations	<ul style="list-style-type: none"> • Continue education of contractors on project documentation needs. • Consider ways to increase participation in the <i>ceiling insulation</i> measure for low-income customers.

Table 7. Point of Purchase Solutions—PY2022 Summary Evaluation, Measurement, and Verification Findings

Program summary	EAL's midstream and upstream programs merged into the comprehensive Point of Purchase Solutions program in PY2020. The program aims to provide fast, easy energy efficiency solutions to residential and nonresidential customers where they shop, discounting efficient lighting products, appliances, equipment, and building materials. Two advantages of this program design are that (1) it can ramp up quickly and (2) it is streamlined for residential customers because, for many measures, there is no application, and the discounts are applied at the point of sale. Cooperation with distributors and opening clear communication channels is critical for promoting measures incentivized through midstream channels.
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Key findings	<ul style="list-style-type: none"> • The POPS program evaluated savings resulted in higher demand and energy savings (104.2 percent kilowatt and 107.4 percent kilowatt-hour realization rates) than those calculated by the program implementer. These results are driven by the EM&V team's adjustments, with the primary adjustments coming from recalculating residential upstream <i>lighting</i> measures using commercial methodologies. • The NTG ratio remains the lowest of EAL programs primarily due to upstream <i>lighting</i> NTG. The overall program resulted in 87 percent for energy savings and 86 percent for demand savings. • The program exceeded planning goals, achieving 131 percent and 141 percent of energy and demand savings goals, respectively.
PY2022 impact recommendations	<ul style="list-style-type: none"> • Residential HVAC—Increase QA/QC on the <i>residential smart thermostat</i> measures. • Commercial Midstream Lighting—Increase QA/QC of commercial midstream program tracking data to reduce errors. • Adjust reporting of the baseline and retrofit energy consumption for the <i>ENERGY STAR® freezers</i> measure.
PY2022 process recommendations	<ul style="list-style-type: none"> • Continue to explore new measuring offerings to replace future lighting savings.

Table 8. Large Commercial & Industrial Solutions—PY2022 Summary Evaluation, Measurement, and Verification Findings

Program summary	<p>This program provides a solution for nonresidential customers interested in purchasing energy-efficient technologies that can produce verifiable savings through a calculated (prescriptive) or a measured and verified (custom) approach. The program is available to all EAL Large Commercial & Industrial Solutions (LCI) customers with a peak electric demand of over 100 kW at either one site or multiple sites owned by the same company. Additionally, the program is available to all commercial new construction customers. The program design generates high energy savings and longer-term market penetration by nurturing delivery channels such as design professionals, distributors, installation contractors, and energy service companies.</p>
Key findings	<ul style="list-style-type: none"> • Overall, the LCI program evaluated savings resulted in lower demand and energy savings (98.3 percent kilowatt realization rate and 96.8 percent kilowatt-hour realization rate, respectively) than those calculated by the program implementer. • The program fell short of its planning goals for PY2022, achieving 88 percent of the energy savings goal and 93 percent of the demand savings goal.

PY2022 impact recommendations	<ul style="list-style-type: none"> • Review savings algorithms for commercial <i>Wi-Fi thermostat</i> measures to ensure consistency. • Increase QA/QC on commercial <i>AC/HP tune-up</i> measures. • Use additional data descriptions for lighting fixture certification to distinguish between fixtures not required for certification and those that followed an alternative compliance path.
PY2022 process recommendations	<ul style="list-style-type: none"> • Review the requirement associated with refrigerants for <i>tune-ups</i>.

Table 9. Small Business Solutions—PY2022 Summary Evaluation, Measurement, and Verification Findings

Program summary	<p>This program offers small commercial customers cash and non-cash incentives for implementing energy efficiency improvements. The program assists small business customers by analyzing facility energy use and identifying energy efficiency improvement projects. The program targets small business customers with a peak electric demand of less than 100 kW. Trade allies are responsible for analyzing customers' energy use, identifying energy efficiency improvement projects, and installing the recommended measures.</p>
Key findings	<ul style="list-style-type: none"> • The Small Business Solutions program's evaluated energy savings were slightly lower (99.6 percent kilowatt-hour realization rate) and slightly higher for demand savings (102.8 percent kilowatt realization rate) than the program implementer's savings. • The program exceeded its planning goals, achieving 126 percent of the energy savings goal and 164 percent of the demand savings goal.
PY2022 impact recommendations	<ul style="list-style-type: none"> • Review savings algorithms for <i>Wi-Fi thermostat</i> measures to ensure consistency. • Select building types based on the closest description match from the available building types.
PY2022 process recommendations	<ul style="list-style-type: none"> • Review the time it takes for trade allies to receive the incentive checks. • Improve communication and responsiveness to customer and trade ally questions. • Review the allocation of responsibilities between the trade allies and implementation staff.

Table 10. Public Institutions Solutions—PY2022 Summary Evaluation, Measurement, and Verification Findings

Program summary	This program offers small commercial customers cash and non-cash incentives for implementing energy efficiency improvements. The program assists small business customers by analyzing facility energy use and identifying energy efficiency improvement projects. The program targets small business customers with a peak electric demand of less than 100 kW. Trade allies are responsible for analyzing customers' energy use, identifying energy efficiency improvement projects, and installing the recommended measures.
Key findings	<ul style="list-style-type: none"> • Overall, the Public Institutions Solutions program evaluated savings resulted in lower demand and energy savings (95.5 percent kilowatt realization rate and 96.5 percent kilowatt-hour realization rate) than those calculated by the program implementer. • The program fell short of its planning goals for PY2022, achieving 78 percent of the energy savings goal and 46 percent of the demand savings goal. • The <i>tune-up</i> measures remained the most significant measure category for participation and savings in PY2022, with <i>lighting</i> as the second most significant. These two measure categories accounted for approximately 83 percent of reported and evaluated energy and demand savings.
PY2022 impact recommendations	<ul style="list-style-type: none"> • Review savings algorithms for commercial <i>Wi-Fi thermostat</i> measures to ensure consistency. • Increase QA/QC on certified/non-certified lights for <i>lighting retrofit</i> projects. • Increase QA/QC on square footage and perimeter estimates for <i>lighting new construction</i> projects
PY2022 process recommendations	<ul style="list-style-type: none"> • Review incentive levels related to daycare and nonprofit organizations. • Review the time trade allies wait to receive the incentive checks. • Improve communication and responsiveness to customer and trade ally questions.

Table 11. Agricultural Energy Solutions—PY2022 Summary Evaluation, Measurement, and Verification Findings

Program summary	This program offers a combination of farm audits, custom and prescriptive incentives, and education to agricultural suppliers. The program has focused on poultry farm <i>lighting</i> projects, although it has expanded to include <i>irrigation pump</i> measures.
Key findings	<ul style="list-style-type: none"> • The program's evaluated savings resulted in slightly lower energy and demand savings (97.0 percent megawatt-hours and 98.1 percent megawatt realization rates) to those calculated by the program implementer. • The program has far exceeded the energy and demand goals, achieving 186 and 321 percent, respectively, of planning goals.

PY2022 impact recommendations	<ul style="list-style-type: none"> Collect heating and cooling documentation when present on site. Clearly define program requirements to determine if <i>retrofit</i> or <i>new construction</i> methodology should be used. If unclear which method should be used, consult the EM&V team to discuss and reach agreement. Define additional measure descriptions in ArchEE to clarify measure type as the program expands with new measure offerings beyond <i>lighting</i>. Increase internal QA/QC practices.
PY2022 process recommendations	<ul style="list-style-type: none"> Monitor the time it takes for incentive checks to be sent. Continue to work collaboratively with the EM&V team and seek review of large or unique custom projects.

Table 12. Residential Direct Load Control—PY2022 Summary Evaluation, Measurement, and Verification Findings

Program summary	The Residential Direct Load Control program focuses on residential air-conditioning loads and cycles a participant's home central air conditioning condenser during called demand-response events. A turnkey implementation contractor delivers the program by utilizing radio technology.
Key findings	<ul style="list-style-type: none"> The program achieved 15.4 MW in gross demand savings, approximately 53 percent of the planning goal. The evaluation team's savings calculations result in slightly lower demand savings than provided by the program implementer, resulting in a realization rate of 97 percent.
PY2022 impact recommendations	<ul style="list-style-type: none"> Explore the effects of limiting the baseline to periods with similar weather.
PY2022 process recommendations	<ul style="list-style-type: none"> Assess the role of the program in future portfolio offerings given roll out of smart meters.

Table 13. Smart Direct Load Control Pilot—PY2022 Summary Evaluation, Measurement, and Verification Findings

Program summary	The Smart Direct Load Control (SDLC) pilot coordinates with a participant's thermostat during demand-response events. The program offers residential and small commercial customers rebated <i>smart thermostats</i> or the opportunity to enroll an existing <i>smart thermostat</i> to participate in demand-response events during the load control season.
Key findings	<ul style="list-style-type: none"> Realization rates for energy savings were 99.5 percent for <i>smart thermostats</i> installed in residential applications and 99.8 percent for commercial applications. Realization rates for demand savings were 100.0 percent for <i>smart thermostats</i> installed in both residential and commercial applications.

PY2022 impact recommendations	<ul style="list-style-type: none"> Model the effect of weather on demand using a lagged time variable.
PY2022 process recommendations	<ul style="list-style-type: none"> Continue to explore opportunities to increase participation including with small businesses.

Table 14. Agricultural Irrigation Load Control—PY2022 Summary Evaluation, Measurement, and Verification Findings

Program summary	The Agricultural Irrigation Load Control (AIRC) program pays participants incentives in return for allowing EAL to interrupt their pumping loads (also referred to as a <i>curtailment event</i> or a <i>scheduled event</i>) during summer peak loads. The load control season runs from June 1 through August 31 each year. The target market is customers with large motors used in agriculture.
Key findings	<ul style="list-style-type: none"> The AIRC program evaluated savings were marginally lower than the savings calculated by the program implementer (realization rate of 99.3 percent). The approach taken by Connected Energy and the EM&V team uses the Midcontinent Independent System Operator (MISO) symmetric multiplicative adjustment (SMA) baseline calculation, which is appropriate for registering savings with MISO. The program fell short of its PY2022 planning goal, reaching 44 percent of its demand savings.
PY2022 impact recommendations	<ul style="list-style-type: none"> Continue to educate customers on the functionality of the equipment and their ability to control their pumps remotely.
PY2022 process recommendations	<ul style="list-style-type: none"> Explore opportunities to increase participation or decrease planned savings in future program cycles.

1.2 TRM UPDATE RECOMMENDATIONS

Tetra Tech has identified the following TRM updates for consideration from the EM&V research:

Table 15. Technical Reference Manual Recommendations from PY2022 Evaluation

Existing measures	
2.1.6 Central air conditioner replacement 2.1.8 Heat pump replacement 2.1.10 Window air conditioning replacement 3.1.14 Packaged terminal AC/HP equipment 3.1.16 Unitary and	The EM&V team noted new federal standards in place for heating and cooling equipment for 2023. <i>Review the federal standards and make updates to baselines and system qualification requirements, where appropriate.</i>

split system AC/HP equipment	
2.1.11 Duct Sealing	<p>The EM&V team noted the default SEER/HSPF values are a simple average of the federal standards prior to 2006 and from 2006-2015 and does not take into account the standard from 2015-2023.</p> <p><i>Consider updating the default values for SEER and HSPF to better align with all equipment operating in the field.</i></p>
2.6.3 and 3.9.7 Electric vehicle charge systems	<p>The EM&V team reviewed the current TRM algorithms and noted compared to other TRMs, the Arkansas algorithms grant more deemed savings for this measure.</p> <p><i>Review the Texas TRM algorithms and determine if the Arkansas TRM should be updated to be more conservative on this measure.</i></p>
3.6.3 Lighting efficiency	<p>During the course of the annual evaluation, the EM&V team reviewed several new construction lighting projects that included occupancy sensor or daylighting controls in their design. The lighting section as written did not contain algorithms for using the power adjustment factors or controls coincidence factor in the savings algorithms, unlike the retrofit section. Tetra Tech made this recommendation mid-year and it appears adequately addressed in TRM 9.1.</p> <p><i>No current recommendation.</i></p>
3.6.3 Lighting efficiency	<p>The formula for retrofit demand savings with existing controls (formula 332 in TRM 9.1) does not include the IEF_D as part of the formula. The EM&V team believes this is an error and has been including the IEF_D in evaluated savings calculations.</p> <p><i>Review equation 332 for consistency.</i></p>
3.6.3 Lighting efficiency	<p>The TRM does not include an IEF_D factor for electric resistance heating without AC, which is a viable heating and cooling configuration. CLEAResult proposed using 0.80 for this configuration from the other available values (0.87 / 1.09).</p> <p><i>Incorporate an IEF_D value for electric resistance heating without AC into Table 418 of TRM 9.1.</i></p>
3.6.3 Lighting efficiency	<p>The current TRM does not address agricultural building types or factors. Several TRMs, notably in Wisconsin and Illinois, are including agricultural specific measures or factors for lighting savings.</p> <p><i>Review the Wisconsin and Illinois TRM measures for agricultural lighting and consider adding agricultural-specific factors or measures to the Arkansas TRM.</i></p>
3.6.3 Lighting efficiency	<p>CLEAResult currently implements a commercial midstream offering as part of the POPS program, but the TRM does not address midstream factors for saving, such as in-service rates. Currently, CLEAResult is using the in-service rates from Section 4.5.4 of Volume 2 of the Illinois TRM.</p> <p><i>Review the Illinois TRM midstream factors and algorithms and consider including the Arkansas TRM.</i></p>
3.8.3 Engineered nozzles	<p>The example calculation include in this section uses the HOU of the measure in the demand savings calculation. The EM&V team suggests the AOH is appropriate in this context. The algorithm specifies “hrs,” rather than AOH or HOU.</p> <p><i>Review the algorithm, variable definitions, and example calculation for consistency.</i></p>

2.0 INTRODUCTION

On March 15, 2019, Entergy Arkansas, LLC (EAL) filed its 2020–2022 Energy Efficiency Plan in response to Commission Order No. 41 in Docket No. 13-002-U. The Arkansas Public Service Commission (APSC) approved the 2020–2022 programs. In response to pandemic challenges, an additional 2023 bridge year has also been approved. The programs build upon EAL's comprehensive programs that have been implemented in Arkansas since 2011 and specifically the most recent 2017–2019 program cycle.

This report presents the evaluation, measurement, and verification (EM&V) results for EAL's energy efficiency programs implemented in program year (PY) 2022 (PY2022). Following APSC Rules for Conservation and Energy Efficiency Programs (C&EE Rules), EAL selected an independent, third-party EM&V contractor. This evaluation effort aims to evaluate program impacts annually for all programs that provide kilowatt-hour or kilowatt savings.

The PY2022 EAL evaluation included impact and process analyses specified in the APSC rules and followed the Arkansas Technical Reference Manual (TRM) Version 9.0 protocols and savings algorithms. Also, the EM&V team developed the program evaluation activities based upon discussions with EAL staff and its implementation contractors, reviews of program tracking and documentation, a review of prior years' EM&V efforts and EAL annual reports, and input from the Independent Evaluation Monitor (IEM).

The remainder of this section overviews the EM&V team's evaluation approach. Section 3.0 discusses the overall portfolio results. Sections 4.0 through 15.0 detail the EM&V results for each program, including specific discussions of evaluation methodologies. Section 16.0 details the consistent weatherization approach (CWA) results and participation in Act 1102 categories across residential programs based on PY2022 and prior process evaluation results. Finally, Section 17.0 presents the EM&V team's calculation of non-energy benefits (NEB), which was first included in EAL's programs in PY2016 in keeping with Commission Order No. 30. To foster complete transparency of all evaluation results in this report, the EM&V team has provided a separate Technical Appendix with desk review, on-site measurement and verification (M&V) details, confidence and precision calculations, and data collection instruments for EAL and the IEM.

2.1 EVALUATION APPROACH

In this section, we discuss the EM&V team's evaluation approaches for EAL within the following topics:

- impact evaluations,
- process evaluations,
- evaluation prioritization, and
- data collection activities.

2.2 IMPACT EVALUATIONS

Our principal approach to the impact evaluation activities for PY2022 was to:

- verify program tracking data and correctly apply the Arkansas TRM to the applicable program year to calculate savings following TRM 9.0 Volume 1, Protocol A;
- estimate gross- and net-energy and demand impacts at the measure, program, and portfolio levels by:
 - adjusting program-reported gross savings using the results of evaluation research, relying primarily on the tracking system, engineering desk reviews, and independent verification where impact parameters are deemed by the TRM and use metered data analysis and equipment metering where the TRM does not deem impact parameters;
 - update program net-to-gross (NTG) values with primary or secondary data research for every program once over the three-year program cycle as well as review NTG ratios annually for any changes in the program design or measure mix following TRM 9.0 Volume 1, Protocol F; and
 - provide complete documentation and transparency of all evaluated savings estimates, and, where relevant, comparison with TRM 9.0 calculations;
- provide ongoing technical reviews and guidance throughout the evaluation cycle;
- review tracking system data annually to assess data captured for new measure offerings following TRM 9.0 Volume 1, Protocol A;
- identify possible updates for the next version of the TRM; and
- calculate NEBs for the EAL portfolio.

The impact evaluations resulted in a defensible lifetime and annual estimates of gross and net energy and demand impacts and adhered to TRM 9.0 Volume 1, Protocols B1, B2, and B3. Impact evaluations were used to calculate realization rates, determined by dividing evaluated savings by EAL tracked savings.

PY2022 impact evaluation activities primarily included a combination of tracking system and desk reviews, metered data analysis, and commercial, agricultural, and residential on-site verification visits under TRM 9.0 Volume 1 Protocol B. When determining the appropriate activities to be completed by program and measure type, the EM&V team considered key factors that included contribution toward savings and level of savings uncertainty (TRM 9.0 Volume 1, Protocol D). These considerations identified high-priority programs such as the Large Commercial and Industrial Solutions program, where more rigorous impact evaluation activities are beneficial. Sampling strategies for PY2022 followed TRM 9.0 Volume 1, Protocol B4.

While implementing the impact evaluations, issues that could introduce potential bias and uncertainty were addressed and minimized. Evaluations can have biases in their results for many reasons. It is important to assess that no significant systematic non-random errors are embedded in the data that would bias the evaluation results. The EM&V team made every effort to identify and address any potential biases occurring due to (1) measurement errors resulting from inaccurate meters or errors in recording data, (2) collection errors arising from non-representative sampling, (3) sampled participant's refusal to participate in an on-site visit, (4) biased responses or interpretation of responses, (5) poor questionnaire design, (6) failure to take behavioral factors into account, (7) modeling errors from the incorrect specification of relationships between variables, (8) improperly included or excluded information or data, and (9) other modeling deficiencies.

In addition to mitigating the biases, the impact evaluation activities conducted by the EM&V team increased the confidence of results and reduced uncertainty by employing appropriate sampling approaches and reporting confidence intervals. A confidence interval is a range of values that describes an estimate's uncertainty. Confidence intervals are one way to represent how good an estimate is; the more extensive a confidence interval for an estimate, the more caution is required when using the point estimate.

Demand-side management program evaluations routinely employ 90 percent confidence intervals with ± 10 percent as the industry standard (90/10). The 90 percent in the confidence interval represents a level of certainty about the estimate. If we were to repeatedly obtain new estimates using the same procedure (by drawing a new sample, conducting new interviews, and calculating new estimates and new confidence intervals), the confidence intervals would contain the average of all the estimates 90 percent of the time. The EM&V team activities reflect a minimum confidence interval of 90 percent ± 10 percent at the sector and program level for evaluated savings estimates. You can find achieved confidence levels in the Technical Appendix to this report.

2.3 PROCESS EVALUATION

Our approach to process evaluation activities for EAL's portfolio of programs was to:

- gain an in-depth understanding of program operations, challenges, and evaluation needs through staff interviews with EAL and the implementation contractors at the beginning and throughout the evaluation cycle, followed by biweekly calls to stay abreast of program status issues;
- document EAL's progress in incorporating recommendations identified during the PY2020-PY2021 evaluation following TRM 9.0 Volume 1, Protocol C;
- assess EAL's success in achieving the goals and objectives established in the APSC's Comprehensiveness Checklist;
- follow TRM 9.0 Volume 1, Protocol C, and conduct a comprehensive process evaluation for every program once over the three-year program cycle and assess other process evaluation needs annually;

- assess and document the effectiveness of program quality assurance and quality control (QA/QC); and
- assess and document the effectiveness of integrating the CWA, highlighted in TRM 9.0 Volume 1, Protocol C1.

Savings and cost-effectiveness estimates alone do not entirely explain a program or portfolio's effectiveness. Other factors, including internal and external utility operations, program maturity, service provider and implementation contractor activities, and markets, can influence a program's effectiveness. Identifying program process improvements is an EM&V best practice.

In general, process evaluations assess organizational and procedural aspects of programs; they also provide feedback on aspects of programs functioning well or areas in need of improvement. The EM&V team consulted and followed TRM 9.0 Volume 1, Protocol C, annually to determine whether conducting a process evaluation is appropriate for a specific program and the appropriate timing for the process evaluation. Specifically, Protocol C defines required process evaluation criteria and the criteria to justify conducting a process evaluation. As noted earlier, each program will receive a complete process evaluation at least once during the three-year timeframe; PY2020–PY2022 is a new program funding cycle. Table 16 provides details on specific criteria that trigger a process evaluation.

Table 16. TRM 9.0 Volume 1, Protocol C: Process Evaluation Guidance

Criteria for process evaluations
<p>Process evaluation is required if:</p> <ul style="list-style-type: none"> • the program is new or modified, • no process evaluation has been undertaken during the current funding cycle, or • a change in program implementation occurred.
<p>Process evaluation is potentially needed if:</p> <ul style="list-style-type: none"> • program impacts are lower than expected, • goals (both informational and educational) are not being achieved, • rates of participation are lower or slower than expected, • the program's operational system is slow to get up and running, • cost-effectiveness of the program is less than expected, or • participants (both customers and market actors) report problems or low satisfaction rates with the program.

At a minimum, all programs received a limited process evaluation through program staff interviews and program documentation review. For PY2022, based on the TRM guidance summarized in the table above, the EM&V team identified the following four programs to receive full process evaluations (five received full process evaluations in PY2020, three in PY2021; the remaining programs are fairly stable and therefore received full process evaluations in PY2022):

- **Agriculture Energy Solutions.** Program staff, participant, and market actor interviews were conducted for this program, who are effectively serving this harder-to-reach sector.
- **Small Business Solutions Program.** Program staff, participant, and market actor interviews were conducted for this program, who are effectively serving this harder-to-reach sector.
- **Public Institutions Solutions.** Program staff, participant, and market actor interviews were conducted for this program, which saw new challenges meeting goals in PY2022.
- **Agricultural Irrigation Load Control.** A fairly stable demand response offering. Surveys were conducted with program participants.

In addition, the *AC tune-up* measure, *CoolSaver*, implemented across the commercial portfolio was evaluated as part of the Small Business Solutions and Public Institutions Solutions programs complemented with additional surveys with Large Commercial and Industrial program participants who received this measure.

2.4 EVALUATION PRIORITIZATION

A critical component of the EM&V process is to develop a prioritization process for the program-specific plans to meet the most appropriate level of rigor for each program following the guidance in TRM 9.0 Volume 1, Protocol D. Several factors feed into these decisions:

- percentage of program contribution to the portfolio savings,
- level of uncertainty in estimated savings (with higher uncertainty of savings resulting in high priority),
- level and quality of existing programmatic QA/QC and verification data from site visits and metering,
- the potential of risk for future portfolio performance, and
- adherence to Arkansas TRM protocols or updated needs.

The EM&V team's evaluation activities presented in the PY2022 evaluation plan¹¹ underpin the PY2022 results and reflect this prioritization process.

¹¹ Entergy Arkansas, LLC Program Year 2022 Evaluation Plan, Tetra Tech, July 2022.

2.5 DATA COLLECTION ACTIVITIES

The data collection activities listed below were used to support the impact and process evaluations as relevant. All evaluation activities adhered to EM&V protocols, as defined in TRM 9.0 Volume 1. The majority of these activities collected primary data.

- Program staff interviews.** The EM&V team interviewed EAL and implementation contractors program staff as part of the evaluation planning process. Communication was maintained throughout the program cycle via biweekly meetings to understand program progress and any challenges or successes. Findings from these interviews informed the evaluation research, key findings, and recommendations (EM&V Protocol C3: Recommended Areas of Investigation in a Process Evaluation).
- Participant and market actor interviews.** For complete process evaluations prioritized for PY2022, the EM&V team conducted participant and market actor interviews, if applicable to the program design. These interviews collected data on program awareness and satisfaction, factors affecting participation, and information to assess market effects (e.g., how the program may have affected business practices). Relevant market actors vary by program but include retailers, contractors, manufacturers, distributors, design professionals, multifamily building owners, auditors, and participants (EM&V Protocol C3: Recommended Areas of Investigation in a Process Evaluation). The interviews included standardized enhanced self-report approach (SRA) batteries to estimate program attribution (EM&V Protocol B3: Recommended Protocols for Participant Net Impact Evaluation).
- Database tracking review.** The EM&V team assessed each program's database and tracking information (EM&V Protocol A: Program Tracking and Database Development) and provided a census tracking system review of deemed savings measures against the applicable version of the TRM.
- Sampling.** We drew samples designed to meet precision levels at the program level for verification or a census of participants depending on the population size (EM&V Protocol B4: Sampling and Uncertainty Protocol).
- Engineering and project file reviews.** This activity focused on the calculations and assumptions for savings, adherence to the TRM, and potential differences in the verified gross savings from the reported savings (EM&V Protocol D1: Using Deemed Savings Values and EM&V Protocol D2: M&V Protocols). The findings of the project file reviews informed the selection of commercial projects for additional on-site verification activities. After conducting the file reviews, a sample of sites was selected for on-site data collection, if applicable (EM&V Protocol B4: Sampling and Uncertainty Protocol). Factors that determine sampling and potential weighting include (1) the size of the projects, relative to the average of the measure type population; (2) measure type contribution to the overall energy and demand savings; and (3) our experience with precision and confidence from prior EM&V. We factor other evaluation efforts, where available, for specific end-use measure groups.

- **Demand response programs.** There are no TRM protocols for demand response programs. Thus, the EM&V team followed industry-standard practices, essentially reviewing participant-interval-load data census. Periods ahead of, during, and following load interruption notices verify load reduction and persistence during demand-response events and provide comparisons to similar-condition non-interrupted baseline days to validate impact estimates. The Residential Direct Load Control (DLC), Smart DLC pilot, and the Agricultural Irrigation Load Control programs serve as load modifying resources for the Midcontinent Independent System Operator. We work with EAL to ensure consistency of evaluation across Arkansas utilities. Based on this work, the EM&V team will work with EAL to provide input to the IEM for a possible future TRM update.
- **Commercial new construction projects.** These projects are assumed to have building automation systems (BAS) with user-friendly graphical interfaces. For these projects, the EM&V team investigates design control algorithms produced by the controls contractor and verifies actual algorithms by observing BAS trend data and setpoints. We verified savings of energy-saving components by comparing the actual system operation to a typical baseline operation¹². In cases where energy simulation models are available, BAS operational data and utility billing data may be used to determine energy savings through a calibrated energy simulation approach (EM&V Protocol D2: M&V Protocols, Option D - Whole Facility Calibrated Simulation).

On-site data collection and data logging and spot measurements are two primary data collection activities that we have leveraged in the past and recommend EAL programs provide more extensive measurement and verification (M&V) activities. These data collection activities verify program impacts, as outlined in EM&V Protocol E: Protocols for Verification and Ongoing Modifications of Deemed Savings Values. Below we summarize the data collected through on-site data collection, data logging, and spot measurements.

- **On-site data collection and independent verification.** Each site visit included a physical inspection of measures to gather information about the project for verification purposes. The site-specific M&V plan gathered detailed information and data specific to the project (EM&V Protocol D2: M&V Protocols). Inspection, monitoring, and interview results are included in the Technical Appendix of this report.
- **Commercial stipulated annual operating hours (AOH) verification.** We emphasized selecting independent verification projects that used stipulated AOH through the desk review process and developed a supplemental AOH verification guide (Verification Guide). The Verification Guide identified the general site operating schedule, including holidays and shutdowns, lighting control type, and verified that the annual hours of operation reported by the site contact do not vary from those originally reported. Individual room information is provided in the ArchEE data extract and project documentation, making verification possible down to this level. The guide also intends to identify and request additional documentation such as photos and BAS data, which could further verify lighting annual hours of operation.

¹² EM&V Protocol D2: M&V Protocols, Option A – Retrofit Isolation: Key Parameter Measurement or Option B – Retrofit Isolation: All Parameter Measurement.

3.0 PORTFOLIO PERFORMANCE

This report section presents results for the portfolio overall, market trend analysis, measure level analysis that was conducted to help Entergy Arkansas, LLC (EAL) in program planning and the Commissioner's Checklist.

3.1 PORTFOLIO RESULTS

In PY2022, EAL offered a portfolio of 11 energy efficiency programs and 1 pilot. Also, through its residential programs, EAL implemented the consistent weather approach (CWA), which provided a comprehensive range of customer options focused on energy efficiency and demand reduction coupled with education and training activities. EAL also seeks to provide customers with easy program entry points, flexible options for saving energy, and ongoing support for those who want to pursue deeper energy savings or demand reductions through its energy efficiency portfolio.

EAL exceeded its portfolio energy goals, achieving 103 percent (Figure 5). EAL fell short of its demand goals, meeting 58 percent of the demand goal (Figure 6). The performance difference between energy savings and demand goals is similar to last year and the year prior. A continuing recommendation is to investigate ways to better align energy savings and demand savings.

Individual program performance relative to program savings and demand goals varied. Six of the 12 programs¹³ achieved their megawatt-hour savings goals; four other programs' energy savings goals ranged between 58 percent and 88 percent of their savings goals. In contrast, four of the 12 programs achieved their megawatt savings goals, with an additional two programs meeting 90 percent or more of the demand savings goal. The pilot only met 17 percent of its energy savings goals. The Agricultural Energy Solutions program was the highest performer across energy savings and demand reductions relative to program goals, 186 percent, and 321 percent, respectively.

¹³ Residential Direct Load Control and Agricultural Irrigation Load Control programs had no megawatt-hour savings goals.

Figure 5. PY2022 Percentage of Net Energy Megawatt-Hour Savings Goals Achieved

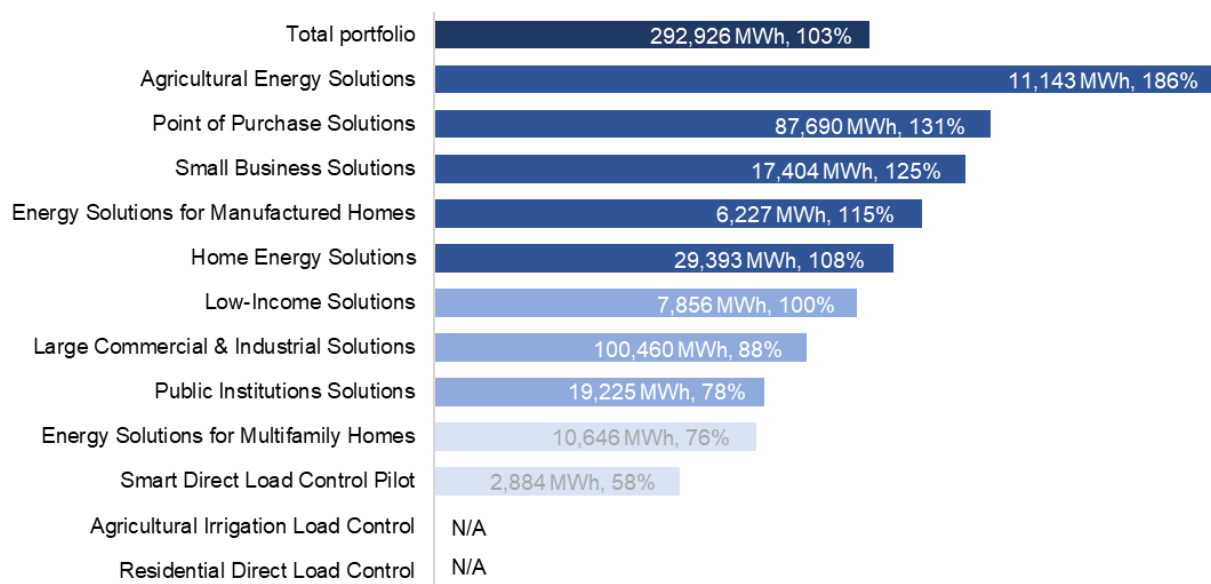
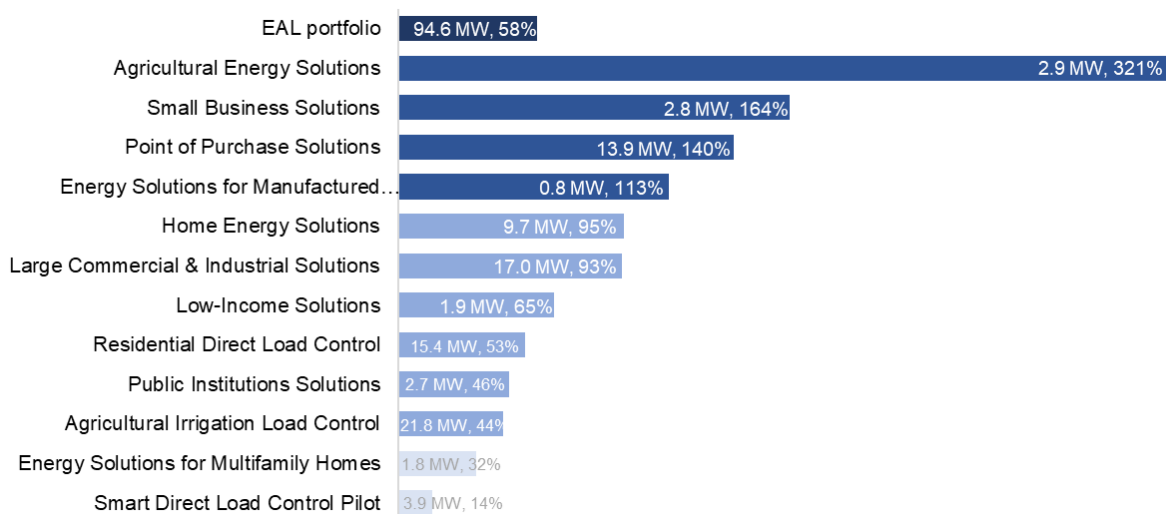


Figure 6. PY2022 Percentage of Net Demand Megawatt Savings Goal Achieved^{14,15}



¹⁴ Peak demand savings for all *non-load-control* measures and programs were determined using a peak demand definition of Monday—Friday, 1:00 p.m. to 8:00 p.m., June—September, determined in accordance with EAL.

¹⁵ Demand-response program savings calculations follow Midcontinent Independent System Operator's (MISO) methodology (explained in relevant event sections), which does not account for post-event snapback. Snapback is accounted for when calculating total energy savings.

Overall, evaluated savings was nearly identical to claimed energy savings, with an overall portfolio gross realization rate of 100 percent for energy savings and demand reductions. Program-level gross realization rates ranged from 96 to 107 percent for energy savings and 94 to 107 percent for demand savings. Table 17 shows the reported and evaluated energy savings for EAL's portfolio, sectors, and programs for PY2022.

Table 17. EAL PY2022 Reported and Evaluated Energy Savings¹⁶

Program	Percentage portfolio net savings (kWh)	Reported energy savings (kWh)	Evaluated energy savings (kWh)	Gross realization rate (kWh)	Net-to-gross (NTG) ratio	Net evaluated energy savings (kWh)
Home Energy Solutions	10%	28,861,401	28,193,281	97.7%	104%	29,392,834
Energy Solutions for Multifamily Homes	4%	11,127,698	10,645,629	95.7%	100%	10,645,629
Energy Solutions for Manufactured Homes	2%	5,799,433	6,226,535	107.4%	100%	6,226,535
Low-Income Solutions	3%	7,936,302	7,856,081	99.0%	100%	7,856,081
Point of Purchase Solutions	30%	96,446,515	100,534,438	104.2%	87%	87,690,107
Large Commercial and Industrial Solutions	34%	99,353,362	96,165,716	96.8%	104%	100,459,669
Small Business Solutions	6%	17,478,253	17,406,720	99.6%	100%	17,403,625
Public Institutions Solutions	7%	20,397,791	19,479,440	95.5%	99%	19,224,703
Agricultural Energy Solutions	4%	11,605,460	11,255,071	97.0%	99%	11,142,521
Residential Direct Load Control	-	-	-	-	-	-
Smart Direct Load Control Pilot	1%	3,308,465	3,296,032	99.6%	88%	2,884,190
Agricultural Irrigation Load Control	-	-	-	-	-	-
Total portfolio	100%	302,314,680	301,058,943	100.4%	97%	292,925,895

* The Residential Direct Load Control and Agricultural Irrigation Load Control programs do not claim energy savings. Therefore, these cells are represented with a dash.

¹⁶ Results rounded to the nearest whole number.

Table 18 shows the reported and evaluated demand savings for EAL's portfolio, sectors, and programs for PY2022.

Table 18. EAL PY2022 Reported and Evaluated Demand Savings¹⁷

Program	Percentage portfolio net savings (kW)	Reported demand savings (kW)	Evaluated demand savings (kW)	Gross realization rate (kW)	NTG ratio	Net evaluated demand savings (kW)
Home Energy Solutions	10%	9,461.9	9,332.6	98.6%	104%	9,740.9
Energy Solutions for Multifamily Homes	2%	1,887.5	1,782.2	94.4%	100%	1,782.2
Energy Solutions for Manufactured Homes	1%	793.5	792.3	99.8%	100%	792.3
Low-Income Solutions	2%	1,899.8	1,889.4	99.5%	100%	1,889.4
Point of Purchase Solutions	15%	15,065.0	16,177.2	107.4%	86%	13,906.4
Large Commercial and Industrial Solutions	18%	16,433.7	16,159.8	98.3%	105%	16,999.0
Small Business Solutions	3%	2,705.9	2,782.8	102.8%	100%	2,782.4
Public Institutions Solutions	3%	2,871.9	2,770.6	96.5%	99%	2,730.9
Agricultural Energy Solutions	3%	2,977.5	2,922.2	98.1%	99%	2,893.0
Residential Direct Load Control	16%	15,841.9	15,371.3	97.0%	100%	15,371.3
Smart Direct Load Control Pilot	4%	3,868.3	3,868.3	100.0%	100%	3,868.3
Agricultural Irrigation Load Control	23%	21,958.0	21,795.0	99.3%	100%	21,795.0
Total portfolio	100%	95,764.8	95,643.7	100.1%	99%	94,551.1

Net savings are calculated based on multiplying evaluated gross savings by an NTG ratio that estimates the percentage of savings attributable to the program. NTG was calculated for all residential, commercial, and industrial programs (outside of demand response, deemed from industry standard) at least once throughout the program cycle. NTG remains strong across all programs, with most savings directly attributable to the programs and an overall portfolio NTG ratio of 97 percent. The Point of Purchase Solutions (POPS) program had the lowest NTG ratio at 87 percent due to the transforming lighting market and the evolving industry standards. Home Energy Solutions and Large Commercial and Industrial Solutions programs saw over 100 percent NTG ratios due to reported spillover where participants installed additional energy efficiency measures due to the program. Table 19 shows the NTG factor and source used in the net evaluated savings for EAL's PY2022 programs.

¹⁷ Results are rounded to the nearest whole number.

Table 19. PY2022 Net-to-Gross Summary

Program	NTG ratio ¹⁸	Source
Home Energy Solutions	104%	PY2020 evaluation, measurement, and verification (EM&V) research—participant surveys and market actor interviews, supported by PY2018 prior EM&V research
Energy Solutions for Multifamily Homes	100%	PY2021 EM&V research—participant surveys and market actor interviews
Energy Solutions for Manufactured Homes	100%	PY2021 EM&V research—participant surveys and contractor interviews, substantiated in PY2020 process evaluation
Low-Income Solutions	100%	PY2020 EM&V research—participant surveys and market actor interviews
Point of Purchase Solutions	87%	PY2021 EM&V research—participant surveys and market actor interviews
Large Commercial and Industrial Solutions	104%	PY2022 EM&V research—participant surveys and market actor interviews
Small Business Solutions	100%	PY2022 EM&V research—participant surveys and market actor interviews
Public Institutions Solutions	99%	PY2022 EM&V research—participant surveys and market actor interviews
Agricultural Energy Solutions	99%	PY2022 EM&V research—participant surveys
Residential Direct Load Control	N/A	Stipulated at 1.0 as industry practice
Smart Direct Load Control Pilot	88%	PY2019 EM&V research—participant surveys and market actor interviews
Agricultural Irrigation Load Control	100%	Stipulated at 1.0 as industry practice
Total	97%	

3.2 MARKET TRENDS STUDY

The objectives of the market trends study were to (1) characterize the market conditions in which the energy efficiency programs operate, (2) identify savings opportunities for the PY2023 bridge year, and (3) support the planning for next program cycle (PY2024—PY2026). The study's activities included analyses of the Energy Independence and Security Act (EISA) standard changes on program savings, in-depth interviews with program design and delivery staff (including cost information from contractor invoices), measure trend analysis, and benchmarking research.

¹⁸ NTG ratios are calculated based on the savings population. While kWh and kW NTG ratios are similar, the NTG calculated based on kWh is shown.

As documented by Tetra Tech in the PY2020 and PY2021 EAL EM&V reports, EAL staff and their implementation contractors worked hard to dynamically change program processes as needed to successfully meet the challenges of the COVID-19 pandemic and deliver energy efficiency savings to customers. PY2022 continued to see evolving challenges, which the market trends study sought to characterize. In addition, the Department of Energy (DOE) published two Final Rules related to general service lamps (GSL), in accordance with its responsibilities under the 2007 EISA.¹⁹ One rule concerned an update to the definitions of GSL and general service incandescent lamp. The second rule updated the energy efficiency of GSLs to a 45 lumens per watt requirement. The Final Rules went into effect in 2022 with full compliance phased in over 2023.

3.2.1 EISA Impacts

Next we present key findings and recommendations from the analysis of EISA impacts. Some recommendations were presented for the IEM's consideration for the TRM Version 9.1 updates that were in progress, which were included with the IEM providing additional guidance in April 2023.

Tetra Tech's analysis of PY2022 energy savings to date (through June 22) found that only approximately one-third of lighting savings would be available if EISA was already in effect this year (Table 20).

Table 20. PY2022 Residential Program Lighting Savings to Date—Impacts of EISA Standards

Program	Pre-EISA (2017)	Post-EISA (2017)	Realization rate
Home Energy Solutions	584,457	189,001	32%
Energy Solutions for Multifamily Homes	121,203	73,642	61%
Low-Income Solutions	175,386	55,738	32%
Point of Purchase Solutions (residential)	27,536,785	9,505,398	35%
Energy Solutions for Manufactured Homes	31,502	9,848	31%
Residential total	28,449,332	9,833,627	35%

The effects of EISA in the commercial programs are substantially less, with the majority of lighting savings still being available after the standards change (Table 21).

Table 21. PY2022 Commercial Program Lighting Savings to Date—Impacts of EISA Standards

Program	Pre-EISA (2017)	Post-EISA (2017)	Realization rate
Large Commercial and Industrial Solutions	8,605,553	8,188,725	95%

¹⁹ The DOE published the two Final Rules on January 19, 2017, which were scheduled to go into effect on January 1, 2020. However, on September 5, 2019, the DOE withdrew both Final Rules. The Final Rules were restored in 2022, with the Federal General Service Lamp Definitions (87 FR 27461) and Backstop (87 FR 27439) going into effect on July 8 and July 25, 2022, respectively.

Public Institutions Solutions	1,399,306	1,358,762	97%
Small Business Solutions	7,689,472	7,132,395	93%
Point of Purchase Solutions (commercial)	8,166,273	7,447,958	91%
Commercial total	25,860,605	24,127,840	93%

3.2.1.1 EISA Key Findings and Recommendations

The EISA standards will significantly decrease the lighting savings delivered through EAL's residential energy efficiency programs, with less effect on commercial programs.

Below are the recommendations that were provided to the IEM for TRM v 9.1 for a residential early retirement direct install program strategy and recommended further discussion on the appropriate timing of the implementation of the new baseline in 2023.

3.2.1.2 Early Retirement Residential Direct Install

With enforcement at the manufacturer and retail level coming fully into effect during 2023, customers will soon no longer have the option to purchase less efficient bulbs. However, based on the recent residential desk reviews and on-sites conducted by Tetra Tech, there are a substantial number of halogen and incandescent lamps currently operating in homes in Arkansas, especially in low-income homes, which are served by all of EAL's residential programs. Tetra Tech recommends a delayed implementation of the 45 lumens per watt baseline to allow for the early retirement of existing incandescent and halogen lamps in residential programs with direct install LED delivery given documentation requirements are met. Photo documentation of the replaced incandescent or halogen lamps must be collected to claim the early retirement savings.

Tetra Tech recommended first year savings continue to be calculated using the incandescent or halogen lamp baseline assumptions outlined in the Arkansas TRM Version 9.0 for all residential LED direct installations with documentation of inefficient bulb replacement through December 31, 2023. The market may be reassessed for PY2024.

The measure life for indoor and outdoor LED lamps is 12.5 years based on the IEM's review of 2021 EM&V shelving studies. Due to the DOE standards, the savings over the useful life will need to be adjusted to account for the 45 lumens per watt standards for all years after 2025. The new baseline should be applied for all years after 2025; this is when the incandescent or halogen lamp baseline bulbs will be at the end of their useful life and need to be replaced. An example calculation demonstrating the dual baseline methodology for Arkansas using a 60 W equivalent lamp is below:

Tier 1 Energy Savings—PY2023 through PY2025

$$kWh_{savings} = \left(\frac{43 - W_{post}}{1000} \right) \times HOU \times ISR \times IEF_E \times 2 \text{ years}$$

Tier 2 Energy Savings—PY2026 through PY2036

$$kWh_{savings} = \left(\frac{20 - W_{post}}{1000} \right) \times HOU \times ISR \times IEF_E \times 10.5 \text{ years}$$

Lifetime kWh Savings

$$kWh_{lifetime\ savings} = kWh_{Tier\ 1\ savings} + kWh_{Tier\ 2\ savings}$$

3.2.1.3 Timing of Baseline Change

In addition, we recommended the IEM consider further discussion on a TRM mid-PY2023 implementation date for the EISA baseline change. Financial enforcement for retailers of the EISA standard phases in between March 1, 2023, and August 1, 2023. Tetra Tech has received feedback that retailers are likely to discount inefficient lighting to move their inventory as they work toward full compliance with EISA during 2023. Prematurely discontinuing or having to decrease incentives as of January 1 at retail stores for efficient bulbs during this transition period could result in increased inefficient bulbs in Arkansas homes and businesses. This consideration is important for upstream programs such as EAL's Point of Purchase Solutions.

3.2.2 Market Conditions

The market conditions characterization is based on in-depth interviews with six implementation contractor staff and cost information from invoices. The key take-away is that energy efficiency gains are increasingly challenging and expensive to obtain.

An overarching theme is that the cost of energy efficiency is increasing. There are two primary causes of this:

- **Increased costs due to inflationary pressures.** Interviewees reported increased costs from appliances to insulation. *"Increased prices are being felt in every product."* A number of costs identified through the invoice review have doubled, including refrigerant, smoke/CO detectors, exhaust fan ducts and insulation.
- **Market saturation resulting from program efforts and growth of solar.** A commonly repeated statement in the interviews was, *"the low hanging fruit is gone."* Implementation contractors feel due to multi-year successful energy efficiency programs in Arkansas and increased codes and standards, much of the low-cost lighting and other improvements with shorter payback periods that have already been implemented throughout EAL's territory or are no longer available. Another development reducing opportunity in the market is, *"aggressive solar."* Some commercial customers who previously participated at other locations have new locations that do not qualify as a result of their significant use of solar power.

In addition to cost concerns, economic uncertainty is a barrier to moving customers forward with energy efficiency improvements. It was reported both residential and commercial customers are prioritizing other needs over energy efficiency. Commercial customers are, *"holding their money a little closer to their chest now,"* and residential customers, *"can do less impulse spending now, they have less flexibility."* Interviewees have also seen new construction slow down and report a handful of planned projects are now postponed due to both economic uncertainty and increased costs of construction.

Decreasing profit margin (reported as resulting primarily from increased shipping and transportation costs) are affecting program partnerships across the distribution channel. Interviewees reported that the programs' retailer, distributor, and manufacturer partners are, *"Singing the same song. They are all feeling the pinch, mainly shipping costs are affecting*

things. They have a minimum threshold now they need for shipping. Their profit margins have eroded. Inventory shortages are further affecting partnerships with retailers as they are primarily trying to manage increased inventory uncertainty. They are more concerned if they will have empty shelves than the efficiency of the products on the shelves or available program discounts. Some contractors have dropped out of the programs; residential programs specifically have seen this, because of their decreased profit margins due to increased costs of materials and increased transportation costs. *“It is no longer worth it for them to participate.”*

Finally, staffing and supply chain issues that first presented themselves as pandemic challenges are reported as persisting and continuing to impact the programs. Staff shortages are throughout program delivery from the implementation contractors to contractors working in the field to commercial customers themselves. This negatively impacts relationship-building with customers as staff turnover and staff constraints are prevalent, leading to *“halted or prolonged projects.”* Supply chain issues are having similar effects. Customers often cannot afford to wait for the efficient equipment, resulting in lost opportunities. *“The lead time to get things is at least twice as long.”*

3.2.2.1 Market Trends Key Findings and Recommendations

The PY2023 bridge year presents challenges as EISA comes into effect, inflationary pressures are expected, and many predict a recession that may exacerbate further the financial barriers noted. For the most part, implementation contractors will need to work within set program budgets, which somewhat limits flexibility in incentive amounts to respond to these challenges.

The new program cycle provides more lead time for EAL to transition its portfolio, accounting for the substantial impacts of EISA on the residential programs by exploring new offerings for customers and increasing successful offerings from the current program cycle. Planning of program budgets for the new program cycle should reflect anticipated increased costs for energy efficiency gains and fully assess what can be achieved cost-effectively. The second part of this market trends study—measure trend analysis and benchmarking research—will focus on key findings and recommendations to support the planning effort for the next program cycle.

Below we provide recommendations for EAL’s consideration given the key findings from the market conditions characterization.

3.2.2.2 Expand Existing Measures with Market Potential

EAL has been increasing the number of smart thermostats incentivized through the programs, expanding to commercial customer segments as well as residential customers. EAL, Tetra Tech and the IEM continue to work together gathering data to see if commercial smart thermostat deemed savings can be supported as a deemed savings in the TRM in addition to residential smart thermostats.

Information on smart thermostats and other energy efficiency measures is collected regularly by the US Energy Information Administration (EIA). The EIA’s most recent Residential Energy Consumption Survey (REC) was conducted from 2020 through early 2021. Results are reported by region; the West South-Central region includes Arkansas, Louisiana, Oklahoma, and Texas. The most recent results indicate an opportunity to increase market penetration of smart thermostats.

Table 22. EIA 2020–2021 RECs Thermostat Summary Data—West South-Central Region

South Census Region		
Number of housing units (million)		
Has thermostat	Total US	West South-Central
Yes	109.35	12.70
Smart or internet-connected thermostat	12.78	1.75
Programmable thermostat	52.49	5.73
Non-programmable thermostat	44.08	5.22
No	12.73	1.79
Does not use heating or air-conditioning equipment	1.45	0.13

Source: <https://www.eia.gov/consumption/residential/data/2020/hc/pdf/HC%207.8.pdf>.

EAL has been incentivizing efficient room air-conditioners through the POPS program. There is an opportunity to also deliver efficient room air-conditioners through the other residential programs including Multifamily, Manufactured homes, and Home Energy Solutions. Recently, ICF, the Multifamily Energy Solutions implementer, discussed with EAL and Tetra Tech a multi-family facility that did not have central AC that was interested in efficient room AC units. While there is not as much potential as for smart thermostats, the most recent RECs data does indicate a segment of the residential market that has opportunity.

Table 23. EIA 2020–2021 RECs Thermostat Summary Data—West South-Central Region

South Census Region	
Number of housing units (million)	
Number of window or wall air conditioners used	
One	.89
Two	.67
Three	.44
Four or more	.33
Does not use window or wall air-conditioner	11.42
Does not use air-conditioning equipment	.87

Source: <https://www.eia.gov/consumption/residential/data/2020/hc/pdf/HC%207.8.pdf>.

3.2.2.3 Low- and No-Cost Options for the Customer

Offering low- and no-cost measures for customers can address the financial barriers identified due to increased economic uncertainty. *Appliance recycling* is an established measure included in many state TRMs. It can be offered at no cost to customers, or an incentive can be provided to the customer to remove the older, inefficient appliance. While this service often barely passed cost-effectiveness testing, it can provide the opportunity to educate customers about other energy efficiency offerings. EAL, Tetra Tech, and CLEAResult have been working together to establish reliable savings for appliance recycling in Arkansas.

3.2.2.4 Online Offerings

It was noted in the in-depth interviews that while many customers have gone back to in-person shopping, a high percentage of purchases remain online. It was hypothesized this may be because customers found online shopping convenient, because of ongoing health and safety concerns, or a combination of both. Regardless, assuming a high percentage of online shopping is stable or increasing, EAL should continue to explore online delivery of measures and possible expansions for the PY2023 bridge year and next program cycle.

Financing Options

Given the financial barriers noted, EAL may want to investigate the feasibility of different customer financing strategies for the next program cycle. If EAL is interested in exploring the feasibility of financing, Tetra Tech will include utility program financing options in the benchmarking research that will be conducted in the next round of activities for this market trends study.

3.3 MEASURE-LEVEL TREND ANALYSIS

This section presents analysis to assist EAL with program planning. Each EAL program targets a specific sector or subset of EAL's customers; however, the portfolio provides a wide range of energy efficiency measures to all customer classes across EAL's territory. This section summarizes and analyzes the measures offered by EAL since 2017.

3.3.1 Key Findings

The percentage of portfolio net energy savings coming from *lighting* measures has decreased in the past five years, from almost 68 percent in 2017 to 44 percent in 2022.²⁰ During the same time, *envelope* measures' net energy savings increased from 11 to 18 percent of EAL's portfolio. Table 24 provides net energy savings and annual portfolio contribution by measure and year, while Figure 7 and Table 26 provide the percentage of total portfolio net energy savings across major measure categories and years.

²⁰ *Lighting* includes both *lighting* and *custom lighting* measures.

Table 24. Portfolio Net Energy Savings by Year²¹

Measure	2017	2018	2019	2020	2021	2022
Lighting	166,793,182	151,108,341	137,763,419	129,489,236	121,011,056	117,737,600
CEI	0	0	0	0	46,282,095	35,718,020
Duct sealing	20,430,411	23,676,569	23,584,777	34,601,308	36,870,819	37,758,860
Custom other	22,385,721	28,155,198	24,420,374	54,643,410	24,833,072	35,982,984
APS	2,465,866	2,921,167	10,479,824	11,486,241	18,696,574	11,694,740
Smart thermostat	4,731,004	7,234,528	10,041,652	20,994,997	15,476,846	4,209,514
Custom lighting	7,609,051	6,929,022	4,938,316	13,313,382	13,425,635	11,142,520
Envelope	0	0	8,414,786	7,856,520	9,270,508	5,819,974
Custom HVAC	5,385,928	5,601,603	2,166,419	5,459,916	8,253,378	1,064,809
Ceiling insulation	3,974,535	4,300,516	5,009,060	5,672,761	5,271,649	4,968,349
Air infiltration	3,132,068	3,421,356	3,612,310	5,124,279	4,686,081	4,094,911
AC/HP TU	5,354,733	7,873,043	1,320,560	2,419,767	2,392,191	3,498,318
DHW	353,762	221,221	210,561	166,171	318,894	315,357
Pool pumps	119,968	152,391	437,096	334,151	307,388	117,247
HVAC	962,103	1,873,934	1,596,618	507,158	238,237	834,756
Refrigeration	3,531,932	2,083,619	1,044,494	575,531	204,378	983,697
Low-flow showerhead	207,541	180,749	195,405	269,335	203,493	403,622
Other	0	0	0	0	85,165	0
Air purifier	0	3,873	11,034	24,687	57,228	14,108
Faucet aerator	32,395	121,111	25,369	54,184	42,018	56,435
AC/HP replacement	6,451,413	0	7,876,560	0	11,835	89,542
Dehumidifier	0	7,203	3,938	5,280	3,431	2,854
Freezers	0	0	0	39	175	372
VFD	615	0	0	0	0	16,415,150
Battery chargers	80,093	5,117	159,629	209,261	0	2,134
Clothes washer	26,310	18,627	3,580	0	0	0
Com. door air infiltration	3,055,396	3,435,678	58,990	0	0	0
Electronically commutated motor (ECM)	0	0	290,922	0	0	0
HPWH	4,927	0	0	0	0	0

²¹ All tables and figures in this section exclude energy savings from demand response (AIRC, Residential DLC, BYOT/MYTP, and SDLC) and behavioral programs (Residential Rewards).

Measure	2017	2018	2019	2020	2021	2022
Motors	0	56,427	0	0	0	0
Total	257,088,955	249,381,293	243,665,692	293,207,616	307,942,146	292,925,895

Table 25. Percentage of Portfolio Net Energy Savings by Measure and Year

Measure	2017	2018	2019	2020	2021	2022
Lighting	64.9%	60.6%	56.5%	44.2%	39.3%	40.2%
CEI	0.0%	0.0%	0.0%	0.0%	15.0%	12.2%
Duct sealing	7.9%	9.5%	9.7%	11.8%	12.0%	12.9%
Custom other	8.7%	11.3%	10.0%	18.6%	8.1%	12.3%
APS	1.0%	1.2%	4.3%	3.9%	6.1%	4.0%
Smart thermostat	1.8%	2.9%	4.1%	7.2%	5.0%	1.4%
Custom lighting	3.0%	2.8%	2.0%	4.5%	4.4%	3.8%
Envelope	0.0%	0.0%	3.5%	2.7%	3.0%	2.0%
Custom HVAC	2.1%	2.2%	0.9%	1.9%	2.7%	0.4%
Ceiling insulation	1.5%	1.7%	2.1%	1.9%	1.7%	1.7%
Air infiltration	1.2%	1.4%	1.5%	1.7%	1.5%	1.4%
AC/HP TU	2.1%	3.2%	0.5%	0.8%	0.8%	1.2%
DHW	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%
Pool pumps	0.0%	0.1%	0.2%	0.1%	0.1%	<0.1%
HVAC	0.4%	0.8%	0.7%	0.2%	0.1%	0.3%
Refrigeration	1.4%	0.8%	0.4%	0.2%	0.1%	0.3%
Low-flow showerhead	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%
Other	0.0%	0.0%	0.0%	0.0%	<0.1%	0.0%
Air purifier	0.0%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%
Faucet aerator	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%
AC/HP replacement	2.5%	0.0%	3.2%	0.0%	<0.1%	<0.1%
Dehumidifier	0.0%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%
Freezers	0.0%	0.0%	0.0%	<0.1%	<0.1%	<0.1%
VFD	<0.1%	0.0%	0.0%	0.0%	0.0%	5.6%
Battery chargers	<0.1%	<0.1%	0.1%	0.1%	0.0%	<0.1%
Clothes washer	<0.1%	<0.1%	<0.1%	0.0%	0.0%	0.0%
Com. door air infiltration	1.2%	1.4%	<0.1%	0.0%	0.0%	0.0%
ECM	0.0%	0.0%	0.1%	0.0%	0.0%	0.0%
HPWH	<0.1%	0.0%	0.0%	0.0%	0.0%	0.0%

Measure	2017	2018	2019	2020	2021	2022
Motors	0.0%	<0.1%	0.0%	0.0%	0.0%	0.0%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Figure 7. Distribution of Portfolio Net Energy Savings by Measure Category and Year (2017–2022)

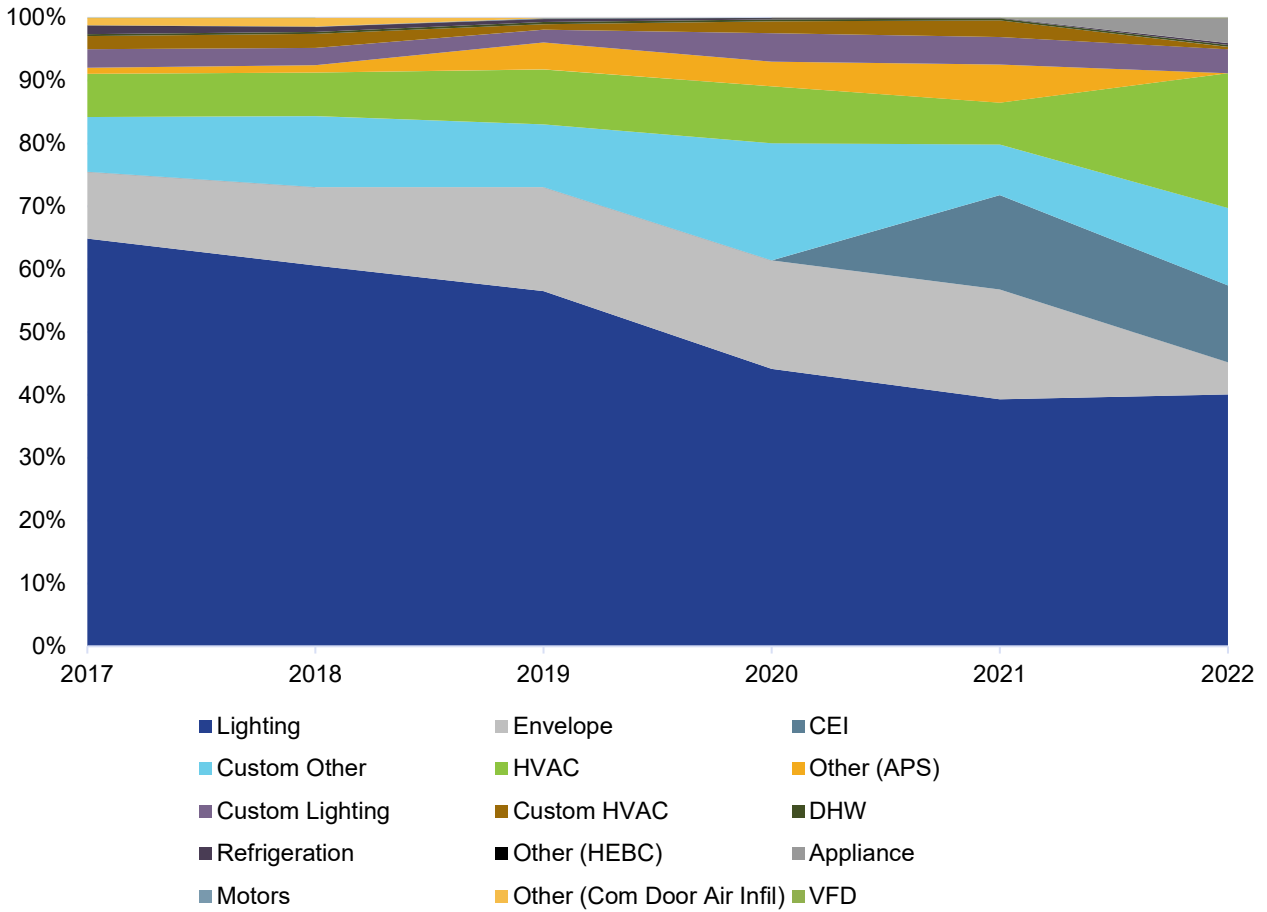


Table 26. Distribution of Portfolio Net Energy Savings by Measure Category and Year

Measure category	2017	2018	2019	2020	2021	2022
Lighting	64.9%	60.6%	56.5%	44.2%	39.3%	40.2%
Envelope	10.6%	12.5%	16.5%	17.3%	17.5%	5.1%
CEI	0.0%	0.0%	0.0%	0.0%	15.0%	12.2%
Custom other	8.7%	11.3%	10.0%	18.6%	8.1%	12.3%
HVAC	6.9%	6.9%	8.7%	9.1%	6.6%	21.4%
Other (APS)	1.0%	1.2%	4.3%	3.9%	6.1%	0.0%

Measure category	2017	2018	2019	2020	2021	2022
Custom lighting	3.0%	2.8%	2.0%	4.5%	4.4%	3.8%
Custom HVAC	2.1%	2.2%	0.9%	1.9%	2.7%	0.4%
DHW	0.3%	0.3%	0.4%	0.3%	0.3%	0.3%
Refrigeration	1.4%	0.8%	0.4%	0.2%	0.1%	0.3%
Other (HEBC)	<0.1%	<0.1%	0.1%	0.1%	<0.1%	0.0%
Appliance	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	4.0%
Motors	0.0%	<0.1%	0.1%	0.0%	0.0%	0.0%
Other (Com. door air infil.)	1.2%	1.4%	<0.1%	0.0%	0.0%	0.0%
VFD	<0.1%	0.0%	0.0%	0.0%	0.0%	0.0%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

3.3.2 Commercial Sector

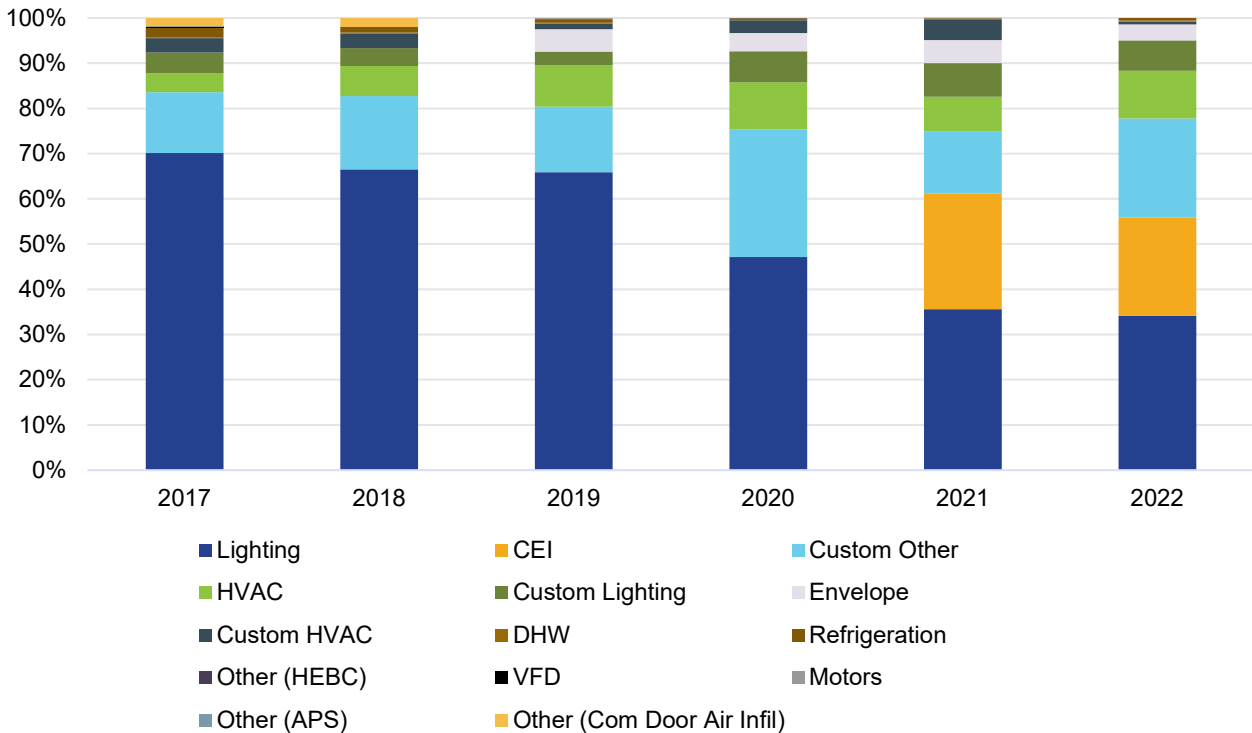
The commercial sector programs, much like the overall portfolio, had a majority of net energy savings from *lighting* measures and installations. However, the proportion of commercial savings coming from *lighting* decreased each year between 2017 and 2022, from a high point of 70 percent of sector savings to 40 percent in 2022. As of 2022, *continuous energy improvement* (CEI) projects now contribute roughly one-fifth of commercial sector energy savings, with *custom other* (i.e., *custom* projects that involve neither *lighting* nor *HVAC* installations) also contributing 22 percent of savings. Table 27 provides a full distribution of net energy savings by measure and year in the commercial sector, with Figure 8 showing trends among commercial programs from 2017 through 2022.

Table 27. Percentage of Net Energy Savings by Measure and Year (kWh)—Commercial Programs

Measure	Percentage of net energy savings by measure and year (kWh)					
	2017	2018	2019	2020	2021	2022
Lighting	70.2%	66.5%	65.9%	47.2%	35.6%	33.9%
CEI	0.0%	0.0%	0.0%	0.0%	25.5%	21.6%
Custom other	13.4%	16.2%	14.5%	28.2%	13.7%	21.8%
HVAC	4.2%	6.6%	9.2%	10.4%	7.8%	10.5%
Custom lighting	4.6%	4.0%	2.9%	6.9%	7.4%	6.7%
Envelope	0.0%	0.0%	5.0%	4.1%	5.1%	3.5%
Custom HVAC	3.2%	3.2%	1.3%	2.8%	4.6%	0.6%
DHW	0.2%	0.2%	0.3%	0.1%	0.2%	0.2%
Refrigeration	2.1%	1.2%	0.6%	0.3%	0.1%	0.6%
Other (HEBC)	<0.1%	<0.1%	0.1%	0.1%	<0.1%	0.0%
Motors	0.0%	<0.1%	0.2%	0.0%	0.0%	0.0%
Other (APS)	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%

	Percentage of net energy savings by measure and year (kWh)					
Measure	2017	2018	2019	2020	2021	2022
Other (com door air infil.)	1.8%	2.0%	<0.1%	0.0%	0.0%	0.0%
VFD	<0.1%	0.0%	0.0%	0.0%	0.0%	0.0%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Figure 8. Distribution of Net Energy Savings by Measure and Year (2017–2022)—Commercial Programs



3.3.2.1 Agricultural Energy Solutions

Apart from 2019 and 2020, where one custom VFD project occurred in both years, all energy savings in the Agricultural Energy Solutions (AES) program came from *lighting* installations and retrofits, as shown in Table 28.

Table 28. Net Energy Savings by Measure and Year (kWh)—Agricultural Energy Solutions Program

Measure	2017	2018	2019	2020	2021	2022
Custom lighting	7,609,051	6,929,022	4,938,316	13,313,382	13,425,635	11,142,520

Measure	2017	2018	2019	2020	2021	2022
Custom VFD	0	0	37,461	24,669	0	0
Total	7,609,051	6,929,022	4,938,316	13,313,382	13,425,635	11,142,520

3.3.2.2 Public Institutions Solutions²²

The Public Institutions Solutions (PIS) program has greatly decreased the amount of savings coming from *lighting* measures during the past five years. Table 29 details total program savings since 2017. Since 2020, *HVAC* measures have contributed the highest proportion of net energy savings in PIS, with 52 percent and 57 of net energy savings in 2021 and 2022, respectively.

Table 29. Net Energy Savings by Measure and Year (kWh)—Public Institutions Solutions Program

Measure	2017	2018	2019	2020	2021	2022
HVAC	61,100	222,801	433,319	11,972,620	10,431,055	11,030,222
Lighting	19,060,779	20,841,597	15,876,758	9,016,732	5,650,769	3,728,282
Custom other	112,181	187,003	71,245	2,876,196	1,810,040	570,965
CEI	0	0	0	0	1,389,771	2,921,962
Envelope	0	0	0	392,840	916,969	847,075
DHW	34,373	102,089	0	101,077	36,225	126,197
Custom HVAC	0	3,647,408	882,217	0	0	0
Other (APS)	418,009	0	0	0	0	0
Other (com door air infil.)	46,181	110,233	58,990	0	0	0
Refrigeration	208,080	0	0	0	0	0
Total	19,940,702	25,111,131	17,322,529	24,359,465	20,234,829	19,224,703

²² Includes CitySmart data pre-2020.

3.3.2.3 Large Commercial and Industrial

The Large Commercial and Industrial program also witnessed a decline in *lighting* savings relative to other measures in 2022 compared to previous years. In 2017, 65 percent of the Commercial and Industrial program’s net energy savings came from *lighting* measures; in 2022 this number dropped to 24 percent. Other *custom* projects have always provided a large portion of Commercial and Industrial program savings, ranging from 20 to 44 percent in the past six years. More recently, the program has added *continuous energy improvement* (CEI) projects to the measure mixture; these projects contributed 33 percent of program savings in 2022. CEI projects were previously categorized as *other custom* projects. Figure 9 and Table 30 provide details on the distribution of savings among Large Commercial and Industrial program measures between 2017 and 2022.

Figure 9. Distribution of Net Energy Savings by Measure and Year (2017–2022)—Large Commercial and Industrial Program

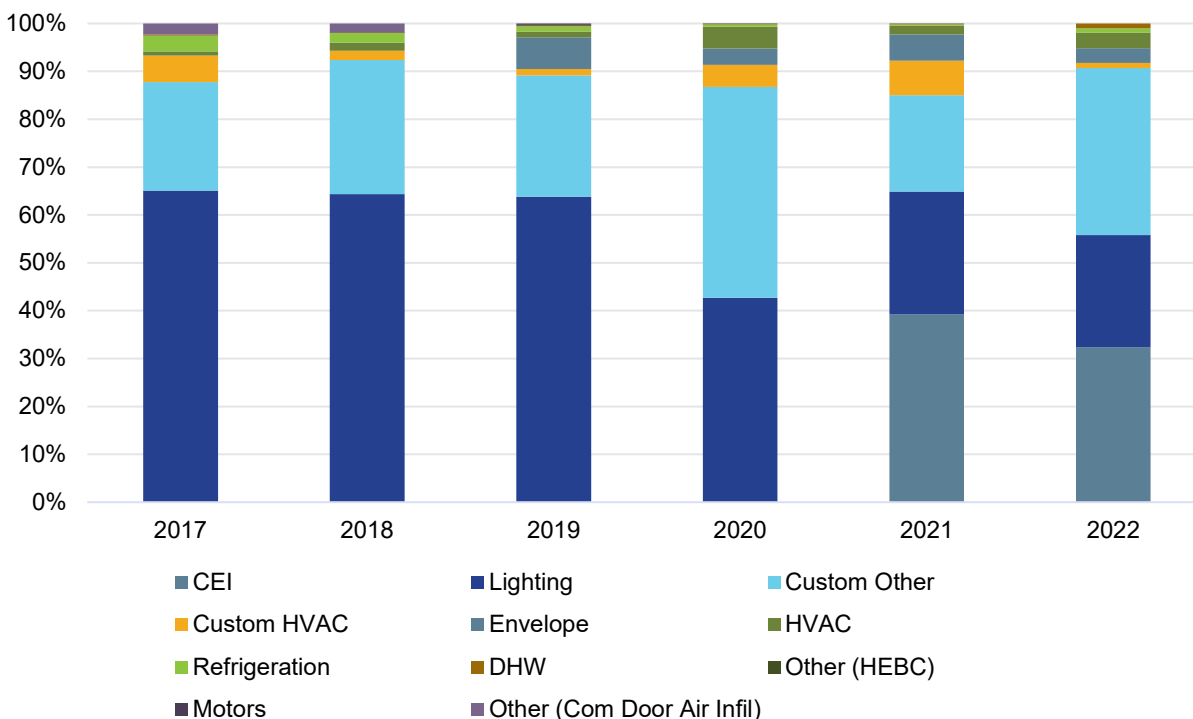


Table 30. Percentage of Net Energy Savings by Measure and Year (kWh)—Large Commercial and Industrial Program

Measure	2017	2018	2019	2020	2021	2022
CEI	0.0%	0.0%	0.0%	0.0%	39.2%	32.6%
Lighting	65.1%	64.4%	63.8%	42.7%	25.7%	23.7%
Custom other	22.7%	28.0%	25.4%	44.0%	20.1%	35.2%
Custom HVAC	5.5%	2.0%	1.3%	4.6%	7.2%	1.1%
Envelope	0.0%	0.0%	6.6%	3.4%	5.4%	3.1%

Measure	2017	2018	2019	2020	2021	2022
HVAC	0.9%	1.6%	1.2%	4.5%	1.9%	3.2%
Refrigeration	3.2%	2.0%	1.1%	0.5%	0.2%	1.0%
DHW	0.2%	0.1%	0.1%	<0.1%	0.1%	0.1%
Other (HEBC)	0.1%	<0.1%	0.2%	0.2%	0.1%	3.0%
Motors	0.0%	0.1%	0.3%	0.0%	0.0%	0.0%
Other (com door air infil)	2.3%	1.8%	0.0%	0.0%	0.0%	0.0%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

3.3.2.4 Small Business Solutions

The Small Business Solutions program remains dominated by *lighting* savings, with 72 percent of net savings coming from *lighting* installations in 2022. This trend was relatively consistent during the past six years, with *lighting* responsible for 67 to 96 percent of program savings. *HVAC* measures are also a relatively large contributor to savings, with more than 17 percent of program savings coming from *HVAC* measures in 2022. Figure 10 and Table 31 provide details on the distribution of savings among Small Business Solutions measures between 2017 and 2022.

Figure 10. Distribution of Net Energy Savings by Measure and Year (2017–2022)—Small Business Solutions Program

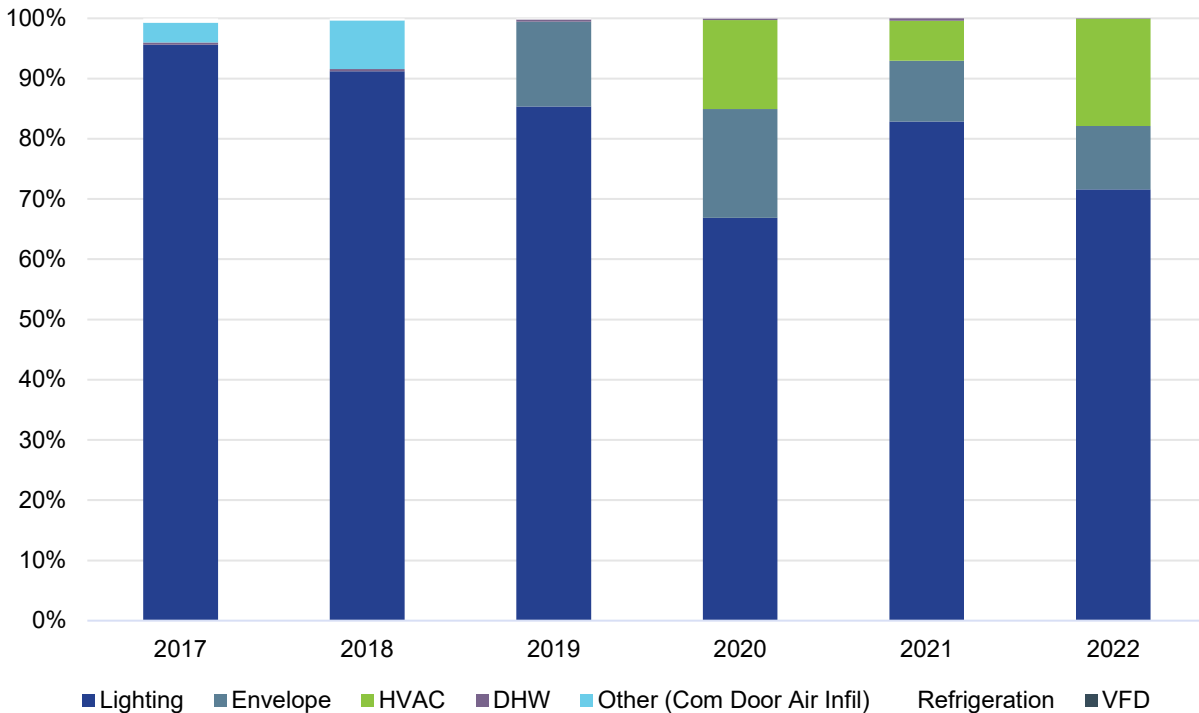


Table 31. Percentage of Net Energy Savings by Measure and Year (kWh)—Small Business Solutions Program

Measure	2017	2018	2019	2020	2021	2022
Lighting	95.6%	91.2%	85.3%	66.9%	82.9%	71.7%
Envelope	0.0%	0.0%	14.1%	18.1%	10.1%	10.5%
HVAC	0.0%	<0.1%	0.0%	14.8%	6.6%	17.8%
DHW	0.4%	0.4%	0.4%	0.3%	0.4%	0.1%
Other (com door air infil)	3.3%	8.1%	0.0%	0.0%	0.0%	0.0%
Refrigeration	0.7%	0.3%	0.2%	0.0%	0.0%	<0.1%
VFD	<0.1%	0.0%	0.0%	0.0%	0.0%	0.0%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

3.3.2.5 Point of Purchase Solutions—Midstream Lighting

The Commercial Midstream Lighting program, which merged into the Point of Purchase Solutions (POPS) program in 2020, provides *lighting* measures to commercial customers through participating distributors. While the Commercial Midstream Lighting program offered customers rebates for additional, *non-lighting* measures (i.e., *variable frequency drives* (VFD)), the commercial portion of the POPS program focuses solely on *lighting*. Table 32 summarizes the programs' net savings since 2017.

Table 32. Net Energy Savings by Measure and Year (kWh)—Commercial Midstream Lighting/Point of Purchase Solutions Programs

Measure	2017	2018	2019	2020	2021	2022
Lighting	12,312,436	13,282,892	21,346,170	19,256,550	11,866,983	16,052,790
Pumps	0	38,656	252,103	0	0	0
Total	12,312,436	13,321,548	21,598,273	19,256,550	11,866,983	16,052,790

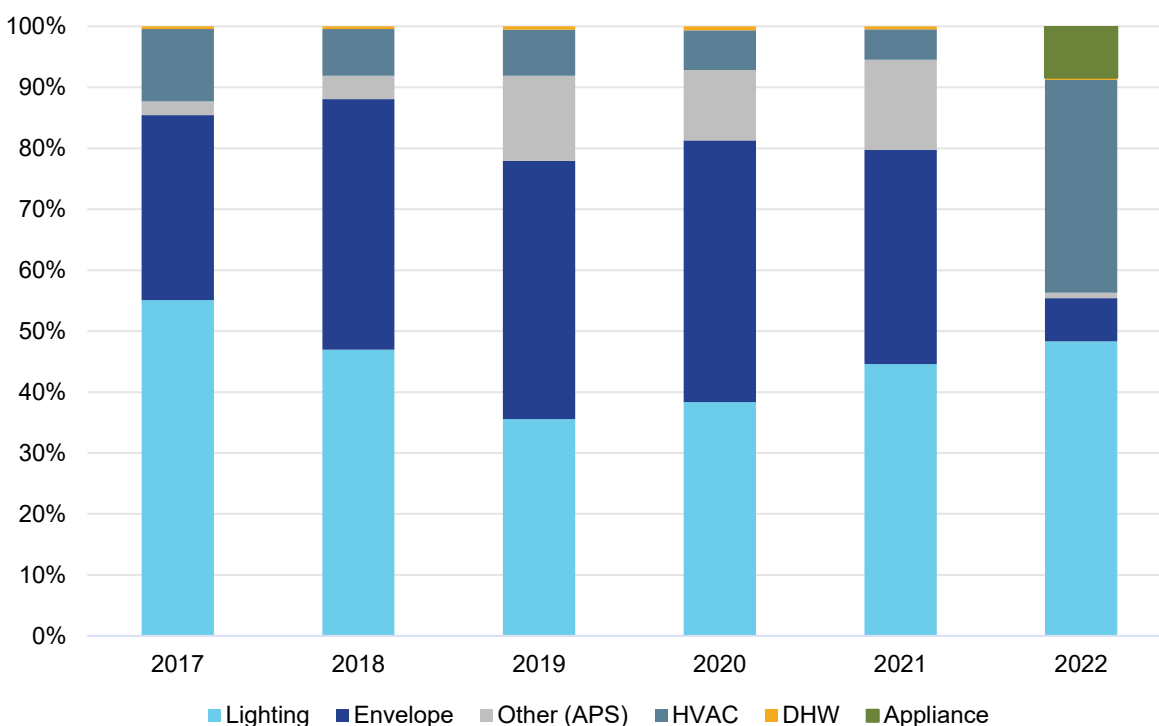
3.3.3 Residential Sector

The residential sector programs, much like the overall portfolio, had a majority of net energy savings from *lighting* measures and installations. From a high point of 55 percent of sector savings in 2017, *lighting's* contribution to residential energy savings decreased to 36 percent in 2019 before climbing in 2020 to 38 percent, increasing again in 2021 to 45 percent, and a final increase to 48 percent of sector savings in 2022. *HVAC* measures contribute the second largest portion of residential sector savings in 2022 at 35 percent of annual residential sector savings. Table 33 provides a full distribution of net energy savings by measure and year in the residential sector, with Figure 11 showing trends among residential programs from 2017 through 2022.

Table 33. Percentage of Net Energy Savings by Measure and Year (kWh)—Residential Programs

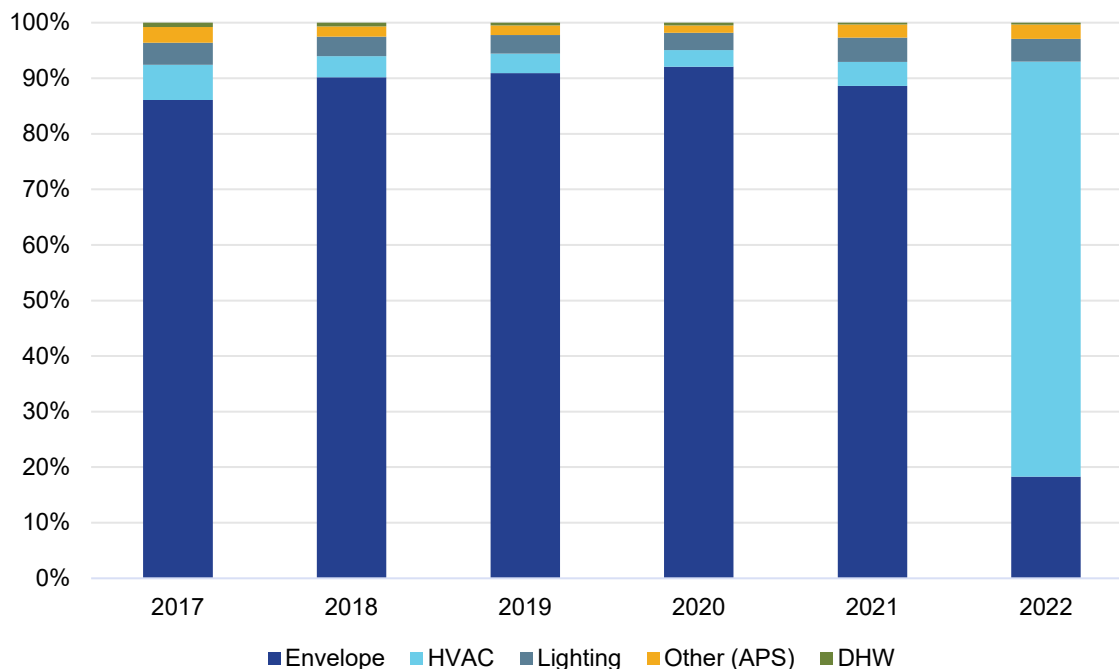
Measure	2017	2018	2019	2020	2021	2022
Lighting	55.1%	46.9%	35.5%	38.3%	44.6%	48.3%
Envelope	30.3%	41.1%	42.4%	43.0%	35.1%	7.1%
Other (APS)	2.3%	3.9%	14.0%	11.5%	14.7%	0.9%
HVAC	11.8%	7.6%	7.5%	6.5%	5.0%	34.9%
DHW	0.4%	0.4%	0.6%	0.7%	0.5%	0.4%
Appliance	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	8.4%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Figure 11. Distribution of Net Energy Savings by Measure and Year (2017–2022)—Residential Programs



3.3.3.1 Home Energy Solutions

The Home Energy Solutions (HES) program, previously dominated by *envelope* savings, saw *HVAC* savings take over prime position in 2022 with 75 percent of net savings. This was a result of a concerted effort by EAL and its implementation contractor to increase HVAC in the program to better align with planning estimates for the program. Figure 12 and Table 34 provide details on the distribution of savings among Home Energy Solutions program measures between 2017 and 2022.

Figure 12. Distribution of Net Energy Savings by Measure and Year (2017–2022)—Home Energy Solutions Program**Table 34. Percentage of Net Energy Savings by Measure and Year (kWh)—Home Energy Solutions Program**

Percentage of net energy savings by measure and year (kWh)						
Measure	2017	2018	2019	2020	2021	2022
Envelope	86.1%	90.2%	90.9%	92.1%	88.6%	18.3%
HVAC	6.3%	3.8%	3.5%	3.0%	4.3%	74.7%
Lighting	4.0%	3.5%	3.4%	3.1%	4.4%	4.1%
Other (APS)	2.8%	1.8%	1.7%	1.4%	2.3%	2.6%
DHW	0.8%	0.7%	0.5%	0.5%	0.4%	0.3%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

3.3.3.2 Energy Solutions for Manufactured Homes

The Manufactured Homes program was dominated by envelope savings between 2017 and 2021, with at least 74 percent of net savings coming from envelope measures each of the five years. In 2022 only 6 percent of savings from manufactured homes projects came from envelope measures, while 91 percent came from HVAC projects. Figure 13 and Table 35 provide details on the distribution of savings among Manufactured Homes measures between 2017 and 2022.

Figure 13. Distribution of Net Energy Savings by Measure and Year (2017–2022)—Energy Solutions for Manufactured Homes Program

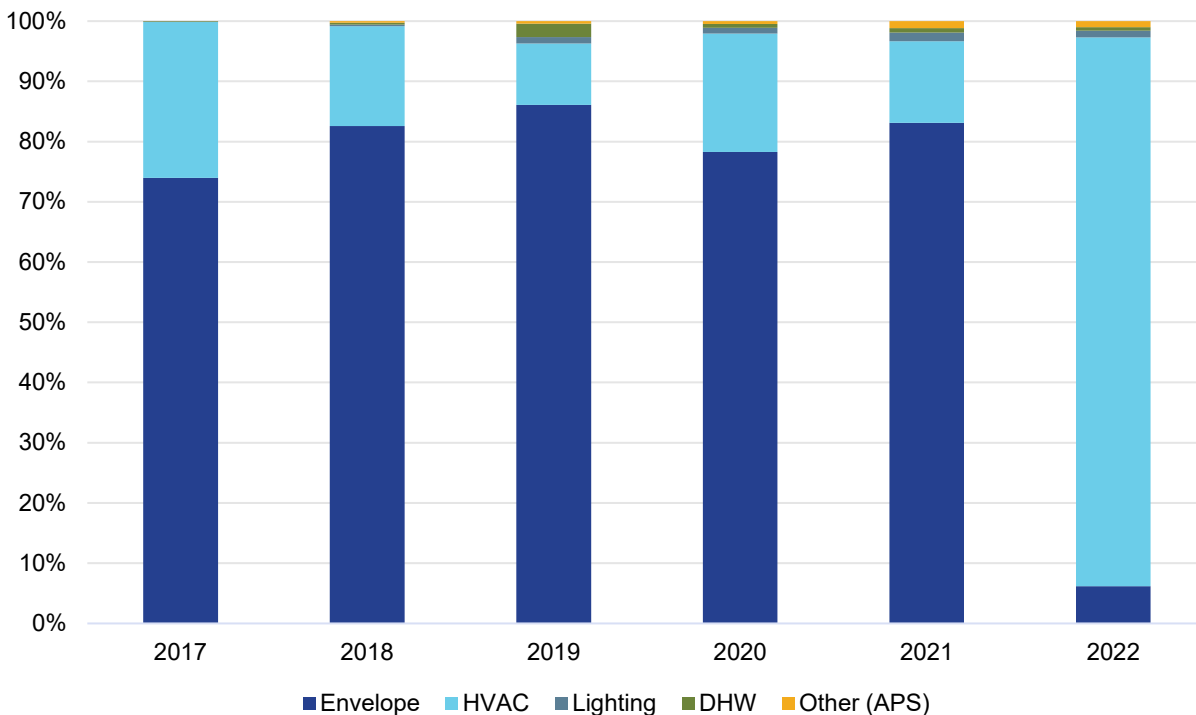


Table 35. Percentage of Net Energy Savings by Measure and Year (kWh)—Energy Solutions for Manufactured Homes Program

Measure	Percentage of net energy savings by measure and year (kWh)					
	2017	2018	2019	2020	2021	2022
Envelope	73.9%	82.6%	86.1%	78.3%	83.1%	6.2%
HVAC	25.9%	16.6%	10.2%	19.7%	13.6%	91.1%
Lighting	0.1%	0.2%	1.1%	1.0%	1.4%	1.1%
DHW	0.1%	0.3%	2.2%	0.6%	0.8%	0.6%
Other (APS)	<0.1%	0.3%	0.4%	0.5%	1.2%	1.0%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

3.3.3.3 Energy Solutions for Multifamily Homes

The Multifamily Homes program has been dominated by HVAC and envelope savings for the past six years. In 2017, HVAC was responsible for 71 percent of the savings, and envelope measures 28 percent of savings. This trend shifted in the years after, where in 2021, 80 percent of program savings came from envelope measures and 16 percent from HVAC. In 2022,

however, this trended reverted back and HVAC measures account for 78 percent of multifamily homes savings, and only 18 percent comes from envelope savings. Figure 14 and Table 36 provide details on the distribution of savings among Multifamily Homes measures between 2017 and 2022.

Figure 14. Distribution of Net Energy Savings by Measure and Year (2017–2022)—Energy Solutions for Multifamily Homes Program

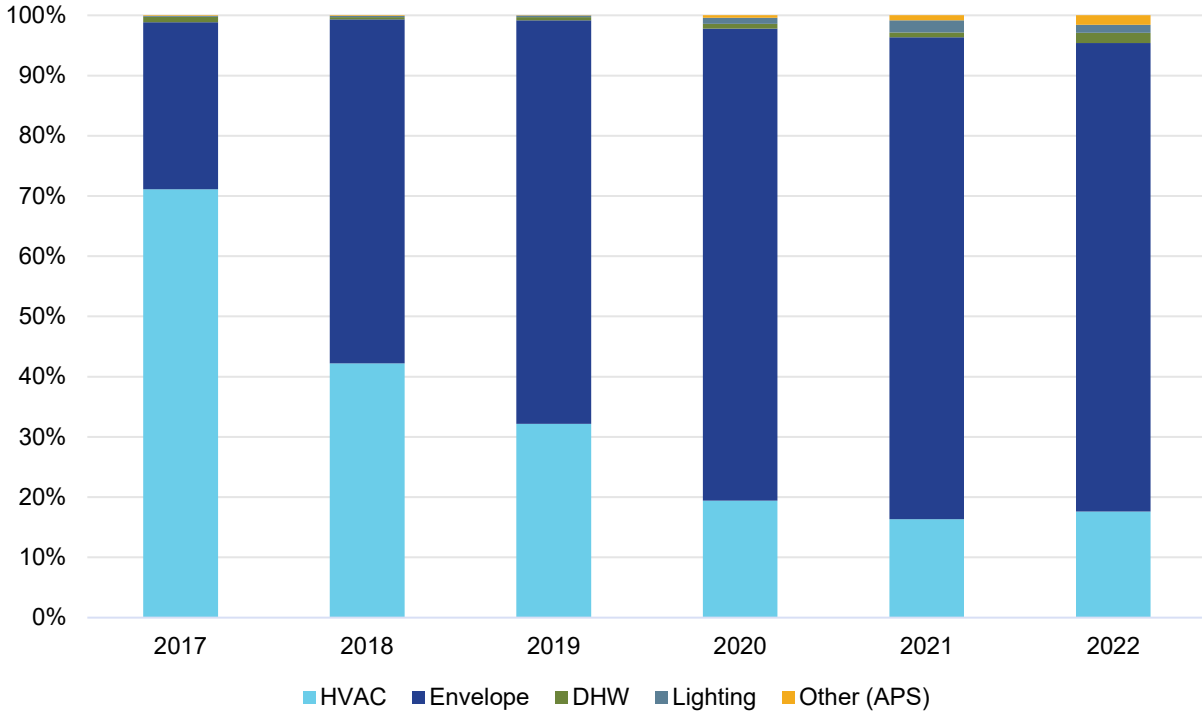


Table 36. Percentage of Net Energy Savings by Measure and Year (kWh)—Energy Solutions for Multifamily Homes Program

Measure	Percentage of net energy savings by measure and year (kWh)					
	2017	2018	2019	2020	2021	2022
Envelope	27.7%	57.1%	67.0%	78.4%	80.0%	17.6%
HVAC	71.1%	42.2%	32.2%	19.4%	16.4%	77.8%
Lighting	0.1%	0.2%	0.3%	1.0%	2.0%	1.7%
Other (APS)	0.1%	0.1%	<0.1%	0.4%	0.8%	1.3%
DHW	0.9%	0.4%	0.5%	0.8%	0.8%	1.6%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

3.3.3.4 Point of Purchase Solutions

The Point of Purchase Solutions program has had the majority of its savings come from lighting over the past six years, with between 70 and 97 percent of POPS savings. In 2022 HVAC and appliance measures were the next largest contributors with about 7 percent from each. Figure 15 and Table 37 provide details on the distribution of savings among Point of Purchase Solutions measures between 2017 and 2022.

Figure 15. Distribution of Net Energy Savings by Measure and Year (2017–2022)—Point of Purchase Solutions Programs

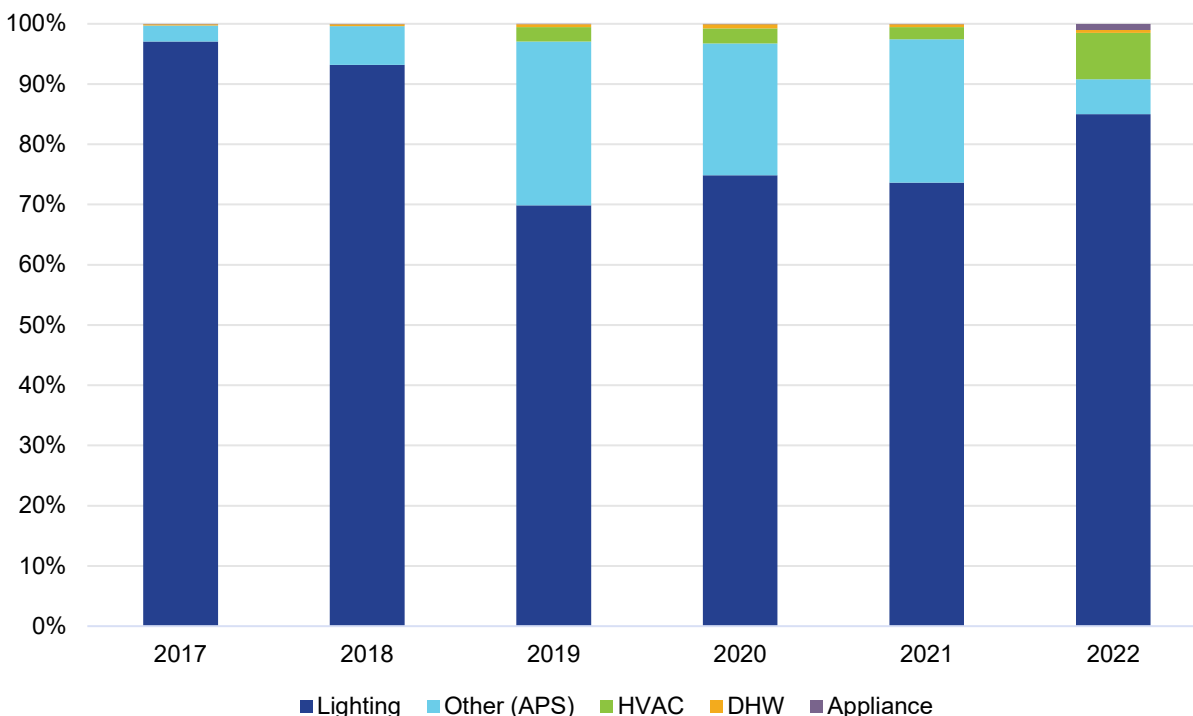


Table 37. Percentage of Net Energy Savings by Measure and Year (kWh)—Point of Purchase Solutions Programs

Measure	Percentage of net energy savings by measure and year (kWh)					
	2017	2018	2019	2020	2021	2022
Lighting	97.1%	93.2%	69.9%	74.8%	73.6%	84.9%
Other (APS)	2.6%	6.4%	27.2%	21.9%	23.8%	5.8%
HVAC	0.0%	0.0%	2.4%	2.5%	2.0%	7.7%
DHW	0.2%	0.3%	0.5%	0.7%	0.5%	0.5%
Appliance	0.1%	0.1%	0.1%	0.1%	0.1%	1.0%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	84.9%

3.3.3.5 Low-Income Solutions

The Low-Income Solutions program was primarily driven by envelope savings in 2020 and 2021, with 74 and 76 percent of LIS net savings respectively. In 2022, envelope savings only account for 18 percent of savings, while HVAC contributed to 74 percent of LIS savings. Figure 16 and Table 38 provide details on the distribution of savings among Low-Income Solutions measures between 2020 and 2022.

Figure 16. Distribution of Net Energy Savings by Measure and Year (2017–2022)—Low-Income Solutions Program

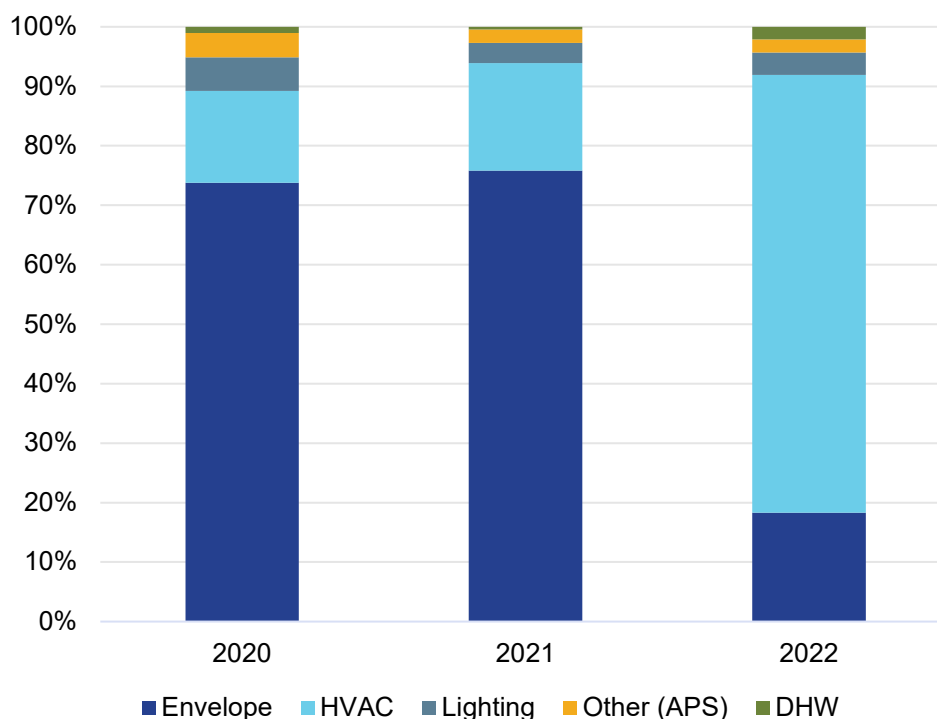


Table 38. Percentage of Net Energy Savings by Measure and Year (kWh)—Low-Income Solutions Program

Measure	2020	2021	2022
Envelope	73.8%	75.8%	18.3%
HVAC	15.5%	18.1%	73.6%
Lighting	5.6%	3.4%	3.8%
Other (APS)	4.1%	2.3%	2.2%
DHW	1.0%	0.5%	2.1%
Total	100.0%	100.0%	100.0%

3.4 COMPREHENSIVENESS CHECKLIST

The EM&V effort includes an annual review of the Arkansas Public Service Commission's (APSC) Comprehensiveness Checklist (Comprehensive Checklist) to assess portfolio performance against the checklist's seven factors. From the EM&V team's assessment, EAL met the APSC's Comprehensiveness Checklist's objectives in PY2022.

Comprehensiveness Factor 1

Whether the programs or portfolios provide, directly or through identification and coordination, the education, training, marketing, or outreach needed to address market barriers to adopting cost-effective energy efficiency measures.

The EM&V team assessed this factor through in-depth interviews with EAL's implementation contractors and a review of marketing and training materials. The EAL programs continued to provide education and outreach to trade allies and customers that address specific market barriers to adopting cost-effective efficiency measures. For some programs, trade ally technical training increased, and there were several initiatives to increase the effectiveness of marketing and outreach. The following highlights specific efforts made to achieve this factor:

- Program branding and all marketing materials continue to carry the *EAL Solutions* logo. Marketing collateral was updated and refreshed.
- Mass marketing, coupled with targeted marketing to specific segments, continued to raise awareness among customers. EAL and its implementation contractors sought out various speaking opportunities, participated in community events, and conducted in-person visits to target markets. Remote outreach efforts included media buys (print and radio were the most common), direct mailings, telephone calls, and email blasts. Email blasts were incredibly successful in raising awareness and motivating customers to participate. In addition, EAL's active engagement of trade allies and social service organizations supported awareness building and participation as found in process evaluation surveys
- Trade ally education and training continued across all programs and expanded to meet specific measures. For the commercial programs, a trade ally specialist position continued to focus on recruiting and training trade allies on all programs, measures, incentive levels, marketing, and project savings calculators. Trade ally summits were also held for educational purposes and recognized high-performing trade allies with awards to foster continued program participation. EAL combined the upstream residential and midstream commercial lighting programs into the Point of Purchase Solutions program starting in PY2020. The combined program facilitated the program implementer focusing on retailer and distributor outreach and training to help sales associates be subject-matter experts that could influence decision-making during the purchase.

- EAL solicited customer feedback to improve customer outreach and education. Programs provided a toll-free telephone number to customers to speak directly with customer service representatives. Also, several programs in EAL's portfolio conducted periodic surveys to receive feedback about satisfaction directly from program participants. Overall, PY2020–PY2022 process evaluations with participants found very high satisfaction with EAL programs.
- Program staff dedicated marketing and outreach across all EAL territories. EAL program managers and implementation contractor staff are program experts and provide education and outreach about programs, including other utilities' programs. Also, program staff recruit trade allies that provide additional program reach across EAL's service territory and help them successfully achieve goals. Online purchasing tools expanded this program cycle, allowing customers to identify their rebated items online, verify eligibility, and obtain a scannable code for use at participating retailers, further increasing the accessibility and ease of participation. While online offerings increased in response to the pandemic, implementation staff believe it is a preferred option for a segment that is here to stay and has continued to build on these efforts.
- EAL increased offerings to low-income customers due to the substantial affordability barriers this sector faces. In addition to downstream program offerings, EAL and its implementation contractor partnered with various organizations that serve low-income customers, such as food banks, to deliver energy-efficient products to these households. It also increased participation of retailers in low-income neighborhoods that participate in the POPS program.

Comprehensiveness Factor 2

Whether the program or portfolio has adequate budgetary, management, and program delivery resources to plan, design, implement, oversee, and evaluate energy efficiency programs.

The EM&V team assessed this factor through performance data provided by EAL and in-depth interviews with implementation contractors and program staff. Overall, the EM&V team found budgets and resources were sufficient to support program goals. However, lower avoided costs, increased goals in the new program cycle, and a myriad of challenges first arising in the pandemic continued to be a challenge. Increased costs of materials coupled with lower availability for ongoing programs were specific obstacles in PY2022. Research indicated this continued in PY2022 and was exacerbated due to staffing and supply chain constraints. The programs continued to leverage the trade ally infrastructure to market the programs and deliver them to customers, coupled with mass marketing as described above.

- **In most cases, program budgets were sufficient to implement the programs, but rising material and staffing costs are a concern.** Program and implementation staff reported that they had enough budget to cover program implementation in PY2022, but also reported concern with continued increasing costs. Pre-negotiated contracts helped keep many costs maintained in PY2022, but there are concerns about future program years. EAL achieved its energy savings goals at a portfolio level but fell short of demand reduction targets while spending 85 percent of the planned budget.

- **Budget flexibility is helpful for EAL to make allowable adjustments to deliver annual cost-effective energy efficiency.** As in previous APSC rulings, the Arkansas utilities retain the flexibility to make up to ten percent adjustments to program budgets and adjust energy savings and demand reduction goals appropriately within the modified budgets. In PY2022, EAL revised the approved budget within the APSC’s guidelines for budget flexibility. EAL moved budgeted dollars from underachieving programs to programs seeing more positive market acceptance, detailed in Table 39. The flexibility allowed EAL to reallocate funding to newer program offerings, including those disproportionately impacted by the persistent staffing and cost concerns discussed above.

Table 39. PY2022 Budgets by Program (\$1,000s) (Initial vs. Revised vs. Actual)

Program	Initial budget	Revised budget	Actual spend
Home Energy Solutions	\$11,303	\$11,158	\$10,640
Energy Solutions for Multifamily Homes	\$2,650	\$2,790	\$2,622
Energy Solutions for Manufactured Homes	\$1,261	\$1,406	\$1,247
Low-Income Solutions	\$4,958	\$4,958	\$3,652
Point of Purchase Solutions	\$7,889	\$9,163	\$9,215
Large Commercial & Industrial Solutions	\$21,779	\$20,318	\$14,752
Small Business Solutions	\$2,581	\$3,114	\$3,048
Public Institutions Solutions	\$3,806	\$3,459	\$2,841
Agricultural Energy Solutions	\$1,353	\$1,638	\$1,553
Residential Direct Load Control Pilot	\$3,548	\$3,548	\$2,643
Smart Direct Load Control	\$4,005	\$3,580	\$2,986
Agricultural Irrigation Load Control	\$3,918	\$3,918	\$3,541
Energy Efficiency Arkansas	\$303	\$303	\$264
Total	\$69,355	\$69,355	\$59,004

Comprehensiveness Factor 3

Whether the programs or portfolio reasonably address all major end-uses of electricity or natural gas, as appropriate.

The reader is referred to the *Measure Trend Analysis* (Section 3.3) above as it fully addresses the findings for this comprehensive factor. This factor was found to be fully met as **program designs include measure offerings and incentives to promote all significant electricity end-uses**. Programs have tiered incentives to encourage customers to undertake more comprehensive energy efficiency projects. The Small Business Solutions program has a generous incentive for *refrigeration* to encourage this measure in addition to *lighting*. The Point of Purchase Solutions program has expanded the number of measures incentivized by working directly with retailers and distributors. The Home Energy Solutions and Low-Income Solutions programs audit identifies savings and provides education regarding all available significant electricity end-uses, including offerings through the CWA. Also, EAL continues to look for new cost-effective measure offerings to add to its program offerings, such as *ductless mini-splits*. Large Commercial & Industrial Solutions has been consistently delivering one-half or more of its savings through *custom* offerings tailored to customer needs.

Comprehensiveness Factor 4

Whether the programs or portfolio, to the maximum extent reasonable, comprehensively address customers' needs at one time to avoid cream-skimming and lost opportunities.

The EM&V team assessed this factor through tracking system data analysis and interviews with EAL program managers and program implementers. EAL reported both program changes and continued program strategies to comprehensively address customers' needs and provide savings options to customers. Previous years found a consistent theme that this can be difficult to do at one time and can be achieved once a customer relationship has been established. The programs have gained traction, allowing them to build on past positive program experiences to do additional customer projects.

- **EAL continues to try and identify and serve customers comprehensively.** EAL staff and implementation contractors reported successfully implementing deeper savings as programs and customer relationships have become more established. Across the residential programs and *direct-install* measures, more *envelope* and *AC tune-up* measures occur as *duct sealing* has become a significant source of savings identified through energy assessments. Another example of addressing multiple needs is the Large Commercial & Industrial Solutions program, where over half of the savings in PY2022 are from *custom* projects. The implementation contractor works closely with customers to comprehensively address facility needs. The Public Institutions Solutions program has also more comprehensively served customers, with over one-half of savings coming from *HVAC* measures in addition to about one-quarter from *lighting*.
- **Program staff educated customers on all energy efficiency needs.** One of the program staff's objectives is to comprehensively serve customers and foster strong customer relationships to educate customers on energy efficiency better and drive deeper savings. Field staff have developed customer relationships across EAL's territory, including in the harder-to-reach small business, agriculture, multifamily, manufactured homes, and low-income segments with the objective of more comprehensively meeting their energy efficiency needs.

Comprehensiveness Factor 5

Whether such programs take advantage of opportunities to address targeted customer sectors' comprehensive needs or leverage non-utility program resources.

The EM&V team assessed Comprehensive Factor 5 through in-depth interviews with EAL staff and implementation contractors, a review of outreach events, and participant characterization. Overall, the EM&V team found several strategic partnerships to reach targeted customer sectors and leverage non-utility program resources.

- New and innovative partnerships led to increased outreach activities for the agriculture and commercial sectors.** Both agriculture and commercial sectors have built a successful relationship with implementation staff. Partnerships were reported with several agencies and associations, including various trade associations. EAL reported partnering with the Arkansas Association of Energy Efficiency Engineers to co-fund training and seminars on HVAC, lighting technologies, and energy benchmarking. The Agricultural Energy Solutions program has partnered with the United States Department of Agriculture to serve this customer segment.
- Non-utility program resources were leveraged for the residential sectors.** Arkansas weatherization and community action agencies were engaged to support the implementation of the Low-Income Solutions program. Working with the community action agencies also aimed to increase the geographic reach of the residential programs. In addition, a number of strategic partnerships were established and led to neighborhood sweeps such as a partnership with Habitat for Humanity.
- Programs continue to foster and increase partnerships with manufacturers, distributors, and trade allies.** The Point of Purchase Solutions program has increased participating distributors and retailers and expanded to new types of measures and expanded partnerships to reach low-income segments. Implementors called all of the participating distributors who were considered inactive in the past year and provided additional training and tools.

Table 40 summarizes the customers served by programs, demonstrating the effectiveness of efforts to meet various customer sectors' comprehensive needs through downstream, midstream, and upstream programs. While more energy savings and demand reductions accrue to commercial and agricultural customers, almost one-half of savings and demand reductions are delivered to thousands of residential customers.

Table 40. Distribution of Participating Customers by Program and Sector

Program	Participating customers ²³	Percentage of sector served	Percentage of portfolio
Residential			
Home Energy Solutions	7,369	1%	1%
Low-Income Solutions	1,727	0%	0%

²³ Participant count does not include measures that did not claim energy or demand savings, such as duplicate *smart thermostat* measures claimed in the Smart DLC program, *health and safety* measures, and *audits*.

Program	Participating customers ²³	Percentage of sector served	Percentage of portfolio
Energy Solutions for Manufactured Homes	627	0%	0%
Energy Solutions for Multifamily Homes	2,348	0%	0%
Point of Purchase Solutions	779,388	96%	96%
Residential Direct Load Control	15,685	2%	2%
Smart Direct Load Control Pilot—Residential	1,734	0%	0%
Residential subtotal	808,878	100%	99%
Commercial			
Point of Purchase Solutions	617	15%	0%
Large Commercial and Industrial Solutions	521	13%	0%
Small Business Solutions	711	17%	0%
Public Institutions Solutions	263	6%	0%
Agricultural Energy Solutions	15	0%	0%
Agricultural Irrigation Load Control	1,857	45%	0%
Smart Direct Load Control Pilot—Commercial	152	4%	0%
Commercial subtotal	4,136	100%	1%
Total²⁴	813,050	--	100%

Comprehensiveness Factor 6

Whether the programs or portfolio enable the delivery of achievable, cost-effective energy efficiency within a reasonable period and maximize net benefits to customers and the utility system.

The EM&V team assessed this factor through the EAL program manager, implementer interviews, and data analysis. While EAL and implementers reported enough budget allocations to achieve the goal, they also reported the need to realize cost efficiencies to keep programs cost-effective given the persistent challenges from the pandemic and, in particular, inflation across a variety of materials and equipment. EAL also reported strategies to maximize net benefits, which they effectively achieve based on a portfolio-level NTG ratio of 97 percent in PY2022, which increased from the PY2021 portfolio NTG ratio of 95 percent and PY2020 portfolio NTG ratio of 90 percent. Strategies are discussed below.

- **Program delivery aims to maximize NTG ratios.** EAL reports screening commercial customers during the application phase to ascertain whether the program would be instrumental in helping them move forward with energy efficiency instead of incentivizing

²⁴ Due to the upstream nature of most program activity for POPS, it is impossible to identify unique participants. Accordingly, this total likely includes EAL customers that participated in multiple programs.

the energy efficiency projects they were already going to do. The screening is primarily done during pre-inspections. Implementation contractors also report reviewing measure offerings to maximize net savings. Efforts were successful in PY2022 to target measures to low-income segments through partnerships with organizations such as food banks and Habitat for Humanity and serving this sector through the Low-Income Solutions, Energy Solutions for Multifamily Homes and Energy Solutions for Manufactured Homes. The PY2020 Large Commercial and Industrial Solutions NTG research also showed higher NTG values for *custom* projects, which have continued to increase under this program, positively affecting the NTG ratio.

- **Strategies are used to keep programs cost-effective.** EAL reported that *lighting* has helped keep programs cost-effective while pursuing other comprehensive end-uses of electricity. While residential lighting will not be part of EAL's portfolio in the next program cycle due to EISA, EAL does expect commercial lighting to continue to be a cost-effective, energy savings action. See the *EISA Impact Analysis* (Section 3.2.1) that shows less impact on commercial applications. Also, implementation strategies are used to minimize costs where possible. Two examples are (1) bundling service trips geographically to customers to minimize travel costs and (2) increasing online applications.

Comprehensiveness Factor 7

Whether the programs or portfolios have EM&V procedures adequate to support program management and improvement, calculate energy, demand, revenue impacts, and resource planning decisions.

The EM&V team assessed this factor through program staff interviews and IEM coordination. The EM&V team's impression is that a collaborative approach with EAL and implementation contractors—while maintaining the evaluation process's objectivity—results in program benefits that lead to healthy realization rates as savings differences are addressed proactively when possible. One example is 100 percent realization rates for tracking system reviews as the EM&V team provides interim results mid-program-year to EAL and implementation contractors. Another example is ongoing technical reviews and assistance up-front, such as Large Commercial & Industrial Solutions and Agricultural Energy Solutions programs custom projects.

- **The EM&V team actively engaged with EAL, implementation contractors, and the IEM throughout the evaluation period.** The EM&V team met biweekly with implementation contractors to discuss program updates and project questions. The EM&V team provided up-front reviews and feedback on savings questions and quality assurance/quality control (QA/QC) procedures, and information collected on participation forms. The EM&V team also met with EAL biweekly to discuss EM&V progress and issues needing resolution. The EM&V team submitted monthly status reports to the IEM and sought guidance as questions arose throughout the evaluation period.

- **The EM&V team worked with EAL and the IEM for a final PY2022 EM&V Plan²⁵.** Following EAL's review and approval, the EM&V team sent a draft EM&V Plan to the IEM in June 2022. The IEM then provided comments and feedback throughout the draft plan. The EM&V team fully responded to all IEM comments and documented revisions to the plan according to the IEM comments in September 2022.
- **Draft EM&V results were shared for review and comment before submitting the final results.** The EM&V team provided draft interim results to each EAL program manager and implementation contractor manager as EM&V was completed to provide time to review and discuss results and recommendations before formal reporting. The EM&V team also submitted a draft of this final report to the IEM for review before finalizing this document.

²⁵ Entergy Arkansas, LLC Program Year 2022 Evaluation Plan, Tetra Tech, September 2022.

4.0 HOME ENERGY SOLUTIONS

The objectives of the Home Energy Solutions program are to (1) help Entergy Arkansas, LLC (EAL) customers achieve cost-effective electricity savings, (2) educate homeowners on the efficiency and inefficiency of their electricity usage, and (3) identify opportunities for energy savings specific to customers' homes, some of which are provided at no cost to homeowners. Single-family residences within EAL's territory are targeted through this program. Energy audits and energy-efficient home upgrades are delivered through trained and certified home performance contractors. The Home Energy Solutions program is also a delivery mechanism for the *consistent weatherization approach* (CWA) and includes all cost-effective measures following the CWA protocols.

In program year (PY) 2022 (PY2022), the program incented *ceiling insulation, air infiltration measures, duct sealing, and AC/HP tune-ups* while providing direct installation of *faucet aerators, low-flow showerheads, advanced power strips, advanced thermostats, and lighting measures* at no cost.

The evaluation, measurement, and verification (EM&V) team conducted program staff interviews, tracking system reviews, desk reviews, and on-site verifications for a subset of projects to support the evaluation. Table 41 below summarizes the Home Energy Solutions evaluation activities.

Table 41. Home Energy Solutions Program—Data Collection and Evaluation Activities

NTG approach	Process evaluation activities	Gross impact evaluation completes			
		Tracking system review	Desk reviews	On-site verification	Metered data analysis ²⁶
Deemed from prior research	Program staff interviews (2) Material review	Census	70	15	None

4.1 KEY FINDINGS

In PY2022, the Home Energy Solutions program achieved 28,193 MWh in gross energy savings and 9.3 MW in gross demand savings, as shown in Table 42. The Home Energy Solutions program's gross evaluated savings were slightly lower than reported energy savings and demand savings, resulting in realization rates of 97.7 percent megawatt-hours and 98.6 percent megawatts. The program exceeded the energy goal, achieving 108 percent, and nearly achieved the demand goal, achieving 95 percent. The EM&V team's adjustments drive these results during the tracking system review, project-level engineering desk reviews, and on-site verifications.

²⁶ This column refers to EAL customer meter data provided to the EM&V team as opposed to primary metered data collected as part of the on-site measurement and verification (M&V).

Table 42. Home Energy Solutions Program—Reported, Evaluated, and Net Savings

Energy/demand savings	Reported savings	Evaluated savings	Realization rate	NTG ratio ²⁷	Net savings	Program contribution to portfolio savings
Energy savings (MWh)	28,861	28,193	97.7%	104.3%	29,393	10.0%
Demand savings (MW)	9.5	9.3	98.6%	104.4%	9.7	10.3%

Table 43. Home Energy Solutions Program—Goals vs. Achieved

Savings	Goal	Actual	Percentage achieved
Energy savings (MWh)	27,136	29,393	108.3%
Demand savings (MW)	10.3	9.7	94.6%

²⁷ Based on PY2020 process evaluation.

4.2 RECOMMENDATIONS

The EM&V team identified four recommendations, shown in Table 44, for EAL’s consideration from the evaluation activities.

Table 44. Home Energy Solutions—PY2022 Recommendations

Type	Recommendation	Key finding
PY2022 impact recommendations	Recommendation 1: Increase the internal quality assurance/quality control (QA/QC) process on the <i>duct sealing</i> measure for all heating types to ensure all cooling and heating variables are captured correctly.	The <i>duct sealing—AC with resistance heat</i> measure evaluation resulted in realization rates of 99.3 percent and 95.9 percent for energy and demand savings, respectively. The <i>duct sealing—electric cooling</i> measure resulted in realization rates of 102.0 percent and 102.1 percent for energy and demand savings, respectively. The <i>duct sealing—heat pump</i> measure resulted in realization rates of 99.0 percent and 99.1 percent for energy and demand savings, respectively.
	Recommendation 2: Generally, homes with multiple HVAC systems should use the more conservative option when calculating savings for measures that have heating and cooling type dependent factors. Documentation should confirm which system types are present and that both are in operation.	The EM&V team found multiple instances where two different HVAC systems were found on the property. In some cases, measures within the same project were calculated using different HVAC types. When multiple HVAC systems are present, calculating savings using the more conservative option mitigates risk of overestimating savings. A weighted option could be considered if sufficient documentation is collected, and tracking data fields added to ArchEE.
	Recommendation 3: Follow the guidance set forth in the memo: <i>EAL Tune-ups Methodology Recommendations for Residential Programs</i> .	The EM&V team found the reported EER _{pre} did not match the evaluated EER _{pre} . The reported capacity was the nominal capacity rather than the rated or measured capacity as stipulated in the technical reference manual (TRM), which states that the rated or measured capacity should be used to calculate savings.
	Recommendation 4: Ensure contractors are consistently submitting key savings project documentation.	Throughout desk reviews, the EM&V team found that some projects lacked key documentation such as advanced power strip location, heating seasonal performance factor, ceiling insulation square footage, and R-value to ensure savings. Requiring contractors to submit all documentation necessary to replicate savings is critical to improving QA/QC processes.

Table 45. Home Energy Solutions—Status of Prior Year Recommendations

Status of prior year recommendations	
PY2020 impact recommendations	<ul style="list-style-type: none"> Continue developing an efficient, transparent, and straightforward method for selecting weather stations. <ul style="list-style-type: none"> Complete.
	<ul style="list-style-type: none"> For <i>duct sealing</i> projects, consistently evaluate savings using actual units, if available, rather than default TRM baselines. <ul style="list-style-type: none"> In progress.
	<ul style="list-style-type: none"> Ensure contractors are consistently submitting essential savings project documentation. <ul style="list-style-type: none"> Continuing.
PY2020 process recommendations	<ul style="list-style-type: none"> Investigate ways to improve rebate processing times for contractors. <ul style="list-style-type: none"> In progress.
	<ul style="list-style-type: none"> Consider expanding eligible direct-install vendors. <ul style="list-style-type: none"> Continuing.
PY2021 impact recommendations	<ul style="list-style-type: none"> Increase the internal QA/QC process on the <i>duct sealing</i> measure for all heating types to ensure all cooling and heating variables are captured correctly. <ul style="list-style-type: none"> In progress.
	<ul style="list-style-type: none"> Continue to collect actual efficiencies for HVAC systems for <i>duct sealing</i> projects, if available, rather than TRM baselines. <ul style="list-style-type: none"> In progress.
	<ul style="list-style-type: none"> Ensure contractors are consistently submitting key savings project documentation. <ul style="list-style-type: none"> In progress.
PY2021 process recommendations	<ul style="list-style-type: none"> Increase customer service training for contractors. <ul style="list-style-type: none"> In progress.
	<ul style="list-style-type: none"> Consider a ± 10 percent QA/QC threshold for <i>ceiling insulation</i> square footage. <ul style="list-style-type: none"> Complete.

4.3 METHODOLOGY

The following sections present an overview of the impact evaluation methodologies.

4.4 IMPACT EVALUATION

The evaluated savings results, established at the project level, are based on savings calculations and adjustments made during the tracking system review, 70 engineering desk reviews, and 15 on-site visits. Final evaluated savings account for the tracking system review and desk review level adjustments for all measure categories.

4.4.1 Tracking System Review

The EM&V team reviewed all program-reported tracking data to assess the extent to which it provided the algorithms and ex-ante values necessary for each measure. The tracking system data review referenced TRM 9.0 for measure-level savings assumptions; the EM&V team checked the tracking systems' linkage to TRM deemed savings and methods used to estimate savings.

Our review accomplished three primary objectives: (1) identify initial high-level tracking system concerns, (2) verify whether the savings estimates in the tracking system are consistent with the savings algorithms' results as outlined in TRM 9.0, and (3) assess the tracking system's ability to support QA/QC activities, including future evaluation needs.

4.4.2 Desk Reviews

In addition to verifying the use of equations based on the TRM and inputs used to calculate deemed savings, the EM&V team also examined inputs into the tracking system based on a sample of projects. The implementation team provided project files and documentation for sampled projects, and the EM&V team compared parameter values in the project files with those entered into the program's tracking system.

Based on the program's tracking system extract from the tracking system database, PY2022 participant records were assigned measure categories, and the EM&V team created a sample of 55 projects for desk-review-only completes²⁸. Participants receiving non-direct-install measures (i.e., *envelope* and *HVAC* projects) were prioritized and selected from the data extract. Table 46 provides details on sampled savings by measure category for the program.

Table 46. Home Energy Solutions—Summary of Sampled Savings by Measure Category²⁹

Measure category	Reported kWh	Sampled kWh	Percentage kWh sampled	Reported kW	Sampled kW	Percentage kW sampled
Appliances	620,047	4,622	0.7%	73.6	0.5	0.7%
Domestic hot water	77,172	993	1.3%	8.0	0.1	1.3%
Envelope	4,473,197	56,680	1.3%	2,570.8	31.5	1.2%
HVAC	16,165,323	124,550	0.8%	4,511.2	32.9	0.7%
Lighting	985,865	10,035	1.0%	153.4	1.6	1.1%
Total	22,321,605	196,880	0.9%	7,317.1	66.7	0.9%

²⁸ Based on the distinct count of *JobIDs* sampled for desk review only. Site visits were part of a separate sample.

²⁹ The data extract was obtained on October 24, 2022.

4.4.3 On-Site Verification

Fifteen projects received on-site verifications to examine whether participating trade allies' measurements were replicable and to verify the installation of incented measures. The EM&V team did not perform testing but rather made process observations and verified measure installation. Almost all the participants that received on-site verifications had multiple measures installed. Table 47 details the 15 projects that received on-site verification in PY2022.

Table 47. Home Energy Solutions—Summary of Sampled Savings by Measure Category

Measure category	Number of sites	Reported kWh	Reported kW
Appliances	4	1,009	0.1
Envelope	2	728	0.8
HVAC	12	19,104	8.8
Lighting	6	1,658	0.2
Total	15	22,498	9.9

4.5 DETAILED IMPACT EVALUATION RESULTS

This section presents the results of evaluation activities and details findings from the tracking system review, desk reviews, and on-site verifications. Results are reported at the measure level and program level based on the EM&V activities.

4.5.1 Tracking System Review

The overall Home Energy Solutions program evaluated tracking system savings resulted in identical savings (100 percent kilowatt and kilowatt-hour realization rates) as those calculated by the program implementer; no adjustments were made during the tracking system review. Further details and measure-based findings are provided in Table 48.

Table 48. Home Energy Solutions—Tracking System Review Results by Measure Category

Measure	Ex-ante savings		Ex-post savings		Realization rate	
	kWh	kW	kWh	kW	kWh	kW
Appliances	776,355	92.2	776,355	92.2	100.0%	100.0%
Domestic hot water	92,244	9.6	92,244	9.6	100.0%	100.0%
Envelope	5,801,107	3,345.8	5,801,107	3,345.8	100.0%	100.0%
HVAC	21,001,393	5,829.5	21,001,393	5,829.5	100.0%	100.0%
Lighting	1,190,303	184.8	1,190,303	184.8	100.0%	100.0%
Total	28,861,401	9,461.9	28,861,401	9,461.9	100.0%	100.0%

4.5.2 Desk Review Results

The EM&V team conducted desk reviews of 70 projects including projects that received site visits to compare values recorded on project documentation with those available in the tracking system. The sites that received desk reviews reported 219,378 kWh in energy savings and 76.7 kW in demand savings. The EM&V team found discrepancies leading to adjustments in savings. Desk review findings from projects that did not receive 100 percent realization rates are detailed below.

4.5.2.1 Heating/Cooling Type Discrepancies

- JobID: EAHEPS1549687101.** The project included *ceiling insulation* and reported a *heat pump* heating and cooling type. However, the condenser nameplate photo indicated that it was an *air conditioner* not a *heat pump*. In addition, the heating type provided by the customer in the application stated *gas heat*. The heating type was adjusted from *heat pump* to *electric cooling with gas heat*. The heating type adjustment resulted in an overall project-level realization rate of 42.3 percent and 100.0 percent for energy and demand savings, respectively.
- JobID: EAHEPS1548140748.** The project included *ceiling insulation* and *LED lighting*. The reported heating and cooling type was a *heat pump*. However, two HVAC nameplate photos were found in the documentation. One refers to a *packaged gas/electric unit*, while the other refers to a *21-year-old heat pump*. The heating type was adjusted to the more conservative option from *heat pump* to *electric cooling with gas heat* to not overestimate savings. The heating type adjustment resulted in an overall project-level realization rate of 79.4 percent and 100.0 percent for energy and demand savings, respectively.
- JobID: EAHEPS1549431171.** This project included *ceiling insulation*. Additional JobIDs associated with this account also included *20 LEDs*, *two low flow faucet aerators*, *one low flow showerhead*, *one smart strip*, *air infiltration*, *duct sealing of a heat pump*, and *duct sealing of an AC with electric resistance heat*. The EM&V team found the measures associated with the other JobIDs calculated savings using the *heat pump* heating type while the savings for *ceiling insulation* were calculated using the *electric resistance* heating type. Based on the documentation and additional measures tracking data, the EM&V team adjusted the heating type for *ceiling insulation* to *heat pump*. Since there may be two systems in the home, *heat pump* is used as the more conservative option to not overestimate savings. The heating type adjustment resulted in a project-level, EAHEPS1549431171, realization rate of 52.0 percent and 100.0 percent for energy and demand savings, respectively.

Generally, homes with multiple HVAC systems should use the more conservative option when calculating savings for measures that have heating and cooling type dependent factors. Documentation should confirm which system types are present and that both are in operation.

4.5.2.2 HVAC Efficiency Discrepancies

- JobId: EAHEPS1549609124.** The project included *air infiltration, ceiling* insulation, and *duct sealing on an air conditioner with gas heat*. The cooling efficiency reported was a seasonal energy efficiency rating (SEER) of 14. However, the EM&V team found the cooling efficiency to be 10 SEER based on the manufacturer specification sheet. Adjusting for these factors resulted in project-level realization rates of 134.4 percent and 129.9 percent for energy and demand savings, respectively.
- JobId: EAHEPS1548700316.** The project included *LED lighting, a smart strip, and duct sealing on an air conditioner with gas heat*. The cooling efficiency reported was a SEER of 13. However, the EM&V team found the cooling efficiency to be 10 SEER based on the manufacturer specification sheet. Adjusting for these factors resulted in project-level realization rates of 124.4 percent and 128.6 percent for energy and demand savings, respectively.
- JobId: EAHEPS1550088404.** The project included *air infiltration, ceiling* insulation, *LED lighting, and duct sealing on two air conditioner with gas heat systems*. The cooling efficiency for both systems reported was a SEER of 10. However, the EM&V team found the cooling efficiency for both systems to be 12 SEER based on the manufacturer specification sheet. Adjusting for these factors resulted in project-level realization rates of 92.5 percent and 93.3 percent for energy and demand savings, respectively.
- JobId: EAHEPS1550329310.** The project included *air infiltration, LED lighting, and duct sealing on a heat pump system*. The reported heating efficiency of the system was 6.8 HSPF; however, the EM&V team found the installed equipment's heating efficiency to be 7.5 HSPF based on the manufacturer specification sheet. The cooling efficiency reported was a SEER of 10. However, the EM&V team found the cooling efficiency to be 12 SEER based on the manufacturer specification sheet. The efficiency adjustments resulted in an overall project-level realization rate of 90.6 percent and 86.6 percent for energy and demand savings, respectively.
- JobId: EAHEPS1549311354.** The project included *duct sealing on a heat pump system*. The reported heating efficiency of the system was 7.7 HSPF; however, the EM&V team found the heat efficiency to be a *range of 7.7-8.2 HSPF* based on the manufacturer specification sheet. Previously agreed upon guidance indicates using the *midpoint HSPF*, which was 7.95. The heating efficiency adjustment resulted in an overall project-level realization rate of 97.8 percent and 100.0 percent for energy and demand savings, respectively.
- JobId: EAHEPS1549681572.** The project included *air infiltration, two LEDs, a smart strip, and duct sealing on an AC with gas heat system*. The reported cooling efficiency of the system used the TRM default 11.5 SEER; however, the EM&V team found the cooling efficiency to be 13 SEER based on the model number. The EM&V team also could not verify the installation location of the *smart strip* and adjusted the location from *home entertainment center* to *APS average*. These adjustments resulted in an overall project-level realization rate of 84.2 percent and 88.5 percent for energy and demand savings, respectively.

4.5.2.3 AC/HP Tune-Up Discrepancies

- JobId: EAHEPS1549753711.** The project included an *AC tune-up*. The EM&V team issued a guidance memo for *AC tune-ups* using deemed efficiency loss values to determine EER_{pre} based on the tested EER_{post} . Based on this guidance, the EM&V team adjusted EER_{pre} from the reported *10.92 EER* to evaluated *11.03 EER*. The EM&V team also adjusted the capacity from the reported *nominal capacity* to the *measured capacity* found in the documentation based on the TRM guidance stipulating that the rated or *measured capacity* is used to calculate savings. These adjustments resulted in an overall project-level realization rate of 96.6 percent and 96.6 percent for energy and demand savings, respectively.
- JobId: EAHEPS1549591029.** The project included a *heat pump tune-up*. The EM&V team issued a guidance memo for *AC/HP tune-ups* using deemed efficiency loss values to determine EER_{pre} based on the tested EER_{post} . Based on this guidance, the EM&V team adjusted EER_{pre} from the reported *31.27 EER* to evaluated *31.56 EER*. The EM&V team also adjusted the capacity from the reported *nominal capacity* to the *measured capacity* found in the documentation based on the TRM guidance stipulating that the rated or measured capacity is used to calculate savings. These adjustments resulted in an overall project-level realization rate of 93.8 percent and 82.2 percent for energy and demand savings, respectively.
- JobId: EAHEPS1550109128.** The project included an *air conditioner tune-up*. The EM&V team issued a guidance memo for *AC tune-ups* using deemed efficiency loss values to determine EER_{pre} based on the tested EER_{post} . Based on this guidance, the EM&V team adjusted EER_{pre} from the reported *14.83 EER* to evaluated *14.97 EER*. The EM&V team also adjusted the capacity from the reported *nominal capacity* to the *measured capacity* found in the documentation based on the TRM guidance stipulating that the rated or measured capacity is used to calculate savings. These adjustments resulted in an overall project-level realization rate of 92.2 percent and 92.2 percent for energy and demand savings, respectively.
- JobId: EAHEPS1550160113.** The project included an *air conditioner tune-up* at a manufactured home. The EM&V team adjusted the capacity from the *reported nominal capacity, 48,000 B.Th.*, to the *measured capacity, 52,536 Btuh*, found in the documentation based on the TRM guidance stipulating that the rated or measured capacity is used to calculate savings. These adjustments resulted in an overall project-level realization rate of 109.5 percent and 109.5 percent for energy and demand savings, respectively. This project was sampled under the Home Energy Solutions program initially but appears to have been transferred to the Energy Solutions for Manufactured Homes program.
- JobId: EAHEPS1550085101.** The project included an *air conditioner tune-up*. The EM&V team issued a guidance memo for *AC tune-ups* using deemed efficiency loss values to determine EER_{pre} based on the tested EER_{post} . Based on this guidance, the EM&V team adjusted EER_{pre} from the reported *10.05 EER* to evaluated *10.15 EER*. The EM&V team also adjusted the capacity from the reported *nominal capacity* to the *measured capacity* found in the documentation based on the TRM guidance stipulating that the rated or measured capacity is used to calculate savings. These adjustments resulted in an overall project-level realization rate of 96.6 percent and 96.6 percent for energy and demand savings, respectively.

- **JobId: EAHEPS1550262974.** The project included an *air conditioner tune-up*. The EM&V team issued a guidance memo for *AC tune-ups* using deemed efficiency loss values to determine EER_{pre} based on the tested EER_{post} . Based on this guidance, the EM&V team adjusted EER_{pre} from the reported 8.38255 *EER* to evaluated 8.459 *EER*. The EM&V team also adjusted the capacity from the reported *nominal capacity* to the *measured capacity* found in the documentation based on the TRM guidance stipulating that the rated or measured capacity is used to calculate savings. These adjustments resulted in an overall project-level realization rate of 96.6 percent and 96.6 percent for energy and demand savings, respectively.

4.5.2.4 Envelope Discrepancies

- **JobId: EAHEPS1550617188.** The project included *air infiltration* and 2,037 square feet of *ceiling insulation* with a reported *pre-retrofit R-value* of 4; however, using BPI guidance for *ceiling insulation*, the existing blown-in insulation appears to be between *R5.6–8.4*. The evaluation also found this was a *commercial building with a studio on the second floor*. The documentation did not differentiate equipment/space associated with *residential* from *commercial*. The adjustment to the baseline R-value resulted in project-level realization rates are 64.3 percent and 64.9 percent for energy and demand savings, respectively.
- **JobId: EAHEPS1550266474.** The project included installation of ten *LEDs* and *air infiltration* measures. The reported *blower door CFM_{pre}* was 2,966 *CFM*. However, the EM&V team found the *blower door CFM_{pre}* was 2,956 in the documentation. This adjustment resulted in an overall project-level realization rate of 98.3 percent and 98.2 percent for energy and demand savings, respectively.

Overall, program-level realization based on desk reviews was 97.2 percent and 98.5 percent for energy and demand savings, respectively, due to the adjustments discussed above. See Table 49.

Table 49. Home Energy Solutions—Desk Review Results

Measure	Reported savings (kWh)	Evaluated savings (kWh)	Reported savings (kW)	Evaluated savings (kW)	kWh realization rate	kW realization rate
9 W LED (60 W equivalent)—indoor	9,142	9,197	1.5	1.5	100.6%	100.0%
Air conditioner tune-up—manifold measurement	6,119	6,191	3.4	3.4	101.2%	101.2%
Air infiltration	15,567	15,559	5.1	5.1	99.9%	100.0%
Ceiling insulation	41,841	35,658	27.2	25.8	85.2%	95.0%
Duct sealing—AC with resistance heat (tested)	31,150	30,917	3.1	3.0	99.3%	95.9%
Duct sealing—electric cooling (tested)	45,272	46,186	24.5	25.0	102.0%	102.1%

Measure	Reported savings (kWh)	Evaluated savings (kWh)	Reported savings (kW)	Evaluated savings (kW)	kWh realization rate	kW realization rate
Duct sealing—heat pump (tested)	57,506	56,934	10.1	10.0	99.0%	99.1%
LED bulbs BR30 8 W (indoor)	470	470	0.1	0.1	100.0%	100.0%
LED bulbs candleabra 4 W (indoor)	2,081	2,139	0.3	0.3	102.8%	100.1%
Low-flow faucet aerator	130	130	0.0	0.0	99.9%	99.9%
Low-flow showerheads	862	862	0.1	0.1	100.0%	100.0%
Residential heat pump tune-up	3,053	2,885	0.6	0.5	94.5%	84.5%
Smart strip (Direct install)	5,631	5,546	0.7	0.7	98.5%	98.4%
Smart thermostats	553	553	-	-	100.0%	N/A
Total	219,378	213,226	76.7	75.5	97.2%	98.5%

A dash indicates that there are no kilowatt savings associated with the respective measure.

4.5.3 On-Site Verification Results

Fifteen projects received on-site verifications to examine whether participating trade allies' measurements were replicable and to verify the installation of incented measures. The EM&V team did not perform testing but rather made process observations and verified measure installation. On-site projects also received a desk review to compare documentation to data collected while on-site. Details from the adjustments made based on on-site data collection were rolled into the desk review project-level results in the previous section.

While on-site, the EM&V team gathered feedback from customers on their experience with the program. Overall, customers stated they were satisfied with the program and indicated they would not have done the work without it. Some stated they felt a significant difference in their bills and/or comfort level. However, contractors should take care while on-site to ensure all pertinent information is clearly communicated with the customer.

Overall, program-level realization rates based on on-site verifications were 99.8 percent and 99.7 percent for energy and demand savings, respectively, as detailed in Table 50.

Table 50. Home Energy Solutions—On-Site Verification Results

Measure category	Reported savings (kWh)	Evaluated savings (kWh)	Reported savings (kW)	Evaluated savings (kW)	kWh realization rate	kW realization rate
Appliances	1,009	1,009	0.1	0.1	100.0%	100.0%
Envelope	728	728	0.8	0.8	100.0%	100.0%

Measure category	Reported savings (kWh)	Evaluated savings (kWh)	Reported savings (kW)	Evaluated savings (kW)	kWh realization rate	kW realization rate
HVAC	19,104	19,048	8.8	8.8	99.7%	99.6%
Lighting	1,658	1,658	0.2	0.2	100.0%	100.0%
Total	22,498	22,442	9.9	9.9	99.8%	99.7%

4.6 OVERALL SAVINGS ESTIMATES

The EM&V team used the desk reviews, tracking system reviews, and on-site verifications to calculate the program-level realization rates. Program realization rates indicate that the Home Energy Solutions program achieved similar energy and demand savings. Adjustments based on desk reviews or on-site verifications were incorporated into realization rates, ultimately resulting in 97.7 percent for energy savings and 98.8 percent for demand savings. Table 51 shows the final savings.

Table 51. Home Energy Solutions—Final Evaluated Energy Savings and Realization Rates by Measure Category

Measure	Reported savings		Evaluated savings		Realization rate		EM&V source
	kWh	kW	kWh	kW	kWh	kW	
9 W LED (60 W equivalent)—indoor	811,850	127.1	816,725	127.1	100.6%	100.0%	Desk review, on-site verification, and tracking system review
Air conditioner tune-up—manifold measurement	835,748	459.9	845,510	465.3	101.2%	101.2%	Desk review, on-site verification, and tracking system review
Air infiltration	1,620,419	527.6	1,619,567	527.4	99.9%	100.0%	Desk review, on-site verification, and tracking system review
Ceiling insulation	4,180,688	2,818.2	3,562,817	2,676.1	85.2%	95.0%	Desk review, on-site verification, and tracking system review
Duct replacement—heat pump	30,203	5.0	30,203	5.0	100.0%	100.0%	Tracking system review
Duct sealing—AC with resistance heat (tested)	2,435,605	232.9	2,417,403	223.4	99.3%	95.9%	Desk review and tracking system review
Duct sealing—electric cooling (tested)	5,758,025	3,131.0	5,874,268	3,195.3	102.0%	102.1%	Desk review, on-site verification, and tracking system review
Duct sealing—heat pump (tested)	10,720,411	1,817.1	10,613,744	1,800.0	99.0%	99.1%	Desk review, on-site verification, and tracking system review

Measure	Reported savings		Evaluated savings		Realization rate		EM&V source
	kWh	kW	kWh	kW	kWh	kW	
LED (retail): Outdoor, general purpose, all wattages	1,599	-	1,599	-	100.0%	100.0%	Tracking system review
LED bulbs BR30 8 W (indoor)	104,905	16.5	104,905	16.5	100.0%	100.0%	Desk review and tracking system review
LED bulbs BR30 8 W (outdoor)	6,338	-	6,338	-	100.0%	100.0%	Tracking system review
LED bulbs candelabra 4 W (indoor)	264,071	41.2	271,447	41.2	102.8%	100.1%	Desk review, on-site verification, and tracking system review
LED bulbs candelabra 4 W (outdoor)	1,541	-	1,541	-	100.0%	100.0%	Tracking system review
Low-flow faucet aerator	9,238	1.0	9,230	1.0	99.9%	99.9%	Desk review and tracking system review
Low-flow showerheads	83,006	8.6	82,970	8.6	100.0%	100.0%	Desk review and tracking system review
Residential heat pump tune-up	924,931	183.4	873,880	155.0	94.5%	84.5%	Desk review and tracking system review
Smart strip (direct install)	776,355	92.2	764,663	90.6	98.5%	98.4%	Desk review, on-site verification, and tracking system review
Smart thermostats	296,471	-	296,471	-	100.0%	N/A	Desk review, on-site verification, and tracking system review
Total	28,861,401	9,461.9	28,193,281	9,332.6	97.7%	98.6%	

A dash indicates that there are no kilowatt savings associated with the respective measure.

4.7 QUALITY ASSURANCE/QUALITY CONTROL PROCESSES

The implementation team randomly selects properties to receive post-installation verification as part of the program's QA/QC process, verifying measurements taken by trade allies or performing non-invasive visual inspections of work. When work is deemed insufficient, trade allies must typically revisit the site and perform additional work to bring the site's performance up to program standards.

5.0 ENERGY SOLUTIONS FOR MULTIFAMILY HOMES

The Energy Solutions for Multifamily Homes (Multifamily Homes) program aims to provide cost-effective energy efficiency measures to residents of multifamily buildings with at least five units throughout Entergy Arkansas, LLC's (EAL) service territory. Participating customers receive no-cost audits, direct installation of energy-efficient measures (e.g., *lighting, low-flow showerheads, faucet aerators, and advanced power strips*), and incentives for more in-depth services designed to improve efficiency. In program year (PY) 2022 (PY2022), the program incented *tune-ups of air conditioners and heat pump systems* and the *installation of air infiltration and duct sealing. Faucet aerators, low-flow showerheads, advanced power strips, and lighting* measures were directly installed at no cost.

In support of the impact evaluation, the evaluation, measurement, and verification (EM&V) team conducted a tracking system review, desk reviews on a randomly selected sample of 32 projects, and on-site measurement and verification (M&V) of six projects. Table 52 details the evaluation activities completed for the program in PY2022.

Table 52. Energy Solutions for Multifamily Homes Program—Data Collection and Evaluation Activities

NTG approach	Process evaluation activities	Gross impact evaluation completes			
		Tracking system review	Desk reviews	On-site verification	Metered data analysis ³⁰
Estimated from PY2021 process evaluation research	Program staff interviews (2) Material review	Census	32	6	None

5.1 KEY FINDINGS

In PY2022, the Multifamily Homes program achieved 10,646 MWh in gross energy savings and 1.8 MW in gross demand savings, as shown in Table 53. The Multifamily Homes program's gross savings were slightly lower than reported energy savings and demand savings, resulting in realization rates of 95.7 percent and 94.4 percent (megawatt-hours and megawatts, respectively). The program achieved 76 percent of target energy savings and 32 percent of target demand savings. The EM&V team's adjustments drive these results during the tracking system review, project-level engineering desk reviews, and on-site verifications.

³⁰ This column refers to EAL customer meter data provided to the EM&V team as opposed to primary metered data collected as part of the on-site M&V.

Table 53. Energy Solutions for Multifamily Homes Program—Reported, Evaluated, and Net Savings

Energy/demand savings	Reported savings	Evaluated savings	Realization rate	NTG ratio	Net savings	Program contribution to portfolio savings
Energy savings (MWh)	11,128	10,646	95.7%	100.0%	10,646	3.6%
Demand savings (MW)	1.9	1.8	94.4%	100.0%	1.8	1.9%

Table 54. Energy Solutions for Multifamily Homes Program—Goals vs. Achieved

Savings	Goal	Actual	Percentage achieved
Energy savings (MWh)	14,010	10,646	76%
Demand savings (MW)	5.5	1.8	32%

5.2 RECOMMENDATIONS

The EM&V team identified five recommendations, shown in Table 55, for EAL's consideration from the evaluation activities.

Table 55. Energy Solutions for Multifamily Homes Program—PY2022 Recommendations

Type	Recommendation	Key finding
PY2022 impact recommendations	Recommendation 1: Increase the internal quality assurance/quality control (QA/QC) process on the duct sealing measure for all heating types to ensure all cooling and heating variables are captured correctly.	The <i>duct sealing—AC with resistance heat</i> measure evaluation resulted in realization rates of 94.4 percent and 94.8 percent for energy and demand savings, respectively.
	Recommendation 2: Collect documentation that clearly verifies the installation location of the smart strip or use average APS consistently in the program.	The EM&V team found instances where the photo of the smart strip showed the smart strip still in the packaging or a non-descriptive installation location.
	Recommendation 3: Follow the BPI standards for minimum ventilation rate when performing blower door tests.	The EM&V team found several projects where the blower door test fell below the minimum ventilation rate (MVR). Projects that fall below the MVR may still be eligible to claim savings but should do so using the calculated MVR as the CFM_{post} value. It is not recommended to seal tighter than the MVR without introducing mechanical ventilation as it can cause air quality issues for the residents. If new or existing suitable mechanical ventilation is documented, savings may be calculated using the full blower door test results.
	Recommendation 4: Utilize the rated or measured capacity to calculate AC/HP tune-up savings.	The EM&V team found that the <i>nominal capacity</i> was used to calculate savings. However, the TRM 9.0 stipulates that the rated or <i>measured capacity</i> is used to calculate savings.
	Recommendation 5: Ensure contractors are consistently submitting key savings project documentation.	Throughout desk reviews, the EM&V team found that some projects lacked key documentation such as advanced power strip location, heating seasonal performance factor, ceiling insulation square footage, and R-value to ensure savings. Requiring contractors to submit all documentation necessary to replicate savings is critical to improving QA/QC processes.

Table 56. Energy Solutions for Multifamily Homes Program—Status of Prior Year Recommendations

Status of prior year recommendations	
PY2020 impact recommendations	<ul style="list-style-type: none"> • Capture all cooling and heating variables to increase the internal QA/QC process on the <i>duct sealing</i> measure for all heating types. <ul style="list-style-type: none"> ○ Continuing. • Continue to accurately track cooling capacity in ArchEE for <i>duct sealing</i> measures since it is a critical parameter in calculating savings. <ul style="list-style-type: none"> ○ Continuing. • Ensure that all documentation is legible and that critical parameters, such as model number, are identifiable. <ul style="list-style-type: none"> ○ Continuing.

Status of prior year recommendations	
PY2020 process recommendations	<ul style="list-style-type: none"> • Consider revising demand savings goals to align energy and demand savings goals better. <ul style="list-style-type: none"> ○ In progress.
	<ul style="list-style-type: none"> • Work with the evaluator to determine a QA/QC threshold for <i>blower door testing</i> variance. <ul style="list-style-type: none"> ○ Complete.
	<ul style="list-style-type: none"> • Explore opportunities to expand projects in common areas. <ul style="list-style-type: none"> ○ Continuing.
PY2021 impact recommendations	<ul style="list-style-type: none"> • Increase the internal QA/QC process on the <i>duct sealing</i> measure for all heating types to ensure all cooling and heating variables are captured correctly. <ul style="list-style-type: none"> ○ Continuing.
	<ul style="list-style-type: none"> • Continue to accurately track cooling capacity in ArchEE for <i>duct sealing</i> measures since it is a key parameter in calculating savings. <ul style="list-style-type: none"> ○ Continuing.
	<ul style="list-style-type: none"> • Ensure all documentation is available and legible and key parameters, such as model number, insulation level, and flow rate, are identifiable. <ul style="list-style-type: none"> ○ Continuing.
PY2021 process recommendations	<ul style="list-style-type: none"> • Increase customer service training for contractors. <ul style="list-style-type: none"> ○ Continuing.
	<ul style="list-style-type: none"> • Work with the program implementer to ensure timely responses to trade allies. <ul style="list-style-type: none"> ○ Continuing.
	<ul style="list-style-type: none"> • Discuss quarterly allocations with trade allies to ensure understanding of the process and how exceptions are handled to keep trade allies engaged in the program. <ul style="list-style-type: none"> ○ Continuing.

5.3 METHODOLOGY

The following sections present an overview of the impact and process evaluation methodologies.

5.3.1 Impact Evaluation

The evaluated savings results, established at the project level, are based on savings calculations and adjustments made during the tracking system review, 32 engineering desk reviews, and six on-site visits. Final evaluated savings account for the tracking system review and desk review level adjustments for all measure categories.

5.3.1.1 Tracking System Review

The EM&V team reviewed all program-reported tracking data to assess the extent to which it provided the algorithms and ex-ante values necessary for each measure. The tracking system data review began using Arkansas Technical Reference Manual (TRM) 9.0 (TRM 9.0) as a reference in our review of measure-level savings assumptions. The EM&V team reviewed the tracking systems linkage to TRM deemed savings and methods used to estimate savings.

Our review accomplished three primary objectives. First, it identified any initial high-level tracking system concerns. Second, it verified whether the savings estimates in the tracking system are consistent with the savings algorithms' results outlined in TRM 9.0. Third, it assessed the tracking system's ability to support QA/QC, including future evaluation needs.

The ArchEE tracking system, which supplied all participant and claimed savings, and many of the inputs needed to verify savings calculations, were used to check for systemic errors across a participant census.

5.3.1.2 Desk Reviews

In addition to verifying the use of equations based on the TRM and inputs used to calculate deemed savings, the EM&V team also examined inputs into the tracking system based on a sample of projects. The implementation team provided project files and documentation for sampled projects, and the EM&V team compared parameter values in the project files with those entered into the program's tracking system.

Based on the program's tracking system extract from the tracking system database, PY2022 participant records were assigned measure categories, and the EM&V team created a sample of 26³¹ projects for desk reviews. Participants receiving *non-direct-install* measures (i.e., *envelope* and *HVAC* projects) were prioritized and selected from the data extract. Table 57 provides details on sampled savings by measure category for the program.

Table 57. Energy Solutions for Multifamily Homes Program—Summary of Sampled Savings by Measure Category³²

Measure category	Reported kWh	Sampled kWh	Percentage kWh sampled	Reported kW	Sampled kW	Percentage kW sampled
Appliances	101,040	1,261	1.2%	12.0	0.15	1.2%
Domestic hot water	73,668	607	0.8%	7.7	0.06	0.8%
Envelope	1,246,775	32,753	2.6%	235.6	5.43	2.3%
HVAC	6,689,868	97,125	1.5%	1,073.8	11.57	1.1%
Lighting	170,477	3,144	1.8%	32.1	0.60	1.9%
Total	8,281,827	134,890	1.6%	1,361.3	17.8	1.3%

³¹ Based on the distinct count of JobIDs sampled for desk review only. Site visits were part of a separate sample.

³² Reported data as of time of sampling, October 24, 2022.

5.3.1.3 On-Site Verification

Six projects received on-site verifications to examine whether participating trade allies' measurements were replicable and to verify the installation of incented measures. The EM&V team did not perform testing but rather made process observations and verified measure installation. Almost all the participants that received on-site verifications had multiple measures installed. Table 58 details the six projects that received on-site verification in PY2022.

Table 58. Energy Solutions for Multifamily Homes Program—Summary of Sampled Savings by Measure Category

Measure category	Number of sites	Reported kWh	Reported kW
Appliances	4	1,009	0.1
Domestic hot water	4	801	0.1
Envelope	6	4,701	0.8
HVAC	6	22,677	3.2
Lighting	1	100	0.0
Total	6	29,289	4.2

5.4 DETAILED IMPACT EVALUATION RESULTS

This section presents the results of evaluation activities and details findings from the desk reviews and on-site verifications. Results are reported at the measure level and program level based on the EM&V activities.

5.4.1 Tracking System Review

The Multifamily Homes program evaluated tracking system savings resulted in identical savings (100.0 percent kilowatt and kilowatt-hour realization rates) to those calculated by the program implementer. The individual measure realization rates were affected slightly by variances between the reported (*ex-ante*) and evaluated (*ex-post*) savings (kilowatt and kilowatt-hour) for duct sealing but did not significantly impact the overall realization rates. Further details of measure-based findings are provided below.

Table 59. Energy Solutions for Multifamily Homes Program—PY2022 Tracking System Energy Savings and Realization Rates by Measure Category

Measure category	Ex-ante savings		Ex-post savings		Realization rate	
	kWh	kW	kWh	kW	kWh	kW
Appliances	143,478	17.0	143,478	17.0	100.0%	100.0%
Domestic hot water	165,306	17.2	165,306	17.2	100.0%	100.0%
Envelope	1,892,233	383.9	1,892,233	383.9	100.0%	100.0%
HVAC	8,744,597	1,435.2	8,744,597	1,435.2	100.0%	100.0%
Lighting	182,083	34.1	182,083	34.1	100.0%	100.0%
Total	11,127,698	1,887.5	11,127,698	1,887.5	100.0%	100.0%

5.4.2 Desk Review Results

The EM&V team conducted desk reviews of 32 projects, including projects that received site visits, to compare values recorded on project documentation with those available in the tracking system. The sites that received desk reviews reported 164,179 kWh in energy savings and 22.0 kW in demand savings. The EM&V team found discrepancies leading to adjustments in savings. Desk review findings from projects that did not receive 100 percent realization rates are detailed below.

5.4.2.1 Minimum Ventilation Rate

Building Performance Institute (BPI) references the minimum ventilation rate (MVR) standard in ASHRAE 62.2 as part of the training certification to perform air and duct infiltration diagnostic testing. Although the TRM does not explicitly state a post-retrofit minimum requirement, it does state installations must comply with Arkansas mechanical or ventilation code. Because the MVR is not a requirement in the TRM but is part of the BPI standard technicians must follow for quality installations, projects that fall below the MVR may still be eligible to claim savings but should do so using the *calculated MVR* as the CFM_{post} value. It is not recommended to seal tighter than the MVR without introducing mechanical ventilation as it can cause air quality issues for the residents. If new or existing suitable mechanical ventilation is documented, savings may be calculated using the full blower door test results. The three projects below all appear to be located within the same apartment complex.

- **JobId: EAMFPS1548690061.** The project included *air sealing, duct sealing, and LEDs* in a multifamily building with an *AC with electric resistance heat*. The EM&V team found the CFM_{post} *blower door test results* fell below the MVR. The EM&V team adjusted the CFM_{post} value to the *MVR value* for savings calculations purposes. The adjustment resulted in an overall project-level realization rate of 99.8 percent and 99.8 percent for energy and demand savings, respectively.
- **JobId: EAMFPS1548556734.** The project included *air sealing, duct sealing, and LEDs* in a multifamily building with an *AC with electric resistance heat*. The EM&V team found both the CFM_{pre} and the CFM_{post} *blower door test results* fell below the MVR. The EM&V team adjusted accordingly resulting in an overall project-level realization rate of 96.6 percent and 97.4 percent for energy and demand savings, respectively.
- **JobId: EAMFPS1549208455.** The project included *air sealing, duct sealing, and LEDs* in a multifamily building with an *AC with electric resistance heat*. The EM&V team found both the CFM_{pre} and the CFM_{post} *blower door test results* fell below the MVR. The EM&V team adjusted accordingly resulting in an overall project-level realization rate of 97.9 percent and 98.4 percent for energy and demand savings, respectively.

5.4.2.2 HVAC Measure Discrepancies

- **JobId: EAMFPS1548368308.** The project included *duct sealing* in a multifamily home with a *central AC and electric resistance furnace*. The reported capacity was 2 tons, which limited the pre-retrofit leakage to the maximum allowed by the TRM, *320 CFM*. However, the EM&V team found that it was a 1.5 ton system, which would decrease the leakage allowance to *240 CFM*. The EM&V team adjusted the CFM_{pre} resulting in an overall realization rate of 61.9 percent for both energy and demand savings.

- **JobId: EAMFPS1548673990.** The project included *air infiltration* and *duct sealing* on an *air conditioner with electric resistance heat*. The cooling efficiency reported was a seasonal energy efficiency rating (*SEER*) of 10. However, the EM&V found the cooling efficiency to be 12 *SEER* based on the manufacturer specification sheet. Adjusting *SEER* resulted in project-level realization rates of 97.6 percent and 87.6 percent for energy and demand savings, respectively.
- **JobId: EAMFPS1549877863.** The project included *air infiltration*, one *smart strip*, and *duct sealing* on an *air conditioner with electric resistance heat*. The cooling efficiency reported was a *SEER* of 8 and a specification sheet for an AC/heat pump model was provided. However, the EM&V found the nameplate to be illegible and the model number was not otherwise documented to verify the 8 *SEER* in the specification sheet. The electric resistance furnace was also not documented, and without a model number the EM&V team could not determine if the specification sheet provided was for an AC or a heat pump. The EM&V team adjusted to the default 11.5 *SEER* and assumed heating as is. Adjusting *SEER* resulted in project-level realization rates of 94.8 percent and 76.4 percent for energy and demand savings, respectively.
- **JobId: EAMFPS1548326941.** The project included *air infiltration* and *duct sealing* on an *air conditioner with electric resistance heat*. Based on the documentation available on the heating type, the EM&V team found the heating type to be *electric strip heating*. While this is still considered electric resistance heating for *envelope* measures, this is not a forced air ducted heating type therefore no heating savings for *duct sealing* were calculated. *Air sealing* savings were not affected. This property also appears to be a *manufactured* home not a *multifamily* home. The adjustment to the *duct sealing* measure resulted in project-level realization rates of 47.0 percent and 100.0 percent for energy and demand savings, respectively.
- **JobId: EAMFPS1549913461.** The project included an *air conditioner tune-up* at a multifamily home. The EM&V team adjusted the capacity from the reported *nominal capacity*, 18,000 *Btuh*, to the *measured capacity*, 14,976 *Btuh*, found in the documentation based on the TRM guidance stipulating that the rated or measured capacity is used to calculate savings. These adjustments resulted in an overall project-level realization rate of 83.2 percent and 83.2 percent for energy and demand savings, respectively.

5.4.2.3 Smart Strip Discrepancies

- **JobId: EAMFPS1550118773.** The project included 17 *LEDs*, one *low-flow faucet aerator*, two *low-flow showerheads*, one *smart strip*, *air infiltration*, and *duct sealing of an AC with electric resistance heat*. Based on the documentation, the EM&V team could not verify the installation location of the smart strip and adjusted the location from *home entertainment center* to *APS average*. These adjustments resulted in an overall project-level realization rate of 99.1 percent and 98.9 percent for energy and demand savings, respectively.
- **JobId: EAMFPS1550847761.** The project included two *low-flow faucet aerators*, one *low-flow showerhead*, one *smart strip*, *air infiltration*, and *duct sealing of a heat pump*. Based on the documentation, the smart strip was not installed, and the EM&V team adjusted accordingly resulted in an overall project-level realization rate of 94.0 percent and 95.5 percent for energy and demand savings, respectively.

Overall, program-level realization based on desk reviews was 96.3 percent and 96.7 percent for energy and demand savings, respectively, due to the adjustments discussed above. See Table 60.

Table 60. Energy Solutions for Multifamily Homes Program—Desk Review Results

Measure	Reported savings (kWh)	Evaluated savings (kWh)	Reported savings (kW)	Evaluated savings (kW)	kWh realization rate	kW realization rate
9 W LED (60 W equivalent)—indoor	2,278	2,278	0.4	0.4	100.0%	100.0%
Air conditioner tune-up—manifold measurement	1,629	1,355	0.9	0.7	83.2%	83.2%
Air infiltration	25,160	24,852	2.8	2.8	98.8%	99.0%
Ceiling insulation	12,294	12,294	3.5	3.5	100.0%	100.0%
Duct sealing—AC with resistance heat (tested)	95,242	89,887	10.1	9.5	94.4%	94.8%
Duct sealing—heat pump (tested)	22,931	22,931	3.8	3.8	100.0%	100.0%
LED bulbs BR30 8 W (indoor)	509	509	0.1	0.1	100.0%	100.0%
LED bulbs candelabra 4 W (indoor)	458	458	0.1	0.1	100.0%	100.0%
Low-flow faucet aerator	234	234	0.0	0.0	100.0%	100.0%
Low-flow showerheads	1,174	1,174	0.1	0.1	100.0%	100.0%
Smart strip (direct install)	2,270	2,185	0.3	0.3	96.3%	95.9%
Total	164,179	158,157	22.0	21.3	96.3%	96.7%

5.4.3 On-Site Verification Results

Six projects received on-site verifications to examine whether participating trade allies' measurements were replicable and to verify the installation of incented measures. On-site projects also received a desk review to compare documentation to data collected while on-site.

While on-site, the EM&V team gathered feedback from customers on their experience with the program. Overall, customers stated they were satisfied with the program and indicated they would not have done this work without it. Some stated they felt a significant difference in their bills and/or comfort level. However, contractors should take care while on-site to ensure all pertinent information is clearly communicated with the customer.

Overall, program-level realization rates based on on-site verifications were 100 percent for both energy and demand savings, as detailed in Table 61.

Table 61. Energy Solutions for Multifamily Homes Program—On-Site Verification Results

Measure category	Reported savings (kWh)	Evaluated savings (kWh)	Reported savings (kW)	Evaluated savings (kW)	Energy realization rate	Demand Realization rate
Appliances	1,009	1,009	0.1	0.1	100.0%	100.0%
Domestic hot water	801	801	0.1	0.1	100.0%	100.0%
Envelope	4,701	4,701	0.8	0.8	100.0%	100.0%
HVAC	22,677	22,677	3.2	3.2	100.0%	100.0%
Lighting	100	100	0.0	0.0	100.0%	100.0%
Total	29,289	29,289	4.2	4.2	100.0%	100.0%

5.5 OVERALL SAVINGS ESTIMATES

The EM&V team used the desk reviews and independent verifications to calculate the program-level realization rates. Program realization rates indicate that the Multifamily Homes program achieved similar energy and demand savings. Adjustments based on desk reviews or on-site verifications were incorporated into realization rates, resulting in 95.7 percent for energy savings and 94.4 percent for demand savings.

Table 62. Energy Solutions for Multifamily Homes Program—Weighted Desk Review and Independent Verification Results

Measure	Reported savings		Evaluated savings		Realization rate		EM&V source
	kWh	kW	kWh	kW	kWh	kW	
9 W LED (60 W equivalent)—indoor	106,425	19.8	106,425	19.8	100.0%	100.0%	Desk review, on-site verification, and tracking system review
Air conditioner tune-up—manifold measurement	793,882	437.3	660,510	363.8	83.2%	83.2%	Desk review, on-site verification, and tracking system review
Air infiltration	1,291,104	157.1	1,275,296	155.5	98.8%	99.0%	Desk review, on-site verification, and tracking system review
Ceiling insulation	601,130	226.9	601,130	226.9	100.0%	100.0%	Desk review, on-site verification, and tracking system review
Duct sealing—AC with resistance heat (tested)	5,824,317	563.4	5,496,821	533.9	94.4%	94.8%	Desk review, on-site verification, and tracking system review
Duct sealing—electric cooling (tested)	119,495	64.3	119,495	64.3	100.0%	100.0%	Tracking system review

Measure	Reported savings		Evaluated savings		Realization rate		EM&V source
	kWh	kW	kWh	kW	kWh	kW	
Duct sealing—heat pump (tested)	1,641,799	274.3	1,641,799	274.3	100.0%	100.0%	Desk review, on-site verification, and tracking system review
LED bulbs BR30 8 W (indoor)	56,909	11.1	56,909	11.1	100.0%	100.0%	Desk review, on-site verification, and tracking system review
LED bulbs candelabra 4 W (indoor)	18,749	3.2	18,749	3.2	100.0%	100.0%	Desk review, on-site verification, and tracking system review
Low-flow faucet aerator	21,792	2.3	21,789	2.3	100.0%	100.0%	Desk review, on-site verification, and tracking system review
Low-flow showerheads	143,514	14.9	143,484	14.9	100.0%	100.0%	Desk review, on-site verification, and tracking system review
Residential heat pump tune-up	365,104	95.8	365,104	95.8	100.0%	100.0%	Tracking system review
Smart strip (direct install)	143,478	17.0	138,118	16.3	96.3%	95.9%	Desk review and tracking system review
Total	11,127,698	1,887.5	10,645,629	1,782	95.7%	94.4%	

5.6 QUALITY ASSURANCE/QUALITY CONTROL PROCESSES

The implementation team randomly selects properties to receive post-installation verification as part of the program's QA/QC process, verifying measurements taken by trade allies or performing non-invasive visual inspections of work. When work is deemed insufficient, trade allies must typically revisit the site and perform additional work to bring the site's performance up to program standards.

6.0 ENERGY SOLUTIONS FOR MANUFACTURED HOMES

The Energy Solutions for Manufactured Homes (Manufactured Homes) program's objective is to provide cost-effective energy efficiency measures to manufactured home communities throughout Entergy Arkansas, LLC's (EAL) service territory. Participating customers receive no-cost audits, direct installation of energy-efficient measures (e.g., *lighting, low-flow showerheads, faucet aerators, and advanced power strips*), and incentives for more in-depth services designed to improve efficiency. In program year (PY) 2022 (PY2022), the program incented *tune-ups of air conditioners and heat pump systems* and the *installation of air infiltration and duct sealing. Faucet aerators, low-flow showerheads, advanced power strips, and lighting* measures were directly installed at no cost.

In support of the impact evaluation, the evaluation, measurement, and verification (EM&V) team conducted a tracking system review and desk reviews on a randomly selected sample of 26 projects and on-site verifications of six projects. Table 63 details the evaluation activities completed for the program in PY2022.

Table 63. Energy Solutions for Manufactured Homes—Data Collection and Evaluation Activities

NTG approach	Process evaluation activities	Gross impact evaluation completes			
		Tracking system review	Desk reviews	On-site verification	Metered data analysis ³³
Updated in PY2021 from process evaluation research	Program staff interviews (2) Material review	Census	26	6	None

6.1 KEY FINDINGS

In PY2022, the Manufactured Homes program has achieved 6,227 MWh in gross energy savings and 0.8 MW in gross demand savings, as shown in Table 64. The Manufactured Homes program's gross evaluated energy savings were greater than reported, while evaluated demand savings were slightly lower, resulting in realization rates of 107.4 percent and 99.8 percent (megawatt-hour and megawatt, respectively). The program exceeded both energy and demand savings goals, achieving 115 percent energy savings and 113 percent of demand savings. The EM&V team's adjustments drive these results during the tracking system review, project-level engineering desk reviews, and on-site verifications.

Table 64. Energy Solutions for Manufactured Homes—Reported, Evaluated, and Net Savings

Energy/demand savings	Reported savings	Evaluated savings	Realization rate	NTG ratio	Net savings	Program contribution to portfolio savings
Energy savings (MWh)	5,799	6,227	107.4%	100.0%	6,227	2.1%

³³ This column refers to EAL customer meter data provided to the EM&V team as opposed to primary metered data collected as part of the on-site measurement and verification (M&V).

Energy/demand savings	Reported savings	Evaluated savings	Realization rate	NTG ratio	Net savings	Program contribution to portfolio savings
Demand savings (MW)	0.8	0.8	99.8%	100.0%	0.8	0.8%

Table 65. Energy Solutions for Manufactured Homes—Goals vs. Achieved

Savings	Goal	Actual	Percentage achieved
Energy savings (MWh)	5,403	6,227	115%
Demand savings (MW)	0.7	0.8	113%

6.2 RECOMMENDATIONS

The EM&V team identified three recommendations, shown in Table 66, for EAL’s consideration from the evaluation activities.

Table 66. Energy Solutions for Manufactured Homes—PY2022 Recommendations

Type	Recommendation	Key finding
PY2022 impact recommendations	Recommendation 1: Increase the internal quality assurance/quality control (QA/QC) process on the <i>duct sealing</i> measure for all heating types to ensure all cooling and heating variables are captured correctly.	The <i>duct sealing—heat pump (tested)</i> measure evaluation resulted in realization rates of 150.6 percent and 100.0 percent for energy and demand savings, respectively.
	Recommendation 2: Collect documentation that clearly verifies the installation location of the smart strip or use <i>average APS</i> consistently in the program.	The EM&V team found instances where the photo of the smart strip showed the smart strip still in the packaging or a non-descriptive installation location.
	Recommendation 3: Ensure contractors are consistently submitting key savings project documentation that is legible and key parameters are identifiable.	Throughout desk reviews, the EM&V team found that some projects lacked key documentation such as advanced power strip <i>location</i> , <i>heating seasonal performance factor</i> , and <i>heating type</i> to ensure savings. Requiring contractors to submit all documentation necessary to replicate savings is critical to improving QA/QC processes.

Table 67. Energy Solutions for Manufactured Homes—Status of Prior Year Recommendations

Status of prior year recommendations	
PY2020 impact recommendations	<ul style="list-style-type: none"> • Continue to accurately track cooling capacity in ArchEE for <i>duct sealing</i> measures since it is a critical parameter in calculating savings. <ul style="list-style-type: none"> ○ Continuing.
	<ul style="list-style-type: none"> • Ensure that all documentation is legible and that critical parameters, such as model number, are identifiable. <ul style="list-style-type: none"> ○ Continuing.
PY2020 process recommendations	<ul style="list-style-type: none"> • Work with the evaluator to determine a QA/QC threshold for blower door testing variance. <ul style="list-style-type: none"> ○ Complete.
	<ul style="list-style-type: none"> • Develop strategies to implement <i>ductless mini-splits</i> in manufactured homes and similar housing types that show substantial savings opportunities. Coordinate with the independent evaluation monitor (IEM) on claiming the increased savings beyond the TRM deemed savings. <ul style="list-style-type: none"> ○ In progress.
PY2021 impact recommendations	<ul style="list-style-type: none"> • Continue to accurately track cooling capacity in ArchEE for <i>duct sealing</i> measures since it is a key parameter in calculating savings. <ul style="list-style-type: none"> ○ Continuing.
	<ul style="list-style-type: none"> • Ensure all documentation is available and legible and key parameters, such as model number, are identifiable. <ul style="list-style-type: none"> ○ Continuing.
	<ul style="list-style-type: none"> • Increase the internal QA/QC process on the <i>duct sealing</i> measure for all heating types to capture all cooling and heating variables. <ul style="list-style-type: none"> ○ Continuing.
PY2021 process recommendations	<ul style="list-style-type: none"> • Increase customer service training for contractors regarding communication. <ul style="list-style-type: none"> ○ Continuing.
	<ul style="list-style-type: none"> • Ensure replaced equipment, such as incandescents, are removed and disposed of properly. <ul style="list-style-type: none"> ○ Continuing.
	<ul style="list-style-type: none"> • Discuss quarterly allocations with trade allies to ensure understanding of the process and how exceptions are handled to keep trade allies engaged in the program. <ul style="list-style-type: none"> ○ Continuing.
	<ul style="list-style-type: none"> • Ensure trade allies are aware of the database and process to check on customer eligibility. <ul style="list-style-type: none"> ○ Continuing.

6.3 METHODOLOGY

The following sections present an overview of the impact and process evaluation methodologies.

6.3.1 Impact Evaluation

The evaluated savings results, established at the project level, are based on savings calculations and adjustments made during the tracking system review, 26 engineering desk reviews, and 6 on-site visits. Final evaluated savings account for the tracking system review and desk review level adjustments for all measure categories.

6.3.1.1 Tracking System Review

The EM&V team reviewed all program-reported tracking data to assess the extent to which it provided the algorithms and ex-ante values necessary for each measure. The tracking system data review began using the TRM 9.0 as a reference in our review of measure-level savings assumptions. The EM&V team reviewed the tracking systems linkage to TRM deemed savings and methods used to estimate savings.

Our review accomplished three primary objectives. First, it identified any initial high-level tracking system concerns. Second, it verified whether the savings estimates in the tracking system are consistent with the savings algorithms' results outlined in TRM 9.0. Third, it assessed the tracking system's ability to support QA/QC, including future evaluation needs.

The ArchEE tracking system, which supplied all participant and claimed savings, and many of the inputs needed to verify savings calculations, were used to check for systemic errors across a participant census.

6.3.1.2 Desk Reviews

In addition to verifying the use of equations based on the TRM and inputs used to calculate deemed savings, the EM&V team also examined inputs into the tracking system based on a sample of projects. The implementation team provided project files and documentation for sampled projects, and the EM&V team compared parameter values in the project files with those entered into the program's tracking system.

Based on the program's tracking system extract from the tracking system database, PY2022 participant records were assigned measure categories, and the EM&V team created a sample of 20³⁴ projects for desk reviews. Participants receiving *non-direct-install* measures (i.e., *envelope* and *HVAC* projects) were prioritized and selected from the data extract. Table 68 characterizes the PY2022 sample selected for desk reviews.

³⁴ Based on the distinct count of JobIDs sampled for desk review only. Site visits were part of a separate sample.

Table 68. Energy Solutions for Manufactured Homes—Summary of Desk Review Sampled Savings by Measure Category³⁵

Measure category	Reported kWh	Sampled kWh	Percentage kWh sampled	Reported kW	Sampled kW	Percentage kW sampled
Appliances	51,527	2,774	5.4%	6.1	0.3	5.4%
Domestic hot water	26,602	3,069	11.5%	2.8	0.3	11.5%
Envelope	224,216	11,941	5.3%	28.0	1.2	4.4%
HVAC	3,689,088	184,300	5.0%	532.4	20.2	3.8%
Lighting	53,192	2,400	4.5%	9.6	0.4	4.7%
Total	4,044,625	204,484	5.1%	578.9	22.5	3.9%

6.3.1.3 On-Site Verifications

Six projects received on-site verifications to examine whether participating trade allies' measurements were replicable and to verify the installation of incented measures. The EM&V team did not perform testing but rather made process observations and verified measure installation. Almost all the participants that received on-site verifications had multiple measures installed. Table 69 provides detail on the six sites that received on-site verification in PY2022.

Table 69. Energy Solutions for Manufactured Homes—Summary of On-site Verification Sampled Savings by Measure Category

Measure category	Number of sites	Reported kWh	Reported kW
Appliances	3	757	0.1
Domestic hot water	2	1,101	0.1
Envelope	3	2,352	0.2
HVAC	5	23,485	3.4
Lighting	4	849	0.2
Total	6	28,543	4.0

6.4 DETAILED IMPACT EVALUATION RESULTS

This section presents the results of evaluation activities and details findings from the desk reviews and on-site verifications. Results are reported at the measure level and program level based on the EM&V activities.

³⁵ Reported data as of time of sampling, October 24, 2022.

6.4.1 Tracking System Review

Overall, the Manufactured Homes program evaluated tracking system review resulted in identical savings to those calculated by the program implementer. The realization rates were 100 percent for both energy and demand savings. Further details of measure-based findings are provided below.

Table 70. Energy Solutions for Manufactured Homes—PY2022 Tracking System Energy Savings and Realization Rates by Measure Category

Measure	Ex-ante savings		Ex-post savings		Realization rate	
	kWh	kW	kWh	kW	kWh	kW
Appliances	74,225	8.8	74,225	8.8	100.0%	100.0%
Domestic hot water	36,855	3.8	36,855	3.8	100.0%	100.0%
Envelope	333,435	41.1	333,435	41.1	100.0%	100.0%
HVAC	5,283,346	726.9	5,283,346	726.9	100.0%	100.0%
Lighting	71,572	12.8	71,572	12.8	100.0%	100.0%
Total	5,799,433	793.5	5,799,433	793.5	100.0%	100.0%

6.4.2 Desk Review Results

The EM&V team conducted desk reviews of 26 projects, including projects that received site visits, to compare values recorded on project documentation with those available in the tracking system. The sites that received desk reviews reported 233,028 kWh in energy savings and 26.5 kW in demand savings. The EM&V team found discrepancies leading to adjustments in savings. Desk review findings from projects that did not receive 100 percent realization rates are detailed below.

6.4.2.1 Heating/Cooling Type Discrepancies

- JobID: EAMHPS1548650975.** The project included *air sealing*, 12 *LEDs*, one *smart strip*, and *duct sealing*. A *heat pump* was reported as the heating and cooling type. However, the condenser nameplate photo indicated that it was an *air conditioner* not a *heat pump*. In addition, photos showed the heating type was an *electric resistance furnace*. The heating type was adjusted from *heat pump* to *AC with electric resistance heat*. The heating type adjustment resulted in an overall project-level realization rate of 173.0 percent and 99.5 percent for energy and demand savings, respectively.
- JobID: EAMHPS1549412924.** The project included *air sealing* and *duct sealing*. A *heat pump* was reported as the heating and cooling type. However, the condenser nameplate photo indicated that it was an *air conditioner* not a *heat pump*. It also indicated the *SEER* value was 12 and not the reported 10 *SEER*. In addition, photos showed the heating type was an *electric resistance furnace*. The heating type was adjusted from *heat pump* to *AC with electric resistance heat*. These adjustments resulted in an overall project-level realization rate of 209.3 percent and 100.0 percent for energy and demand savings, respectively.

- **JobID: EAMHPS1548963581.** The project reported *duct sealing of a heat pump* system. However the condenser nameplate photo indicated that it was an *air conditioner* not a *heat pump*. In addition, photos showed the heating type was an *electric resistance furnace*. The heating type was adjusted from *heat pump* to *AC with electric resistance heat*. The heating type adjustment resulted in an overall project-level realization rate of 194.9 percent and 100.0 percent for energy and demand savings, respectively.

6.4.2.2 Smart Strip Discrepancies

- **JobID: EAMHPS1549677307.** The project included one *smart strip* and 20 *LEDs*. Based on the documentation, the EM&V team could not verify the installation location of the smart strip and adjusted the location from *home entertainment center* to *APS average*. This adjustment resulted in an overall project-level realization rate of 87.6 percent and 90.4 percent for energy and demand savings, respectively.
- **JobID: EAMHPS1550462390.** The project included one *smart strip* and *duct sealing*. Based on the documentation, the EM&V team could not verify the installation location of the smart strip and adjusted the location from *home entertainment center* to *APS average*. The savings may also be overstated as the photo showed only one cord plugged into the “always on” outlet. This adjustment resulted in an overall project-level realization rate of 87.6 percent and 90.4 percent for energy and demand savings, respectively.
- **JobID: EAMHPS1548913790.** The project included one *smart strip*, *air infiltration*, and *duct sealing of an AC with electric resistance heat*. Based on the documentation, the smart strip was not installed, and the EM&V team adjusted accordingly, resulting in an overall project-level realization rate of 98.6 percent and 98.2 percent for energy and demand savings, respectively.

Overall, program-level realization based on desk reviews was 105.3 percent and 99.8 percent for energy and demand savings, respectively, due to the adjustments discussed above. See Table 71.

Table 71. Energy Solutions for Manufactured Homes—Desk Review Results

Measure	Reported savings (kWh)	Reported savings (kW)	Evaluated savings (kWh)	Evaluated savings (kW)	Energy realization rate	Demand realization rate
9 W LED (60 W equivalent)—indoor	2,752	0.5	2,711	0.5	98.5%	100.0%
Air infiltration	14,293	1.4	16,458	1.4	115.1%	99.7%
Duct sealing—AC with resistance heat (tested)	180,190	17.2	180,190	17.2	100.0%	100.0%
Duct sealing—electric cooling (tested)	4,857	2.7	4,857	2.7	100.0%	100.0%
Duct sealing—heat pump (tested)	21,288	3.7	32,054	3.7	150.6%	100.0%

Measure	Reported savings (kWh)	Reported savings (kW)	Evaluated savings (kWh)	Evaluated savings (kW)	Energy realization rate	Demand realization rate
LED bulbs candelabra 4 W (indoor)	497	0.1	497	0.1	100.0%	100.1%
Low-flow faucet aerator	602	0.1	601	0.1	100.0%	99.9%
Low-flow showerheads	3,569	0.4	3,562	0.4	99.8%	99.8%
Smart strip (direct install)	3,531	0.4	3,109	0.4	88.1%	87.6%
Smart thermostats	1,450	-	1,450	-	100.0%	N/A
Total	233,028	26.5	245,489	26.4	105.3%	99.8%

A dash indicates that there are no kilowatt savings associated with the respective measure.

6.4.3 On-Site Verifications

Six projects received on-site verifications to examine whether participating trade allies' measurements were replicable and to verify the installation of incented measures. The EM&V team did not perform testing but rather made process observations and verified measure installation. On-site projects also received a desk review to compare documentation to data collected while on-site.

While on-site, the EM&V team gathered feedback from customers on their experience with the program. Overall, customers stated they were satisfied with the program and indicated they would not have done this work without it. Some stated they had felt a significant difference in their bills and/or comfort level. However, contractors should take care while on-site to ensure all pertinent information is clearly communicated with the customer.

Overall, program-level realization-based on-site visits were 100 percent for both energy and demand savings, as detailed in Table 72.

Table 72. Energy Solutions for Manufactured Homes—On-Site Verification Results

Measure category	Reported savings (kWh)	Reported savings (kW)	Evaluated savings (kWh)	Evaluated savings (kW)	Realization rate	Realization rate
Appliances	757	0.1	757	0.1	100.0%	100.0%
Domestic hot water	1,101	0.1	1,101	0.1	100.0%	100.0%
Envelope	2,352	0.2	2,352	0.2	100.0%	100.0%
HVAC	23,485	3.4	23,485	3.4	100.0%	100.0%
Lighting	849	0.2	849	0.2	100.0%	100.0%
Total	28,543	4.0	28,543	4.0	100.0%	100.0%

6.5 OVERALL SAVINGS ESTIMATES

The EM&V team used the desk reviews and on-site verification measurements to calculate the program-level realization rates. Program realization rates indicate that the Manufactured Homes program achieved similar energy and demand savings as reported. Adjustments based on desk reviews or on-site verifications were incorporated into realization rates, ultimately resulting in realization rates of 107.4 percent and 99.8 percent for energy and demand savings, respectively.

Table 73. Energy Solutions for Manufactured Homes—Weighted Desk Review and Independent Verification Results

Measure	Reported savings		Evaluated savings		Realization rate		EM&V source
	kWh	kW	kWh	kW	kWh	kW	
9 W LED (60 W equivalent)—indoor	54,769	9.9	53,958	9.9	98.5%	100.0%	Desk review, on-site verification, and tracking system review
Air conditioner tune-up—manifold measurement	205,539	111.9	205,539	111.9	100.0%	100.0%	Tracking system review
Air infiltration	333,435	41.1	383,931	41.0	115.1%	99.7%	Desk review, on-site verification, and tracking system review
Duct replacement—heat pump	12,631	2.2	12,631	2.2	100.0%	100.0%	Tracking system review
Duct sealing—AC with resistance heat (tested)	4,046,576	385.6	4,046,576	385.6	100.0%	100.0%	Desk review, on-site verification, and tracking system review
Duct sealing—electric cooling (tested)	159,817	87.2	159,817	87.2	100.0%	100.0%	Desk review, on-site verification, and tracking system review
Duct sealing—heat pump (tested)	763,918	129.7	1,150,262	129.7	150.6%	100.0%	Desk review and tracking system review
Duct sealing electric resistance no cooling (tested)	7,621	-	7,621	-	100.0%	N/A	Tracking system review

Measure	Reported savings		Evaluated savings		Realization rate		EM&V source
	kWh	kW	kWh	kW	kWh	kW	
LED (retail): outdoor, general purpose, all wattages	152	-	152	-	100.0%	N/A	Tracking system review
LED bulbs BR30 8 W (indoor)	1,385	0.2	1,385	0.2	100.0%	100.0%	Tracking system review
LED bulbs BR30 8 W (outdoor)	193	-	193	-	100.0%	N/A	Tracking system review
LED bulbs candelabra 4 W (indoor)	15,073	2.7	15,073	2.8	100.0%	100.1%	Desk review, on-site verification, and tracking system review
Low-flow faucet aerator	5,771	0.6	5,768	0.6	100.0%	99.9%	Desk review, on-site verification, and tracking system review
Low-flow showerheads	31,084	3.2	31,027	3.2	99.8%	99.8%	Desk review, on-site verification, and tracking system review
Residential heat pump tune-up	42,276	10.3	42,276	10.3	100.0%	100.0%	Tracking system review
Smart strip (direct install)	74,225	8.8	65,358	7.7	88.1%	87.6%	Desk review, on-site verification, and tracking system review
Smart thermostats	44,968	-	44,968	-	100.0%	N/A	Desk review, on-site verification, and tracking system review
Total	5,799,433	793.5	6,226,535	792.3	107.4%	99.8%	

A dash indicates that there are no kilowatt savings associated with the respective measure.

6.6 QUALITY ASSURANCE/QUALITY CONTROL PROCESSES

The implementation team randomly selects properties to receive post-installation verification as part of the program's QA/QC process, verifying measurements taken by trade allies or performing non-invasive visual inspections of work. When work is deemed insufficient, trade allies must typically revisit the site and perform additional work to bring the site's performance up to program standards.

7.0 LOW-INCOME SOLUTIONS

The Entergy Arkansas, LLC (EAL) Low-Income Solutions program launched in program year (PY) 2020 (PY2020). The program helps low-income households become more comfortable, safe, and energy-efficient using directly installed home weatherization, health, and safety upgrades at no cost to the customer. The objectives of the Low-Income Solutions program are to (1) help EAL customers reduce energy usage, save money on utility bills, and improve comfort in their homes, (2) educate homeowners on the energy efficiency and inefficiency of their homes, (3) identify opportunities for energy savings specific to customers' homes, and (4) improve health and safety of the homes' residents, provided at no cost to homeowners. Energy audits and energy-efficient home upgrades are delivered through trained and certified home performance contractors. The Low-Income Solutions program is also a delivery mechanism for the *consistent weatherization approach* (CWA) and includes all cost-effective measures following the CWA protocols.

The Low-Income Solutions program targets eligible low-income households or EAL customers aged 65 or older as they are considered a hard-to-reach subsector. The program also helps with home repairs to correct minor problems that may otherwise prevent the building from receiving weatherization upgrades or pose a health or safety risk. As part of the Low-Income Solutions program, EAL offers the following measures at no cost to qualifying customers: *home energy assessments* by qualified field technicians, *LED bulbs*, *low-flow showerheads*, *faucet aerators*, and *advanced power strips*. EAL also offers the following *weatherization* measures at no cost to the customer: *air sealing*, *duct sealing*, *ceiling insulation*, *advanced thermostats*, and *heat pump and AC tune-ups*. In PY2022, the program incentivized *ceiling insulation* installation, *air infiltration*, *duct sealing*, and *advanced thermostats* while providing direct installation of *faucet aerators*, *low-flow showerheads*, *advanced power strips (APS)*, *lighting* measures, and *health and safety* measures at no cost to the customer. This report section focuses on energy savings measures, the reader is referred to *Consistent Weather Approach and Act 1102* Section (Section 16.0) for information on the *health and safety* measures.

The evaluation, measurement, and verification (EM&V) team conducted program staff interviews, tracking system reviews, desk reviews, and on-site verifications for a subset of projects to support the evaluation. Table 74 below summarizes the Low-Income Solutions evaluation activities.

Table 74. Low-Income Solutions—Data Collection and Evaluation Activities

NTG approach	Process evaluation activities	Gross impact evaluation completes			
		Tracking system review	Desk reviews	On-site verification	Metered data analysis ¹
Deemed from prior research	Program staff interviews (2) Material review	Census	41	5	None

7.1 KEY FINDINGS

In PY2022, the Low-Income Solutions program achieved 7,856 MWh in gross energy savings and 1.9 MW in gross demand savings, as shown in Table 75. The Low-Income Solutions program's gross evaluated savings were slightly lower than reported energy savings and demand savings, resulting in realization rates of 99.0 and 99.5 percent for energy savings (megawatt-hours) and demand savings (megawatts), respectively. The variance between the reported and evaluated savings results from the EM&V team adjusting the savings during the project-level engineering desk reviews and on-site verification. The program achieved 100 percent of target energy savings and 65 percent of target demand savings.

Table 75. Low-Income Solutions—Reported, Evaluated, and Net Savings

Energy/demand savings	Reported savings	Evaluated savings	Realization rate	NTG ratio ²	Net savings
Energy savings (MWh)	7,936	7,856	99.0%	100.0%	7,856
Demand savings (MW)	1.9	1.9	99.5%	100.0%	1.9

Table 76. Low-Income Solutions—Goals vs. Achieved

Savings	Goal	Actual	Percentage achieved
Energy savings (MWh)	7,863	7,856	100%
Demand savings (MW)	2.9	1.9	65%

7.2 RECOMMENDATIONS

Compared to PY2021, the EM&V team found an improvement in project documentation verifying removed *bulbs* and a slightly higher percentage of *HVAC* system nameplates. The program should continue improving project documentation to increase transparency and savings reliability.

During on-site verifications, the EM&V team observed a substantial improvement in contractor communication with customers. This improvement may be a result of increased training for contractors as well as contractors being able to spend more time in customers' homes due to less pandemic-related restrictions.

In terms of *health and safety* measures, the EM&V team found significantly more diversified measures taking place through on-site verifications, as well as better documentation of the measures, compared to PY2021.

The EM&V team identified four recommendations, shown in Table 77, for EAL's consideration from the evaluation activities.

Table 77. Low-Income Solutions —PY2022 Recommendations

Type	Recommendation	Key finding
PY2022 impact recommendations	Recommendation 1: Increase quality assurance/quality control (QA/QC) on the APS measure and ensure contractors are educated on installing the APS and collecting documentation that clearly verifies the installation location of the APS.	While this was a minor issue across the other residential programs, the EM&V team found the majority of Low-Income Solutions desk review documentation showed the APS still in the packaging. The EM&V team evaluated savings using the <i>average APS</i> rather than zero out the savings for PY2022 to increase training and QA/QC on this measure. However, in PY2023 uninstalled measures will be evaluated as zero savings. The adjustment in savings resulted in realization rates of 68.6 percent and 65.8 percent for energy and demand savings, respectively for the APS measure.
	Recommendation 2: Ensure contractors are consistently submitting key savings project documentation.	Throughout desk reviews, the EM&V team found that some projects lacked key documentation such as advanced power strip location, and pictures of the HVAC system's nameplates, including heating equipment. Requiring contractors to submit all documentation necessary to reproduce savings is critical to improving QA/QC processes.
PY2022 process recommendations	Recommendation 3: Increase training and QA/QC of <i>air and duct sealing</i> measures to ensure all leaks are thoroughly sealed.	Through on-site verifications, the EM&V team found a few missed opportunities to seal leaks in the homes, including sealing around the furnace and air handler cabinet as well as adding new duct tape around deteriorated existing duct tape. These issues may be caught by the QA/QC team. However, increased training of trade allies may help achieve higher, more consistent savings for sites for which no QA/QC is performed.
	Recommendation 4: Consider ways to increase participation in the <i>ceiling insulation</i> measure for low-income customers.	Throughout site visits, speaking with program implementers and administrators, and reviewing the tracking database, the EM&V team found that a larger percentage of homes may need ceiling insulation. Ceiling insulation is critical for low-income homes that are typically under-weatherized and can result in significant savings and increase the comfort level of the home.

Table 78. Low-Income Solutions —Status of Prior Year Recommendations

Status of prior year recommendations	
PY2020 impact recommendations	<ul style="list-style-type: none"> For <i>duct sealing</i> projects where actual cooling efficiency is unobtainable, use the default value, 11.5 seasonal energy efficiency ratio (SEER), for the cooling efficiency, as outlined in the TRM. <ul style="list-style-type: none"> ○ Continuing.
	<ul style="list-style-type: none"> Use calculators with project-specific inputs for <i>ceiling insulation</i> projects and provide the calculations as part of the project documentation. <ul style="list-style-type: none"> ○ Complete.
PY2020 process recommendations	<ul style="list-style-type: none"> Consider developing additional outreach communication and marketing materials to reach potential customers via direct mailings, utility bill inserts, phone calls, and emails. <ul style="list-style-type: none"> ○ Complete.
PY2021 impact recommendations	<ul style="list-style-type: none"> Ensure contractors consistently submit key savings project documentation such as condenser nameplate, advanced power strip location, heating seasonal performance factor (HSPF), and LED bulbs installed and removed. <ul style="list-style-type: none"> ○ Continuing.
	<ul style="list-style-type: none"> Ensure that the contractor installs <i>direct-install</i> measures such as <i>LEDs, smart strips, low-flow showerheads, and low-flow faucet aerators</i> rather than giving them to the customer to install. <ul style="list-style-type: none"> ○ Continuing.
	<ul style="list-style-type: none"> Continue standardizing <i>MeasureDescription</i> for prescriptive <i>health and safety</i> measures to track measure accomplishments in the tracking database. <ul style="list-style-type: none"> ○ Continuing.
	<ul style="list-style-type: none"> Increase customer service training for contractors regarding communication. <ul style="list-style-type: none"> ○ Continuing.
	<ul style="list-style-type: none"> Ensure to remove and properly dispose of replaced equipment, such as incandescent bulbs. <ul style="list-style-type: none"> ○ Continuing.
	<ul style="list-style-type: none"> None.
PY2021 process recommendations	<ul style="list-style-type: none"> None.

7.3 METHODOLOGY

The following sections present an overview of the impact evaluation methodologies.

7.3.1 Impact Evaluation

The evaluated savings results, established at the project level, are based on savings calculations and adjustments made during the tracking system review, 41 engineering desk reviews, and five on-site visits. Final evaluated savings account for the tracking system review and desk review level adjustments for all measure categories.

7.3.1.1 Tracking System Review

The EM&V team reviewed all program-reported tracking data to assess the extent to which it provided the algorithms and ex-ante values necessary for each measure. The tracking system data review referenced the TRM 9.0 for measure-level savings assumptions; the EM&V team checked the tracking systems' linkage to TRM deemed savings and methods used to estimate savings.

Our review accomplished three primary objectives: (1) identify initial high-level tracking system concerns, (2) verify whether the savings estimates in the tracking system are consistent with the savings algorithms' results as outlined in TRM 9.0, and (3) assess the tracking system's transparency and ability to support QA/QC activities, including future evaluation needs.

7.3.1.2 Desk Reviews

In addition to verifying the use of equations based on the TRM and inputs used to calculate deemed savings, the EM&V team also examined inputs into the tracking system based on a sample of projects. The implementation team provided project files and documentation for sampled projects, and the EM&V team compared parameter values in the project files with those entered into the program's tracking system.

Based on the program's tracking system extract from the tracking system database, PY2022 participant records were assigned measure categories, and the EM&V team created a sample of 36 projects for desk-review-only completes³. Participants receiving *non-direct-install* measures (i.e., *envelope* and *HVAC* projects) were prioritized and selected from the data extract. Table 79 provides details on sampled savings by measure category for the program.

Table 79. Low-Income Solutions—Summary of Sampled Savings by Measure Category⁴

Measure category	Reported kWh	Sampled kWh	Percentage kWh sampled	Reported kW	Sampled kW	Percentage kW sampled
Appliances	219,162	3,279	1.5%	26.1	0.4	1.5%
Domestic hot water	155,099	2,434	1.6%	16.1	0.3	1.6%
Envelope	1,281,322	33,386	2.6%	491.7	9.0	1.8%
HVAC	4,888,037	512,377	0.5%	1,018.4	142.9	14.0%
Lighting	268,185	4,200	1.6%	44.1	0.7	1.6%
Total	6,811,805	555,675	8.2%	1,596.3	153.2	9.6%

7.3.1.3 On-Site Verification

Five projects received on-site verifications to examine whether the measurements and parameters reported by participating trade allies were accurate and to verify the installation of incented measures. The EM&V team did not perform testing but made process and measurement observations and verified measure installation. Almost all the participants that received on-site verifications had multiple measures installed. Table 80 details the five projects that received on-site verification in PY2022.

Table 80. Low-Income Solutions—Summary of Sampled Savings by Measure Category

Measure category	Number of sites	Reported kWh	Reported kW
Appliances	2	504	0.1
Envelope	2	1,420	1.4
HVAC	3	4,935	2.2
Lighting	4	1,039	0.2
Total	5	7,898	3.8

7.4 DETAILED IMPACT EVALUATION RESULTS

This section presents the results of evaluation activities and details findings from the tracking system review, desk reviews, and on-site verifications. Results are reported at the measure and program levels based on the EM&V activities.

7.4.1 Tracking System Review

The overall Low-Income Solutions program evaluated tracking system savings resulted in identical savings (100 percent kilowatt-hour and kilowatt realization rates) as those calculated by the program implementer; no adjustments were made during the tracking system review. Further details and measure-based findings are provided in Table 81.

Table 81. Low-Income Solutions—Tracking System Review Results by Measure Category

Measure	Ex-ante savings		Ex-post savings		Realization rate	
	kWh	kW	kWh	kW	kWh	kW
Appliances	255,479	30.4	255,479	30.4	100.0%	100.0%
Domestic hot water	164,681	17.1	164,681	17.1	100.0%	100.0%
Envelope	1,437,515	564.0	1,437,515	564.0	100.0%	100.0%
HVAC	5,779,700	1,239.5	5,779,700	1,239.5	100.0%	100.0%
Lighting	298,927	48.8	298,927	48.8	100.0%	100.0%
Total	7,936,302	1,899.8	7,936,302	1,899.8	100.0%	100.0%

7.4.2 Desk Review Results

The EM&V team conducted desk reviews of 41 projects, including projects that received site visits, to compare values recorded on project documentation with those available in the tracking system. The sites that received desk reviews reported 146,981 kWh in energy savings and 31.6 kW in demand savings.

The EM&V team found documentation and installation issues related to the APS measure leading to adjustments in savings. Out of 13 APS measures reviewed during the desk reviews, 8 were still in packaging per pictures, and 3 were not installed in a home entertainment system, though claimed savings for *home entertainment system* in the TRM. The EM&V team made similar observations during on-site verifications. In two cases, the power strip was left for the customer to install and was specified as being installed in the home entertainment system, but it

was used elsewhere. Since this measure does not have an in-service rate, savings would be adjusted to zero resulting in realization rates of 24.4 percent and 23.6 percent for energy and demand savings, respectively. However, for PY2022, the EM&V team adjusted the savings to reflect *average APS* since the install location will be unknown. For PY2023, the EM&V team will include APS in targeted measures to verify improvement in installation rates and will have zero savings for APS left in the packaging.

Overall, program-level realization based on desk reviews was 99.2 percent and 99.5 percent for energy and demand savings, respectively, due to the adjustment discussed above. All measures except for the *smart strip* measure achieved 100 percent realization rates. Table 82 demonstrates the desk review results at the measure level.

Table 82. Low-Income Solutions—Desk Review Results

Measure	Reported savings (kWh)	Evaluated savings (kWh)	Reported savings (kW)	Evaluated savings (kW)	kWh realization rate	kW realization rate
9 W LED (60 W equivalent)—Indoor	3,762	3,762	0.6	0.6	100.0%	100.0%
Air infiltration	20,719	20,719	4.8	4.8	100.0%	100.0%
Ceiling insulation	14,087	14,087	5.6	5.6	100.0%	100.0%
Duct sealing—AC with resistance heat (tested)	43,346	43,346	3.8	3.8	100.0%	100.0%
Duct sealing—electric cooling (tested)	17,631	17,631	9.6	9.6	100.0%	100.0%
Duct sealing—heat pump (tested)	35,802	35,802	6.2	6.2	100.0%	100.0%
LED bulbs BR30 8 W (indoor)	403	403	0.1	0.1	100.0%	100.0%
LED bulbs BR30 8 W (outdoor)	96	96	-	-	100.0%	N/A
LED bulbs Candelabra 4 W (indoor)	977	977	0.2	0.2	100.0%	100.0%
Low-flow faucet aerator	336	336	0.0	0.0	100.0%	100.0%
Low-flow showerheads	2,098	2,098	0.2	0.2	100.0%	100.0%
Smart strip (direct install)	3,783	2,596	0.5	0.3	68.6%	65.8%
Smart thermostats	3,942	3,942	-	-	100.0%	N/A
Total	146,981	145,793	31.6	31.4	99.2%	99.5%

A dash indicates that there are no kilowatt savings associated with the respective measure.

7.4.3 On-Site Verification Results

Five projects received on-site verifications to examine the accuracy of the parameters and measurements participating reported by trade allies and to verify the installation of the incentivized measures. The EM&V team did not perform testing but made process observations and verified measure installation. On-site projects also received a desk review to compare documentation to data collected on-site. Details from the adjustments based on on-site data collection were rolled into the desk review project-level results in the previous section. While on-site, the EM&V team gathered customer feedback on their experience with the program. Customers stated they were satisfied with the program and indicated they would not have done the work without it. Some stated they felt a significant difference in their bills and/or comfort level.

The EM&V team observed one of the sites would have benefitted from an *AC tune-up* recommendation as part of the initial audit. At a different site, the EM&V team found that the APS was plugged into a kitchen outlet and not a home entertainment system. The APS was left in place for the customer's convenience and savings were adjusted to *average APS*. Overall, program-level realization rates based on on-site verifications were 97.9 percent and 99.4 percent for energy and demand savings, respectively, as detailed in Table 83.

Table 83. Low-Income Solutions—On-Site Verification Results

Measure category	Reported savings (kWh)	Evaluated savings (kWh)	Reported savings (kW)	Evaluated savings (kW)	kWh realization rate	kW realization rate
Appliances	504	335	0.1	0.0	66.4%	63.3%
Envelope	1,420	1,420	1.4	1.4	100.0%	100.0%
HVAC	4,935	4,935	2.2	2.2	100.0%	100.0%
Lighting	1,039	1,039	0.2	0.2	100.0%	100.0%
Total	7,898	7,728	3.8	3.8	97.9%	99.4%

7.5 OVERALL SAVINGS ESTIMATES

The EM&V team used desk reviews, tracking system reviews, and on-site verifications to calculate the program-level realization rates. Program realization rates indicate that the Low-Income Solutions program achieved similar energy and demand savings. Adjustments based on desk reviews or on-site verifications were incorporated into realization rates, resulting in 99.0 percent for energy savings and 99.5 percent for demand savings. Table 84 shows the final savings.

Table 84. Low-Income Solutions—Final Evaluated Energy Savings and Realization Rates by Measure Category

Measure	Reported savings		Evaluated savings		Realization rate		EM&V source
	kWh	kW	kWh	kW	kWh	kW	
9 W LED (60 W equivalent)—indoor	203,111	33.6	203,111	33.6	100.0%	100.0%	Desk review, on-site verification, and tracking system review

Measure	Reported savings		Evaluated savings		Realization rate		EM&V source
	kWh	kW	kWh	kW	kWh	kW	
Air conditioner tune-up—manifold measurement	61,617	32.3	61,617	32.3	100.0%	100.0%	Tracking system review
Air infiltration	757,812	145.4	757,812	145.4	100.0%	100.0%	Desk review, on-site verification, and tracking system review
Ceiling insulation	679,703	418.6	679,703	418.6	100.0%	100.0%	Desk review, on-site verification, and tracking system review
Duct replacement—heat pump	9,883	1.8	9,883	1.8	100.0%	100.0%	Tracking system review
Duct sealing—AC with resistance heat (tested)	1,781,679	170.9	1,781,679	170.9	100.0%	100.0%	Desk review and tracking system review
Duct sealing—electric cooling (tested)	936,709	513.5	936,709	513.5	100.0%	100.0%	Desk review, on-site verification, and tracking system review
Duct sealing—heat pump (tested)	2,557,508	427.9	2,557,508	427.9	100.0%	100.0%	Desk review, and tracking system review
LED (retail): outdoor, general purpose, all wattages	776	-	776	-	100.0%	N/A	Tracking system review
LED bulbs BR30 8 W (indoor)	20,006	3.3	20,006	3.3	100.0%	100.0%	Desk review and tracking system review
LED bulbs BR30 8 W (outdoor)	1,385	-	1,385	-	100.0%	N/A	Desk review and tracking system review
LED bulbs candelabra 4 W (indoor)	73,010	11.9	73,010	11.9	100.0%	100.0%	Desk review, on-site verification, and tracking system review
LED bulbs candelabra 4 W (outdoor)	639	-	639	-	100.0%	N/A	Tracking system review
Low-flow faucet aerator	19,537	2.0	19,537	2.0	100.0%	100.0%	Desk review and tracking system review
Low-flow showerheads	145,144	15.1	145,144	15.1	100.0%	100.0%	Desk review and tracking system review
Residential heat pump tune-up	357,912	93.1	357,912	93.1	100.0%	100.0%	Tracking system review

Measure	Reported savings		Evaluated savings		Realization rate		EM&V source
	kWh	kW	kWh	kW	kWh	kW	
Smart strip (direct install)	255,479	30.4	175,303	20.0	68.6%	65.8%	Desk review, on-site verification, and tracking system review
Smart thermostats	74,393	-	74,393	-	100.0%	N/A	Desk review, on-site verification, and tracking system review
Total	7,936,302	1,899.8	7,856,126	1,889.4	99.0%	99.5%	

A dash indicates there are no kilowatt savings associated with the respective measure.

7.6 QUALITY CONTROL/QUALITY ASSURANCE PROCESSES

The implementation team randomly selects properties to receive post-installation verification as part of the program's QA/QC process, verifying measurements taken by trade allies or performing non-invasive visual inspections of work. When work is deemed insufficient, trade allies must typically revisit the site and perform additional work to bring the site's performance up to program standards.

8.0 POINT OF PURCHASE SOLUTIONS

Beginning in program year (PY) 2020 (PY2020), Entergy Arkansas, LLC's (EAL) midstream and upstream programs merged into the comprehensive Point of Purchase Solutions (POPS) program. The program aims to provide fast, easy, energy efficiency solutions to residential and nonresidential customers at retailers where they already shop in-store or online through the Entergy Arkansas's Marketplace. Discounts are offered for efficient lighting products and appliances. The program's long-term goal is to minimize barriers that hinder EAL customers from adopting energy efficiency measures and products.

For both the residential upstream and commercial midstream components, retailers and distributors are incentivized to offer point-of-sale discounts on select energy-efficient equipment. This design has two advantages: (1) it can ramp up quickly and (2) there is no rebate application process making it more streamlined, requiring less up-front costs to the customer. That said, for commercial midstream participation, customers must provide company and contact information for program tracking purposes. Cooperation with retailers and distributors and having clear communication channels is the key strategy for promoting measures incentivized through these two channels.

POPS residential downstream channel offers post-purchase rebates for select energy-efficient appliances and lighting. It currently contributes to a small percentage of energy savings to the overall program but does create other opportunities to encourage the purchase of more energy-efficient measures. Rebates applications can be submitted either through the mail or online.

For the PY2022 evaluation, the evaluation, measurement, and verification (EM&V) team conducted a full impact and a limited process evaluation. A full process evaluation was conducted in PY2021. Activities included in the PY2022 evaluation are program staff interviews, desk reviews of 30 randomly selected *commercial midstream lighting* projects and 70 top-saving *lighting* measures from residential upstream, and a full tracking system review.

Table 85. PY2022 Point of Purchase Solutions—Data Collection and Evaluation Activities

Net-to-gross (NTG) approach	Process evaluation activities	Gross impact evaluation completes			
		Tracking system review	Desk reviews	On-site M&V	Metered data analysis ³⁶
Deemed from prior research	Program staff interviews (2) Materials review	Census	100	None	None

³⁶ This column refers to EAL customer meter data provided to the EM&V team as opposed to primary metered data collected as part of the on-site measurement and verification (M&V).

8.1 KEY FINDINGS

Based on the PY2022 program tracking data,³⁷ the POPS program reported implementing 2,629,755 measures to 780,005 unique participants.³⁸ Table 86 provides the program's participation and reported savings by measure category. In PY2022, *residential lighting* projects provided the most savings, with approximately 68 percent of overall savings for the POPS program.

Table 86. PY2022 Point of Purchase Solutions—Reported Participation, Measures, and Savings

Measure category	Participants*	Quantity	Gross program savings (kWh)	Percentage of program savings (kWh)
Commercial lighting	617	51,942	18,948,989	19.6%
Residential appliances	63,675	63,723	10,675,797	11.1%
Residential domestic hot water**	68	57	80,992	0.1%
Residential envelope	7	27	2,134	0.0%
Residential HVAC	1,031	1,063	1,156,855	1.2%
Residential lighting	714,619	2,512,888	65,448,513	67.9%
Residential other	54	55	133,235	0.1%
Total	780,005	2,629,755	96,446,515	100.0%

*Individual participants may install equipment from multiple measure categories.

**There were 11 returns present in the *residential domestic hot water* category, resulting in 11 participants having a final installed quantity of 0.

In PY2022, the POPS program achieved 100,534 MWh in gross energy savings and 16.2 MW in gross demand savings, as shown in Table 87. The POPS program's evaluated savings resulted in higher demand and energy savings (104.2 percent kilowatt and 107.4 percent kilowatt-hour realization rates) than those calculated by the program implementer. These results are driven by the EM&V team's adjustments. The primary adjustment was recalculating 6.7 percent of upstream residential lighting sales using commercial methodologies.³⁹ The evaluation team applied NTG ratios for each sector measure resulting in an overall NTG ratio of 87.2 percent for energy savings and 86.0 percent for demand savings. The program exceeded planning goals, achieving 131 percent of energy and 141 percent of demand savings.

³⁷ The tracking system data extract is from February 7, 2023.

³⁸ For measures without a defined account number, each unit of sales is assumed to represent a unique participant. For example, each *advanced power strip* is counted as one participant, while a four-bulb pack is counted as one participant for the *lighting* measures.

³⁹ Arkansas TRM 9.0, Volume II, Page 191.

Table 87. PY2022 Point of Purchase Solutions—Reported, Evaluated, and Net Savings

Energy/demand savings	Reported savings	Evaluated savings	Realization rate	NTG ratio	Net savings	Program contribution to portfolio savings
Energy savings (MWh)	96,447	100,534	104.2%	87.2%	87,690	24.5%
Demand savings (MW)	15.1	16.2	107.4%	86.0%	13.9	11.9%

Table 88. PY2022 Point of Purchase Solutions—Goals vs. Achieved

Savings	Goal	Actual	Percentage achieved
Energy savings (MWh)	66,846	87,690	131%
Demand savings (MW)	9.9	13.9	141%

The NTG ratios used for the POPS *prescriptive* measures were based on research conducted in PY2021. NTG varied by measure type, ranging from 75 to 100 percent.

8.2 RECOMMENDATIONS

The EM&V team found new areas for program improvement. Specific recommendations to address these areas are described in Table 89.

Table 89. Point of Purchase Solutions —PY2022 Recommendations

Type	Recommendation	Key finding
PY2022 impact recommendations	Recommendation 1: For <i>residential HVAC</i> , increase QA/QC on the <i>residential smart thermostat</i> measures.	There were two instances of homes that had duplicate ArchEE entries associated with <i>smart thermostat</i> returns. In addition, there were six homes heated by propane that erroneously applied a propane factor to the gas savings algorithm, which contradicts the approved savings methodology for smart thermostats purchased at retail locations. It is recommended that additional tracking system QA/QC checks related to thermostats returned so duplicate thermostat returns are not reported in the tracking system.
	Recommendation 2: For <i>commercial midstream lighting</i> , increase QA/QC of commercial midstream program tracking data to reduce errors.	There were many instances in the commercial midstream program where lighting wattages reported in ArchEE were inconsistent with the lighting wattages on ENERGY STAR® and DLC certifications. There were also a few instances where baseline wattage was reported as 0 W. Finally, quantities and model numbers of specific lights in the tracking system did not match their respective quantities on the invoices in a few instances. It is recommended that additional tracking system QA/QC checks related to the baseline and retrofit wattage be conducted.
	Recommendation 3: Adjust reporting of the baseline and retrofit energy consumption for the <i>ENERGY STAR freezers</i> measure.	As noted in the PY2021 impact report, the <i>baseline</i> energy consumption and <i>retrofit</i> energy consumption in the tracking system were switched in the tracking system data for the <i>ENERGY STAR freezers</i> measure. Although this did not affect the reported energy and demand savings, adjusting the programming within ArchEE for the <i>kWhBaseline</i> and <i>kWhEe</i> fields would increase clarity and consistency during the QA/QC review.
PY2022 process recommendations	Recommendation 4: Ensure that the information provided on the POPS websites is up to date with all currently offered measures and program updates.	The POPS residential and commercial manuals found on the Entergy Arkansas POPS websites were the outdated PY2021 version. It is unclear why the PY2022 program manual was not posted on the website in the previous year. In addition, the <i>residential weatherization</i> measures were found in the Entergy Arkansas Marketplace, but they are not listed on the program landing page, nor are they listed as a measure in either the PY2021 or PY2022 program manuals. Adding these measures to the landing page and manual would increase visibility and participation.

Table 90. Point of Purchase Solutions —Status of Prior Year Recommendations

Status of prior year recommendations	
PY2020 impact recommendations	<ul style="list-style-type: none"> • Update the program tracking data formats and details to improve data organization, transparency, and consistency. <ul style="list-style-type: none"> ○ Complete.
	<ul style="list-style-type: none"> • Increase QA/QC and clarity of program tracking data to reduce errors across program participants. <ul style="list-style-type: none"> ○ Continuing.
	<ul style="list-style-type: none"> • Increase QA/QC in data entry to reduce errors in transferring invoice data to the tracking system. <ul style="list-style-type: none"> ○ Continuing.
PY2020 process recommendations	<ul style="list-style-type: none"> • None.
PY2021 impact recommendations	<ul style="list-style-type: none"> • Organize the project documentation so inspection information, participant agreements, and invoices are easily cross-referenced. <ul style="list-style-type: none"> ○ Complete.
	<ul style="list-style-type: none"> • Update the program tracking data formats and details to improve data organization, transparency, and consistency. <ul style="list-style-type: none"> ○ Continuing.
	<ul style="list-style-type: none"> • Increase QA/QC and clarity of program tracking data to reduce errors. <ul style="list-style-type: none"> ○ Continuing.
	<ul style="list-style-type: none"> • Explore strategies to increase participation among participating “dollar” stores. <ul style="list-style-type: none"> ○ Continuing.
PY2021 process recommendations	<ul style="list-style-type: none"> • Consider expanding participation in grocery stores. <ul style="list-style-type: none"> ○ Continuing.
	<ul style="list-style-type: none"> • Increase decorative and other specialty lighting options in participating stores. <ul style="list-style-type: none"> ○ Continuing.
	<ul style="list-style-type: none"> • Continue promoting the program through big box stores. <ul style="list-style-type: none"> ○ Continuing.
	<ul style="list-style-type: none"> • Discuss additional implementation strategies among EAL and the program implementer to increase the program's net savings. <ul style="list-style-type: none"> ○ Continuing.
	<ul style="list-style-type: none"> • Increase marketing efforts to residential customers to improve program awareness. <ul style="list-style-type: none"> ○ Continuing.

8.3 METHODOLOGY

This section details the evaluation activities for the impact evaluation.

8.3.1 Impact Evaluation

The evaluated savings results are based on savings calculations and adjustments made during the tracking system review and 30 engineering desk reviews of *commercial midstream lighting* measures (savings adjustments were made at the account level). The final component of the evaluated savings results is allocating 6.7 percent of *residential LED* lighting to the commercial program, per Arkansas TRM 9.0 section 2.5.1.1. Finally, the net-to-gross (NTG) ratio was applied at a measure category to obtain net energy savings. The NTG ratios used for the POPS *prescriptive* measures were based on research conducted in PY2021. NTG varied by measure type, ranging from 75 to 100 percent. All *low-income* measures, denoted by MSC codes, were given 100 percent NTG.

Table 91 below shows what aspects of the impact evaluation were applied to each measure type, as well as the NTG used in the evaluation.

Table 91. Point of Purchase Solutions—Evaluated and Net Savings Methodology

Measure	Method to obtain evaluated savings	NTG	
		kWh	kW
Advanced power strips—retail	Tracking system review	87%	87%
Advanced power strips MSC-5606	Tracking system review	100%	100%
Efficient hot water (DHW) heaters—WH replacement w/ HPWH	Tracking system review	80%	80%
ENERGY STAR dehumidifiers	Tracking system review	78%	78%
ENERGY STAR freezers	Tracking system review	68%	82%
ENERGY STAR room air cleaners	Tracking system review	78%	78%
ENERGY STAR window AC replacement	Tracking system review	80%	80%
Hard-wired LED fixtures: indoor, all wattages	Tracking system review and 6.7 percent adder	53%	53%
LED (retail): indoor reflector	Tracking system review and 6.7 percent adder	53%	53%
LED (retail): outdoor reflector	Tracking system review and 6.7 percent adder	53%	53%
LED (retail): indoor, all wattages	Tracking system review and 6.7 percent adder	53%	53%
LED fixture indoor MSC-5464	Tracking system review	100%	100%
LED indoor omni or deco MSC-5420	Tracking system review	100%	100%
LED indoor reflector MSC-5453	Tracking system review	100%	100%
Midstream: exterior fixtures	Desk reviews	85%	85%
Midstream: interior fixtures	Desk reviews	85%	85%

Measure	Method to obtain evaluated savings	NTG	
		kWh	kW
Midstream: interior lamps	Desk reviews	85%	85%
Pool pumps	Tracking system review	88%	97%
POPS weatherization retail	Tracking system review	100%	100%
Residential pool pumps—non-self priming	Tracking system review	88%	97%
Smart thermostats—POPS only	Tracking system review	86.2%	86.2%

In the POPS program, the EM&V team used the following definitions for the number of participants:

- The number of participants for the *advanced power strip* measure is the number of unique account numbers (obtained using the ArchEE database field *AccountNumber*) with that designated measure, added to the quantity of measures with the *-Invalid* or *0000-Invalid* account number (assumption of one measure per participant).
- The number of participants for the *ENERGY STAR dehumidifiers*, *ENERGY STAR freezers*, *ENERGY STAR room air cleaners*, *midstream: exterior fixtures*, *midstream: interior fixtures*, *midstream: interior lamps*, *POPS weatherization retail*, *smart thermostats—POPS only*, *pool pumps*, and *residential pool pumps—non-self-priming* measures is the number of unique account numbers (obtained using the ArchEE database field *AccountNumber*) with that designated measure.
- The number of participants for the *ENERGY STAR window AC replacement* measure is the quantity of measures with the *-Invalid* or *0000-Invalid* account number (assumption of one measure per participant).
- The number of participants for the measure is the total number of line items with that measure (1 heater per participant) subtracted by the number of line items with a -1 quantity (as a heater return does not represent a new participant).
- The number of participants for the *residential lighting* measures is the sum of (1) the number of unique account numbers with that designated measure and (2) the quantity of lightbulb packs (*quantity* divided by *BulbsPerPack* in ArchEE database) for each line item with the *-Invalid* or *0000-Invalid* account number (assumption of one pack per participant).

In the POPS program, the EM&V team used the following definition for the quantity of measures:

- The quantity reported for each measure is the sum of the *Quantity* field in ArchEE.

8.3.1.1 Tracking System Review

The EM&V team reviewed all program-reported tracking data to assess the extent to which it provided the algorithms and ex-ante values necessary for each measure. The tracking system data review used TRM 9.0 as a reference in the review of measure-level savings assumptions. The EM&V team reviewed the tracking systems linkage to TRM deemed savings and methods used to estimate savings. After the measure-level review, the EM&V team verified energy-savings calculations for engineering fundamentals, appropriateness, and accuracy.

Our review accomplished three primary objectives. First, it identified any initial high-level tracking system concerns. Second, it verified whether the savings estimates in the tracking system are consistent with the savings outlined in TRM 9.0 used to estimate project savings. Third, it assessed the ability of the tracking system to support future evaluation needs.

The ArchEE tracking system, which supplied all participant and claimed savings, and for the most part, all measure level data for *prescriptive-based* measures, was used to check for systemic errors across a census of participants.

8.3.1.2 Desk Reviews

The engineering desk reviews explored the savings methodologies and documentation from POPS *commercial midstream lighting* projects. The reviews inspected the available project documentation and emphasized key parameters for the deemed savings protocols from TRM 9.0 and *commercial midstream lighting* methodology. After determining the best source of the key parameters from the available documentation, the savings were calculated based on TRM 9.0 algorithms and compared to the reported savings.

The 30 *commercial midstream lighting* desk reviews was selected via simple random sampling. In PY2022, the sample was taken at an account number level, meaning that all *lighting* projects under the 30 sampled account numbers were reviewed. Desk reviews were conducted using data from Q1, Q2, and Q3. This evaluation design ensured that the EM&V team had enough time to address any issues observed in the field during the first half of PY2022, ensuring they could be reconciled ahead of the year-end reporting of the POPS program.

8.3.1.3 Review of Top Savings Upstream Lighting Measures

In addition to conducting the tracking system review, the EM&V team identified the 70 bulbs responsible for the highest portion of *upstream lighting* program savings to verify ENERGY STAR savings and status. The 70 largest saving bulbs correspond with over 92 percent of total program *upstream lighting* savings. The EM&V team then confirmed ENERGY STAR certification using extracts of the *ENERGY STAR-certified light fixtures* and *certified light bulbs* datasets and found that all bulbs were ENERGY STAR-certified.

Next, the EM&V team compared bulb wattages in ArchEE with wattages provided in the ENERGY STAR datasets to confirm inputs. No discrepancies were found.

8.3.1.4 Documentation Review

To understand the POPS program, the EM&V team had biweekly meetings with program staff and reviewed all information available on EAL's website related to the program and supplemental documentation provided by EAL and CLEAResult. The EM&V team reviewed the PY2022 program manual, the data tracking system, and the savings workbook.

8.4 DETAILED IMPACT EVALUATION RESULTS

This section presents the results of evaluation activities and details findings from the tracking system review and desk reviews. Results are reported at the measure level and program level based on the EM&V activities.

8.4.1 Tracking System Review

The EM&V team completed tracking-system-based savings calculations across the *prescriptive* measure categories. The tracking review checked reported savings and performed evaluation savings calculations across the population using the parameters provided in ArchEE.

The overall POPS program evaluated tracking system review resulted in nearly identical energy and demand savings (100 percent kilowatt-hour and kilowatt realization rates) to those calculated by the program implementer. The evaluated savings are based on the results of adjustments made from completing engineering reviews of the program's tracking data. Only two measures, *smart thermostats* and *weatherization*, had realization rates that did not round to 100 percent. *Smart thermostats* had a realization rate of 100.2 percent for kilowatt-hours due to two homes having duplicate entries associated with *smart thermostat* returns. *Weatherization* had a realization rate of 16.7 percent for kilowatts for an unknown reason.

Measure-category and measure-level tracking system review findings are shown in Table 92 and Table 93 below. Further details of measure-based findings follow in the sections following the tables.

**Table 92. PY2022 Point of Purchase Solutions—Tracking System Review
Energy and Demand Savings and Realization Rates by Measure Category**

Measure category	Ex-ante savings		Ex-post savings		Realization rate	
	kWh	kW	kWh	kW	kWh	kW
Commercial lighting	18,948,989	3,120.6	18,948,989	3,120.6	100.0%	100.0%
Residential appliances	22,294	3.0	22,295	3.0	100.0%	100.0%
Residential domestic hot water	80,992	7.1	80,992	7.1	100.0%	100.0%
Residential HVAC	1,156,855	65.2	1,158,841	65.2	100.2%	100.0%
Residential lighting	65,448,513	10,631.2	65,448,513	10,631.2	100.0%	100.0%
Residential other	10,786,739	1,236.5	10,786,739	1,236.5	100.0%	100.0%
Residential envelope	2,134	1.3	2,134	0.2	100.0%	16.7%
Total	96,446,515	15,065.0	96,448,502	15,063.8	100.0%	100.0%

Table 93. PY2022 Point of Purchase Solutions—Tracking System Review Energy and Demand Savings and Realization Rates by Measure

Measure	Ex-ante savings		Ex-post savings		Realization rate	
	kWh	kW	kWh	kW	kWh	kW ⁴⁰
Advanced power strips—retail	856,418	97.2	856,418	97.2	100.0%	100.0%
Advanced power strips MSC-5606	9,797,085	1,112.0	9,797,085	1,112.0	100.0%	100.0%
Efficient hot water (DHW) heaters—WH replacement w/HPWH	80,992	7.1	80,992	7.1	100.0%	100.0%
ENERGY STAR dehumidifiers	3,660	0.8	3,661	0.8	100.0%	100.0%
ENERGY STAR freezers	547	0.1	547	0.1	100.0%	100.0%
ENERGY STAR room air cleaners	18,087	2.1	18,087	2.1	100.0%	100.0%
ENERGY STAR window AC replacement	56,497	65.2	56,497	65.2	100.0%	100.0%
Hard-wired LED fixtures: indoor, all wattages	481,753	78.3	481,753	78.3	100.0%	100.0%
LED (retail): indoor reflector	2,800,838	455.4	2,800,838	455.4	100.0%	100.0%
LED (retail): outdoor reflector	60,598	-	60,598	-	100.0%	-
LED (retail): indoor, all wattages	13,145,081	2,137.2	13,145,081	2,137.2	100.0%	100.0%
LED fixture indoor MSC-5464	41,882	6.8	41,882	6.8	100.0%	100.0%
LED indoor omni or deco MSC-5420	46,745,009	7,600.1	46,745,009	7,600.1	100.0%	100.0%
LED indoor reflector MSC-5453	2,173,352	353.4	2,173,352	353.4	100.0%	100.0%
Midstream: exterior fixtures	3,209,272	-	3,209,272	-	100.0%	-
Midstream: interior fixtures	13,001,215	2,568.2	13,001,215	2,568.2	100.0%	100.0%
Midstream: interior lamps	2,738,502	552.4	2,738,502	552.4	100.0%	100.0%
Pool pumps	131,693	27.0	131,693	27.0	100.0%	100.0%
POPS weatherization retail	2,134	1.3	2,134	0.2	100.0%	16.7%
Residential pool pumps - non-self priming	1,542	0.4	1,542	0.4	100.0%	100.0%
Smart thermostats – POPS only	1,100,358	-	1,102,344	-	100.2%	-
Total	96,446,515	15,065.0	96,448,502	15,063.8	100.0%	100.0%

A dash indicates that there are no kilowatt savings associated with the respective measure.

⁴⁰ Not all measures reported demand savings. In these cases, no realization rate was applicable. In these instances, the kilowatt realization rate field is marked with a dash.

8.4.1.1 Commercial Midstream Lighting Program

- No issues found.

8.4.1.2 Residential Appliances

- **Dehumidifiers:** Slight rounding differences.
- **Freezers:** Baseline energy consumption and retrofit energy consumption in the tracking system were switched in the tracking system data, although this did not affect the reported energy and demand savings.
- **Room air purifier/cleaners:** Slight rounding differences.

8.4.1.3 Residential Domestic Hot Water

- **Water heater replacements (heat pump water heaters):** No issues found.

8.4.1.4 Residential Envelope

- **POPS weatherization retail:** A consistent 16.7 percent kilowatt realization rate was found for all line items. The reason for this deviation could not be determined.

8.4.1.5 Residential HVAC

- **Window air conditioners replacement:** No issues found.
- **Smart thermostats:** Two homes had duplicate entries associated with *smart thermostat* returns. The EM&V team zeroed out the negative energy savings associated with the extraneous two-line items. In addition, six-line items applied the propane factor erroneously to the savings calculation. The adjustments resulted in a kilowatt-hour realization rate of 100.2 percent and kilowatt realization rate of 99.9 percent for this measure.

8.4.1.6 Residential Lighting

- No issues found.

8.4.1.7 Residential Other

- **Advanced power strips:** No issues found.
- **Pool pumps:** No issues found.

8.4.2 Desk Reviews

As noted earlier, the PY2022 POPS program impact evaluation efforts included an engineering analysis for a sample of 30 *commercial midstream lighting* account numbers. The engineering desk reviews showed mostly consistent TRM 9.0 and *commercial midstream lighting* methodology protocols across all measures. However, reported wattages for many commercial midstream lights were inconsistent with wattages in the ENERGY STAR or DLC Certification databases. In addition, a few *LED downlights* used an incorrect in-service rate of 0.98 instead of 1.0, which was the ISR for *LED downlights* in the established lighting categories workbook, as well as in Illinois TRM v10, which is the cited source of ISR for *LED downlights* for EAL POPS.

Table 94 provides project-level realization rates for the 30 *commercial midstream lighting* projects reviewed during the evaluation. None of the 30 account numbers required savings adjustments of more than ten percent. Each customer was assigned an anonymous account number in the first column. A detailed description of the project with a realization rate adjustment follows.

Table 94. Commercial Midstream Lighting—PY2022 Desk Review Results by Project

Account number	Reported savings		Evaluated savings		Realization rate	
	kWh	kW	kWh	kW	kWh	kW ⁴¹
1	4,675	-	4,675	-	100.0%	N/A
2	5,084	0.3	5,127	0.3	100.8%	100.0%
3	28,094	5.6	28,355	5.7	100.9%	100.9%
4	7,066	1.4	7,067	1.4	100.0%	100.0%
5	70,901	14.2	70,903	14.2	100.0%	100.0%
6	1,752	0.4	1,752	0.4	100.0%	100.0%
7	4,968	1.0	4,963	1.0	99.9%	99.9%
8	6,022	1.2	6,022	1.2	100.0%	100.0%
9	9,116	1.9	9,151	1.9	100.4%	100.4%
10	19,870	0.4	19,632	0.4	98.8%	100.0%
11	10,522	-	10,522	-	100.0%	N/A
12	16,411	1.8	16,154	1.8	98.4%	97.1%
13	3,269	0.6	3,269	0.6	100.0%	100.0%
14	472	0.1	472	0.1	100.0%	100.0%
15	142,562	6.3	132,789	6.4	93.1%	101.2%
16	103,888	-	103,888	-	100.0%	N/A
17	31,960	6.3	31,960	6.3	100.0%	100.0%
18	671	0.1	671	0.1	100.0%	100.0%

⁴¹ Not all projects reported demand savings. In these cases, no realization rate was applicable, and therefore, the kilowatt realization rate field is marked with a N/A.

Account number	Reported savings		Evaluated savings		Realization rate	
	kWh	kW	kWh	kW	kWh	kW ⁴¹
19	50,359	9.8	47,067	9.2	93.5%	93.9%
20	41,766	8.2	41,296	8.1	98.9%	98.7%
21	12,264	2.5	12,254	2.5	99.9%	99.9%
22	6,923	1.4	6,923	1.4	100.0%	100.0%
23	4,543	0.9	4,563	0.9	100.4%	100.4%
24	315	0.1	315	0.1	100.0%	100.0%
25	23,314	4.7	23,316	4.7	100.0%	100.0%
26	187,844	37.6	189,023	37.9	100.6%	100.7%
27	2,284	0.5	2,214	0.5	97.0%	97.0%
28	4,611	0.9	4,877	1.0	105.8%	105.8%
29	1,663	-	1,663	-	100.0%	N/A
30	22,336	4.6	22,382	4.6	100.2%	100.2%
Total	825,526	112.9	813,266	112.6	98.5%	99.7%

A dash indicates no kilowatt savings associated with the respective measure.

To incorporate the desk review findings and adjustments to savings into the overall impact evaluation, the EM&V team applied the realization rates at a measure-type level to the *commercial midstream lighting* energy savings reported in ArchEE. The realization rates by measure type are presented in Table 95 below. A detailed description of account level adjustments follows.

Table 95. Commercial Midstream Lighting—Desk Review Evaluated Energy Savings and Realization Rates by Installation Type

Measure type	Reported savings		Evaluated savings		Realization rate	
	kWh	kW	kWh	kW	kWh	kW
Midstream: exterior fixtures	261,004	-	250,667	-	96.0%	N/A
Midstream: interior fixtures	300,156	59.9	302,695	60.5	100.8%	100.9%
Midstream: interior lamps	264,365	53.0	259,903	52.1	98.3%	98.4%
Total	825,526	112.9	813,266	112.6	98.5%	99.7%

A dash indicates no kilowatt savings associated with the respective measure.

Details of the project-based savings adjustments are provided below by participant number and EM&V Participant ID:

- **Project 2—JobIds 202112010018246830 and 202112010018246832.** An adjustment was made to one of the two line-items.
 - The wattage for four lightbulbs was adjusted from the reported *48.1 W* to *50.8 W* to match the DLC Certification database. This adjustment resulted in a realization rate of 100.8 percent in energy savings for the customer.
- **Account 3—JobIds 202112150018323748, 202112150018323750, 202112150018323751, 202112150018323752, 202112150018323753, 202206070018949333, 202206070018949334, 202207050019041051, 202209070019297460, 202209070019297500, and 202209070019297501.** An adjustment was made to two line-items.
 - The wattage for 18 lightbulbs (across two line-items) was adjusted from the reported *30.5 W* to *34.15 W* to match the DLC Certification database. This adjustment resulted in a realization rate of 100.9 percent in energy and demand savings for the customer.
- **Account 7—JobIds 202202010018452933, 202202010018452944, and 202202010018452945.** An adjustment was made to all three line-items.
 - The wattage for 16 lightbulbs was adjusted from the reported *38.75 W* to *38.8 W* to match the DLC Certification database.
 - The wattage for six lightbulbs (across two line-items) was adjusted from the reported *32.41 W* to *32.5 W* to match the DLC Certification database.
 - These adjustments resulted in a realization rate of 99.9 percent in energy and demand savings for the customer.
- **Account 9—JobIds 202203020018562794, 202203020018562795, 202203020018562796, and 202203020018562797.** An adjustment was made to one out of the four line-items.
 - The wattage for nine lightbulbs was adjusted from the reported *11 W* to *10 W* to match the DLC Certification database. This adjustment resulted in a realization rate of 100.4 percent in energy and demand savings for the customer.
- **Account 10—JobIds 202112020018249598, 202112020018249599, and 202112020018249600.** An adjustment was made to one out of the three line-items.
 - The model number and wattage for one lightbulb were adjusted from the reported *GL150WMODFL2[Y,U]SN5700KUDX* and *150.4 W* to *GL50WMODFLUSN* and *49.53 W* to match its DLC Certification and the provided invoice. This adjustment resulted in a realization rate of 98.8 percent in energy savings for the customer.

- **Account 12—Joblds 202112230018344628, 202112230018344629, 202112230018344630, 202112230018344631, and 202112230018344632.** An adjustment was made to three out of the five line-items.
 - The wattage for 223 lightbulbs (across three-line items) was adjusted from the reported *19.2 W* to *19.5 W* to match the DLC Certification database. This adjustment resulted in a realization rate of 98.4 percent in energy and 97.1 percent in demand savings for the customer.
- **Account 15—Joblds 202201070018395410, 202201070018395411, 202201070018395412, 202201070018395414, 202201070018395415, 202201070018395416, 202201070018395417, 202201070018395418, 202201070018395421, 202201070018395422, 202201070018395420, 202201070018395419, 202201070018395413.** An adjustment was made to 5 out of the 13 line-items.
 - The wattage for seven lightbulbs was adjusted from the reported *42.3 W* to *41 W* to match the DLC Certification database.
 - The wattage for 60 lightbulbs was adjusted from the reported *36.1 W* to *34.9 W* to match the DLC Certification database.
 - The wattage for one lightbulb was adjusted from the reported *38.4 W* to *38 W* to match the DLC Certification database.
 - The in-service rate of 12 LED downlights was adjusted from the reported *0.98* to *1.0*, the value used in the latest Illinois TRM, v10.
 - The quantity of *SLM LED 30LSIL FT* lights was adjusted from *16* to *13* to match the quantity reported on its invoice.
 - These adjustments resulted in a realization rate of 93.1 percent in energy and 101.2 percent in demand savings for the customer.
- **Account 19—Joblds 202204250018768137, 202204250018768138, 202204250018768159, 202204250018768160, 202203140018603306, 202203140018603307, 202203140018603308, 202203140018603309, 202203140018603310, 202203140018603311, 202203140018603312, 202204050018679015, 202204050018679018, 202204050018679019, 202204050018679460, 202204050018679461, 202205030018784920, 202205030018784924, 202206160018992488, 202206160018992489, 202206160018992490, 202206160018992494, 202207120019084360, 202208050019168818, 202208050019168859, and 202208050019168860.** An adjustment was made to five out of the 26 line-items.
 - The quantity of *LED12510B-2* lights was adjusted from *24* to *8* to match the quantity reported on its invoice.
 - The in-service rate of four LED downlights was adjusted from the reported *0.98* to *1.0*, the value used in the latest Illinois TRM, v10.
 - The baseline wattage for a quantity of six LED downlights was adjusted from *0 W* to *50 W*, the appropriate baseline for a halogen light between 500 and 649 lumens.

- The model number and wattage for eight lightbulbs were adjusted from the reported *LED11824G-3* and *9.5 W* to *LED11824H-8* and *9 W* to match its ENERGY STAR Certification and its provided invoice.
- The model number for a quantity of eight *LED11822G-3* lights was adjusted to eight *LED11822G-8* lights based on its provided invoice. Because *LED11822G-8* was neither DLC- nor ENERGY STAR-certified, lighting savings were zeroed for this line item.
- These adjustments resulted in a realization rate of 93.5 percent in energy and 93.9 percent in demand savings for the customer.
- **Account 20—Joblds 202204250018768130, 202204250018768131, 202204250018768132, 202204250018768133, 202204250018768134, 202204250018768135, 202203140018603332, 202203140018603333, 202204050018679014, 202204050018679467, 202207120019084358, and 202207120019084359.** An adjustment was made to six out of the 12 line-items.
 - The savings associated with four *S29727* lights were zeroed because the light was neither DLC- nor ENERGY STAR-certified.
 - The in-service rate of 16 LED downlights was adjusted from the reported *0.98* to *1.0*, the value used in the latest Illinois TRM, v10.
 - The model number and wattage for 160 lightbulbs (across four line-items) were adjusted from the reported *LED11823G-3* and *9.5 W* to *LED11823H-8* and *9 W* to match its ENERGY STAR Certification and its provided invoice.
 - These adjustments resulted in a realization rate of 98.9 percent in energy and 98.7 percent in demand savings for the customer.
- **Account 21—Jobld 202207010019035513.** A minor adjustment was made to the lone line item.
 - The wattage for 56 lightbulbs was adjusted from the reported *38.75 W* to *38.8 W* to match the DLC Certification database. This adjustment resulted in a realization rate of 99.9 percent in energy and 99.9 percent in demand savings for the customer.
- **Account 23—Joblds 202204040018673076, 202112100018299630, and 202112100018299631.** An adjustment was made to one of the three line-items.
 - The wattage for one lightbulb was adjusted from the reported *185.5 W* to *181 W* to match the DLC Certification database. This adjustment resulted in a realization rate of 100.4 percent in energy and 100.4 percent in demand savings for the customer.

- **Account 26—Joblds 202205020018783199, 202205020018783200, 202205020018783201, 202205020018783202, 202205020018783203, 202112220018343643, 202112220018343642, 202112220018343641, 202202250018554497, 202206010018920499, 202206010018920500, 202206010018920501, 202206010018920502, 202208010019140343, and 202209010019273587.** An adjustment was made to 1 of the 15 line-items.
 - The baseline for a quantity of six LED downlights was adjusted from *0 W* to the appropriate baseline halogen light between 500 and 649 lumens, *50 W*. The in-service rate for these LED downlights was also adjusted from the reported *0.98* to *1.0*, the value used in the latest Illinois TRM, v10.
 - These adjustments resulted in a realization rate of 100.6 percent in energy and 100.7 percent in demand savings for the customer.
- **Account 27—Joblds 202207180019103888, 202207180019103889, and 202208110019205426.** An adjustment was made to two of the three line-items.
 - The wattage for 60 lightbulbs (across two line-items) was adjusted from the reported *19.2 W* to *19.5 W* to match the DLC Certification database.
 - These adjustments resulted in a realization rate of 97.0 percent in energy and demand savings for the customer.
- **Account 28—Joblds 202208110019205427, 202208110019205429, 202208110019205430, and 202208110019205431.** An adjustment was made to two of the four line-items.
 - The wattage for 17 lightbulbs (across two line-items) was adjusted from the reported *56.67 W* to *52.7 W* to match the DLC Certification database. These adjustments resulted in a realization rate of 105.8 percent in energy and demand savings for the customer.
- **Account 30—Joblds 202208110019205427, 202208110019205429, 202208110019205430, and 202208110019205431.** An adjustment was made to one of the three line-items.
 - The wattage for 10 LED downlights was adjusted from the reported *12.6 W* to *12.5 W* to match the ENERGY STAR Certification database. The in-service rate for these LED downlights was also adjusted from the reported *0.98* to *1.0*, the value used in the latest Illinois TRM, v10. These adjustments resulted in a realization rate of 100.2 percent in energy and demand savings for the customer.

8.4.3 Documentation Review

To understand the POPS program, the EM&V team had biweekly meetings with program staff and reviewed all information on EAL's website related to the program and supplemental documentation provided by EAL and CLEAResult. The EM&V team received the following documentation related to the program:

- A data tracking system that contained compiled sales data from participating distributors.

- A 2020 EAL Midstream Lighting Savings workbook showed the buildup of the midstream savings methodology. No changes to the midstream program were made for PY2022, so the 2022 EAL Midstream Lighting Savings workbook was not updated. This workbook also contained calculated savings for each product on the Commercial Midstream Lighting Qualified Products List (QPL) using the *commercial midstream lighting* methodology outlined in the Arkansas TRM 9.0. The implementer no longer maintains this QPL.
- PY2022 program manuals for the POPS program, provided via email from CLEAResult.

The EM&V team found a few minor issues in its review of documentation, including:

- a few addresses differences between the documentation and the tracking system,
- a few phone numbers vary between the documentation and the tracking system,
- the end customer point of contact in the participation agreement differed from the name in the tracking system data in a few instances,
- model numbers in the tracking system did not match the model numbers in the invoices for a few line items,
- quantities of specific lights in the tracking system did not match their respective quantities on the invoices in a few instances.

8.4.3.1 Program Website Review

8.4.3.1.1 Residential

Information found on the residential POPS program website includes:

- a general description of the program,
- a list of eligible energy efficient measures and their incentives, and
- information (organized by measure) about how to apply for and receive rebates or discounts.

A copy of the POPS residential manual was also found on the website, although the version accessible was the outdated PY2021 version. An up-to-date program manual on the website would ensure that changes to the program are provided to potential participants in the POPS program.

The residential website is very well organized by energy efficient measures. A link to participating retailers is provided under each measure that can be purchased through retailers (*advanced power strips, heat pump water heaters, LED lighting*). The participating retailer list includes the retailer's name, store number, and complete address. A link is provided under each measure that can be purchased through the Entergy Arkansas online Marketplace (*advanced power strips, air purifiers, dehumidifiers, smart thermostats, LED lighting*). A rebate application form (either submitted online, mailed, faxed, or emailed) is provided under each measure that may require submitting a rebate application form (*freezers, air cleaners, dehumidifiers, smart thermostats, pool pumps*).

The program manual organized measures by their different potential channels. While the evaluation team understood the intention, the manual organization could confuse participants. For example, *smart thermostats* are listed in three different sections (corresponding with retailers, rebate applications, and the online marketplace), and it can appear that there are different types of smart thermostats available, some having *no application required*, some requiring *submitting a mail-in or online rebate application*, and some exclusively *incentivized through an online marketplace*. Reorganizing the manual to match the website's format would help improve clarity for potential participants in the POPS program.

Finally, while *residential weatherization* measures are found in the Entergy Arkansas Marketplace, they are not listed on the program landing page, nor are they listed as a measure in either the PY2021 or PY2022 program manuals. Adding these measures to the landing page and manual would increase visibility and participation.

8.4.3.1.2 Commercial

Information found on the commercial POPS program website includes a general description of the program (such as who is eligible and how participation works, including a link to the participation agreement), a comprehensive list of eligible energy efficiency measures (*lighting, electric hand dryers, and small air compressors*), along with their incentive discounts provided by the program. A link to participating distributors appears multiple times throughout the website for ease of access.

Clicking the participating distributors' list link takes the user to a page that lists all trade allies associated with the Entergy Arkansas energy efficiency program, including contractors and engineering consultants throughout the country. While this information could potentially be helpful to experienced participants in the program, this could be overwhelming to newer participants who may be expecting a list of local retail stores, given that the landing page states to *sign the participation agreement and take it to a participating distributor*. Providing a more streamlined list of retailers by default may reduce confusion and increase clarity for newer participants in the commercial POPS program.

A copy of the POPS commercial manual was also found on the website, although the version accessible was the outdated PY2021 version. An up-to-date program manual on the website would ensure that changes to the program are provided to potential participants in the POPS program.

8.5 OVERALL SAVINGS ESTIMATES

The POPS program evaluated savings that resulted in slightly higher energy and demand savings (107.4 percent kilowatt and 104.2 percent kilowatt-hour realization rates) than those calculated by the program. The evaluated savings are based on adjustments during the tracking system review and findings from completing 30 engineering desk reviews. Savings adjustments were made at the measure-type level (i.e., *interior lamps, interior fixtures, exterior fixtures*).

The overall realization rates were most affected by the recalculation of 6.7 percent of *residential upstream lighting* measures using commercial lighting savings methods. Final savings results and realization rates are presented in Table 96.

Table 96. Final Evaluated Energy Savings and Realization Rates, by Measure

Measure category	Reported savings		Evaluated savings		Realization rate	
	kWh	kW	kWh	kW	kWh	kW ⁴²
Advanced power strips	10,653,503	1,209.2	10,653,503	1,209.2	100.0%	100.0%
Efficient hot water heater	80,992	7.1	80,992	7.1	100.0%	100.0%
ENERGY STAR dehumidifiers	3,660	0.8	3,660	0.8	100.0%	100.0%
ENERGY STAR freezers	547	0.1	547	0.1	100.0%	100.0%
ENERGY STAR room air cleaners	18,087	2.1	18,087	2.1	100.0%	100.0%
ENERGY STAR window AC replacement	56,497	65.2	56,497	65.2	100.0%	100.0%
Hard-wired LED fixtures: indoor, all wattages	481,753	78.3	605,634	111.3	125.7%	142.1%
LED (retail): indoor reflector	4,974,190	808.7	5,636,869	985.1	113.3%	121.8%
LED (retail): indoor, all wattages	13,186,962	2,144.0	16,530,715	3,034.1	125.4%	141.5%
LED (retail): outdoor reflector	60,598	-	79,362	-	131.0%	N/A
LED indoor omni or deco	46,745,009	7,600.1	46,745,009	7,600.1	100.0%	100.0%
Midstream: exterior fixtures	3,209,272	-	3,082,173	-	96.0%	N/A
Midstream: interior fixtures	13,001,215	2,568.2	13,111,181	2,591.1	100.8%	100.9%
Midstream: interior lamps	2,738,502	552.4	2,692,282	543.5	98.3%	98.4%
Pool pumps	133,235	27.4	133,235	27.4	100.0%	100.0%
POPS weatherization retail	2,134	1.3	2,134	0.2	100.0%	16.7%
Smart thermostats	1,100,358	-	1,102,558	-	100.2%	N/A
Total	96,446,515	15,065	100,534,438	16,177	104.2%	107.4%

A dash indicates that there are no kilowatt savings associated with the respective measure.

8.6 QUALITY CONTROL/QUALITY ASSURANCE PROCESSES

CLEAResult uses a Quality Management Plan (QMP), including QA and QC components. Distributor and retailer qualification and training are QA approaches used to ensure quality from the program's start and ensure quality issues are not introduced further downstream in the process. QC inspections are used toward the end of projects to check the quality of the final savings. The QA/QC process lasts the project's duration and includes a feedback loop to ensure continuous program improvement.

⁴² Not all measures reported demand savings. In these cases, no realization rate was applicable. In these instances, the kilowatt realization rate field is marked as N/A.

According to program documentation, the POPS program provides distributor training as a crucial step to ensure sales associates can speak clearly and well-informedly to customers about the program. As part of the QA process, program representatives conduct sales and program training for distributor staff, work with retailers to set up promotional events, and conduct periodic check-ins with retailers to assess program effectiveness. Data review was also described as a crucial component of the QA process. Program managers review sale reports from distributors at least once per month.

As part of the evaluation process, the EM&V team assessed the POPS program's QA/QC processes by reviewing specific *commercial midstream lighting* data and documentation. This process confirmed that protocols developed were being followed and identified any gaps or necessary changes. Each of CLEARResult's stated QA/QC processes was assessed by the EM&V team, and our findings for each step are described in further detail next.

Enrollment and customer verification. The EM&V team downloaded and reviewed a copy of the Participant Agreement; this document records key information about the customer and the company (e.g., customer name, company name, company address, phone number, email). The agreement also requires a signature and date. This information allows the program implementer to verify that the customer's company location where the installation will take place is associated with an eligible account number. If further information is needed to complete the verification, then the contact information is captured.

Post-engineering approval and post-project review and closeout. For *commercial midstream lighting*, most of these steps are completed within CLEARResult's and EAL's data tracking systems, which occurs as projects are validated and uploaded to each tracking system. See the paragraph below regarding documentation and data review for the EM&V team's findings regarding QA/QC efforts across the tracking systems.

Documentation and data reviews. The EM&V team completed a review of program-related documentation and data tracking systems. The *commercial midstream lighting* savings methodology and program manual documents are comprehensive and include many critical elements.

The program relies on the tracking system and commercial POPS program documents, which supply all sales and unit-level data and reported savings. While the EM&V team generally found the tracking data complete and consistent, we also found numerous errors related to lightbulb installed or baseline wattage, which led to reported savings with mistakes. Implementing *recommendation #2* regarding additional QA/QC around the baseline and installed wattages would improve reporting accuracy in the commercial midstream category.

The EM&V team has identified a few improvements to CLEARResult's current QA/QC process:

- improve QA/QC checks to ensure lighting model numbers are correctly imported from invoices and work orders to the tracking system (this is a continued recommendation from PY2021),
- perform cursory reviews of the tracking system data periodically before finalizing at the end of the program year (this is a continued recommendation from PY2020 and PY2021).

9.0 LARGE COMMERCIAL AND INDUSTRIAL SOLUTIONS

The Large Commercial and Industrial Solutions (LCI) program offers nonresidential customers cash and non-cash incentives in implementing energy-efficient technologies. Eligible customers have a minimum peak demand of 100 kilowatts (kW) (at an individual site or combined accounts) and are not served by the Public Institutions Solutions, Small Business Solutions, or Agricultural Energy Solutions programs. The LCI program utilizes calculated (prescriptive) or measured and verified (custom) approaches. Additionally, the program is available to all commercial new construction customers. No minimum energy savings are needed for new construction projects to qualify for this program, but to receive the non-cash benefits, annual energy savings must exceed 10,000 kilowatt-hours (kWh).

Eligible customers can participate in both prescriptive and custom approaches. Participants seeking the prescriptive route can choose from an extensive menu of qualified technologies, such as *lighting, lighting controls, HVAC controls, variable speed drives, HVAC equipment, refrigeration equipment, office equipment, and food service equipment*. The custom component supports customers in identifying and implementing site-specific, cost-effective energy-efficiency projects through technical assistance, program referrals, and incentives. The program addresses *industrial process improvements, chillers and boilers, data center efficiency, plug-load controls, and other non-prescriptive measures*. The program is designed to yield substantial energy savings through energy audits, co-funding feasibility studies, energy performance ratings using the ENERGY STAR Portfolio Manager[®], and training in best practices.

The LCI program is designed to reduce or bypass market barriers such as:

- lack of energy efficiency information and awareness of energy and non-energy benefits (NEB),
- the perception that energy-efficient technologies have high initial costs,
- lack of customer understanding about measure payback,
- lack of customer awareness of energy-efficient technologies,
- lack of easy access to qualified vendors and installers,
- absence of tools to quantify savings,
- lack of access to capital, and
- lack of project success (which could be overcome with alternative funding such as incentive split between owners and tenants in leased spaces, assignment of incentives to installing trade allies, etc.).

Incentives vary by measure type. Most incentives were targeted to cover 50 percent of incremental costs for planning purposes.

The program is implemented by Entergy Arkansas, LLC (EAL) and CLEAResult, who provide recruitment, marketing, outreach, and training to trade allies. On behalf of EAL, CLEAResult performs energy assessments, directly installs measures (e.g., *LEDs, low-flow faucet aerators, pre-rinse spray valves, weatherstripping*), conducts pre- and post-implementation inspections, maintains the program quality assurance/quality control (QA/QC) standards, and administers the incentive process, including program tracking, directly with participating trade allies.

A network of qualified trade allies is used to perform installations of energy efficiency measures. This network works closely with EAL and CLEAResult for program training and marketing. As part of program marketing and outreach to EAL customers, they can identify potential projects and notify EAL of opportunities. All trade allies must meet the program's technical and quality standards and sign a trade ally agreement form. The LCI program is designed to generate significant energy savings and longer-term market penetration by nurturing delivery channels, such as design professionals, distributors, installation contractors, and energy service companies (ESCO).

In support of the impact evaluation, the evaluation, measurement, and verification (EM&V) team conducted a tracking system review, desk reviews on a randomly selected sample of 70 projects, a review of program documentation, and early engagement reviews for 17 projects. The net-to-gross (NTG) analysis used an enhanced self-report approach with program participant surveys. Process evaluation activities centered on in-depth interviews with trade allies and program participant surveys.

Table 97. Large Commercial and Industrial Solutions—Data Collection and Evaluation Activities

NTG approach	Process evaluation activities	Gross impact evaluation completes				
		Tracking system review	Early engagement review	Desk reviews	On-site M&V	Metered data analysis ⁴³
Prior research and updates from the current evaluation	Program staff interviews (2) Participant surveys (30) Market actor interviews (2) Materials review	Census	17	70	30	26

9.1 KEY FINDINGS

Based on the program year (PY) 2022 (PY2022) program tracking data, the LCI program incentivized energy efficiency measures to 521 unique participants⁴⁴ through 60 trade allies. Table 98 provides the program's claimed savings by measure category. The most considerable number of participants (66 percent) was attributable to *lighting* measures, which accounted for 23 percent of claimed energy savings. The most significant energy savings were for *custom other* (34 percent) from six percent of the participants. The second most impactful measure category by energy savings was *continuous energy improvement (CEI)*, with 31 percent of claimed energy savings from 4 percent of the participants.

⁴³ This column refers to EAL customer meter data, supplemented by EM&V team data collection, as opposed to primary metered data collected as part of the on-site measurement and verification (M&V).

⁴⁴ A unique participant is based on a single utility account number.

Table 98. Large Commercial and Industrial Solutions—Reported Participation and Savings⁴⁵

Measure category	Trade allies	Participants ⁴⁶	Projects	Program savings (kWh)	Percentage of program savings (kWh)
Continuous energy improvement ⁴⁷	0	19	22	30,991,749	31.2%
Custom HVAC	4	6	6	1,006,227	1.0%
Custom other	12	29	38	33,463,791	33.7%
Domestic hot water ⁴⁷	0	11	11	144,678	0.1%
Envelope ⁴⁷	0	30	34	4,158,952	4.2%
HVAC	5	11	11	216,193	0.2%
Lighting	32	345	359	23,096,022	23.2%
Lighting—new construction	6	18	19	2,026,155	2.0%
Refrigeration	1	56	56	1,296,868	1.3%
Tune-up	10	38	516	2,952,728	3.0%
Total	60	521	1,048	99,353,362	100.0%

In PY2022, the LCI program reported 99,353 MWh in gross energy savings and 16.4 MW in gross demand savings. Table 99 below shows the reported and evaluated savings across the program. The program fell short of achieving its planned energy and demand savings goals, reaching 88 percent of the annual energy and 93 percent of the annual demand savings goals as shown in Table 100.

Table 99. Large Commercial and Industrial Solutions—Reported, Evaluated, and Net Savings

Energy/demand savings	Reported savings	Evaluated savings	Realization rate	NTG ratio ⁴⁸	Net savings	Program contribution to portfolio savings
Energy savings (MWh)	99,353	96,166	96.8%	104.5%	100,460	34.3%
Demand savings (MW)	16.4	16.2	98.3%	105.2%	17.0	18.0%

⁴⁵ ArchEE extract dated January 24, 2023.

⁴⁶ A participant may install measures across multiple measure categories or multiple projects. Thus, the total count of participants and projects may not equal the sum of individual rows by measure category.

⁴⁷ The implementer directly installed all measures.

⁴⁸ NTG ratios displayed in the table are weighted based on the evaluated net savings results. The NTG ratios of 108.7 and 95.7 were used for custom and prescriptive measures from the PY2020 research. The NTG ratio used for the *tune-up* measures is 100.6 from PY2022 research.

Table 100. Large Commercial and Industrial Solutions—Goals vs. Achieved

Savings	Goal	Actual	Percentage achieved
Energy savings (MWh)	114,387	100,460	87.8%
Demand savings (MW)	18.2	17.0	93.4%

The LCI program's evaluated energy and demand savings were slightly lower than the reported savings (96.8 percent kilowatt-hour realization rate, 98.3 percent kilowatt realization rate). The evaluated savings are based on the results of savings calculations and adjustments made across the results of the 70 sampled accounts for desk reviews and site visits. *Tune-up* measure savings were based on a comprehensive tracking system review.

In previous years, key updates to the program's tracking database were made, which improved the data's clarity and accuracy. The changes included correcting duplicate trade ally names and IDs in the tracking system and including the DesignLights Consortium (DLC) or ENERGY STAR® product IDs for all products incented through the program. The PY2022 recommendations presented in Section 9.2 focus on further improving data accuracy and consistency.

The researched NTG ratio is 108.7 percent for the LCI custom measures and 95.7 percent for prescriptive measures based on research conducted in PY2020. The NTG ratio for *Wi-Fi thermostats* and *tune-up* projects was updated to 100.6 percent from customer surveys, as outlined in Section 9.5.

9.2 RECOMMENDATIONS

The EM&V team has identified key findings and recommendations for consideration by EAL (Table 101), which primarily focus on improving the realization rate in the following program year and increasing the transparency, accuracy, and evaluability of program savings in the future for the LCI program.

Table 101. Large Commercial and Industrial Solutions —PY2022 Recommendations

Type	Recommendation	Key finding
PY2022 impact recommendations	<p>Recommendation 1: Review savings algorithms for <i>commercial Wi-Fi thermostat</i> measures to ensure consistency.</p>	<p>The EM&V team found that projects with a reported <i>heat pump</i> heating fuel type incorrectly calculated demand savings. For 40 projects, demand savings were calculated by dividing the deemed <i>heat pump</i> heating energy savings by 8,760 instead of the deemed cooling savings, which aligns with EAL's peak demand period.</p> <p>The EM&V team also identified five projects where the reported fuel type was <i>electric AC with gas heat</i>, but kilowatt-hour savings were using deemed savings values for a <i>heat pump</i> unit.</p> <p>Finally, the EM&V team identified five projects where the reported fuel type was <i>electric AC with gas heat</i>, but kilowatt-hour and kilowatt savings were using deemed savings values for a <i>heat pump</i> unit.</p> <p>The EM&V team recommends reviewing the deemed savings values and calculation algorithms for <i>commercial Wi-Fi thermostat</i> measures to ensure consistency based on the tracked fuel type.</p>
	<p>Recommendation 2: Increase QA/QC on <i>commercial AC/HP tune-up</i> measures.</p>	<p>The EM&V team found five projects where the <i>HVAC capacity</i> differed between the <i>pre- and post-clean</i> line items and three projects where the <i>HVAC type (heat pump vs AC)</i> differed between the <i>pre- and post-clean</i> line items. These errors caused savings deviations.</p> <p>Increasing QA/QC of the reported ArchEE data to ensure consistency of <i>capacity</i> and <i>HVAC type</i> between <i>pre- and post-clean</i> items would eliminate these savings gaps in the future.</p>
	<p>Recommendation 3: Use additional data descriptions for <i>lighting fixture certification</i> to distinguish between fixtures not required for certification and those that followed an alternative compliance path.</p>	<p>The EM&V team found four values tracked in the <i>EquipmentDescription</i> field for <i>lighting</i> projects: <i>DLC, ES, N/A, and Not Qualified</i>. The <i>N/A</i> value was used for measures that did not require certification, typically <i>exit signs</i>, and <i>fixtures</i> that had alternative compliance to DLC and ENERGY STAR.</p> <p>The EM&V team suggests reserving <i>N/A</i> for fixtures that do not require certification and using <i>Other</i> for fixtures that go through an alternative compliance path.</p>
PY2022 process recommendations	<p>Recommendation 4: Review the requirement associated with refrigerants for <i>tune-ups</i>.</p>	<p>One contractor mentioned the need for a refrigerant does not impact the unit efficiency when doing a <i>tune-up</i> and is also not a requirement for other utility programs they have used. The program could eliminate that option or provide contractors with additional incentive funds and documentation that support the refrigerant requirement.</p>

Table 102. Large Commercial and Industrial Solutions —Status of Prior Year Recommendations

Status of prior year recommendations	
PY2020 impact recommendations	<ul style="list-style-type: none"> • Work collaboratively with the EM&V team to revise the Continuous Energy Improvement M&V Plan to address peak demand concerns. <ul style="list-style-type: none"> ○ In progress. The implementer continued to use the demand analysis method for most projects in PY2021, an area where smart-meter data could help refine demand impacts in the future.
	<ul style="list-style-type: none"> • Ensure that the implementer's site inspection results are appropriately accounted for in project savings. <ul style="list-style-type: none"> ○ Complete. Adjustments resulting from not revising savings for on-site inspections decreased in PY2021, with the notable exception of some direct-install <i>weatherstripping</i> measures.
	<ul style="list-style-type: none"> • Increase QA/QC efforts of the <i>tune-up</i> measure database to ensure savings are being calculated correctly and for the appropriate equipment type. <ul style="list-style-type: none"> ○ In progress. Multiple <i>tune-up</i> measures with systematic errors incorrectly calculated energy or demand savings based on the tracked system heating and cooling parameters.
	<ul style="list-style-type: none"> • Consider using the deemed building type annual operating hours (AOH) and coincidence factor (CF) whenever the facility type aligns with the TRM building descriptions. Also, only use <i>custom AOH</i> or <i>CF</i> for <i>lighting</i> projects when controls, such as timers or lighting control systems, make the AOH estimate certain. <ul style="list-style-type: none"> ○ Complete. Most <i>lighting</i> projects used the deemed building types in PY2021 with custom AOH limited to complex buildings, or buildings that do not have a good, deemed building match.
PY2020 process recommendations	<ul style="list-style-type: none"> • To better estimate annual reported savings for large <i>custom</i> projects, continue to seek the EM&V team's review throughout the program year. Work collaboratively to address both implementer and evaluators' data collection and quality needs in large and complex projects. <ul style="list-style-type: none"> ○ Continuing.
	<ul style="list-style-type: none"> • Ensure program staff respond to customer and trade ally requests promptly. <ul style="list-style-type: none"> ○ Continuing.
	<ul style="list-style-type: none"> • Consider establishing a process to collect customer email addresses for outreach purposes. <ul style="list-style-type: none"> ○ In progress.
PY2021 impact recommendations	<ul style="list-style-type: none"> • Review savings algorithms for <i>commercial Wi-Fi thermostat</i> measures to ensure consistency. <ul style="list-style-type: none"> ○ In progress. <i>Wi-Fi thermostats</i> continued to have inconsistencies in the calculations of savings leading to realization rate adjustments.
PY2021 process recommendations	<ul style="list-style-type: none"> • Increase QA/QC on peak demand estimates for <i>custom</i> projects. <ul style="list-style-type: none"> ○ Complete. In PY2022, peak demand estimates aligned better with the EAL peak period than in previous program years.

9.3 METHODOLOGY

This section summarizes the methodologies used for the evaluation of the LCI program.

9.3.1 Impact Evaluation

The evaluated savings results are based on calculations and adjustments made during the tracking system review, *tune-up* measure review, 70 engineering desk reviews, and 30 site visits. Savings adjustments were made at the project level. Final evaluated savings for the *tune-up* measures are based on adjustments made during the tracking system review. All other measures' evaluated savings results are based on desk review and site-visit level adjustments by sampled strata. The tracking system informed qualitative findings and served as a guide for potential issues for investigation during desk reviews.

To perform the PY2022 impact evaluation, the EM&V team completed the following activities:

- staff interviews and ongoing discussions;
- program website review of eligible measures, incentives, and participating trade allies;
- program manual and supplemental documentation review;
- program tracking system/database reviews;
- review of the tracking system and measurement and verification (M&V) database for *tune-ups*, *advance RTU controls-lite*, and *commercial Wi-Fi thermostats*;
- engineering desk review of 68 accounts, representing 70 sampled projects; and
- on-site M&V of 30 sampled projects that also received desk reviews.

Table 103 shows the sample design and achieved sample sizes for the different data collection types employed for the impact evaluation effort.

Table 103. Large Commercial and Industrial Solutions—Data Collection Efforts and Project Types

Data collection activity	Design sample	Achieved sample	Custom projects	Prescriptive projects
Staff interviews	2	2	N/A	N/A
Tracking system data review ⁴⁹	Q1–Q2 Census	Q1–Q2 Census	N/A	186
Engineering desk review ⁵⁰	70	70	27	47
On-site M&V visit ⁵¹	30	30	6	27
Tune-up measure data review	Census	Census	N/A	N/A

⁴⁹ ArchEE extract dated August 23, 2022. The count of prescriptive projects is the quantity of unique *JobId* numbers for the measure categories included in the Q1–Q2 tracking database review.

⁵⁰ Four participants had both prescriptive and custom measures incentivized under the same *JobId*.

⁵¹ On-site visits were recruited from the list of participants that received desk reviews, nesting the on-site sample within the desk review sample. Three participants had prescriptive and custom measures incentivized under the same *JobId*.

Most of the measures incentivized by the LCI program in PY2022 are currently included in the TRM 9.0, Volume 2. Specific sections of TRM 9.0 associated with the savings developed for the LCI program measures are provided in Table 104. These prescriptive algorithms and assumptions were the basis of the savings methodology used by the implementer and the EM&V team for energy and demand savings analysis purposes.

Table 104. TRM 9.0 Prescriptive Algorithms Utilized by the Large Commercial and Industrial Solutions Program

Measure category	TRM 9.0 section	TRM 9.0 measure name
Domestic hot water	3.3.2	Faucet aerators
	3.3.5	Low-flow showerheads
	3.7.12	Pre-rinse spray valves
Envelope	3.2.10	Commercial door air infiltration
HVAC	3.1.16	Unitary and split-system AC/HP equipment
	3.1.17	Air- or water-cooled chilling equipment (chillers)
Lighting	3.6.2	Lighting controls
	3.6.3	Lighting efficiency
Refrigeration	3.5.6	Strip curtains for walk-in coolers and freezers
	3.5.7	Door gaskets for walk-in and reach-in coolers and freezers

Air conditioner and *heat pump tune-ups*, *overhead door weatherstripping*, and *PTAC sealing* measures were also incentivized through the LCI program. *Overhead door weatherstripping* and *PTAC sealing* measures do not strictly adhere to TRM 9.0; instead, they follow prescriptive approaches developed by CLEAResult based on the TRM algorithms for *commercial door air infiltration*. Additional project details outside ArchEE were required to evaluate the *tune-up* measures, which follow a partial M&V approach. A separate tracking system review was conducted for all *tune-up* measures across the three commercial programs.

Table 105. Non-TRM Prescriptive Algorithms Utilized by the Large Commercial and Industrial Solutions Program

Measure category	Measure description
Tune-ups (formerly CoolSaver)	Advance RTU controls—lite
	Commercial AC post-test-out
	Commercial AC pre-clean
	Commercial central air conditioner (tune-up)
	Commercial heat pump (tune-up)
	Commercial HP post-test-out
	Commercial HP pre-clean
	Commercial Wi-Fi thermostat

Measure category	Measure description
Envelope	Overhead door weatherstripping
	Overhead door weatherstripping for refrigerated spaces
	PTAC sealing

9.3.1.1 Tracking System Review

The EM&V team reviewed all tracking data to assess the extent to which it provided the key input parameters needed for TRM 9.0-based algorithms. The tracking system data review began using the TRM 9.0 as a reference in our review of measure-level savings assumptions. Chapters of TRM 9.0 utilized for the tracking system review are described above in Table 104.

The EM&V team reviewed the tracking systems linkage to the TRM 9.0 deemed savings algorithms used to estimate savings. This review was completed across a census of the program measures at the end of Q2⁵². All the critical input variables and assumptions necessary for savings calculations are present in the utility's tracking database. This review is conducted mid-year to help facilitate changes in the algorithm applications before the end of the year, where they might cause discrepancies in reported versus verified savings. After the measure-level review, the EM&V team verified energy savings calculations for engineering fundamentals, appropriateness, and accuracy.

Our review accomplished three primary objectives. First, it identified any initial high-level tracking system concerns. Second, it verified whether the savings estimates in the tracking system are consistent with the savings outlined in TRM 9.0 used to estimate project savings. Third, it assessed the ability of the tracking system to support future evaluation needs.

Table 106. PY2022 Q1–Q2 Tracking System Reported Energy Savings by Measure Category

Measure	Reported savings	
	kW	kWh
Domestic hot water	7	36,519
Envelope	63	1,186,064
HVAC	6	16,213
Lighting	627	4,733,546
Lighting—new construction	121	813,696
Refrigeration	61	532,174
Total evaluated	885	7,318,211

⁵² Tracking data downloaded August 23, 2022.

Measure	Reported savings	
	kW	kWh
Tune-up and commercial Wi-Fi thermostat ⁵³	47	519,007
Custom HVAC ⁵⁴	99	706,292
Custom other ⁵⁴	372	2,903,151
Total	1,402	11,446,661

9.3.1.2 Tune-Up and Commercial Wi-Fi Thermostat Measurement and Verification Review

The EM&V team reviewed all the *tune-up* and *commercial Wi-Fi thermostat* measures with a comprehensive tracking system review, supplemented with engineering reviews of the M&V and deemed savings methodologies. These measures are tracked in ArchEE but have supplemental data in external databases necessary for evaluation. The tracking system reviews focused on replicating individual measure savings results and determining population variances.

9.3.1.3 Desk Reviews and Site Visits

The optimal count of sample units for the *custom*, *lighting*, and *other* strata were determined based on PY2019 through PY2021 savings representation for each stratum. These savings were compared against the savings in ArchEE quarterly to determine whether there was under- or over-representation of specific measure categories occurring compared to past years.

The sampling plan for *lighting* accounted for the differences between fully deemed lighting projects and those using custom hours of use. For the whole population, *lighting* projects were considered deemed if all measures for a project were using the deemed value for AOH that is consistent with the building type as defined in ArchEE. For projects with any measure that uses AOH that is not consistent with the building type, the entire project is considered *non-deemed*. For lighting, this is the classification process:

1. Projects were divided into *deemed* and *non-deemed* based on whether all measures used AOH that matched their building type in the tracking system (deemed) or any measure deviated from that value (non-deemed).
2. The contribution of energy savings for both strata is examined. The base strategy is to oversample the non-deemed projects so that at 50 percent energy savings, twice as many non-deemed projects will be chosen. The amounts are then adjusted up or down for each program based on the actual percentage of energy savings for non-deemed compared to the whole population.

⁵³ *Tune-up, advanced RTU controls-light, and commercial Wi-Fi thermostat* measures are evaluated through a separate tracking system and an M&V data review at the close of the program year.

⁵⁴ The algorithms and key input assumptions for *custom* measures are not provided within the tracking system, therefore a review of those measures was not completed as part of tracking system data review. However, they will be analyzed as part of the engineering desk reviews and on-site visits.

In addition to the sub-strata for *lighting* projects, three sub-strata for *custom* projects were defined. The first sub-strata divides projects by whether they went through the *Early Engagement for High Profile Projects* protocol; if projects went through the protocol, they are assigned to the *early review* sub-strata. Non-*early review CEI* projects are assigned to the *CEI* sub-strata. Finally, the remaining projects assigned to the *other* sub-strata. The contribution of savings was used to determine the number of sample points for each sub-strata, with a higher weighting for *other*, a standard weighting for *CEI*, and a lower weighting for *early review*.

The site visits were a nested selection of the desk reviews, meaning that all projects receiving a site visit assessment also received a desk review. Projects with variances that could be cleared up during the site visit were prioritized first, with remaining site visits randomly selected from within the desk review sample. Table 107 summarizes the result of the sampling for the LCI program.

Table 107. Large Commercial and Industrial Solutions—Summary of Sampled Savings

Sampling strata	Projects	Projects sampled ⁵⁵	Site Visits Sampled	Reported kWh	Reported kW
Custom subtotal	65	27	6	30,061,023	5,212
Continuous energy improvement	21	6	0	14,776,137	3,233
Early review	14	5	1	11,309,421	1,449
Other	30	16	5	3,975,465	529
Lighting subtotal	378	35	21	4,870,012	706
Deemed	353	23	14	2,440,895	367
Non-deemed	25	12	7	2,429,117	339
Other subtotal	104	12	6	553,157	56
Total	532	70	30	35,484,192	5,974

9.3.2 Early Engagement on High-Profile Projects

Based on the discussion between the EM&V team and CLEAResult, the following protocol was developed to address savings verification risk for high energy-saving projects, clarify baseline data and assumptions, and foster site-specific project savings calculations. The protocol describes how program implementers can provide the EM&V team with project savings calculations and other documentation to develop final program-saving results for the project. The collaboration could occur either in advance of offering custom incentives or after a completed project is made ready for payment and close-out.

Projects meeting either one of the following criteria were considered good candidates for review:

- Calculated savings for an individual measure is 500,000 kWh or greater. For projects meeting this savings threshold, an EM&V team review is required. NEBs are expected to be estimated in parallel with energy savings calculations for the EM&V team review.

⁵⁵ Four sampled projects had measures in multiple categories.

An exception is allowed for projects where the EM&V team has reviewed the project savings methodology, and no adjustments are made for future savings claims.

- *Custom* projects that are expected to save less than 500,000 kWh, but CLEAResult would like to collaborate on savings approaches or arrive at an agreement on calculation methods or results with the EM&V team. Situations that may warrant such a review include:
 - the calculations are statistically anomalous or otherwise present an outlier from typical practices or outcomes,
 - NEB calculations and their treatment for the specific project,
 - the calculations or data collection utilize uncommon or unproven methods, and
 - the calculation methods used for savings will deviate substantially from the methods outlined in the M&V plan.

During PY2022, the program implementer submitted 17 projects under the *Early Engagement for High Profile Projects* protocol. Based on the individual submission, the EM&V team provided review comments on detailed calculations, white papers, or M&V plans for these projects. In most cases, the implementer brought final, or nearly final, savings estimates to the EM&V team for review. The implementer subsequently claimed 14 of these *early reviews* with 29,117 MWh of annual energy savings, representing 29 percent of the program savings.

Five of these projects were subsequently selected for engineering desk reviews or site visits by the EM&V team, resulting in one savings adjustment. Further, the EM&V team noticed a trickledown effect with guidance from large projects informing savings estimations for small projects, combining to create an overall evaluation with fewer savings adjustments and fewer findings and recommendations than in previous evaluation cycles. The EM&V team and CLEAResult agreed to relax the protocol—particularly for *CEI* projects—where additional savings claims were made, and the regression models had already been reviewed. The relaxed protocol did not affect the accuracy of the savings results for PY2022.

9.3.3 Evaluated Savings Methodology by Measure

The EM&V team referred to relevant sections in TRM 9.0, Volume 2, to utilize the prescriptive algorithms for calculating energy and demand impacts for a significant portion of the program's measures, including *domestic hot water*, *envelope*, *HVAC*, *lighting*, and *refrigeration* measures. The program implementer tracks the savings type for each measure as either *deemed*, *measured*, or *stipulated*⁵⁶.

- *Deemed* savings measures are prescriptive measures from TRM 9.0 and use all or most of the default assumptions of the TRM 9.0 methodology, such as the baseline flow rate of a faucet aerator or the AOH for *lighting* measures.

⁵⁶ The implementer's definition of *stipulated* differs from the definition provided in the TRM. The tracking system definition of *stipulated* is a project that relies on TRM methodology for the savings calculation but substitutes custom parameters for some of the inputs. In particular, *lighting* projects that use custom AOH values are tracked as *stipulated*.

- *Measured* savings measures are either custom or prescriptive measures from TRM 9.0 that use site-specific information collected as part of the implementation process, such as field-monitored data or measured results for some or all the assumptions of TRM 9.0 methodology. An example would be capturing the actual average baseline flow rate of a *pre-rinse spray valve* or a *custom compressor* project.
- *Stipulated* savings measures are custom or prescriptive measures from TRM 9.0 that use site-specific information captured from the participant for key assumptions of the TRM 9.0 methodology; they are not based on metered or measured data such as self-reported AOH for *lighting* measures.

In addition, the program included a significant number of *custom* projects for which site-specific data was gathered and industry-standard practices were applied; however, assumptions were expected to vary based on site-specific documented conditions. As noted above, *custom* measures were described as either *measured* or *stipulated* savings types.

The ArchEE tracking system was the primary source for key input assumptions into the savings algorithms to review the tracking system savings and evaluate *prescriptive* projects. The tracking system contained the key assumptions and parameters necessary for calculating measure savings for a census of *prescriptive* measure savings. As *custom* measures are not tracked with enough detail to perform similar savings calculations on the information within the tracking data alone, the EM&V team relied on engineering desk reviews and on-site visits to review *custom* measures. During the engineering desk reviews, the project documentation for individual applications was the primary source of information to verify these key input assumptions and complete the project-level savings analysis. Site-specific information gathered during the on-site visits was the primary source of information to confirm key input assumptions and complete the project-level savings analysis.

A further discussion of the source of the values for key input parameters needed for calculating measure-level impacts used by the EM&V team for evaluating each of the prescriptive measures is presented next.

9.3.3.1 Domestic Hot Water Measures

Domestic hot water measures in PY2022 included the retrofit of existing operational faucets and showerheads with new, more efficient *low-flow faucet aerators*, *pre-rinse spray valves*, and *showerheads*.

The EM&V team analyzed the savings from *domestic hot water* measures using the data for all key input variables needed for calculating energy and demand savings per the prescriptive algorithms of TRM 9.0 (Sections 3.3.2, 3.3.5, and 3.7.12). The key input variables of the baseline and post-retrofit fixture include (1) average flow rate, (2) operating days per year, (3) average supply water temperature, (4) average mixed water temperature, (5) water usage duration, (6) water heater thermal efficiency, and for the demand savings, (7) the fraction of hourly water consumption.

For the *domestic hot water* measures, the claimed savings assumed the TRM 9.0 deemed values for all these parameters except for the post-retrofit *faucet aerators'* average flow rate. Therefore, the EM&V team also used the TRM 9.0 values for all key input parameters except the post-retrofit fixture flow rates. The EM&V team verified the pre- and post-retrofit fixture average flow rate via on-site visits, manufacturer cut sheets, or web-based research of make and model numbers. If the EM&V team could not determine the pre- and post-retrofit fixture

average flow rates using these sources, the EM&V team used the default values specified in TRM 9.0. The *water heater type*, *building type*, and *foodservice operation* selections guide the key input assumptions for water heater thermal efficiency, operating days per year, and water usage durations. These data were assessed during on-site visits or based on the information provided in the tracking data or project-level backup documentation.

9.3.3.2 Envelope Measures

Envelope measures in PY2022 included the installation of *commercial door air infiltration* measures. These entailed installing *weatherstripping* and *door sweeps* on exterior-facing doors to reduce infiltration of unconditioned air into a conditioned space.

The EM&V team analyzed the savings from *commercial door air infiltration* measures using the data for all key input variables needed for calculating energy and demand savings per the prescriptive algorithms of TRM 9.0 (Section 3.2.10). The key input variables of the baseline and post-retrofit door include (1) pre-retrofit air infiltration rate, (2) post-retrofit air-infiltration-rate percentage reduction, (3) change in temperature across the gap barrier, (4) daytime hours per year, (5) nighttime hours per year, (6) water heater thermal efficiency, (6) heating coefficient of performance, (7) width of the gap, (8) length of the gap, (9) weather zone of the location, and for the demand savings, (10) the average cooling equivalent full-load hours.

For the *envelope* measures, the claimed savings assumed the TRM 9.0 deemed values for all these parameters except for the two required to be site-specified; the gap width and length. Therefore, the EM&V team used the TRM 9.0 values for all key input parameters, and the site captured gap widths and lengths. The EM&V team verified the *weatherstripping* and *door sweep* gaps and lengths during on-site visits and the re-calculation of these measurements captured on contractor inventories taken at the retrofit time documented within the project files. If the EM&V team could not determine the gap or length using these sources, the EM&V team assumed these parameter details within the ArchEE tracking data to be accurate. The *air conditioning and heating system* types, which guide the key input assumptions for cooling, heating, and HVAC AOH, were assessed during on-site visits or based on the information provided as part of tracking data project-level backup documentation.

9.3.3.3 Heating, Ventilating, and Air-Conditioning Measures

HVAC measures in PY2022 included replace-on-burnout projects of unitary and split air conditioning and heat pumps, and air- and water-cooled chillers.

The EM&V team analyzed the replacement-on-burnout savings from *HVAC* measures using the data for all key input variables needed for calculating energy and demand savings per the prescriptive algorithms of TRM 9.0 (Sections 3.1.16, and 3.1.17). The key input variables that represent the baseline and post-retrofit unit conditions include (1) equipment type of the new unit, (2) rated capacity of the new unit, (3) sub-category type of the new unit, (4) full-load efficiency of the new unit, (5) part-load efficiency of the new unit, (6) equivalent full-load hours for cooling, and (7) the coincidence factor (CF) for demand savings.

For the *HVAC* measures, the claimed savings assumed the TRM 9.0 deemed values for all these parameters except for the new units' capacity and full-/part-load efficiencies for equipment replacement. Therefore, the EM&V team also used the TRM 9.0 deemed values for all key input parameters except the post-retrofit unit capacity and efficiency. The EM&V team verified the post-retrofit unit's capacity and efficiencies via on-site visits, manufacturer cut-sheets, or web-

based research of make and model numbers. The deemed *building type* selections, *facility area*, and *controller settings*, which guide the key input assumptions for AOH and CFs, were assessed during on-site visits or based on the information provided as part of project-level backup documentation.

9.3.3.4 Lighting and Lighting Controls Measures

Lighting and *lighting controls* measures in PY2022 included retrofit and new construction projects installing lamps, fixtures, and lighting controls.

The EM&V team analyzed the savings from *lighting* and *lighting controls* measures using the data for all key input variables needed for calculating energy and demand savings per the prescriptive algorithms in TRM 9.0 (Sections 3.6.2 and 3.6.3). The key input variables of the baseline and post-retrofit lighting and controls include (1) pre- and post-retrofit quantity of lighting, (2) rated wattage of the pre- and post-retrofit lighting, (3) AOH for the specified building type, (4) interactive effects factors for energy savings for the specified heating type, (5) power adjustment factor for specified control type and the demand savings, (6) the peak demand CF for the specified building type, and (7) the controls peak-demand CF.

For the *lighting* measures, the claimed savings assumed the TRM 9.0 deemed values for interactive effects factors, power adjustment factors, and AOH and CF based on the site-based details that inform them. The site-captured details were used as the basis for the other key input values to the deemed algorithms. Therefore, the EM&V team also used TRM 9.0 deemed values for all key input parameters except the site-captured information informing the deemed savings algorithm calculations. The EM&V team verified the pre- and post-retrofit *equipment quantity, type, wattage, and building type* during on-site visits and reviewed project-level inventories with these details captured by trade allies. The EM&V team was able to determine the pre- and post-retrofit parameters using these sources. The deemed *building type* selections, which guide the key input assumptions for AOH and CFs, were assessed during on-site visits or based on the information provided as part of project-level backup documentation.

9.3.3.5 Refrigeration Measures

Refrigeration measures in PY2022 included the retrofit of refrigerated areas with the installation of *strip curtains* and *door gaskets*.

The EM&V team analyzed the savings from *refrigeration* measures using the data for all key input variables needed for calculating energy and demand savings per the prescriptive algorithms of TRM 9.0 (Sections 3.4.1, 3.5.6, 3.5.7, and 3.5.9). These measures' energy and demand savings are deemed based on a few key variables of the existing unit size, type, and location. For *strip curtains*, the deemed savings are based on four main variables: (1) savings per size (area) of the opening where the curtain is installed, (2) case type/temperature, (3) building type (e.g., supermarket, convenience store), and (4) whether a pre-existing curtain was in place (i.e., yes, no, unknown). For *door gaskets*, the deemed savings are based on two main variables: (1) savings per size (length) of the gasket installed and (2) case type/temperature.

For the *refrigeration* measures, the claimed savings assumed the TRM 9.0 deemed values for all these parameters except for the *refrigerator case/door size, refrigerator temperature, weather zone, and building type*, as those are site-determined parameters. Therefore, the EM&V team also used the TRM 9.0 deemed values for all key input parameters except the site captured

information informing the deemed savings selections. During on-site visits, the EM&V team verified the post-retrofit *door size*, *refrigerator temperature*, *weather zone*, and *building type* and reviewed project-level inventories with these details captured by trade allies. The EM&V team was able to determine the post-retrofit parameters using these sources. The deemed building type selections, which guide the key input assumptions for AOH and CFs, were assessed during on-site visits or based on the information provided as part of project-level backup documentation.

9.3.4 Net-to-Gross Evaluation

9.3.4.1 Participant Surveys

The LCI program had a comprehensive evaluation conducted in PY2020, but that evaluation did not include *CoolSaver* measures, a separate program at the time. Therefore, for the PY2022, the EM&V team utilized a participant survey to inform the NTG evaluation, explicitly focused on the *CoolSaver* measures. The survey included structured questions about the participant's decision to pursue rebated energy-efficient upgrades to calculate the NTG rate for *CoolSaver* measures, including *tune-ups* and *Wi-Fi thermostats*. The EM&V team based the savings and calculations on those outlined in TRM 9.0 EM&V Protocols.

Where possible, to address recall concerns, TRM 9.0 recommends using a staggered data collection approach to collecting free-ridership and spillover information. Free-ridership is best assessed when asking about program participation as close as possible to the participation dates, while spillover is best assessed after a reasonable amount of time has passed to allow for additional energy savings activities to occur.

With these considerations in mind, the EM&V team stratified the sample frame for the participant survey into three, six-month participation periods: January 2021 to June 2021, July 2021 to December 2021, and January 2022 to June 2022. Only participants in the two most recent periods (July 2021 to June 2022) were asked free-ridership questions and included in the free-ridership assessment, limiting recall issues. Only those who installed energy-efficient upgrades within the first two six-month periods received spillover questions to allow more time for potential spillover effects to occur (January 2021 to December 2021). Table 108 illustrates the number of unique program participants per period and their kilowatt-hour savings.

Table 108. Large Commercial and Industrial Solutions NTG Participant Survey Sample Plan

Participation period	Project type	Count of projects in population*	Reported (ex-ante) kWh	Target completed surveys**	Survey questions	
					Free-ridership	Spillover
January 2021–June 2021	Thermostat	6	468,203	2	Yes	No
	Tune-Up	4	49,486	2		
	Total	10	517,689	4		
July 2021–December 2021	Thermostat	12	588,170	5	Yes	Yes
	Tune-Up	33	1,011,772	6		
	Total	45	1,599,942	11		

Participation period	Project type	Count of projects in population*	Reported (ex-ante) kWh	Target completed surveys**	Survey questions	
					Free-ridership	Spillover
January 2022–June 2022	Thermostat	25	622,548	6	Yes	No
	Tune-Up	13	80,999	5		
	Total	38	703,547	11		
Total		93	2,821,178	26		

The EM&V team implemented the participant survey through our in-house Survey Research Center via computer-assisted telephone interviews. A total of 30 surveys were completed, averaging 14 minutes in length. Telephone surveys occurred between November 21 and December 15, 2022.

Table 109. Large Commercial and Industrial Solutions Participant Survey Response Rate

Disposition	Total
Sample	51
Not a utility customer	0
Eligible sample	51
Does not recall participating	2
Refusal	3
Incompletes (partial surveys)	0
Language barrier	0
Bad number	0
Called out	0
Not completed	16
Completed	30
Response rate	
Response rate (completed/eligible sample)	58.8%

In total, the EM&V team surveyed 19 participants on free-ridership and 35 on spillover based on their date of participation.

9.3.4.2 Contractor Interviews

The contractor interviews were used to support the NTG analysis and gather feedback on the program. The EM&V team interviewed two contractors for *CoolSaver* measures (*tune-ups* and *Wi-Fi thermostats*) during PY2022. Eligible contractors were initially contacted to schedule the interviews via email on December 5, 2022. Interviews were conducted between December 9 and December 21, 2022.

Interviews were semi-structured using a topic guide, but evaluators followed the interview flow and modified questions as needed to fit the interviewee's circumstances. The contractor interviews explored (1) program involvement and experiences, (2) program attribution indicators, and (3) program satisfaction.

9.4 DETAILED IMPACT EVALUATION RESULTS

The LCI program's evaluated energy and demand savings were lower than the reported savings (96.8 percent kilowatt-hour realization rate, 98.3 percent kilowatt realization rate). During the desk reviews and site visits, the EM&V team corrected *lighting* installed fixture types, quantities, and custom AOH estimates. The EM&V team adjusted calculation errors and peak demand savings methodologies for custom projects. Finally, the EM&V team adjusted savings for *commercial Wi-Fi thermostat* measures due to incorrect energy and demand savings values used for *heat pumps* in reported savings.

Corrections to *commercial Wi-Fi thermostat* projects that contributed to savings adjustments were primarily due to:

- *heat pump* projects using demand algorithms associated with *AC units*, and
- *commercial Wi-Fi thermostat* measures using incorrect unit type (*AC* or *heat pump*) in savings algorithms.

Corrections to *lighting* projects were primarily due to:

- adjustments to deemed *building types* from internet research or site visits;
- installed fixture type, quantities, or input wattages being different from the project documentation, certifications, and site visits; and
- custom AOH adjustments from an interview of site personnel.

Corrections to *other* projects were primarily due to:

- adjustment for double counting of *gasket length* on a *refrigeration door gasket* project, and
- incorrect *water heater factor* used in calculations.

Corrections to *custom—early review* projects that contributed to reduced savings were due to:

- calculation methodology change for improper metering results.

Corrections to *custom—other* projects that contributed to reduced savings were primarily due to:

- calculation methodology changes to reflect EAL's peak demand window;
- calculation errors in the reported savings analysis, including not fully following white paper methodologies, incorrect operational parameters; and
- peak demand savings estimates not considering holidays or downtimes in the savings.

9.4.1 Participant Characterization

Several different measures are provided to participants through the program. Within the tracking system, qualifying products are assigned to unique measure names. The mapping of these measure names to measure categories is provided below.

Table 110. Mapping to Measure Category

Measure description	Measure category
Continuous energy improvement	Continuous energy improvement
Custom—heating and cooling	Custom HVAC
Custom—non-heating and cooling	Custom other
Variable frequency drives	Custom other
Commercial showerheads	Domestic hot water
Faucet aerators	Domestic hot water
Pre-rinse spray valves	Domestic hot water
Commercial door air infiltration	Envelope
Overhead door weatherstripping	Envelope
Overhead door weatherstripping for refrigerated spaces	Envelope
PTAC sealing	Envelope
Unitary AC equipment—unitary AC < 65000 btu/hr—replace-on-burnout	HVAC
Unitary AC equipment—unitary AC ≥ 65000 btu/hr—replace-on-burnout	HVAC
Unitary HP equipment—heat pump < 65000 btu/hr—replace-on-burnout	HVAC
Unitary HP equipment—heat pump ≥ 65000 btu/hr—replace-on-burnout	HVAC
Water chilling equipment (air cooled) —replace-on-burnout	HVAC
Halogens	Lighting
HIDs	Lighting
Integrated-ballast cold-cathode fluorescent lamps (CCFL)	Lighting
Integrated-ballast compact fluorescent lamps (CFL)	Lighting
Integrated-ballast LED lamps	Lighting
LEDs	Lighting
Lighting controls	Lighting
Magnetic ballast T5 or premium T8 retrofit of T12	Lighting
Modular CFLs and CCFLs	Lighting
Other linear fluorescents	Lighting
Outdoor—halogens	Lighting
Outdoor—HIDs	Lighting
Outdoor—integrated-ballast compact fluorescent lamps (CFL)	Lighting
Outdoor—integrated-ballast LED lamps	Lighting
Outdoor—LEDs	Lighting

Measure description	Measure category
Outdoor—magnetic ballast T5 or premium T8 retrofit of T12	Lighting
Outdoor—modular CFLs and CCFLs	Lighting
Outdoor—other linear fluorescents	Lighting
NC—integrated-ballast LED lamps	Lighting—new construction
NC—interior project savings	Lighting—new construction
NC—LEDs	Lighting—new construction
NC—lighting controls	Lighting—new construction
Outdoor—NC—integrated-ballast LED lamps	Lighting—new construction
Outdoor—NC—LEDs	Lighting—new construction
Outdoor—NC—lighting project savings	Lighting—new construction
Refrigeration door gaskets	Refrigeration
Refrigeration strip curtains	Refrigeration
Advance RTU controls—lite	Tune-up
Commercial AC post-test-out	Tune-up
Commercial AC pre-clean	Tune-up
Commercial central air conditioner (tune-up)	Tune-up
Commercial heat pump (tune-up)	Tune-up
Commercial HP post-test-out	Tune-up
Commercial HP pre-clean	Tune-up
Commercial Wi-Fi thermostat	Tune-up

Table 111 below outlines the claimed number of program participants and the percentage of savings by measure category in PY2022. *CEI* and *custom other* were the dominant measure categories in PY2022, accounting for 70 percent of claimed demand (kilowatt) and 65 percent of energy (kilowatt-hour) savings. *Lighting* and *lighting—new construction* accounted for 22 percent of claimed demand and 25 percent of energy savings.

Table 111. PY2022 Reported LCI Participation and Savings by Measure Category

Measure category	Participants ⁵⁷	Projects ⁵⁷	Program savings		Percentage of program savings	
			kW	kWh	kW	kWh
Continuous energy improvement	19	22	7,357	30,991,749	44.8%	31.2%
Custom HVAC	6	6	133	1,006,227	0.8%	1.0%
Custom other	29	38	4,153	33,463,791	25.3%	33.7%

⁵⁷ A participant is a unique account described by the ArchEE data field *AccountNumber*. A project is a unique job number defined by the ArchEE data field *JobId*. A participant may install measures across multiple measure categories and multiple projects. As a result, the total count of participants and projects may not equal the sum of the counts by measure category.

Measure category	Participants ⁵⁷	Projects ⁵⁷	Program savings		Percentage of program savings	
			kW	kWh	kW	kWh
Domestic hot water	11	11	33	144,678	0.2%	0.1%
Envelope	30	34	181	4,158,952	1.1%	4.2%
HVAC	11	11	25	216,193	0.2%	0.2%
Lighting	345	359	3,247	23,096,022	19.8%	23.2%
Lighting—new construction	18	19	304	2,026,155	1.9%	2.0%
Refrigeration	56	56	148	1,296,868	0.9%	1.3%
Tune-up	38	516	853	2,952,728	5.2%	3.0%
Total	521	1,048	16,434	99,353,362	100.0%	100.0%

Table 112 outlines the savings and percentage of savings by measure in PY2022. *CEI* was the most significant measure in PY2022, accounting for 45 percent of claimed gross kilowatt savings and 31 percent of claimed gross kilowatt-hour savings. *Custom—non-heating and cooling* was the second most significant measure, accounting for 20 percent of claimed gross kilowatt and 26 percent of the claimed kilowatt-hour savings. *LEDs* were the third most significant measure with 18 percent of the kilowatt savings and 17 percent of the program kilowatt-hour savings.

Table 112. PY2022 Reported LCI Participation and Savings by Measure

Measure	Program savings		Percentage of program savings	
	kW	kWh	kW	kWh
Continuous energy improvement				
Continuous energy improvement	7,357	30,991,749	44.8%	31.2%
Custom HVAC				
Custom—heating and cooling	133	1,006,227	0.8%	1.0%
Custom other				
Custom—non-heating and cooling	3,198	25,753,424	19.5%	25.9%
Variable frequency drives	955	7,710,366	5.8%	7.8%
Domestic hot water				
Commercial showerheads	1	20,280	<0.1%	<0.1%
Faucet aerators	27	89,975	0.2%	<0.1%
Pre-rinse spray valves	4	34,422	<0.1%	<0.1%
Envelope				
Commercial door air infiltration	64	2,219,402	0.4%	2.2%
Overhead door weatherstripping	31	1,074,623	0.2%	1.1%

Measure	Program savings		Percentage of program savings	
	kW	kWh	kW	kWh
Overhead door weatherstripping for refrigerated spaces	84	778,007	0.5%	0.8%
PTAC sealing	2	86,919	<0.1%	<0.1%
HVAC				
Unitary AC equipment—unitary AC < 65000 btu/hr—replace-on-burnout	1	3,749	<0.1%	<0.1%
Unitary AC equipment—unitary AC ≥ 65000 btu/hr—replace-on-burnout	15	37,547	<0.1%	<0.1%
Unitary HP equipment—heat pump < 65000 btu/hr—replace-on-burnout	0	14,186	<0.1%	<0.1%
Unitary HP equipment—heat pump ≥ 65000 btu/hr—replace-on-burnout	2	96,489	<0.1%	<0.1%
Water chilling equipment (air cooled)—replace-on-burnout	7	64,222	<0.1%	<0.1%
Lighting⁵⁸				
Halogens	13	61,818	<0.1%	<0.1%
HIDs	16	111,068	<0.1%	0.1%
Integrated-ballast cold-cathode fluorescent lamps (CCFL)	0	927	<0.1%	<0.1%
Integrated-ballast compact fluorescent lamps (CFL)	0	1,317	<0.1%	<0.1%
Integrated-ballast LED lamps	193	923,731	1.2%	0.9%
LEDs	2,953	16,840,501	18.0%	17.0%
Lighting controls	44	306,356	0.3%	0.3%
Magnetic ballast T5 or premium T8 retrofit of T12	6	41,414	<0.1%	<0.1%
Modular CFLs and CCFLs	1	2,578	<0.1%	<0.1%
Other linear fluorescents	20	124,699	0.1%	0.1%
Outdoor—halogens	0	7,992	0.0%	<0.1%
Outdoor—HIDs	0	97,414	0.0%	<0.1%
Outdoor—integrated-ballast compact fluorescent lamps (CFL)	0	0	0.0%	<0.1%
Outdoor—integrated-ballast LED lamps	0	391,025	0.0%	0.4%
Outdoor—LEDs	0	4,183,125	0.0%	4.2%

⁵⁸ Some measures were identified in the tracking system data with no savings; these represent lighting included in *site lighting* inventories but were not incented by the program.

Measure	Program savings		Percentage of program savings	
	kW	kWh	kW	kWh
Outdoor—magnetic ballast T5 or premium T8 retrofit of T12	0	1,782	0.0%	<0.1%
Outdoor—modular CFLs and CCFLs	0	0	0.0%	<0.1%
Outdoor—other linear fluorescents	0	276	0.0%	<0.1%
Lighting—new construction⁵⁸				
NC—integrated—ballast LED lamps	0	0	0.0%	0.0%
NC—interior project savings	293	1,770,664	1.8%	1.8%
NC—LEDs	0	0	0.0%	0.0%
NC—lighting controls	11	60,205	<0.1%	<0.1%
Outdoor—NC—integrated-ballast LED lamps	0	0	0.0%	0.0%
Outdoor—NC—LEDs	0	0	0.0%	0.0%
Outdoor—NC—lighting project savings	0	195,287	0.0%	0.2%
Refrigeration				
Evaporator fan controls	147	1,294,366	0.9%	1.3%
Refrigeration door gaskets	0	2,502	<0.1%	<0.1%
Tune-ups				
Advance RTU controls—lite	31	109,557	0.2%	0.1%
Commercial AC post-test-out	19	40,168	0.1%	<0.1%
Commercial AC pre-clean	39	81,087	0.2%	<0.1%
Commercial central air conditioner (tune-up)	593	1,321,838	3.6%	1.3%
Commercial heat pump (tune-up)	47	189,248	0.3%	0.2%
Commercial HP post-test-out	7	26,095	<0.1%	<0.1%
Commercial HP pre-clean	4	11,310	<0.1%	<0.1%
Commercial Wi-Fi thermostat	113	1,173,425	0.7%	1.2%
Total	16,434	99,353,362	100.0%	100.0%

Table 113 shows the incentive structure for PY2022 compared to the previous program year. There were no changes to the incentives for PY2022 from PY2021.

Table 113. PY2022 Large Commercial and Industrial Solutions Incentives

Measure			PY2021 incentive ⁵⁹	PY2022 incentive ⁶⁰
Directly installed by CLEARResult				
Domestic hot water				
Commercial showerheads			Full cost	Full cost
Faucet aerators			Full cost	Full cost
Pre-rinse spray valves			Full cost	Full cost
Envelope				
Commercial door air infiltration (i.e., weatherstripping)			Full cost	Full cost
Lighting				
Integrated-ballast LED lamps			Full cost	Full cost
Outdoor—integrated-ballast LED lamps			Full cost	Full cost
Installed by trade ally				
PC power management			\$0.10/kWh	\$0.10/kWh
Gaskets and strip curtains			100 percent, contact program staff	Up to 100 percent, contact program staff
All other measures ⁶¹	1 measure	2 measures	3 measures	4+ measures
PY2021 incentive⁵⁹	\$0.14/kWh	\$0.15/kWh	\$0.16/kWh	\$0.18/kWh
PY2022 incentive⁶⁰	\$0.14/kWh	\$0.15/kWh	\$0.16/kWh	\$0.18/kWh

9.4.2 Program Documentation and Tracking Data Review

To understand the LCI program, the EM&V team interviewed program staff and reviewed all information available on EAL's website related to the program and supplemental documentation provided by EAL and CLEARResult. The EM&V team received the following documentation related to the program:

- ArchEE data tracking system extract containing PY2022 participant information and savings;

⁵⁹ Source: 2021 C&I Custom Program Manual.

⁶⁰ Source: 2022 Large Commercial & Industrial Program Manual.

⁶¹ To qualify for an additional tier, an energy efficiency measure must exceed 30,000 kWh of savings. Measures can be grouped to meet the 30,000 kWh minimum threshold, but only one such grouping is allowed per customer. Direct-install measures only count as one measure tier. Retroactive incentives can be leveraged against other projects (up to the cap) back to January of the previous year.

- supplemental project-level documentation received during quarterly data requests for sampled accounts, which typically included:
 - signed customer proposals and project agreements—sometimes files included initial and final proposals if projects had changed during development;
 - customer proposals that typically included a detailed inventory of site-captured measure-level details such as:
 - *Domestic hot water* measures (e.g., *low-flow faucet aerators, commercial showerheads, and low-flow showerheads*) were all directly installed by the implementer. A Direct Install Report typically inventoried the device and quantity installed by room. Additional notes typically included a flow rate as the new equipment may be multiple flow rates (e.g., 0.5 gallons per minute (GPM), 1.0 GPM). Also, photo documentation of the water heater and its nameplate was provided. Details of the exact installed equipment flow rates were not included, and a specification of the new equipment was not provided.
 - The implementer directly installed *commercial door air infiltration* measures (e.g., *weatherstripping, door sealing*). A Direct Install Report typically inventoried the device, quantity (by gap size), and new weatherstripping length installed by room. Additional notes typically included the gap size as the new equipment may be of multiple widths (e.g., one-eighth inch, one-quarter inch) and the type (e.g., weatherstripping, door sweep). Also, photo documentation of a sample of doors with the existing condition and gap noted by a view of a tape measure was provided. A clear description or documentation of the HVAC type was not included.
 - *HVAC* measures included new equipment type, make and model numbers, capacity, and quantity. Manufacturers' specification sheets and Air Conditioning, Heating and Refrigeration Institute (AHRI) certificates were also provided.
 - *Lighting and lighting controls* measures included existing and new fixture types, make and model numbers, wattages, quantity, and control type. Also, DLC and ENERGY STAR certification sheets were typically provided for all models. Manufacturer specification sheets were generally not provided.
 - invoices;
 - pre- or post-inspection forms indicating field inspector's notes and results; and
 - photographic documentation pre- or post-installation;
- a Quality Control and Assurance Manual for EAL commercial programs, dated February 1, 2023; and
- PY2022 Program Manual for the LCI program obtained from the EAL website.

9.4.2.1 Detailed Tracking System/Database Review

The EM&V team reviewed all program-claimed tracking data to assess the extent to which it provided the key input parameters needed for TRM 9.0-based algorithms and the final claimed values necessary for each measure. The tracking system data review began using TRM 9.0 as a reference in our review of measure-level savings assumptions. Chapters of TRM 9.0 utilized for the tracking system review are described above in Section 9.3.1.1.

The EM&V team reviewed the tracking systems linkage to the TRM 9.0 deemed savings algorithms used to estimate savings. This review was completed across a census of the program measures. All the critical input variables and assumptions necessary for savings calculations are present in the utility's tracking database. After the measure-level review, the EM&V team verified energy savings calculations for engineering fundamentals, appropriateness, and accuracy.

Our review accomplished three primary objectives. First, it identified any initial high-level tracking system concerns. Second, it verified whether the savings estimates in the tracking system are consistent with the savings outlined in TRM 9.0 used to estimate project savings. Third, it assessed the ability of the tracking system to support future evaluation needs.

The ArchEE tracking system, which supplied all participant- and measure-level data, was the primary tool for checking claimed savings and performing evaluation savings calculations. These results were informed and supplemented with the findings from the engineering desk reviews and site visits, as further outlined in the savings calculation results section.

The overall LCI program evaluated tracking system savings resulted in nearly identical savings (100.1 percent kilowatt and 99.6 percent kilowatt-hour realization rates) than those calculated by the program implementer. The evaluated savings are based on adjustments from completing engineering reviews of the program's tracking data. The overall realization rates were affected negligibly by variances between the reported and evaluated energy savings (kilowatt-hour) for *lighting* and *domestic hot water* projects. Further details of measure-based findings are provided below.

Overall, the tracking system review found the following:

- Except for the *custom*, *CEI*, *overhead door weatherstripping*, and *tune-up* measures in the LCI program, all measures utilize TRM 9.0, Volume 2 deemed algorithms. The savings equations were confirmed consistent with TRM 9.0. As described above, the *overhead door weatherstripping* and *tune-up* measures follow *custom* approaches developed from assumptions and methodologies in the TRM. The EM&V team confirmed the *overhead door weatherstripping* measures following the M&V plan through this tracking system review. A tracking system review of the *tune-up* measures was completed to inform *tune-up* evaluated savings separately from the mid-year tracking system review.
- The LCI program measures utilize TRM 9.0, Volume 2 deemed savings assumptions, with two notable exceptions. The *overhead door weatherstripping* measure uses extrapolated savings values based on the *commercial door air infiltration* measure in TRM 9.0. Also, some *lighting efficiency* measures use site-specific AOH instead of the deemed values in TRM 9.0 for *lighting* projects.

- Seven percent of *lighting* projects use site-specific custom AOH as captured from the site and based on the buildings' typical operating hours and hours of occupancy.
- The overall tracking review realization rates were 100.1 percent for kilowatt and 99.6 percent for kilowatt-hour. Tracking review realization rates were precisely 100 percent for *HVAC* and *refrigeration* measures.

Table 114. PY2022 Q1–Q2 Tracking System Energy Savings and Realization Rates by Measure Category

Measure category	Claimed savings		Evaluated savings		Realization rate	
	kW	kWh	kW	kWh	kW	kWh
Domestic hot water	7	36,519	7	36,521	100.0%	100.0%
Envelope	63	1,186,064	72	1,192,435	114.0%	100.5%
HVAC	6	16,213	6	16,213	100.0%	100.0%
Lighting	627	4,733,546	619	4,699,440	98.7%	99.3%
Lighting—new construction	121	813,696	121	813,695	100.0%	100.0%
Refrigeration	61	532,174	61	532,174	100.0%	100.0%
Total	885	7,318,211	886	7,290,478	100.1%	99.6%

9.4.2.2 Domestic Hot Water

- No issues were found. Minor savings differences occurred due to rounding.

9.4.2.3 Envelope

- Project numbers EA-0000776733 (one line item) and EA-0000798965 (six line-items) had a slight eight percent error in kilowatt savings for the *overhead door weatherstripping* measure. The reason for the consistent savings deviation was due to an internal programming error. The EM&V team recalculated the energy savings using the tracked parameters and TRM algorithms and determined a kilowatt-hour realization rate of 109 percent for these projects. CLEAResult determined ArchEE was using the *net demand* instead of the *gross demand*, which resulted in the discrepancy.
- Project number EA-0000776741 reported zero demand (kilowatt) savings and energy (kilowatt-hour) savings that were incorrect by 3.6 percent. The reason for the savings deviation was due to an internal programming error. The EM&V team recalculated the energy savings using the tracked parameters and TRM algorithms and determined a kilowatt-hour realization rate of 104 percent for this project. CLEAResult determined the tracked *heating type* did not match the *heating type* used in the calculation.

9.4.2.4 HVAC

- No issues were found.

9.4.2.5 Lighting

- EA-0000726548 included two non-exit sign lights that were marked as *N/A* in the *EquipmentDescription* field and had savings reported. The *N/A* designation is typically used for *exit signs*; the *EquipmentDescription* of *non-exit sign lighting* equipment which is not DLC- or ENERGY STAR-certified is typically *no*. Zero energy and demand savings should be reported for non-qualified *lighting* line items. The EM&V team removed the energy and demand savings for these two line-items, which resulted in a zero percent realization rate for both kilowatt-hour and kilowatt savings. CLEAResult determined the *N/A* should have been *other* for the *certification type*.
- EA-000703211 included two non-exit sign lights that were marked as *N/A* in the *EquipmentDescription* field and had savings reported. The *N/A* designation is typically used for *exit signs*; the *EquipmentDescription* of *non-exit sign lighting* equipment which is not DLC- or ENERGY STAR-certified is typically *no*. A data entry error caused the deviation, as the lights are ENERGY STAR-certified. The EM&V team removed the energy and demand savings for these two line-items, which resulted in a zero percent realization rate for both kilowatt-hour and kilowatt savings.
- PRJ-3011367 included a line item whose *MeasureLocation* field in ArchEE was stated as *ground floor walk-in cooler/freezer*, which implies that the lights were installed inside a refrigerated space. However, the ArchEE *HeatingType* field was stated as *electric AC with gas heat*, and the *TempDescription* field was stated as *normal*. The EM&V team adjusted the temperature description from *air conditioned space* to *refrigerated space—low temperature* to match the measure location. This increased energy and demand savings for the line item, resulting in a 119 percent realization rate for kilowatt-hour savings and a 108 percent realization rate for kilowatt savings.
- EA-0000682647 included two line-items whose *MeasureLocation* field in ArchEE stated the lights were *exit lights*. However, the *BuildingDescription* field for those two lights was listed as *religious*. All exit sign lighting should be coded with the *all building types: exit signs* building type. The EM&V team adjusted the building type for these line items from *religious* to *all building types: exit signs* to match the measure location and fixture type. This increased energy and demand savings for the two line-items, resulting in a 480 percent realization rate for kilowatt-hour savings and a 189 percent realization rate for kilowatt savings.
- EA-0000702818 had errors in kilowatt savings ranging from 0 to 44 percent and errors in kilowatt-hour savings of 69 percent. The reason for the consistent savings deviation could not be determined based on the provided information in the tracking system. CLEAResult noted that this project used stipulated hours, but the hours were not entered into ArchEE. Supplemental documents were provided for this project, and a ticket was submitted to correct the issue in the measure file. The EM&V team recalculated the energy savings using the tracked parameters and TRM algorithms and determined kilowatt-hour realization rates of 30 and 169 percent and kilowatt realization rates of 56 and 100 percent for these line items. CLEAResult determined the project used stipulated hours and coincidence factors, which were not correctly passed to ArchEE.

- PRJ-2950766 included two non-exit sign lights that were marked as *no* in the *EquipmentDescription* field but still had savings reported. Zero energy and demand savings should be reported for non-qualified *lighting* line items. The EM&V team removed the energy and demand savings for these two line-items and determined 0 percent for both kilowatt-hour and kilowatt savings.

9.4.2.6 Lighting—New Construction

- PRJ-3047531 included one line item for a non-exit sign light that was marked as *N/A* in the *EquipmentDescription* field. Therefore, it appears not to have been subtracted from the baseline wattage total, leading to an overreporting of interior project-level energy and demand savings. The EM&V team removed the wattage for the non-qualified light from the calculation and determined kilowatt-hour and kilowatt realization rates of 98 percent for the interior project savings. CLEAResult determined the fixture in question is in an MRI room and the lumens per watt and color rendering index (CRI) values were verified instead of ENERGY STAR or DLC certification.

9.4.2.7 Refrigeration

- No issues were found.

9.4.3 Tune-Up and Commercial Wi-Fi Thermostat Measurement and Verification Review

The EM&V team reviewed all program-reported tracking data to assess the extent to which it provided the algorithms and ex-ante values necessary for each measure. The tracking system data review began using the TRM 9.0, the CoolSaver Program M&V Plan⁶², and the Memorandum of Understanding to reference our review of measure-level savings assumptions. The EM&V team reviewed the tracking systems linkage to the TRM deemed savings and supplemental documentation methods used to estimate savings. After the measure-level review, the EM&V team verified energy savings calculations for engineering fundamentals, appropriateness, and accuracy.

Our review accomplished three primary objectives. First, it identified any initial high-level tracking system concerns. Second, it verified that the savings estimates in the tracking system are consistent with the savings outlined in TRM 9.0, used to estimate project savings. Third, it assessed the ability of the tracking system to support future evaluation needs.

The ArchEE database includes the key data for all projects and reported savings for AC and *heat pump tune-up* and *commercial Wi-Fi thermostat* measures, which totaled 523 measures.

As part of the PY2022 evaluation, CLEAResult provided a tracking system extract, including pre- and post-test-out projects used as the basis for CLEAResult's PY2019–PY2021 efficiency loss (EL) calculations. The EM&V team reviewed this dataset, examined it for outliers, and calculated the PY2019–PY2021 EL values for three sectors (*commercial <25 tons*, *commercial ≥25 tons*, and *residential*) and whether a refrigerant charge adjustment was performed.

⁶² The *tune-up* measure methodology was developed separately under EAL's own CoolSaver program prior to being included in the Large Commercial and Industrial Solutions program.

Most of the key *tune-up* measure data is maintained in a separate database outside of ArchEE. The database was useful for the evaluation team to reference during the review. For example, in instances where the *pre-clean tonnage* or *HVAC type* did not match the *post-clean tonnage* or *HVAC type*, the supplemental database was used to verify the actual unit type and capacity of the tuned-up HVAC unit. Another instance where the supplemental database was required was when verifying the EL values, as ArchEE did not capture all four refrigerant charge values from iManifold⁶³. As recommended last year, with continuous development and changes, the EM&V team recommends developing and maintaining a data dictionary to describe the data and document changes within this database.

Finally, as with previous years, it appears that the *commercial wi-fi thermostat* measures still require manual input of deemed energy (kilowatt-hour/ton) and demand savings (kilowatt/ton) values. This led to many instances of human error, leading to savings deviations (described in further detail below). Automating this process in the future will allow for more effective QA/QC and reduce the likelihood of errors.

9.4.3.1 Tune-Up and Commercial Wi-Fi Thermostat Measurement and Verification Findings

The EM&V team evaluated CLEAResult's savings calculations by reviewing the M&V sample of participants to confirm the savings methodology and results obtained, repeating the steps, and making calculation adjustments.

The ArchEE tracking system supplied all participant and unit-level data; claimed savings was the primary tool for checking reported savings and performing evaluation savings calculations.

Detailed findings from the M&V review for *tune-up* and *commercial Wi-Fi thermostat* measures are presented below.

- Forty *commercial Wi-Fi thermostat* measures installed on *heat pumps* used incorrect demand savings. The reported demand savings were calculated using the *heat pump heating* deemed energy savings divided by 8,760 instead of the *AC unit kilowatt-hour savings* divided by 8,760. The EM&V team adjusted the demand savings to only include the energy savings associated with cooling savings, which coincides with the peak demand period in Arkansas. The demand savings was adjusted by dividing the cooling kilowatt-hour savings by 8,760; this increased demand savings for all 40 measures. Ten of the affected *JobIds* are listed below, with the complete list available upon request:
 - 2022-278744,
 - 2022-278719,
 - 2022-278714,
 - 2022-278852,
 - 2022-278851,
 - 2022-278846,

⁶³ <https://imanifold.com/>

- 2022-278845,
 - 2022-278841,
 - 2022-278840, and
 - 2022-278839.
- Five *commercial Wi-Fi thermostat* measures installed on *electric AC systems with gas heat* used incorrect energy savings. For energy savings, reported savings were calculated as if the thermostat was installed on a *heat pump* system by including energy savings associated with the *heat pump heating* algorithms. The EM&V team adjusted the energy savings to only include the energy savings associated with an *AC unit*. These adjustments decreased energy savings for all five projects. The affected *Joblds* are listed below:
 - 2022-304633,
 - 2022-304973,
 - 2022-304757,
 - 2022-304754, and
 - 2022-304724.
 - Five *commercial Wi-Fi thermostat* measures installed on *electric AC systems with gas heat* used incorrect energy and demand savings. For energy savings, reported savings were calculated as if the thermostat was installed on a *heat pump* system by including energy savings associated with the *heat pump heating* algorithms. The EM&V team adjusted the energy savings to only include the energy savings associated with an *AC unit*. The reported demand savings were calculated using the *heat pump heating* deemed energy savings divided by 8,760 instead of the *AC unit kilowatt-hour savings* divided by 8,760. The EM&V team adjusted the demand savings to only include the energy savings associated with cooling savings, which coincides with the peak demand period in Arkansas. The demand savings was adjusted by dividing the cooling kilowatt-hour savings by 8,760. These adjustments decreased energy savings and increased demand savings for all five projects. The affected *Joblds* are listed below:
 - 2022-278856,
 - 2022-278855,
 - 2022-278854,
 - 2022-278858, and
 - 2022-278857,
 - Five *commercial AC tune-up* projects reported higher energy and demand savings because the *HVAC tonnage* reported in ArchEE and used in the *pre-clean savings calculation* was inconsistent with the *post-clean savings* and ultimately determined to be incorrect. The EM&V team verified that the correct *HVAC tonnage* was reported in the *post-clean* line item and in the supplemental data. Adjusting the *HVAC tonnage* decreased energy and demand savings for each of the five *pre-clean* line items. The affected *Joblds* are listed below:

- 2022-302910,
- 2022-302908,
- 2022-302899,
- 2022-302892, and
- 2022-302880.
- Three *commercial AC tune-up* projects reported lower energy savings because the *HVAC type* reported in ArchEE and used in the savings calculation was incorrect. The EM&V verified the correct *HVAC type* from the provided supplemental data. Adjusting the *HVAC type* from *air conditioning* to *heat pump* increased energy savings for each of the three line items. The affected *JobIds* are listed below:
 - 2022-302877,
 - 2022-304626, and
 - 2022-289597.

9.4.4 Engineering Desk Reviews

The EM&V team evaluated CLEAResult's savings calculations by reviewing the program tracking data and project documentation to confirm the savings methodology used and results, repeating the calculation steps, and making adjustments.

The engineering desk reviews included reviewing the available project documentation in determining the source of key parameters for the deemed savings protocols from TRM 9.0. After selecting the best source of the key parameters from the available documentation, the savings were calculated based on TRM 9.0 algorithms and compared to the claimed savings.

In addition to the tracking system review, the engineering desk reviews also showed a consistent use of TRM 9.0 algorithms across all the measures claimed in the LCI program. The EM&V team made minor adjustments to specific projects described in Section 9.4.6.

The EM&V team completed 70 engineering desk reviews of the LCI program accounts. These projects represented all measure categories in the program, except for *tune-up* measures, and had gross savings of 35,484 MWh, or 36 percent of the total LCI program recorded gross savings of 99,353 MWh. This percentage of total program savings is based on finalized ArchEE data from January 24, 2023.

9.4.5 Site Visits

The EM&V team's evaluation plan included conducting ten site visits to LCI program customers; these site visits also received an engineering review, as discussed above. The EM&V team's field inspector recorded the verified quantities, operation, building type, and space condition of each of the measures observed while on-site and collected additional information on critical parameters. For the LCI program, some of the key data and spot measurements obtained for essential parameters, as applicable, included:

- *domestic hot water* measures: type of service, number of installed units, and rated output of installed units;

- *envelope* measures: length of the installed door, gap width, and heating/cooling system type;
- *HVAC* measures: quantity, building type, and make/model of installed units;
- *lighting* measures: base/new wattage, number of lamps per fixture, lamp/fixture make/model/type, base/new control type, building type, space heating/cooling type, and AOH; and
- *refrigeration* measures: quantity and make/model of installed electronically commutated motors (ECM), refrigeration door gasket length and width, walk-in type (freezer or cooler), and evaporator fan motor size.

The site visits found that most parameters recorded in the project documentation to calculate savings were accurate. Out of the 30 site visits conducted, three projects had savings adjustments resulting from the site visit. The adjustments from the site visits are described in further detail in the following section.

9.4.6 Desk Review and Site-Visit Results

As noted earlier, the PY2022 LCI program impact evaluation efforts included an engineering analysis for a sample of 70 projects and a site visit for 30 of those projects reviewed. For 46 of the projects in the sample, no savings adjustments were made. For the remaining 24 projects, the impact evaluation found various discrepancies in the project documentation or the site visit that required adjustments of parameters from the claimed savings estimates. The table below provides project-level realization rates, by measure category, for the 70 LCI projects reviewed by the evaluation. Detailed descriptions of the 24 projects with energy or demand savings adjustments follow Table 115.

Table 115. Large Commercial and Industrial Solutions—PY2022 Desk Review and Site Visit Results, By Project

EM&V participant ID	EM&V review type ⁶⁴	Ex-ante savings		Ex-post savings		Realization rate	
		kW	kWh	kW	kWh	kW	kWh
Custom - CEI							
121001	Desk review	139.8	595,732	139.8	595,732	100.0%	100.0%
421001	Desk review	787.7	3,070,250	787.7	3,070,250	100.0%	100.0%
421002	Desk review	1,062.3	2,295,203	1,062.3	2,295,203	100.0%	100.0%
421011	Desk review	1,302.4	6,237,965	1,302.4	6,237,965	100.0%	100.0%
421021	Desk review	-59.3	46,698	-59.3	46,698	100.0%	100.0%
421022	Desk review	0.0	2,530,290	0.0	2,530,290	n/a	100.0%
Custom—CEI total		3,232.9	14,776,137	3,232.9	14,776,137	100.0%	100.0%
Custom—other							

⁶⁴ All projects that received an on-site visit also received an engineering desk review.

EM&V participant ID	EM&V review type ⁶⁴	Ex-ante savings		Ex-post savings		Realization rate	
		kW	kWh	kW	kWh	kW	kWh
221001	Site visit	55.6	486,670	55.6	486,670	100.0%	100.0%
221003	Desk review	39.4	287,421	48.9	268,643	124.1%	93.5%
221008	Desk review	131.3	1,149,932	131.3	1,149,932	100.0%	100.0%
221010	Site visit	12.9	94,517	12.9	94,548	100.0%	100.0%
321001	Desk review	7.2	63,249	7.2	63,249	100.0%	100.0%
321004	Site visit	8.8	19,267	8.8	19,267	100.0%	100.0%
321005	Desk review	10.6	55,144	10.6	55,144	100.0%	100.0%
321006	Desk review	24.1	177,193	24.1	177,187	100.0%	100.0%
421005	Desk review	1.0	65,327	1.0	65,327	100.0%	100.0%
421006	Desk review	4.3	37,557	3.5	44,722	82.1%	119.1%
421007	Desk review	22.3	192,212	22.3	192,212	100.0%	100.0%
421015	Desk review	38.1	314,652	38.1	314,652	100.0%	100.0%
421018	Site visit	62.6	395,560	62.6	395,560	100.0%	100.0%
421020	Desk review	10.2	75,223	10.2	75,223	100.0%	100.0%
421024	Site visit	42.3	107,401	42.3	107,401	100.0%	100.0%
421025	Desk review	58.8	454,141	58.8	454,141	100.0%	100.0%
Custom—other total		529.4	3,975,465	538.2	3,963,877	101.6%	99.7%
Custom—early review							
121010	Desk review	957.2	7,230,534	957.2	7,230,534	100.0%	100.0%
121014	Desk review	70.0	626,849	70.0	626,849	100.0%	100.0%
321002	Site visit	109.3	957,861	33.4	292,289	30.5%	30.5%
421013	Desk review	195.3	1,655,556	195.3	1,655,555	100.0%	100.0%
421023	Desk review	117.4	838,620	117.4	838,620	100.0%	100.0%
Custom—early review total		1,449.3	11,309,421	1,373.3	10,643,846	94.8%	94.1%
Lighting—deemed							
121002	Site visit	128.0	1,010,454	128.4	1,009,260	100.3%	99.9%
121003	Desk review	11.1	81,750	11.1	81,750	100.0%	100.0%
121005	Site visit	0.0	18,442	0.0	18,442	n/a	100.0%
121006	Site visit	0.0	15,101	0.0	15,101	n/a	100.0%
121007	Site visit	6.2	52,920	6.2	52,920	100.0%	100.0%
121008	Desk review	10.7	42,615	10.7	42,615	100.0%	100.0%
121009	Desk review	74.0	529,693	74.0	530,812	100.0%	100.2%
221006	Desk review	3.4	16,504	4.5	17,841	130.4%	108.1%

EM&V participant ID	EM&V review type ⁶⁴	Ex-ante savings		Ex-post savings		Realization rate	
		kW	kWh	kW	kWh	kW	kWh
221007	Site visit	11.4	69,056	12.9	48,793	112.7%	70.7%
221009	Desk review	2.0	9,889	2.0	9,889	100.0%	100.0%
221013	Site visit	15.0	62,084	10.5	57,225	70.1%	92.2%
221014	Desk review	15.3	77,425	15.3	77,425	100.0%	100.0%
321007	Desk review	14.7	52,298	14.7	52,298	100.0%	100.0%
321008	Desk review	6.4	19,981	6.4	19,981	100.0%	100.0%
321010	Site visit	3.2	23,845	2.8	20,828	87.4%	87.3%
321011	Desk review	7.6	43,169	6.2	33,073	81.5%	76.6%
321013	Site visit	0.0	22,929	0.0	22,929	n/a	100.0%
421003	Site visit	0.9	3,921	0.9	3,921	100.0%	100.0%
421014	Site visit	2.8	13,943	2.8	13,943	100.0%	100.0%
421017	Site visit	23.0	120,873	23.0	120,873	100.0%	100.0%
421019	Site visit	0.0	4,971	0.0	12,212	n/a	245.7%
421026	Site visit	14.9	71,932	14.9	71,932	100.0%	100.0%
421027	Site visit	16.0	77,102	16.2	80,156	101.3%	104.0%
Lighting—deemed total		366.7	2,440,895	363.5	2,414,217	99.1%	98.9%
Lighting—non-deemed							
121004	Desk review	3.5	27,920	3.5	27,920	100.0%	100.0%
121012	Desk review	3.0	28,006	3.0	28,006	100.0%	100.0%
121013	Site visit	4.4	42,712	4.4	42,496	100.0%	99.5%
221005	Desk review	30.5	277,552	30.5	277,552	100.0%	100.0%
221011	Site visit	2.9	61,934	2.9	61,934	100.0%	100.0%
221012	Site visit	10.6	75,977	10.6	70,181	99.9%	92.4%
321003	Desk review	17.8	159,897	17.9	160,069	100.5%	100.1%
321009	Site visit	22.8	234,249	22.7	233,609	99.7%	99.7%
321012	Desk review	162.6	829,009	162.7	832,098	100.1%	100.4%
421004	Site visit	68.7	626,316	68.2	622,411	99.3%	99.4%
421009	Site visit	2.6	26,284	2.6	26,284	100.0%	100.0%
421016	Site visit	10.0	39,261	10.1	39,722	101.1%	101.2%
Lighting—non-deemed total		339.3	2,429,117	339.1	2,422,282	99.9%	99.7%
Other							
121011	Site visit	7.4	65,243	7.4	65,243	100.0%	100.0%
221002	Desk review	3.2	10,710	3.4	10,710	107.0%	100.0%

EM&V participant ID	EM&V review type ⁶⁴	Ex-ante savings		Ex-post savings		Realization rate	
		kW	kWh	kW	kWh	kW	kWh
221004	Desk review	16.5	144,900	3.3	28,980	20.0%	20.0%
221012	Site visit	6.1	13,977	6.3	14,812	103.9%	106.0%
221014	Desk review	0.2	122	0.2	122	100.0%	100.0%
321014	Site visit	15.1	132,456	15.1	132,420	99.9%	100.0%
321015	Desk review	1.2	10,868	1.2	10,868	100.0%	100.0%
421008	Site visit	1.4	118,259	1.4	118,259	100.0%	100.0%
421009	Site visit	1.4	6,096	1.4	6,096	100.0%	100.0%
421010	Desk review	0.6	8,247	0.6	8,247	100.0%	100.0%
421012	Desk review	0.9	13,316	0.9	13,316	100.0%	100.0%
421016	Site visit	2.4	28,964	2.4	28,964	100.0%	100.0%
Other total		56.4	553,157	43.7	438,036	77.4%	79.2%

The project-based savings adjustments are provided below by measure strata and EM&V Participant ID. Complete details for the desk reviews and site visits can be found in the Technical Appendix companion to this report.

9.4.6.1 Continuous Energy Improvement

The *CEI* stratum consisted of 21 projects with a total gross energy savings of 29,610 MWh, representing 31 percent of the entire program. Six desk reviews were conducted on this stratum, resulting in zero projects with savings adjustments.

CEI projects consist of meetings and working with energy ambassadors at large C&I customers to implement facility-wide energy efficiency awareness. *CEI* projects are analyzed using metered data, monthly billing data, or facility interval data, following Option C of the International Performance Measurement and Verification Protocol (IPMVP) for whole-facility analysis. The M&V plan for *CEI* projects is reviewed annually by the EM&V team, and all projects selected for desk reviews follow the M&V plan.

9.4.6.2 Custom—Early Review

The *custom—early review* stratum consisted of 14 projects with a total gross energy savings of 29,118 MWh, representing 30 percent of the program. Five desk reviews and one site visit were conducted on this stratum, resulting in one project with savings adjustments.

The measures in this stratum consisted of one *CEI*, two *variable frequency drive*, and eleven *custom—non-heating and cooling* projects. Among the non-*CEI* projects, popular measures for *early reviews* consisted of *compressed air energy improvements* and *injection molding machines* replacements. One project with an adjustment is described below.

- **Participant ID 321002 calculation methodology adjustment.** The site is a manufacturing facility that replaced its *2 HP pre-dryer upblast fans* with *3/4 HP motors*. The reported savings used direct measurement, and the results for four of the six systems exceeded the theoretical maximum consumption of the baseline *pre-dryer systems*. The M&V team conducted a site visit to determine if there was a production change during the implementation of the project but was unable to determine a cause for the discrepancy in the metered data. The evaluated savings used a straightforward calculation based on estimated system runtimes and each system's pre- and *post-motor HP*. The methodology adjustments resulted in substantially lower energy and demand savings.

9.4.6.3 Custom—Other

The *custom—other* stratum consisted of 30 projects with a total gross energy savings of 6,734 MWh, representing ten percent of the entire program. Sixteen desk reviews and five site visits were conducted on this stratum, resulting in four projects with savings adjustments. The savings adjustments were primarily methodology adjustments or error corrections from the metered data analysis conducted by CLEARResult.

The most common measures in the *custom—other* strata were *compressed air energy improvements*. *Compressed air energy improvements* typically consisted of monitoring all major compressor systems components (compressors, dryers, blowers) at the equipment level in the pre- and post-case, regressing performance characteristics, such as standard cubic feet per minute (CFM) (SCFM) per kilowatt (SCFM/kW), and using a bin analysis to estimate energy and demand saving.

Outside of the *compressed air energy improvement* upgrades energy savings were determined using equipment-level monitoring in the *pre- and post-case* or following agreed-upon methodologies outlined in M&V plans approved by the M&V team. The findings for the *custom—other* strata were decreased from PY2021. The four projects with adjustments are described below.

- **Participant ID 221003 adjustment for calculation error.** The site is a manufacturing facility that installed a new *chiller and cooling tower with a VFD fan*. The capacity comfort equation was adjusted so that the comfort capacity is 100 percent at 95 degrees and 0 percent at 70 degrees (the set point), with a linear interpolation in between. The reported savings used a formula that did not give a smooth change from 70 to 95 degrees. This adjustment decreased the comfort capacity at low dry-bulb temperatures but increased the comfort capacity at high dry-bulb temperatures. This resulted in decreased energy savings but increased demand savings.
- **Participant ID 221010 adjustment for white paper parameter.** The site is a manufacturing facility that upgraded its current *compressed air system* by installing a *50 HP VSD compressor, a non-cycling dryer, two no-loss drains, and a coalescing filter*. The reported savings used an atmospheric pressure of *14.7 psi* in the calculations rather than the *14.5* indicated in the work paper. Adjusting the atmospheric pressure resulted in slightly increased energy and demand savings. A site visit was conducted at this facility with no adjustments recommended.

- **Participant ID 321006 adjustment for white paper parameter and operating pressure.** The site is an industrial manufacturing facility that reduced leaks within its compressed air system. The reported savings used an atmospheric pressure of 14.7 in the savings calculations rather than the 14.5 pounds per square inch (psi) indicated in the work paper. This adjustment slightly decreased the energy and demand savings. In addition, the operating pressure of the base compressor was adjusted from 100 pounds per square inch in gauge (psig) to 110 psig to match the screenshot in the calculation file. Adjusting this pressure had a minimal effect on energy and demand savings.
- **Participant ID 421006 adjustment for calculation methodology.** The site is a hospital that installed VFDs on 9.5 HP of air handling unit fans and 8 HP of chilled water pumps. The reported savings used the deemed energy savings values from the Texas TRM for Climate Zone 1 and divided the energy savings by 8,760 for the demand estimate. The evaluated savings followed the algorithms outlined in the Texas TRM using Jonesboro, AR normalized weather data. The evaluated demand savings were evaluated using the June–September, Monday–Friday, 1:00 p.m.–8:00 p.m. average from the load shape generated using the algorithms. Overall, the change in methodology resulted in increased energy savings and decreased demand savings.

9.4.6.4 Other

The *other* stratum consists of prescriptive *non-lighting* measures, including *HVAC replace-on-burnout, air- and water-cooled chillers, commercial showerheads, faucet aerators, and commercial door air infiltration* projects. The *other* strata consisted of 104 projects with 5,817 MWh of energy savings, representing six percent of the program savings. Twelve desk reviews and six site visits were conducted on this stratum, with three adjustments to savings. The projects with adjustments are described below.

- **Participant ID 221004 adjustment for incorrect water heater factor.** The site is a church that direct installed 12 aerators, four showerheads, and 22 LED bulbs. The ex-ante calculation for showerhead savings used a peak factor of 1.2e-5 indicating a gas water heater, instead of 0.08 for the electric resistance water heater. Adjusting the peak factor slightly increased the demand savings.
- **Participant ID 221012 adjustment for incorrect efficiencies.** The site is a new construction outpatient cancer treatment facility that installed LED lighting and energy-efficient HVAC units. The ex-ante HSPF for two lines related to the AR18TSFYBWXX heat pump was 8.2 instead of the 11 listed on the AHRI certification. Adjusting this HSPF increased energy savings. The EER for two lines related to the AR09TSFACWKX heat pump was 12.5 instead of the 15.5 listed on the AHRI certification. Adjusting this EER increased demand savings
- **Participant ID 321014 adjustment for gasket length.** The site is a grocery store that installed new refrigeration door gaskets on 75 freezer units. The length of door gaskets installed was slightly different between the tracking system values and the evaluated savings. The total gasket length for the reported savings was 1,151.7, while the evaluated savings found 1,151.48 feet. This adjustment slightly decreased energy and demand savings.

9.4.6.5 Lighting—Deemed

The *lighting—deemed* stratum consists of *lighting* projects that strictly adhere to the deemed lighting AOH and CF outlined in the TRM. This stratum consisted of 353 projects with over 20,554 MWh of claimed savings, representing 21 percent of the program. Twenty-three desk reviews and 14 site visits were conducted on this stratum, with 9 adjustments to the claimed savings.

- **Participant ID 121002 savings adjustments for fixture input wattages, and baseline quantity mismatch.** The site is a manufacturing facility that replaced fluorescent, halogen, high-pressure sodium, metal halide, and incandescent interior and exterior lighting with *LED lighting*. A site visit was conducted at this facility. Overall, four adjustments were made from the desk review and site visit resulting in increased energy and decreased demand savings:

 - The FXLED500SF/D10/PCS light was found DLC certified at 514 W. The wattage in the ex-post for this light was adjusted from the reported 508 W to 514 W. This adjustment decreased energy savings.
 - The ARBAY3-215/PIR fixture was found DLC certified at 215.2 W. The DLC certificate included for the project was for an ARBAY3-215N model, while the site photos show the installed fixture model of ARBAY3-215/PIR. Adjusting the input wattage from 216 W to 215 W resulted in a slight increase in energy and demand savings for the fixture retrofit measures and a slight decrease in energy and demand savings for the controls measures.
 - According to the site inspection form, a quantity of *thirteen 400 W metal halide fixtures* were replaced with *eleven 215 W LED fixtures*. The *baseline quantity* was adjusted from the reported 13 W to 11 W. This adjustment decreased energy savings.
 - One *LED fixture* (DSXF2 LED P3 50K 70CRI FL MVOLT YKC62 DDBXD) was found to be DLC certified at 92.9 W. The wattage was adjusted from the reported 102 W to 93 W. This increased energy and demand savings.
- **Participant ID 121009 savings adjustment for fixture model number.** The site is an inpatient health care facility that replaced interior and exterior fluorescent, incandescent, halogen, metal halide, and high-pressure sodium lighting with *LED lighting*. The external TCP fixture was shown to have model number *FLKUA1W50KBR* in a post-inspection photo. This model number differs from the one reported on the invoice, work order, and post-inspection form (*FLKUA2W50KBR*). FLKUA1W50KBR is certified at 15 W, while FLKUA2W50KBR is certified at 25 W. The wattage was adjusted to match the post-inspection photo model number for the four line-items with this fixture, which resulted in increased energy savings.
- **Participant ID 221006 savings adjustment for deemed building type.** The site is a retail store in a strip mall that replaced fluorescent lighting with *LED lighting*. The building as found on Google Earth imagery is a *strip mall*. The *building type* was adjusted from *retail: excluding malls and strip centers* to *retail: strip shopping & non-enclosed malls* for the evaluated savings. This adjustment increased energy and demand savings.

- **Participant ID 221007 savings adjustment for deemed building type.** The site is a church that replaced interior and exterior fluorescent, metal halide, and incandescent lighting with *LED lighting*. A site visit was conducted to verify fixture counts and the building type. Two adjustments were made to the savings from the desk review and site visit resulting in decreased energy and increased demand savings:
 - The *building type* was adjusted from *education: k-12 w/o summer session* to *religious*. The primary building type is a *church*. This adjustment decreased energy savings and increased demand savings.
 - In addition, the *building type* for one line item corresponding to *church interior exits* was adjusted from the reported *education: k-12 w/o summer session* to *all building types: exit signs*. This increased energy savings and demand savings.
- **Participant ID 221013 savings adjustment for deemed building type.** A non-refrigerated warehouse replaced interior linear fluorescent lighting with *LED lighting*. The site visit found this building has been converted into an office facility. Typical operating hours are 8-5 M-F. Adjusting the *building type* from *warehouse* to *office* resulted in decreased energy and demand savings.
- **Participant ID 321010 savings adjustment for post-installation quantity changes by occupant.** The site is a gymnasium that replaced fluorescent and incandescent lighting with *LED lighting*. The site visit noted quantity differences for four areas of the building. The project included delamping most fixtures from *four lamps* to *two lamps*, but the site visit found the customer had subsequently purchased more LED lamps and increased the lamps per fixture back to four for the *massage*, *NE workout*, *NW workout*, and *office* areas. This decreased both energy and demand savings.
- **Participant ID 321011 savings adjustment for deemed building type.** The site is a gymnastics gymnasium that replaced fluorescent and metal halide lighting with *LED lighting*. The *building type* was adjusted from *retail: excluding malls & strip centers* to *public assembly*, as the building is a *gymnasium*. As defined in the Texas TRM, which the Arkansas TRM *lighting* section references, *public assembly* encompasses gathering places for recreational activities. This decreased energy and demand savings.
- **Participant ID 421019 savings adjustment for installed fixture quantity.** The site is an advertising company that replaced metal halide panel lighting with *LED lighting*. From the pre- and post-installation photos, there were *four metal halide lamps* for each panel replaced with *two LED lamps* (panels 72112 and 72111). Adjusting the pre-installation quantity for each line item from *two* to *four* drastically increased the energy savings.
- **Participant ID 421027 savings adjustment for fixture input wattage.** The site is a new construction supermarket that installed *LED lighting*. Overall, two adjustments were made to the savings from the desk review and site visit resulting in increase energy and demand savings:
 - The site visit found slightly different fixture counts than those noted in the project documentation. The on-site inspection found only *one pole light* on the property, and *two* were noted in the project documentation. The on-site found that only *one 17 W LED fixture* was installed in the restrooms while *two* were noted in the

project documentation. Adjusting these quantities resulted in increased energy savings.

- The site visit estimated the parking area at *600 sq. ft.* when the project documentation included *224*. Adjusting the parking lot area resulted in increased energy savings.

9.4.6.6 Lighting—Non-Deemed

The *lighting—non-deemed* strata consisted of lighting projects with an AOH or CF tracked in the tracking system different from the deemed TRM value. These TRM value differences sometimes consist of 8,760-hour safety lighting for individual projects or custom estimated AOH for each facility area. A total of 25 projects were in this strata, with 4,569 MWh of claimed savings, representing five percent of the program savings.

Twelve desk reviews and seven site visits were conducted on this stratum. The desk reviews focused on the installed lighting details, while the EM&V team attempted to schedule site visits to verify the custom AOH values. The site visits conducted for custom AOH values consisted of reviewing each area's use within the facility with the site personnel, observing the spaces' use, and collecting information on the controls. The EM&V team made engineering judgments about whether the custom AOH was valid and if the resulting AOH or CF should be adjusted for what was observed during the site visit.

The desk reviews and site visits resulted in seven projects with adjustments to the claimed savings.

- **Participant ID 121013 adjustment for installed fixture model.** The site is a grocery store that replaced fluorescent and HID fixtures with LED fixtures throughout the interior and exterior of their facility. A quantity of 18 linear *LED fixtures (iGLO model GL150W4STRCANPY25N5000KUDX-E)* was found to be a different model in the post-inspection photos (*iGLO GL150WCANPYSN5000KUDX-E*). The model number in the tracking data were DLC certified at *147.45 W*, but the model in the photos was certified at *149.59 W*. Adjusting the input wattage from *147 W* to *150 W* slightly decreased energy and demand savings.
- **Participant ID 221012 adjustments for fixture input wattage, baseline area classification, and installed HVAC efficiencies.** The site is a new construction outpatient cancer treatment facility that installed *LED lighting and energy-efficient HVAC units*. Overall, four adjustments were made from the desk review and site visit, resulting in decreased energy and demand savings:
 - The reported savings used the DLC certification for the EX3DI-A-WHE-835-3 fixture and applied a proportionate adjustment based on length (from *three feet* to *two feet*), resulting in *21 W*. The evaluated savings found an updated EX3DI-A-WHE-835-2-WA-U-ND-1-0-X DLC certification and adjusted from *21 W* to *22 W*. This slightly decreased interior lighting savings while increasing interior *lighting control* savings.
 - Two sets of lights were moved from the *exterior canopy* section to the *entry/exit doors* section based on the engineering drawings; this increased lighting savings in the *canopy section* while decreasing energy savings in the *entry doors/other doors* section. These adjustments slightly reduced energy savings.

- **Participant ID 321003 adjustments for incorrect fixture code, fixture input wattage, and calculation error.** The site is a recreational center that replaced metal halide and fluorescent lamps with *LED lamps and fixtures*. Overall, three adjustments were made from the desk review, resulting in increased energy and demand savings:
 - The wattage of two T8-ER120B fixtures was adjusted from *15 W* to *12 W*. The work order had these listed as *LED015-TUBE*, even though other fixtures with the same model number were correctly listed as *LED012-TUBE*. This adjustment increased energy and demand savings.
 - The wattage of 16 LMW496-F-5000K fixtures was adjusted from *92 W* to *97 W*. The DLC certification included in the project documentation and verified in the QPL had the input wattage listed as *97.3 W*. This adjustment decreased energy and demand savings.
 - Three line items associated with the *pump rm* had zero energy and demand savings in the tracking system. All three line items had a *MeasureDesc* of *outdoor—LEDs*. The evaluated savings calculated energy and demand savings for all three of these line-items, which increased the overall energy and demand savings.
- **Participant ID 321009 adjustments for fixture input wattage and incorrect savings calculation.** The site is a wood 3-shift manufacturing facility that replaced fluorescent and metal halide lighting with *LED lighting*. Overall, four adjustments were made from the desk review and site visit, resulting in decreased energy and demand savings:
 - Five line-items had their retrofit wattages adjusted from *204 W* to *203 W*. The light AF-50K-200-BRZ-T3-120-277-TLPEC was found to be DLC certified at *203.4 W*. This adjustment slightly increased energy and demand savings.
 - One line item had its retrofit wattage adjusted from *40 W* to *45 W*. The light CSVTL48ALO3MVOLTSWW380CRI was found to be DLC certified at *44.82 W*. This adjustment slightly decreased energy and demand savings.
 - One line item had its retrofit wattage adjusted from *151 W* to *150 W*. The light RHB3-X-150-BLK-120-277 was found to be DLC certified at *150 W*. This adjustment slightly increased energy and demand savings.
 - One line item had its energy savings zeroed because the work order indicated "no change" in the light. This decreased energy and demand savings.
- **Participant ID 321012 adjustments for exit sign building type and fixture input wattage.** The site is a warehouse that replaced fluorescent, incandescent, halogen, and metal halide lighting with *LED lighting*. Overall, two adjustments were made from the desk review, resulting in increased energy and demand savings:
 - The *building type* for exit signs was adjusted from *warehouse: non-refrigerated* to *all building types: exit signs*. This adjustment increased energy and demand savings.
 - The retrofit installed wattage was adjusted from *54 W* to *53 W* for five line-items based on the DLC certification for LOD-MCL-54W50KHL, which was found to be certified at *53.3 W*. This adjustment increased energy and demand savings.

- **Participant ID 421004 adjustments for custom hours of use, fixture input wattage, and exit sign building type.** The site is a commercial bagging operations facility that replaced metal halide, fluorescent, and mercury vapor lighting with *LED lighting*. Overall, three adjustments were made from the desk review and site visit, resulting in decreased energy and demand savings:
 - Three line-items were adjusted from *2,060 AOH* to *2,080* to match the AOH letter—this increased energy savings. One line item's pre-quantity was adjusted from *6* to *7* to match an adjustment made to the post-quantity during the post-inspection. This decreased energy and demand savings.
 - The *INTERIOR GAS NO AIR UPPER LANDING MISSED ON PRE* space had two *LED fixtures* (T8-ER120B-F18W-AB 5000K) installed. The tracking system noted these as *12 W* fixtures, while the DLC certification had *18 W*. This adjustment resulted in decreased energy and demand savings.
 - The exit sign line item's building type was adjusted from *manufacturing: 3 shift* to *all building types - exit sign*. This increased energy and demand savings.
- **Participant ID 421016 adjustment for fixture input wattage.** The site is a new construction cancer health center that installed *LED lighting* and *mini-split heat pump* units. A total of *eight fixtures* (model number DTLTG3.18-4-D500-80-35K-U-FR-WH-DIMOFF-N-EMBAT) in the *waiting* and *vestibule* areas were reported at *ten input watts*, while the product specifications indicated *4 W*. The evaluated savings adjusted the input wattage for these measures, which slightly increased savings.

9.4.7 Program Website and Documentation Review

To understand the LCI program, the EM&V team interviewed program staff and reviewed all information available on EAL's website related to the program and supplemental documentation provided by EAL and CLEAResult. The EM&V team received the following documentation related to the program:

- ArchEE data tracking system extract containing PY2022 participant information and savings;
- Quality Control and Assurance Manual for EAL commercial programs, dated February 1, 2023;
- PY2022 Program Manual for the LCI Program obtained from the EAL website; and
- Updated white papers or M&V plans for *process chiller*, *refrigerator recycling*, *energy recovery ventilators*, and *CEI savings*.

9.4.7.1 Program Website Review

Information found on the LCI program website includes a general description of the program, such as eligibility and how participation works. It also provides a list of eligible measures and their incentive discounts. An example project at an industrial facility is displayed along with the estimated energy savings, incentive amount, and utility cost savings. A copy of the program and CoolSaver trade ally manuals are located on the website, and a search link is provided to find a participating trade ally by zip code lookup. Health and safety guidelines that employees and trade allies will follow in response to COVID-19 were also displayed at the top of the page.

9.4.7.2 Program Documentation Review

The EM&V team received program-related documentation key to understanding the program and participation processes, including the PY2022 Program Manual and Quality Control and Assurance Manual. Key documents to understanding the program savings methodologies and measuring-level savings include the project-level files, ArchEE data, TRM 9.0, supplementary deemed savings and M&V methodologies, and ongoing reviews with EAL and CLEAResult staff. Supplementary deemed savings and M&V methodologies included *overhead door weatherstripping, PTAC sealing, CEI, injection molding machines, and compressed air systems*.

The project details and documentation collected by EAL, the implementer, and trade allies for many sampled projects are extensive. As bulleted in the section above, the critical baseline and new equipment assumptions, drivers of the prescriptive measure savings, are well described in trade ally proposals and equipment inventories. Additional documents collected at project approval support the equipment quantities and performance metrics. The documentation included invoices (support for claimed quantities and equipment make and models) and manufacturers' specification sheets (confirmation of equipment makes, models, sizes, types, efficiencies). These are industry-standard best practices for documentation collection, which reduce the uncertainty of the project savings assumptions and development.

The EM&V team found that documentation, in most cases, matched the data recorded in the ArchEE tracking system. Equipment type, quantities, and in most cases, building/space conditions were accurately recorded compared to the efficient technology data and project file documentation reviewed. Also, across projects, most project files contained similar documentation. Most project files had, at a minimum, the signed customer proposal and project agreement. This proposal typically included the list of *retrofit* measures, with pre- and post-conditions and equipment parameters identified. Some files included multiple copies (e.g., initial proposal, final proposal) depending on whether the scope had changed during project development. Many project files included pre- and post-inspection forms with field inspector notes indicating site results.

Many projects also included pre- and post-installation photographic documentation. Photos were included with some proposals and inspection reports, but not all. Except for *direct-install* projects, all project files included invoices. All invoices were found to have measure-level cost breakdowns, which helped support and confirm project details. Documentation of site stipulated AOH, usually a letter or email with schedules of use from the customer, was included in project file requests for sites that used stipulated AOH.

In PY2022, the EM&V team found the project documentation was as robust as PY2021, previous evaluations, and as a result, additional data requests to the implementer remained low compared to prior evaluations.

The project proposals include various details; however, the EM&V team would recommend adding other key parameters captured at the site used for savings calculations—these include *building type* and *heating and cooling space types*.

PY2022 saw continual documentation consistency for the make and model of all *lighting* products. DLC and ENERGY STAR certification sheets were included for all *lighting* projects. Manufacturer's specification sheets, however, were not included for any *lighting* projects. Manufacturers' specification sheets are essential for *LED exit signs* because DLC or ENERGY STAR certification sheets are not available for these types of lights. As *lighting* measures contribute a significant portion of the program savings, documents that support key variables that are a driver of *lighting* measure savings include the post-installation lighting wattage. Having manufacturer's specification sheets would increase clarity between similar lighting types that may differ by color temperature, voltage, and other features that can impact the equipment's qualification and fixture input wattage.

Work orders or post inspections were provided for most *lighting* projects sampled, which allowed for easy verification of post quantities and model numbers. Verification of baseline quantities and lighting model numbers were limited in cases where work orders and pre-inspections were not provided.

9.5 NET-TO-GROSS RESULTS

9.5.1 Net-to-Gross Methodology

We assessed NTG via self-reports through the participant customer survey based on the guidance outlined in Protocol F of TRM 9.0. As previously mentioned, to minimize recall concerns, and to allow for enough time for spillover to occur, free-ridership and spillover questions were not asked of everyone, and free-ridership and spillover were calculated separately. The EM&V completed 30 participant surveys accounting for 37 different measures. Among those, 19 received the free-ridership battery and 35 received the spillover battery, with 17 of those respondents receiving both the free-ridership and spillover series (July 2021 through December 2021 participants). Table 116 below shows how the response counts broke out for both free-ridership and spillover based on their participation date for the *CoolSaver* measures. The Large Commercial and Industrial Solutions program had a comprehensive evaluation conducted in PY20 that included all non-*CoolSaver* measures.

Table 116. Summary of Self-Report Participant Survey Respondents by Participation Period

Participation period	Measure type	Measures evaluated	
		Free-ridership	Spillover
January 2021–June 2021	Thermostat	N/A	1
	Tune-up	N/A	1
	Total	N/A	2
July 2021–December 2021	Thermostat	5	5
	Tune-up	12	12
	Total	18	18

Participation period	Measure type	Measures evaluated	
		Free-ridership	Spillover
January 2022–June 2022	Thermostat	8	N/A
	Tune-up	10	N/A
	Total	18	N/A
Total		36	20

The survey included a series of structured questions about the participant’s decision to pursue rebated energy-efficient upgrades to estimate free-ridership. As the TRM 9.0 does not allow for partial free riders, participants were either classified as full-free-riders (100 percent free-ridership) or non-free-riders (0 percent free-ridership) based on their responses to these decision-making questions. Table 117 below shows the survey questions we used to classify free riders.

Table 117. Self-Report Free-ridership Survey Questions

Survey question	Response options
FR2. Before learning about the <PROGRAM> program, was your organization already planning to purchase and install the <MEASURE> project in <YEAR>? If CoolSaver: Before learning about the discount available through the <PROGRAM>, was your organization already planning to have a high level <MEASURE> performed in the same year?	01 Yes
	02 No
	88 Don't know
	99 Refused
FR3. If the program incentive/discount had not been available, would your <YEAR> budget have accommodated the full cost of the <MEASURE>?	01 Yes
	02 No
	88 Don't know
	99 Refused
FR4. If the incentive/discount or other assistance from the program had not been available, would you still have purchased the exact same <MEASURE> project, or would you have purchased something different?	01 Same [SKIP TO FR7]
	02 Different
	88 Don't know
	99 Refused

Survey question	Response options
FR5. [ASK IF FR4 <> 1] Would you have purchased and installed any <MEASURE> at all? If CoolSaver: If the discount had not been available, would you still have purchased any <MEASURE>?	01 Yes
	02 No
	88 Don't know
	99 Refused
FR6. [ASK IF FR5 = 1] Would it have been the same level/efficiency, higher level/efficiency, or lower level/efficiency?	01 Same level of efficiency
	02 Higher efficiency
	03 Lower efficiency
	88 Don't know
	99 Refused
FR7. [ASK IF FR4 = 1 OR FR5 = 1] If the incentive/discount or other assistance from the program had not been available, when would you have installed/performed the <MEASURE>? Would you have installed/performed it...	01 At the same time or sooner
	02 Within one year
	03 One to two years later
	04 Three to five years later
	05 More than five years later
	88 Don't know
	99 Refused

We followed the same criteria for classifying free riders used in previous evaluation research and for other programs for consistency and comparability with prior evaluation results. To be classified as a full-free-rider, respondents must have indicated all the following conditions; any respondent that did not meet all three of these conditions we classified as a non-free-rider:

- were already planning to purchase and install the project in the same year before learning about the program (FR2 = 1),
- budget would have accommodated the full cost of project in the absence of the program rebate (FR3 = 1), and
- would have purchased the same or higher efficiency measure within one year in the absence of the program ((FR4 = 1 OR (FR6 = 1 OR 2)) AND (FR7 = 1 OR 2)).

The participant survey also included several consistency checks to verify a participant's free-ridership status. These consistency checks provide additional information about the participant's decision to install the program-provided measures and substantiate their classification as full or non-free-rider. Consistency check questions include whether the participant received a recommendation to install a piece of equipment, how influential that recommendation was on their decision, and how influential the program incentive and other assistance were on their decision to install the program measure.

To assess spillover, we asked about recent installations of any additional energy-efficient improvements made since program participation *without* financial assistance from EAL. Respondents were then asked how important their experience in EAL's Large Commercial and Industrial Solutions program was to their decision to install these additional improvements. Full

savings were attributed to the program as spillover if the respondent said *very important*, and one-half-savings were attributed to the program if the respondent said, *somewhat important*. Respondents stating that their experience was *not at all important* or *not very important* received no spillover savings.

Free-ridership and spillover rates were estimated for each respondent using the methodology approach described above. Individual free-ridership and spillover rates were then weighted to adjust for proportional sampling differences, non-response, and gross energy savings to calculate overall estimates representative of the program population. NTG ratios were then calculated using the following equation:

$$NTG \text{ Ratio} = 1 - \text{Free-ridership} + \text{Spillover}$$

9.5.2 Detailed Results

Inclusive of free-ridership and spillover, the evaluation resulted in an overall NTG ratio of 100 percent for *CoolSaver* measures. There was no identified free riders, with all respondents indicating the program was important in making the energy-efficient improvements. Spillover was mentioned by one respondent, which resulted in less than one percent, resulting in an overall NTG ratio of just over 100 percent.

Table 118 below summarizes NTG results.

Table 118. Summary of CoolSaver NTG Results for the Large Commercial and Industrial Solutions Program

Free-ridership	Spillover	NTG
0%	Approx. 1%	100.6%

Feedback from participants suggests that the program was highly influential in the decision to make the energy-efficient improvements. Five respondents said they were already planning the project before learning about the program, but they also said they did not have the budget to accommodate the project's full cost. Hence, these were determined to be non-free-riders.

One respondent said they installed additional energy-efficiency measures. This respondent installed another *thermostat* because of their program experience, resulting in us attributing some spillover, less than one percent, to the program.

9.5.2.1 Trade Ally Feedback

Both contractors we spoke with said their sales of program equipment and services would be lower if the program was not available. One contractor said the program has been “instrumental” in us not having to lay off staff in the winter and that the Entergy program has helped them be a more stable business in the months that it would be difficult.

These contractors were satisfied with the program, and each had a recommendation for the program. One contractor would like more resources from EAL, which has credibility right to the customer for a greater understanding of what the programs offer. This customer wanted something to be able to provide customers who were unsure of EAL's role in the program. The second contractor was hoping EAL could consider removing the *refrigerant* requirement and revisit the incentive amounts. With the increased cost of refrigerant and supplies and that the

incentive levels have not changed, the contractor felt there was an unfair balance with the program getting the same level of savings but the contractor needing to pay more. This contractor felt the *refrigerant* requirement does not help the efficiency part (which he also indicated was not required by other programs they participate in) and has a more significant cost implication for the contractors.

9.6 OVERALL SAVINGS ESTIMATES

The ArchEE tracking system contained the key assumptions and parameters to calculate measure savings. After performing evaluation savings calculations claimed by the LCI program across a sample of desk reviews and site visits, the EM&V team found discrepancies in some measure categories. The adjustments that had the most considerable impact on program savings were from calculation methodologies for a *custom—early review* project; *lighting—deemed* and *lighting—non-deemed* adjustments for installed *fixture types*, *input fixture wattages*, and *custom AOH* values; and data tracking errors in *other*, as detailed earlier.

The EM&V team calculated savings across the program measures based on the tracking data review and desk review results. The overall LCI program evaluated savings resulted in lower energy and demand savings than those calculated by the program implementer (96.8 percent kilowatt-hour and 98.3 percent kilowatt realization rates). Final evaluated savings for the *tune-up* measures are based on adjustments made during the tracking system review. All other measures' evaluated savings results are based on desk review and site-visit level adjustments by sampled strata. The tracking system informed qualitative findings and served as a guide for potential issues for investigation during desk reviews.

The overall realization rates were affected most by variances between the claimed and evaluated savings (kilowatt and kilowatt-hour) from *custom—early review*, and *other* measures. There were also multiple projects with formula errors. *Lighting—non-deemed* had adjustments to *custom AOH* and *power adjustment factors* resulting from site visits and desk reviews. Finally, savings adjustments were made to *commercial Wi-Fi thermostat* measures due to incorrect energy and demand savings values used for *heat pumps* in reported savings.

Table 119 shows that *other* measures had the most significant realization rate adjustments, while *custom—early review* had the most significant gross changes in energy and demand savings.

Table 119. Large Commercial and Industrial Solutions—Final Evaluated Energy Savings and Realization Rates by Measure Strata

Strata	Ex-ante savings		Ex-post savings		Realization rate		Data source
	kW	kWh	kW	kWh	kW	kWh	
Custom—continuous energy improvement	7,194	29,609,881	7,194	29,609,881	100.0%	100.0%	Desk reviews
Custom—other	971	6,734,063	987	6,714,433	101.6%	99.7%	Desk reviews and site visits
Custom—early review	3,478	29,117,823	3,296	27,404,201	94.8%	94.1%	Desk reviews and site visits
Lighting-deemed	2,940	20,553,554	2,914	20,328,909	99.1%	98.9%	Desk reviews and site visits

Strata	Ex-ante savings		Ex-post savings		Realization rate		Data source
	kW	kWh	kW	kWh	kW	kWh	
Lighting—non-deemed	611	4,568,623	610	4,555,768	99.9%	99.7%	Desk reviews and site visits
Other	386	5,816,691	299	4,606,142	77.4%	79.2%	Desk reviews and site visits
Tune-ups	853	2,952,728	859	2,946,381	100.7%	99.8%	Tracking system and M&V review
Total	16,434	99,353,362	16,160	96,165,716	98.3%	96.8%	

9.7 QUALITY CONTROL/QUALITY ASSURANCE PROCESSES

EAL worked with the implementer CLEAResult to develop a quality management process for all EAL commercial programs. This process can be used for projects with or without a trade ally.

For trade-ally projects, CLEAResult emphasizes trade ally training to remind trade allies of program processes, technical requirements for measures, application requirements, and awareness of the QC process. QC protocols include clear pass/fail thresholds for addressing trade ally performance. During the post-inspection, any project (trade-ally-driven or not), the fail condition results if the work scope is significantly incomplete, the efficient measures are found to be ineligible, or there are safety or code issues with the installation. A failed project causes the trade ally to be removed from the reduced inspection rate list that the program maintains and is put under probationary status. Once a trade ally is removed, that contractor must complete five consecutive projects without "failures" to be returned to the reduced inspection rate list. For a trade ally to qualify for the reduced inspection rate, they must complete five consecutive projects without a failure as determined by the program implementer.

Customers must sign a customer agreement to be eligible for the program; as part of this agreement, the customer is willing to allow a field inspector to perform a QC inspection. These inspections could happen to any project regardless of scope. An inspection form was developed to perform standardized and consistent inspections to ensure the equipment is being used following the guidelines outlined in the customer agreement.

Below are the steps that are followed during the QA/QC process, as outlined in the Quality Control and Assurance Process Manual:

- enrollment and customer verification,
- project documentation and completeness review,
- pre-engineering QC and approval,
- pre-installation inspection,
- pre-installation inspection corrections—trade-ally-driven projects,
- post-installation QC,
- post-installation inspection,
- post-installation inspection corrections—trade-ally-driven projects,
- post-engineering approval, and

- post-project review and closeout.

For all projects, the QA/QC process begins with verification that customers are eligible for participation in the program. Next, project documentation (including contact information, signed proposal, W9 forms, and pre-installation photos) is verified to be complete. Following the documentation check, the engineering team at CLEAResult checks to ensure that the project is installing eligible equipment and that savings parameters and calculations are accurate. For QA, the program staff also conducts reviews of each incentive application. After the engineering QC check, proposals that do not pass all aspects of the review are rejected and sent back for completion.

The next stage in the QA/QC process occurs during the pre-installation inspection stage, where pre-installation inspections are conducted to confirm pre-installation conditions. These inspections are completed for 100 percent of custom projects and the largest (approximately 10 percent) trade-ally projects identified by kilowatt-hour savings. For the LCI program, larger projects are defined as those with savings estimated at over 150,000 kWh. Inspections are also completed for all prescriptive projects submitted by a non-trade ally or submitted by a trade ally under probation. A minimum of 20 percent of all other projects under 150,000 kWh are also inspected. For trade allies who are not under probationary status, at least ten percent of their total project quantities submitted are pre- or post-inspected. Any findings during the pre-inspection stage are returned to the trade ally to make corrections before the project may proceed.

Following the installation of the project, a post-installation QC check is performed via a review of documentation, to verify invoicing, any changes to the project, and a review of submitted photos. Any findings during this QC check are once again returned to the trade ally to make corrections before the project may proceed. An on-site inspection is then conducted following the same sampling methodology as detailed in the pre-installation inspection above.

At the final stage of the process, a final engineering review of the post-installation notes, completeness of documentation, and post-inspection photos is performed. Project savings calculations or incentives are adjusted as appropriate. When this is complete, the project and all required documentation is submitted to EAL for approval and project closeout.

As part of the LCI program evaluation activities, the EM&V team assessed the program's documentation and the 70 sampled projects used to inform the impact evaluation. The documentation included:

- program manual;
- program tracking system/database extracts;
- supplemental project-level documentation:
 - customer proposals and project agreements,
 - invoices,
 - pre-inspection form (where applicable),
 - post-inspection form (where applicable), and
 - photographic documentation (where applicable).

As noted in the prior sections, the EM&V team confirmed that the information presented in the ArchEE tracking system was, for the most part, accurate compared to that in the project documentation. In general, the documentation provided project information that aligned with the stated QC goals, though the EM&V team found three specific areas for improvement:

1. Ensure photographic documentation provided is clear and legible and include nameplate photos of lighting model numbers and HVAC units, when possible,
2. Provide lighting specification sheets, and
3. Provide work orders and/or post-inspection reports on all projects.

10.0 SMALL BUSINESS SOLUTIONS

The Small Business Solutions (SBS) program offers small commercial customers cash and non-cash incentives to implement energy efficiency improvements. The program assists small business customers by analyzing facility energy use and identifying energy efficiency improvement projects. The program targets small business customers with a peak electric demand of less than 100 kW. The program consults eligible customers to identify energy savings opportunities and available financial incentives. The program utilizes a network of pre-qualified trade allies to analyze customers' energy use, identify energy efficiency improvement projects, and install the recommended measures.

The SBS program is designed to overcome the unique market barriers that restrict small businesses' ability to implement energy-efficient technologies and practices. These market barriers include:

- Small business owners often lack technical expertise or time to devote to energy efficiency improvements. Most of these businesses do not have adequate time or resources to focus on energy efficiency improvements.
- Most small businesses have limited access to investment capital, which means that business owners may not afford the efficiency upgrade without immediate assistance from the program.

The program is implemented by CLEAResult, which provides recruitment, marketing, outreach, and training to trade allies. Along with participating trade allies, the program performs energy assessments, directly installs measures (e.g., *light-emitting diodes (LED)*, *low-flow faucet aerators*, *pre-rinse spray valves*, *weatherstripping*), conducts pre- and post-implementation inspections, maintains the program quality assistance/quality control (QA/QC) standards, and administers the incentive process. The program also includes program tracking.

In support of the impact evaluation, the evaluation, measurement, and verification (EM&V) team conducted a tracking system review, desk reviews on a randomly selected sample of 25 projects, and a review of program documentation. Eleven site visits were completed for this program. As part of the PY2022 evaluation for the program, the EM&V team conducted 97 telephone surveys with recent program participants. The surveys collected process evaluation information and structured questions to assess free-ridership and participant spillover for the net-to-gross (NTG) evaluation. Program staff interviews focused on discussing PY2022 progress and challenges and implementing PY2021 evaluation recommendations presented in the executive summary.

Table 120. Small Business Solutions Program—Data Collection and Evaluation Activities

NTG approach	Process evaluation activities	Gross impact evaluation completes			
		Tracking system review	Desk reviews	On-site M&V	Metered data analysis ⁶⁵
Updated from current evaluation	Program staff interviews (2) Materials review Participant surveys (97) Market actor interviews (12)	Census	25	11	None

10.1 KEY FINDINGS

Based on the PY2022 program tracking data, the SBS program incentivized energy efficiency measures to 711 unique participants⁶⁶ through 40 trade allies. Table 121 provides the program's claimed savings by measure category, where the most considerable amount of claimed participants (81 percent) and savings (72 percent) were attributable to *lighting* measures. All SBS program's claimed savings were from *prescriptive* project types, and no *custom* projects were claimed in PY2022.

Table 121. Small Business Solutions Program—Reported Participation and Savings⁶⁷

Measure category	Trade allies	Participants**	Projects	Program savings (kWh)	Percentage of program savings (kWh)
Domestic hot water*	0	7	8	14,731	0.1%
Envelope*	0	40	46	1,821,891	10.4%
Lighting	30	573	595	12,552,633	71.8%
Refrigeration	1	1	1	889	0.0%
Tune-ups	8	101	638	3,088,109	17.7%
Total	39	711	1,279	17,478,253	100.0%

* The implementer directly installed all measures.

** A participant may install measures across multiple measure categories or multiple projects. Thus, the total count of participants and projects may not equal the sum of individual rows by measure category.

In PY2022, the SBS program reported 17,478 MWh in gross energy savings and 2.7 MW in gross demand savings. Table 122 shows the reported and evaluated savings across the program. The program exceeded its energy and demand savings planning goals, achieving 126 percent of the energy savings goal and 164 percent of the demand savings goal.

⁶⁵ This column refers to EAL customer meter data provided to the EM&V team as opposed to primary metered data collected as part of the on-site measurement and verification (M&V).

⁶⁶ A unique participant is based on a single utility account number.

⁶⁷ ArchEE extract dated January 24, 2023.

Table 122. Small Business Solutions Program—Reported, Evaluated, and Net Savings

Energy/demand savings	Reported savings	Evaluated savings	Realization rate	NTG ratio	Net savings	Program contribution to portfolio savings
Energy savings (MWh)	17,478	17,407	99.6%	100.0%	17,404	5.9%
Demand savings (MW)	2.7	2.8	102.7%	100.0%	2.78	2.9%

Table 123. Small Business Solutions Program—Goals vs. Achieved

Savings	Goal	Actual	Percentage achieved
Energy savings (MWh)	13,871	17,407	126%
Demand savings (MW)	1.7	2.8	164%

The SBS' evaluated energy and demand savings were slightly lower than reported savings for energy savings (99.6 percent kilowatt-hour realization rate) but slightly higher than reported savings for demand savings (102.7 percent kilowatt realization rate). The main drivers of the realization rates were corrections to *tune-up* projects made by the EM&V team during the tracking system review and adjustments to a few *lighting* projects during the desk review and on-site process. The most significant adjustment was for a couple of *lighting* projects where the *building type* was changed from *retail: excluding malls & strip centers* to *service (excluding food)*. Another finding that significantly impacted savings was changes related to *heat pump* projects for the *tune-up* and *Wi-Fi thermostat* measures. Across the *tune-up* and *Wi-Fi thermostat* projects, the evaluated energy savings for individual projects were affected both positively and negatively, with an overall increase in evaluated and demand savings.

NTG research was conducted in PY2022 for SBS and *tune-up* measures. The evaluation researched NTG ratio is 100 percent for the non-*tune-up* portion of the program. There was a free-ridership ratio of less than 1 percent, which was offset by some observable spillover, resulting in an overall NTG ratio of 100 percent. Segmented by whether the measures were *tune-ups*, the *tune-up* measures NTG ratio is 99.9 percent for kilowatt-hours and kilowatts, while the NTG ratio for other measures is 100.0 percent.

10.2 RECOMMENDATIONS

The EM&V team has identified key findings and recommendations for consideration by Entergy Arkansas, LLC (EAL) (Table 124), which primarily focus on improving the realization rate in the following program year and increasing the transparency, accuracy, and evaluability of program savings in the future for the SBS program.

Table 124. Small Business Solutions Program—PY2022 Recommendations

Type	Recommendation	Key finding
<p>PY2022 impact recommendations</p>	<p>Recommendation 1: Review savings algorithms for <i>Wi-Fi thermostat</i> measures to ensure consistency.</p>	<p>The EM&V team found 14 projects calculated demand savings by dividing the deemed <i>heat pump</i> heating energy savings instead of the deemed cooling savings by 8,760. Cooling savings aligns with EAL's peak demand period. This issue was found sporadically across all three commercial programs with <i>Wi-Fi thermostat</i> measures, and whether the system had <i>electric resistance</i> heating or a <i>heat pump</i>.</p> <p>The EM&V team also identified 11 projects where the reported fuel type was <i>heat pump</i>, but savings were using deemed savings values for an <i>air conditioning</i> unit.</p> <p>Finally, the EM&V team also identified 14 projects where the reported fuel type was <i>air conditioning with electric resistance heat</i>, but savings were using deemed savings values for a <i>heat pump</i> unit.</p> <p>The EM&V team recommends reviewing the deemed savings values and calculation algorithms for <i>Wi-Fi thermostat</i> measures to ensure consistency based on the tracked fuel type.</p>
	<p>Recommendation 2: Select building types based on the closest description match from the available building types.</p>	<p>During the desk review, the EM&V team found two instances of <i>lighting retrofit</i> projects for businesses that were operated more closely with the <i>service: non-food</i> building type, rather than the <i>retail: excluding malls & strip centers</i> building type. CLEAResult stated they used the <i>retail: excluding malls & strip centers</i>, because it more closely matched the customer's operating hours. The adjustments in building type resulted in reduced evaluated energy and increased demand savings.</p> <p>The EM&V team recommends more careful QA/QC to ensure that the operations within the buildings fit the building type selected.</p>

Type	Recommendation	Key finding
PY2022 process recommendations	Recommendation 3. Review the time it takes for trade allies to receive the incentive checks.	Trade allies mentioned delays in getting rebate checks, sometimes a month or more. Delays can have a significant impact on trade allies, specifically smaller organizations. An improvement a trade ally mentioned was around having direct deposit.
	Recommendation 4. Improve communication and responsiveness to customer and trade ally questions.	Communication with implementation staff around submitted applications was mentioned as a point of frustration among trade allies. Trade allies appreciate the ability to speak to a live person, receive emails with detailed instructions on what needs to be updated, and have their application reviewed in full, not one piece at a time. Customers areas for improvement also centered around communication and responsiveness with program staff.
	Recommendation 5. Review the allocation of responsibilities between the trade allies and implementation staff.	Trade allies reported taking on additional responsibilities as part of the commercial and industrial (C&I) programs. Tasks previously completed by implementation staff such as pre- and post-checks have been shifted to trade allies. The evaluation team discussed these trade ally results with EAL program design and implementation staff and it is our understanding that these changes are a result of automating the program processes. While the goal was to streamline activities, it may be worth revisiting to ensure the program is operating as intended.

Table 125. Small Business Solutions —Status of Prior Year Recommendations

Status of prior year recommendations	
PY2020 impact recommendations	<ul style="list-style-type: none"> • Increase QA/QC of the tracking database to ensure that all information from project documentation is captured accurately. <ul style="list-style-type: none"> ○ Complete.
	<ul style="list-style-type: none"> • Consider increasing post-inspections of completed projects. <ul style="list-style-type: none"> ○ Reviewed and rejected. The implementer chose not to increase post-inspections in PY2021.
	<ul style="list-style-type: none"> • Review savings algorithms for exterior lighting with existing controls. <ul style="list-style-type: none"> ○ Complete.

Status of prior year recommendations	
	<ul style="list-style-type: none"> • Review <i>tune-up</i> measure tracking data and algorithms. <ul style="list-style-type: none"> ○ In progress. Multiple <i>tune-up</i> measures with systematic errors incorrectly calculated energy or demand savings based on the tracked system heating and cooling parameters.
PY2020 process recommendations	<ul style="list-style-type: none"> • The program appears to be operating as intended.
PY2021 impact recommendations	<ul style="list-style-type: none"> • Review savings algorithms for <i>Wi-Fi thermostat</i> measures to ensure consistency. <ul style="list-style-type: none"> ○ Continuing.
	<ul style="list-style-type: none"> • Review <i>lighting control</i> measure tracking data for potential errors in algorithms. <ul style="list-style-type: none"> ○ Complete.
	<ul style="list-style-type: none"> • Increase QA/QC of renovation projects, in particular review all projects that are being completed in renovated facilities to check if the building use is changing. <ul style="list-style-type: none"> ○ Complete.
PY2021 process recommendations	<ul style="list-style-type: none"> • The program appears to be operating as intended.
	<ul style="list-style-type: none"> • Discuss quarterly allocations with trade allies to ensure understanding of the process and how exceptions are handled to keep trade allies engaged in the program.
	<ul style="list-style-type: none"> ○ Continuing.

10.3 METHODOLOGY

This section summarizes the methodologies used for the evaluation of the SBS program.

10.3.1 Impact Evaluation

The evaluated savings results are based on calculations and adjustments made during the tracking system review, 25 engineering desk reviews, and 11 site visits. Savings adjustments were made at the project level. Final evaluated savings for the *tune-up* measures are based on adjustments made during the tracking system review. For all other measures, evaluated savings results are based on desk review and site-visit level adjustments by sampled strata. The tracking system informed qualitative findings and served as a guide for potential issues for investigation during desk reviews.

To perform the PY2022 impact evaluation, the EM&V team completed the following activities:

- staff interviews and ongoing discussions;
- program website review of eligible measures, incentives, and participating trade allies;
- program manual and supplemental documentation review;

- program tracking system/database reviews;
- review of the tracking system and M&V database for *tune-ups* and *commercial Wi-Fi thermostats*;
- engineering desk review of 25 sampled accounts, representing 25 individual projects;
- on-site measurement and verification (M&V) of 11 sampled accounts that also received desk reviews.

Table 126 shows the sample design and achieved sample sizes for the different data collection types employed for the impact evaluation effort.

Table 126. Small Business Solutions Program—Data Collection Efforts and Project Types

Data collection activity	Design sample	Achieved sample	Custom projects	Prescriptive projects
Staff interviews	2	2	N/A	N/A
Tracking system data review ⁶⁸	Census	Census	N/A	518
Engineering desk review	25	25	N/A	25
On-site M&V visit ⁶⁹	10	11	N/A	10

Most of the measures incentivized by the SBS program in PY2022 are currently included in the TRM 9.0, Volume 2. Specific sections of TRM 9.0 associated with the savings developed for the SBS program measures are provided in Table 127. These prescriptive algorithms and assumptions were the basis of the savings methodology used by the implementer and the EM&V team for energy and demand savings analysis purposes.

Table 127. TRM 9.0 Prescriptive Algorithms Utilized by the Small Business Solutions Program

Measure category	TRM 9.0 section	TRM 9.0 measure name
Domestic hot water	3.3.2	Faucet aerators
	3.3.5	Low-flow showerheads
	3.7.12	Low-flow pre-rinse spray valves
Envelope	3.2.10	Commercial door air infiltration
Refrigeration	3.5.7	Door gaskets for walk-in and reach-in coolers and freezers
Lighting	3.6.2	Lighting controls
	3.6.3	Lighting efficiency

⁶⁸ ArchEE extract dated August 23, 2022. A count of prescriptive projects is the quantity of unique *JobId* numbers in the tracking database.

⁶⁹ On-site visits were recruited from the list of participants that received desk reviews, nesting the on-site sample within the desk review sample.

The SBS program incentivized *air conditioning and heat pump tune-up, commercial Wi-Fi thermostats, and overhead door weatherstripping* measures. *Overhead door weatherstripping* measures do not adhere to TRM 9.0 but instead follow prescriptive approaches developed by CLEAResult based on the TRM algorithms for *commercial door air infiltration*. Additional project details outside of ArchEE were required to evaluate the *tune-up* measures. A separate tracking system review was conducted for all *tune-up* measures across the three commercial programs.

Table 128. Non-TRM Prescriptive Algorithms Utilized by the Small Business Solutions Program

Measure category	Measure description
Tune-ups (formerly CoolSaver)	Commercial AC post-test-out
	Commercial AC pre-clean
	Commercial central air conditioner (tune-up)
	Commercial heat pump (tune-up)
	Commercial HP post-test-out
	Commercial HP pre-clean
	Commercial Wi-Fi thermostat
Envelope	Overhead door weatherstripping

10.3.1.1 Tracking System Review

The EM&V team reviewed all tracking data to assess the extent to which it provided the key input parameters needed for TRM 9.0-based algorithms. The tracking system data review began using the TRM 9.0 as a reference in our review of measure-level savings assumptions. Chapters of the TRM 9.0 utilized for the tracking system review are described above in Table 129.

The EM&V team reviewed the tracking systems linkage to the TRM 9.0 deemed savings algorithms used to estimate savings. This review was completed across a census of the program measures at the end of Q2⁷⁰. The utility's tracking database stores all the critical input variables and assumptions necessary for savings calculations. This review is conducted mid-year to help facilitate changes in the algorithm applications before the end of the year, where they might cause discrepancies in reported versus verified savings. After the measure-level review, the EM&V team verified energy savings calculations for engineering fundamentals, appropriateness, and accuracy.

⁷⁰ Tracking data downloaded August 23, 2022.

Our review accomplished three primary objectives. First, it identified any initial high-level tracking system concerns. Second, it verified whether the savings estimates in the tracking system are consistent with the savings outlined in TRM 9.0 used to estimate project savings. Third, it assessed the ability of the tracking system to support future evaluation needs.

Table 129. PY2022 Q1–Q2 Tracking System Reported Energy Savings by Measure Category

Measure	Reported savings	
	kW	kWh
Domestic hot water	3.2	12,991
Envelope	51.2	1,178,927
Lighting	1,636.5	9,378,504
Tune-up and Wi-Fi thermostat	264.5	1,926,458
Total	1,955.3	12,496,881

10.3.1.2 Tune-Up and Wi-Fi Thermostat Measurement and Verification Review

The EM&V team reviewed all of the *tune-up* and *commercial Wi-Fi thermostat* measures with a comprehensive tracking system review, supplemented with engineering reviews of the M&V and deemed savings methodologies. These measures are tracked in ArchEE but have supplemental data in external databases necessary for evaluation. The tracking system reviews focused on replicating individual measure savings results and determining population variances.

10.3.1.3 Desk Reviews and Site Visits

In PY2022, the primary impact evaluation activities included desk reviews and on-site assessments. Sampling was conducted via stratified random sampling on kilowatt-hour savings at the project-level. Stratification is conducted according to the measure category: *lighting* and *other*.

Lighting projects were split into three strata based on the project's kilowatt-hour savings. Lighting strata were constructed using program tracking data spanning PY2019 through PY2021. Using these tracking data for each program year spanning PY2019 through PY2021, the following process was taken for the SBS program:

1. Projects were ordered from smallest to largest in terms of kilowatt-hour savings, then the cumulative share of savings was calculated for this ordered list.
2. Projects representing the first one-third of total *lighting* project savings were sorted into the *low-savings stratum*, with the highest-saving project within this stratum representing the upper bound on savings for the low-savings stratum.
3. The projects representing the next one-third of *lighting* project savings were then sorted into the *medium-savings stratum*, with the highest-saving project within this stratum representing the upper bound on savings for the medium-savings stratum.

4. Remaining projects representing the top one-third of *lighting* project savings were sorted into the *high-savings stratum*, with the highest-saving project within the medium-savings stratum representing the lower bound on savings for the high-savings stratum.
5. PY2022 lighting stratum cutoffs were determined via taking the mean of cutoffs for the low-savings, medium-savings, and high-savings stratum cutoffs found for PY2019, PY2020, and PY2021.

On-site samples were a nested sample of the desk reviews, meaning that all projects receiving an on-site assessment also received a desk review. Projects with variances that could be cleared up during the site visit were selected first, with remaining site visits randomly selected from within the desk review sample. Table 130 summarizes the result of the sampling for the SBS program.

Table 130. Small Business Solutions Program—Summary of Sampled Savings

Measure category	Projects	Projects sampled	Reported kWh	Reported kW
Lighting subtotal	595	21	12,552,633	2,202
High ≥56.4 MWh	39	6	3,475,635	564.7
Medium ≥25.8 MWh and <56.4 MWh	123	8	4,404,348	734.1
Low <25.8 MWh	433	7	4,672,650	903.2
Other	48	4	1,837,511	80.3
Total	643	25	14,390,144	2,282.3

10.3.2 Process and Net-to-Gross Evaluation

10.3.2.1 Participant Surveys

The EM&V team utilized a participant survey to inform the process and NTG evaluation. The survey included a series of questions that investigated sources of awareness and preferred methods of communication, participation experiences, program satisfaction, and firmographics to address the process evaluation. The survey also included structured questions about the participant's decision to pursue rebated energy-efficient upgrades to calculate the NTG rate. The EM&V team based the savings and calculations on those outlined in TRM 9.0 EM&V Protocols.

TRM 9.0 recommends using a staggered data collection approach to collect free-ridership and spillover information to address recall concerns. Free-ridership is best assessed when asking about program participation as close as possible to the participation dates, while spillover is best assessed after a reasonable amount of time has passed to allow for additional energy savings activities to occur.

With these considerations in mind, the EM&V team stratified the sample frame for the participant survey into three six-month participation periods; January 2021 to June 2021, July 2021 to December 2021, and January 2022 to June 2022. Only participants in the two most recent periods (July 2021 to June 2022) were asked free-ridership questions and included in the free-ridership assessment, limiting recall issues. Only those who installed energy-efficient upgrades within the first two six-month periods received spillover questions to allow more time for potential spillover effects to occur (January 2021 to December 2021). Research from prior EAL program evaluations suggests that spillover rates in the most recent period are much lower when participants are asked about any energy-saving activities performed outside the program compared to other participation periods. All respondents received process-related questions. Table 131 illustrates the number of unique program participants per period and their kilowatt-hour savings.

Table 131. Small Business Solutions Program—NTG/Process Participant Survey Sample Plan

Participation period	Project type*	Count of participants in population**	Reported (ex-ante) kWh	Free-ridership	Spillover	Process
January 2021– June 2021	Domestic hot water	6	42,293	No	Yes	Yes
	Envelope	12	1,156,832			
	Lighting	398	8,950,331			
	Thermostat	23	508,877			
	Tune-up	16	141,395			
	Total	455	10,799,728			
July 2021– December 2021	Domestic hot water	4	36,809	Yes	Yes	Yes
	Envelope	24	902,206			
	Lighting	424	8,736,819			
	Thermostat	57	839,375			
	Tune-up	35	205,254			
	Total	544	10,720,463			
January 2022–June 2022	Domestic hot water	6	12,991	Yes	No	Yes
	Envelope	25	1,071,256			
	Lighting	360	7,257,496			
	Thermostat	64	1,449,403			
	Tune-up	27	135,348			
	Total	482	9,926,494			
Total		1,481	31,446,685			

The EM&V team implemented the participant survey through our in-house Survey Research Center via computer-assisted telephone interviews. A total of 97 surveys were completed, averaging twelve minutes in length. Telephone surveys occurred between October 25 and November 4, 2022.

Table 132. Small Business Solutions Program—Participant Survey Response Rate

Disposition	Total
Sample	249
Not a utility customer	0
Eligible sample	249
Does not recall participating	18
Refusal	14
Incompletes (partial surveys)	0
Language barrier	4
Bad number	17
Called out	0
Not completed	99
Completed	97
Response rate	
Response rate (completed/eligible sample)	39.0%

In total, the EM&V team surveyed 72 participants on free-ridership and 72 on spillover based on their date of participation.

10.3.2.2 Contractor Interviews

The contractor interviews were used to inform the process evaluation and support NTG analysis. The EM&V team interviewed ten contractors that participated in the *prescriptive* commercial programs and two for *CoolSaver* measures (*tune-ups* and *Wi-Fi thermostats*) during PY2022. Eligible contractors were initially contacted to schedule the interviews via email on December 5, 2022. Interviews were conducted between December 9 and December 21, 2022.

Interviews were semi-structured using a topic guide, but evaluators followed the interview flow and modified questions as needed to fit the interviewee's circumstances. The contractor interviews explored (1) program involvement and experiences, (2) program attribution indicators, and (3) program satisfaction.

10.4 DETAILED IMPACT EVALUATION RESULTS

The SBS program's evaluated energy and demand savings was slightly lower than the reported energy savings (99.6 percent kilowatt-hour realization rate) and slightly higher than the reported demand savings (102.8 percent kilowatt realization rate). Corrections mainly drove differences to *Wi-Fi thermostat* projects made by the EM&V team during the tracking system review and corrections to *lighting* projects made during the desk review and on-site process. The most significant adjustment was for a couple of *lighting* projects where the building type was changed from *retail: excluding malls & strip centers* to *service (excluding food)*. Another finding that significantly impacted savings on many measures was changes related to *heat pump* projects in the *tune-up* and *Wi-Fi thermostat* measures. Across the adjusted projects, the energy savings were adjusted both positively and negatively.

Corrections to *tune-up* and *Wi-Fi thermostat* projects that contributed additional energy (kilowatt-hour) savings were found to be primarily due to:

- *Heat pump* projects using energy savings algorithms associated with *AC units* and
- *Wi-Fi thermostat* measures using incorrect *unit type* (*AC energy savings* instead of *heat pump energy savings*) in savings algorithms.

Corrections to *tune-up* and *Wi-Fi thermostat* projects that contributed additional demand (kilowatt) savings were found to be primarily due to:

- *Wi-Fi thermostat* measures using incorrect *unit type* (*heating demand savings* instead of *cooling demand savings*) in savings algorithms.

Corrections to *lighting* projects that contributed additional energy (kilowatt-hour) savings were found to be primarily due to:

- changes to *lighting fixture wattage* observed during the desk review.

Corrections to *lighting* projects that contributed additional demand (kilowatt) savings were found to be primarily due to:

- changes to *lighting fixture wattage* observed during the desk review and
- changes to the *building type* from *retail: excluding malls and strip centers* to *service (excluding food)*.

Corrections to *tune-up* and *Wi-Fi thermostat* projects that contributed to reduced energy (kilowatt-hour) savings were found to be primarily due to:

- *Wi-Fi thermostat* measures using incorrect *unit type* (*heat pump energy savings* instead of *air conditioning energy savings*) in savings algorithms.

Corrections to *tune-up* and *Wi-Fi thermostat* projects that contributed to reduced demand (kilowatt) savings were found to be primarily due to:

- *Wi-Fi thermostat* measures using incorrect *unit type* (*heating demand savings* instead of *cooling demand savings*) in savings algorithms.

Corrections to *lighting* projects that contributed to reduced energy (kilowatt-hour) savings were found to be primarily due to:

- changes to the *building type* from *retail: excluding malls and strip centers* to *service (excluding food)* and
- changes to *lighting fixture wattage* observed during the desk review.

Corrections to *lighting* projects that contributed to reduced demand (kilowatt) savings were found to be primarily due to:

- changes to *lighting fixture wattage* observed during the desk review.

Corrections to *other* projects that contributed to reduced energy (kilowatt-hour) and demand savings (kilowatt) were found to be primarily due to:

- changes to *total perimeter of doors* observed during the desk review.

10.4.1 Participant Characterization

Several different measures are provided to participants through the program. Within the tracking system, qualifying products are assigned to unique measure names. The mapping of these measure names to measure categories is provided below.

Table 133. Mapping to Measure Category

Measure description	Measure category
Commercial showerheads	Domestic hot water
Faucet aerators	Domestic hot water
Pre-rinse spray valves	Domestic hot water
Commercial door air infiltration	Envelope
Overhead door weatherstripping	Envelope
Halogens	Lighting
HIDs	Lighting
Integrated-ballast compact fluorescent lamps (CFL)	Lighting
Integrated-ballast LED lamps	Lighting
LEDs	Lighting
Lighting controls	Lighting
Magnetic ballast T5 or premium T8 retrofit of T12	Lighting
Modular CFLs and CCFLs	Lighting
Other linear fluorescents	Lighting
Outdoor—halogens	Lighting
Outdoor—HIDs	Lighting
Outdoor—integrated-ballast compact fluorescent lamps (CFL)	Lighting
Outdoor—integrated-ballast LED lamps	Lighting
Outdoor—LEDs	Lighting
Outdoor—magnetic ballast T5 or premium T8 retrofit of T12	Lighting
Outdoor—modular CFLs and CCFLs	Lighting
Outdoor—other linear fluorescents	Lighting
Refrigeration door gaskets	Refrigeration
Commercial AC post-test-out	Tune-ups
Commercial AC pre-clean	Tune-ups
Commercial central air conditioner (tune-up)	Tune-ups
Commercial heat pump (tune-up)	Tune-ups
Commercial HP post-test-out	Tune-ups
Commercial HP pre-clean	Tune-ups
Commercial Wi-Fi thermostat	Tune-ups

Table 134 below outlines the claimed number of program participants and the percentage of savings by measure category in PY2022. *Lighting* was the dominant measure category in PY2022, accounting for 81 percent of claimed demand (kilowatt) savings and 72 percent of claimed energy use (kilowatt-hour) savings.

Table 134. PY2022 Reported Small Business Solutions Program—Participation and Savings by Measure Category

Measure category	Participants*	Projects*	Program savings		Percentage of program savings	
			kW	kWh	kW	kWh
Domestic hot water	7	8	3.8	14,731	0%	0%
Envelope	40	46	76.5	1,821,891	3%	10%
Lighting	573	595	2,201.9	12,552,633	81%	72%
Refrigeration	1	1	0.1	889	0%	0%
Tune-ups	101	638	423.7	3,088,109	16%	18%
Total	711	1,279	2,705.9	17,478,253	100%	100%

* A participant is a unique account described by the ArchEE data field *AccountNumber*. A project is a unique job number defined by the ArchEE data field *JobId*. A participant may install measures across multiple measure categories and multiple projects. As a result, the total count of participants and projects may not equal the sum of the counts by measure category.

Table 135 outlines the savings and percentage of savings by measure in PY2022. *Interior LEDs* were the dominant measure in PY2022 and accounted for 70 percent of claimed gross kilowatt savings and 50 percent of claimed gross kilowatt-hour savings. *Commercial Wi-Fi thermostats* were the second most dominant measure in PY2022, accounting for 11 percent of claimed gross kilowatt savings and 16 percent of claimed gross kilowatt-hour savings. *Outdoor LEDs* were the third most dominant measure in PY2022, accounting for 11 percent of claimed gross kilowatt-hour savings; however, they did not contribute to program demand savings.

Table 135. PY2022 Reported Small Business Solutions Program—Participation and Savings by Measure

Measure	Program savings		Percentage of program savings	
	kW	kWh	kW	kWh
Domestic hot water				
Commercial showerheads	<1.0	2,106	<1%	<1%
Faucet aerators	3.0	9,421	<1%	<1%
Pre-rinse spray valves	<1.0	3,204	<1%	<1%
Envelope				
Commercial door air infiltration	36.7	1,067,781	1%	6%
Overhead door weatherstripping	39.8	754,110	1%	4%

Measure	Program savings		Percentage of program savings	
	kW	kWh	kW	kWh
Lighting				
Halogens	10.9	44,611	<1%	<1%
HIDs	5.0	23,494	<1%	<1%
Integrated-ballast compact fluorescent lamps (CFL)	<1.0	182	<1%	<1%
Integrated-ballast LED lamps	256.2	1,052,453	9%	6%
LEDs	1,897.2	8,796,472	70%	50%
Lighting controls	3.4	13,921	<1%	<1%
Magnetic ballast T5 or premium T8 retrofit of T12	17.8	79,164	1%	<1%
Modular CFLs and CCFLs	0.0	0	0%	0%
Other linear fluorescents	10.2	49,227	<1%	<1%
Outdoor—halogens	0.0	3,029	0%	<1%
Outdoor—HIDs	0.0	38,933	0%	<1%
Outdoor—integrated-ballast compact fluorescent lamps (CFL)	0.0	0	0%	0%
Outdoor—integrated-ballast LED lamps	0.0	469,384	0%	3%
Outdoor—LEDs	1.1	1,951,544	<1%	11%
Outdoor—magnetic ballast T5 or premium T8 retrofit of T12	0.0	29,986	0%	<1%
Outdoor—modular CFLs and CCFLs	0.0	0	0%	0%
Outdoor—other linear fluorescents	0.0	232	0%	<1%
Refrigeration				
Refrigeration door gaskets	<1.0	889	<1%	<1%
Tune-ups				
Commercial AC post-test-out	9.4	15,870	<1%	<1%
Commercial AC pre-clean	21.7	38,220	1%	<1%
Commercial central air conditioner (tune-up)	59.9	115,426	2%	1%
Commercial heat pump (tune-up)	15.5	49,024	1%	<1%
Commercial HP post-test-out	1.1	3,190	<1%	<1%
Commercial HP pre-clean	6.2	19,292	<1%	<1%
Commercial Wi-Fi thermostat	309.9	2,847,087	11%	16%
Total	2,705.9	17,478,253	100%	100%

Table 136 shows the incentive structure for PY2022.

Table 136. PY2022 Small Business Solutions Program Incentives

Measure	Incentive as of 1/1/2022 per kWh
All lighting (including refrigeration lighting)	\$0.17
Interior lighting controls	\$0.17
HVAC replacement	\$0.17
Direct install	Full cost
Window film	\$0.35
All refrigeration	\$0.30
Duct sealing	\$0.35
Ceiling insulation	\$0.35

* Source: PY2022 Program Manual Small Business Solutions.

10.4.2 Program Documentation and Tracking Data Review

To understand the SBS program, the EM&V team interviewed program staff and reviewed all information available on EAL's website related to the program and supplemental documentation provided by EAL and CLEAResult. The EM&V team received the following documentation related to the program:

- ArchEE data tracking system extract containing PY2022 participant information and savings;
- supplemental project-level documentation received during quarterly data requests for sampled accounts, which typically included:
 - signed customer proposals and project agreements—sometimes files included initial and final proposals if projects had changed during development;
 - customer proposals that typically included a detailed inventory of site-captured measure-level details such as:
 - *Commercial door air infiltration* measures (e.g., *weatherstripping*, *door sealing*) were all directly installed by the implementer. A Direct Install Report typically inventoried the type of infiltration measure, the gap width sealed, and the new weatherstripping length installed by room. Additional notes typically included the *HVAC system type* (either for the facility or by specific rooms if they varied). Nameplate photos verifying the *HVAC type* were sometimes but not always provided. Finally, photo documentation of a sample of doors with their existing condition and gap width, noted by a view of a tape measure was found.

- *Lighting and lighting controls* measures included existing and new fixture types, make and model numbers, wattages, quantity, and control type. Also, DesignLights Consortium (DLC) and ENERGY STAR® certification sheets were provided for all models. Itemized invoices were provided for all lighting projects. Inspection reports were typically not provided; however, either a work order or inspection report was provided for 17 of the 21 *lighting* projects sampled (all missing in Q3). Manufacturer specification sheets were not provided.
 - photographic documentation pre- or post-installation;
- a Quality Control and Assurance Manual for EAL commercial programs, dated February 1, 2023; and
- PY2022 Program Manual for the SBS program obtained from the EAL website.

10.4.3 Detailed Tracking System/Database Review

The EM&V team reviewed all program-claimed tracking data to assess the extent to which it provided the key input parameters needed for TRM 9.0-based algorithms and the final claimed values necessary for each measure. The tracking system data review began using TRM 9.0 as a reference in our review of measure-level savings assumptions. Chapters of TRM 9.0 that were utilized for the tracking system review are described above in Section 10.3.1.

The EM&V team reviewed the tracking systems linkage to the TRM 9.0 deemed savings algorithms used to estimate savings. This review was completed across a census of the program measures. The utility's tracking database stores all the critical input variables and assumptions necessary for savings calculations. Following the measure-level review, the EM&V team verified energy savings calculations for engineering fundamentals, appropriateness, and accuracy.

Our review accomplished three primary objectives. First, it identified any initial high-level tracking system concerns. Second, it verified whether the savings estimates in the tracking system are consistent with the savings outlined in TRM 9.0 used to estimate project savings. Third, it assessed the ability of the tracking system to support future evaluation needs.

The ArchEE tracking system, which supplied all participant- and measure-level data, was the primary tool for checking claimed savings and performing evaluation savings calculations. These results were informed and supplemented with the engineering desk reviews and site visits findings, as further outlined in the savings calculation results section.

The overall program evaluated tracking system savings resulted in slightly higher savings (100.1 percent kilowatt-hour and 100.2 percent kilowatt realization rates) than those calculated by the program implementer. The evaluated savings are based on adjustments made from completing engineering reviews of the program's tracking data. The overall realization rates were affected negligibly by variances between the reported and evaluated energy savings (kilowatt-hour) for *lighting* and *domestic hot water* projects.

Overall, the tracking system review found the following:

- Except for the *overhead door weatherstripping* and *tune-up* measures in the SBS program, all measures utilize TRM 9.0, Volume 2 deemed algorithms. The savings equations were confirmed consistent with TRM 9.0. As described above, the *overhead door weatherstripping* and *tune-up* measures follow *custom* approaches developed from assumptions and methodologies in the TRM. The EM&V team confirmed the *overhead door weatherstripping* measures following the M&V plan through this tracking system review. A tracking system review of the *tune-up* measures was completed to inform *tune-up* evaluated savings.
- The SBS program measures utilize TRM 9.0, Volume 2 deemed savings assumptions, with two notable exceptions. *Overhead door weatherstripping* measures use extrapolated savings values based on the *commercial door air infiltration* measure in TRM 9.0. Finally, some *lighting efficiency* measures use site-specific annual operating hours (AOH) instead of the deemed values in TRM 9.0 for *lighting* projects.
 - Approximately 0.2 percent of *lighting* projects use site-specific custom AOH as captured from the site and based on the buildings' typical operating hours and hours of occupancy. This approach decreased over PY2021, where 2.5 percent of SBS program projects used custom AOH.
- The overall tracking review realization rates were 100.1 percent kilowatt and 100.1 percent kilowatt-hours, not including the *tune-up* measures. Tracking review realization rates for most measures were at 100 percent.

Table 137. PY2022 Q1–Q2 Tracking System Energy Savings and Realization Rates by Measure Category

Measure category	Claimed savings		Evaluated savings		Realization rate	
	kW	kWh	kW	kWh	kW	kWh
Domestic hot water	3.2	12,991	4.2	21,680	130%	167%
Envelope	51.2	1,178,927	50.9	1,178,927	99%	100%
Lighting	1,636.5	9,378,504	1,637.8	9,387,156	100%	100%
Total	1,690.9	10,570,423	1,692.8	10,587,763	100.1%	100.2%

10.4.3.1 Domestic Hot Water

- Projects EA-0000716041 (one line item for *aerators* and one line item for *pre-rinse spray valves*) and EA-0000716043 (one line item for *showerheads*) selected the incorrect building type based on provided *MeasureLocation* of *residence halls*. Adjusting the building types from *commercial* to *dormitory* increased kilowatt-hour savings for all three line-items, increased kilowatt savings for the *pre-rinse spray valves*, and decreased kilowatt savings for the *aerators* and *showerheads*.

10.4.3.2 Envelope

- All the commercial *door air infiltration* projects in Weather Zone 9 (EA-0000719042, EA-0000719043, EA-0000748148) had demand savings deviations ranging from four to six percent. This deviation was not present for *commercial door air infiltration* projects in the other weather zones. The reason for the savings deviations was due to calculation errors in CLEARResult's new system implemented in 2022, which will be corrected in a future update. The EM&V team adjusted demand savings to match the parameters in the tracking system and the TRM algorithms. The adjustments increased demand savings.

10.4.3.3 Lighting (i.e., Retrofits Including Controls)

- Five projects (EA-0000693555, EA-0000717904, EA-0000717975, EA-0000696220, EA-0000693581) reported *upstream* in the ArchEE *HeatingType* field and *normal* in the ArchEE *TempDescription* field. The EM&V team was able to match the energy and demand savings for these projects by selecting the *air conditioned* cooling type and *heating unknown* heating type.
- Four projects (EA-000722071, PRJ-3002562, PRJ-3011312, EA-0000771862) reported using *stipulated hours* in the ArchEE *ProjectNarrative* field but did not utilize the *AnnualHours* field. These projects reported zero energy and demand savings for these line items. The EM&V team calculated energy and demand savings for these projects by using the *deemed AOH* based on the tracked building type. CLEARResult attributed the differences due to data entry errors and accepted Tetra Tech's corrections.
- One project (PRJ-3021240) included a line item whose *MeasureLocation* field in ArchEE was *interior cooler 2*, which implies that the lights were installed inside a refrigerated space. However, the ArchEE *HeatingType* field was stated as *electric AC with gas heat*, and the *TempDescription* field was stated as *normal*. The EM&V team adjusted the temperature description from *air conditioned space* to *refrigerated space—medium temperature* to match the measure location. This increased energy and demand savings for this line item, resulting in a 115 percent realization rate for kilowatt-hour savings and a 104 percent realization rate for kilowatt savings.
- EA-0000698236 reported *manufacturing* in the ArchEE *BuildingDescription* field. There are two building types associated with manufacturing facilities in the Arkansas TRM: *manufacturing—1 and 2 shift* and *manufacturing—3 shift*. The EM&V team was able to match the energy and demand savings for these projects by selecting the *manufacturing—1 and 2 shift* building type.

10.4.3.4 Tune-Up and Wi-Fi Thermostat Measurement and Verification Review

The EM&V team reviewed all program-reported tracking data to assess the extent to which it provided the algorithms and ex-ante values necessary for each measure. The tracking system data review began using the TRM 9.0, the CoolSaver Program M&V Plan⁷¹, and the Memorandum of Understanding to reference our review of measure-level savings assumptions. The EM&V team reviewed the tracking systems linkage to the TRM deemed savings and supplemental documentation methods used to estimate savings. Following the measure-level review, the EM&V team verified energy savings calculations for engineering fundamentals, appropriateness, and accuracy.

Our review accomplished three primary objectives. First, it identified any initial high-level tracking system concerns. Second, it verified that the savings estimates in the tracking system are consistent with the savings outlined in TRM 9.0, used to estimate project savings. Third, it assessed the ability of the tracking system to support future evaluation needs.

The ArchEE database includes the key data for all projects and reported savings for *AC and heat pump tune-up* and *Wi-Fi thermostat* measures, which totaled 638 measures.

A CLEAResult tracking system extract was provided, including pre- and post-test-out projects used as the basis for CLEAResult's PY2019–PY2021 efficiency loss (EL) calculations. The EM&V team reviewed this dataset, examined it for outliers, and calculated the PY2019–PY2021 EL values for three sectors (*commercial <25 tons*, *commercial ≥25 tons*, and *residential*) and whether a refrigerant charge adjustment was performed.

The findings from the *tune-up* tracking system showed similar findings to last year's review. Most of the key *tune-up* measure data is maintained in a separate database outside of ArchEE. The database was useful for the evaluation team to reference during the review. For example, because the *TuneupidComm* field in ArchEE was no longer used in the SBS program for PY2022 for unknown reasons, the evaluation team mapped the *pre-clean projects* to the *post-test-out measures* via supplemental data provided by CLEAResult. Another instance where the supplemental database was required was when verifying the EL values, as ArchEE did not capture all four refrigerant charge values from iManifold. As recommended last year, with continuous development and changes, the EM&V team recommends developing and maintaining a data dictionary to describe the data and document changes within this database.

Finally, as with previous years, it appears that the *commercial Wi-Fi thermostat* measures still require manual input of deemed energy (kWh/ton) and demand savings (kW/ton) values. This led to many instances of human error, leading to savings deviations (described in further detail below). Automating this process in the future will allow for more effective QA/QC and reduce the likelihood of errors.

⁷¹ The *tune-up* measure methodology was developed separately under EAL's CoolSaver program prior to being included in the Small Business Solutions program.

10.4.4 Tune-Up and Wi-Fi Thermostat Measurement and Verification Findings

The EM&V team evaluated CLEAResult's savings calculations by reviewing the M&V sample of participants to confirm the savings methodology used and results obtained, repeating the calculation steps, and making calculation adjustments.

The ArchEE tracking system, which supplied all participant and unit-level data and claimed savings, was the primary tool for checking reported savings and performing evaluation savings calculations.

Detailed findings from the M&V review for *tune-up* and *Wi-Fi thermostat* measures are presented below.

- Eleven *commercial Wi-Fi thermostats* measures installed on heat pump systems were using incorrect energy savings. Reported energy savings were calculated as if the thermostat was installed on an *air conditioning system*, instead of a *heat pump system*. The EM&V team adjusted the savings to be calculated by adding the *heat pump* kilowatt-hour heating savings to the cooling savings, increasing demand savings. Ten of the affected project numbers are listed below, with the full list available upon request:
 - 2022-278464,
 - 2022-278459,
 - 2022-278458,
 - 2022-278457,
 - 2022-278456,
 - 2022-278455,
 - 2022-278454,
 - 2022-278452,
 - 2022-278560, and
 - 2022-278463.
- Fourteen *commercial Wi-Fi thermostats* measures installed on *AC systems with electric resistance heat* were using incorrect energy savings. For energy savings, reported savings were calculated as if the thermostat was installed on a *heat pump system* by including energy savings associated with *heat pump heating*. The EM&V team adjusted the energy savings algorithms to include only the *cooling savings*. Ten of the affected project numbers are listed below, with the full list available upon request:
 - 2022-279047,
 - 2022-279038,
 - 2022-279037,
 - 2022-279036,
 - 2022-279035,
 - 2022-279034,

- 2022-278680,
 - 2022-292256,
 - 2022-292246, and
 - 2022-292242.
- Fourteen *commercial Wi-Fi thermostats* were using incorrect demand savings. For energy savings, reported demand savings were calculated using the *heat pump heating deemed energy savings* divided by 8,760 instead of the *AC unit kilowatt-hour savings* divided by 8,760. Seven of the thermostats were not even installed on *heat pump systems*, yet the heating savings associated with a *heat pump* were used nonetheless. The EM&V team adjusted the energy savings to only include the energy savings associated with *cooling savings*, which coincides with the peak demand period in Arkansas. The demand savings was adjusted to be calculated by dividing the AC kilowatt savings by 8,760; this decreased demand savings in two instances and increased demand savings in twelve instances. Ten of the affected project numbers are listed below, with the full list available upon request:
 - 2022-279073,
 - 2022-279072,
 - 2022-279071,
 - 2022-279070,
 - 2022-279069,
 - 2022-279047,
 - 2022-279038,
 - 2022-279037,
 - 2022-279036, and
 - 2022-279035.
 - One *commercial heat pump tune-up* project (2022-282836) reported lower energy savings because it used the algorithm associated with a *commercial central air conditioning tune-up*, instead of a *heat pump tune-up*. The EM&V team used the *heat pump tune-up* algorithm, increasing energy savings.
 - One *commercial heat pump tune-up* project (2022-293918) reported higher demand energy savings for unknown reasons. The EM&V team calculated energy savings using the parameters reported in the tracking system (building type, unit capacity, post-EER value) and calculated higher demand savings.

10.4.5 Engineering Desk Reviews

The EM&V team evaluated CLEAResult's savings calculations by reviewing the program tracking data and project documentation to confirm the savings methodology used and results, repeating the calculation steps, and making adjustments.

The engineering desk reviews included reviewing the available project documentation in determining the source of key parameters for the deemed savings protocols from TRM 9.0. After selecting the best source of the key parameters from the available documentation, the savings were calculated based on TRM 9.0 algorithms and compared to the claimed savings.

In addition to the tracking system review, the engineering desk reviews also showed a consistent use of TRM 9.0 algorithms across all the measures claimed in the SBS program. The EM&V team made various minor adjustments to specific projects described in detail in the project review results section below.

The EM&V team completed 25 engineering desk reviews of the SBS program accounts. These projects represented all measure categories in the program, except for *tune-up* measures, and had gross savings of 1,228,560 kWh, or seven percent of the total SBS program recorded gross savings of 17,478,253 kWh. This percentage of total program savings is based on finalized ArchEE data from January 23, 2023.

10.4.5.1 Site Visits

The EM&V team's evaluation plan included conducting at least 10 site visits with SBS program customers; this year, EM&V team was able to conduct 11 site visits. These site visits also received an engineering review, as discussed above. The EM&V team's field inspector recorded the verified quantities, operation, building type, and space condition of each of the measures observed while on-site and collected additional information on critical parameters. For the SBS program, some of the key data and spot measurements obtained for essential parameters, as applicable, included:

- *lighting* measures: base/new wattage, number of lamps per fixture, lamp/fixture make/model/type, base/new control type, building type, space heating/cooling type, and AOH; and
- *envelope* measures: length of the installed door gasket, gap width, and heating/cooling system type.

The site visits found that most parameters recorded in the project documentation to calculate savings were accurate. Out of the 11 site visits conducted, all parameters were verified or were deemed to be reasonable based on the site inspection.

10.4.6 Desk Review and Site-Visit Results

As noted earlier, the PY2022 SBS program impact evaluation efforts included an engineering analysis for a sample of 25 projects and a site visit for 11 of those projects reviewed. For 17 of the projects in the sample, no savings adjustments were made. For the remaining eight projects, the impact evaluation found various discrepancies in the project documentation or the site visit that required adjustments of parameters from the claimed savings estimates. The table below provides project-level realization rates, by measure category, for the 25 SBS projects reviewed by the evaluation. Detailed descriptions of the four projects with energy and realization rate adjustments follow Table 138.

Table 138. Small Business Solutions—PY2022 Desk Review and Site Visit Results by Project

EM&V participant ID	Measure stratum	EM&V review type*	Ex-ante savings		Ex-post savings		Realization rate	
			kW	kWh	kW	kWh	kW	kWh
122001	Lighting—high	Site visit	9.1	96,409	9.1	96,392	100%	100%
122002	Lighting—medium	Desk review	1.8	37,906	1.8	37,892	100%	100%
122003	Lighting—high	Site visit	12.2	66,265	12.2	66,265	100%	100%
122004	Lighting—low	Site visit	6.4	22,818	6.4	22,818	100%	100%
122005	Lighting—low	Desk review	2.0	8,125	2.0	8,125	100%	100%
122006	Lighting—low	Desk review	0.7	3,057	0.7	3,057	100%	100%
122007	Lighting—medium	Desk review	6.2	32,189	6.2	32,189	100%	100%
122008	Other	Site visit	2.5	38,269	2.5	38,269	100%	100%
222001	Other	Desk review	3.9	106,948	3.9	106,802	100%	100%
222002	Lighting—medium	Site visit	14.5	50,860	14.5	50,860	100%	100%
222003	Other	Desk review	1.9	88,191	1.8	88,191	94%	100%
222004	Lighting—low	Site visit	0.7	3,869	0.7	3,869	100%	100%
222005	Lighting—low	Desk review	1.3	9,076	1.3	9,076	100%	100%
222006	Lighting—medium	Desk review	5.9	36,777	5.9	36,777	100%	100%
222007	Lighting—high	Desk review	-	125,039	-	125,039	N/a	100%
222008	Lighting—medium	Site visit	-	40,344	-	40,344	N/a	100%
222009	Lighting—high	Desk review	21.5	80,701	21.5	80,715	100%	100%
322001	Lighting—high	Site visit	12.0	61,814	12.0	61,814	100%	100%
322002	Lighting—low	Desk review	1.4	4,884	1.4	4,884	100%	100%
322003	Lighting—low	Site visit	5.8	19,656	5.8	19,656	100%	100%
322004	Other	Desk review	2.5	107,671	2.5	107,671	100%	100%
322005	Lighting—medium	Desk review	6.6	32,049	6.8	32,625	102%	102%
322006	Lighting—medium	Site visit	10.1	49,513	13.2	46,077	130%	93%
322007	Lighting—medium	Site visit	7.5	44,508	9.7	41,679	130%	94%
322008	Lighting—high	Desk review	2.6	61,624	2.6	61,624	100%	100%
Total			139.0	1,228,560	144.3	1,222,708	104%	100%

* All projects that received an on-site visit also received an engineering desk review.

A dash indicates that there are no kilowatt savings associated with the respective measure.

The project-based savings adjustments are provided below by measure category and EM&V participant ID.

10.4.6.1 Other

The *other* strata consist of prescriptive, non-lighting measures. Four project IDs were selected in the *other* category for the SBS program for desk reviews, with one project also receiving an on-site visit. All four of the *other* category projects included *envelope* measures.

- **Participant ID 222001 adjustment to linear footage during the desk review.** This project was a *commercial door air infiltration* project. During the desk review, the EM&V team found a discrepancy between the reported door length in the Direct Install Report and the tracking system and photos taken during installation. The tracking data and Direct Install Report noted that there were 27 doors, with a gap length per door of 17 feet, for a total of 460 linear feet. However, multiplying 27 doors by 17 feet per door is 459 feet. The total linear footage was adjusted from 460 to 459; this slightly decreased energy and demand savings.
- **Participant ID 222003 demand savings calculation error uncovered during the desk review.** This project was a *commercial door air infiltration* project. During the desk review, the EM&V team found a discrepancy between the reported and evaluated demand savings, despite no adjustments to savings parameters. CLEAResult attributed the savings discrepancy to a calculation error in a new system; it will update the system moving forward.

10.4.6.2 Lighting High

The *lighting—high* strata consist of lighting projects with total energy savings greater than 56.4 megawatt-hours. Six desk reviews and three site visits have been conducted on these strata, resulting in two savings adjustments.

- **Participant ID 122001 adjustments for post-installation fixture wattage during the desk review.** A quantity of four *LED pole-arm-mounted fixtures* (ASD Lighting ASD-LSB2-100D50B-PRM) were adjusted from the reported 100 W to 101 W (DLC Certification database verified these lights to be 100.9 W); this reduced energy and demand savings for these measures.
- **Participant ID 222009 adjustments for post-installation fixture wattage during the desk review.** A quantity of four *LED fixtures* (LED One LOD-MCL-54W50KHL) were adjusted from the reported 54 W to 53 W (DLC Certification database verified these lights to be 53.3 W); this increased energy and demand savings for these measures.

10.4.6.3 Lighting Medium

The *lighting—medium* strata consists of lighting projects with total energy savings more significant than 25.8 MWh and less than 56.4 MWh. Eight desk reviews and four site visits were conducted on these strata, resulting in four savings adjustments.

- **Participant ID 122002 adjustments for post-installation fixture wattage during the desk review.** A quantity of two *LED tubes* were found to be the model number *Espen L36T8/840/11G-AB*, rather than the reported *L36T8/840/12G-ID DE*. The wattage was adjusted from the reported 12 W to 14 W (DLC Certification database verified these lights to be 14 W); this reduced energy and demand savings for these measures.

- **Participant ID 322005 adjustments for post-installation fixture wattage during the desk review.** A quantity of 144 *LED tubes* was found to be the model *L48T8/850/15G-ID DE* rather than *L48T8/850/15P-ID DE (aa)*, as was specified in the ex-ante DLC Certification and wattage. *L48T8/850/15G-ID DE* was found to be DLC certified at *15 W*. The wattage was adjusted from the reported *16 W* to *15 W*. This increased energy and demand savings for these measures.
- **Participant ID 322006 adjustments for building type during the desk review.** The building type was adjusted from *retail: excluding malls & strip centers* to *service (excluding food)* as the business does custom designs, repairs, and services signage, and is open Monday–Friday, 9:00 a.m.–5:00 p.m. and weekends by appointment. This decreased energy savings and increased demand savings.
- **Participant ID 322007 adjustments for post-installation fixture wattage during the desk review and site visit.** The building type was adjusted from *retail: excluding malls & strip centers* to *service (excluding food)* as the business is a custom auto shop that lacks a retail storefront, with business hours from Tuesday–Friday, 9:00 a.m.–4:00 p.m. The building type adjustment decreased energy savings and increased demand savings.

10.4.6.4 Lighting Low

The *lighting—low* strata consist of lighting projects with total energy savings of less than 25.8 MWh. Seven desk reviews and three site visits were conducted on this stratum, resulting in no savings adjustments.

10.4.7 Program Website and Documentation Review

To understand the SBS program, the EM&V team interviewed program staff and reviewed all information available on EAL's website related to the program and supplemental documentation provided by EAL and CLEAResult. The EM&V team reviewed the following documentation related to the program:

- ArchEE data tracking system extract containing PY2022 participant information and savings;
- Quality Control and Assurance Manual for EAL commercial programs, dated February 1, 2023;
- PY2022 Program Manual for the Small Business Solutions Program obtained from the EAL website;
- *overhead door weatherstripping* deemed savings methodology and calculations; and
- program website.

10.4.7.1 Program Website Review

Information found on the SBS program website includes a general description of the program, such as eligibility and how participation works. It also provides a list of eligible measures and their incentive discounts. An example project at a small office is displayed along with the estimated energy savings, incentive amount, and utility cost savings. A copy of the program

manual was easily found on the website. A search link is provided to find a participating trade ally by zip code lookup. Health and safety guidelines that employees and trade allies will follow in response to COVID-19 were also displayed at the top of the page.

10.4.7.2 Program Documentation Review

The EM&V team received program-related documentation key to understanding the program and participation processes, including the PY2022 Program Manual and Quality Control and Assurance Manual. Key documents to understanding the program savings methodologies and measuring level savings include the project-level files, ArchEE data, TRM 9.0, supplementary deemed savings methodologies for *overhead door weatherstripping*, and ongoing reviews with EAL and CLEAResult staff.

For many sampled projects, the project details and documentation collected by EAL, the implementer, and trade allies are sufficiently extensive. As bulleted in the section above, the critical baseline and new equipment assumptions, which are drivers of the prescriptive measure savings, are well described in trade ally proposals and equipment inventories. The equipment quantities and performance metrics are also supported by additional documents collected at project approval. The documentation included invoices, photos, and work orders (support claimed quantities, and equipment make and model). These are industry best standards for documentation collection, which reduce the uncertainty of the project savings assumptions and development.

The EM&V team found that documentation, in most cases, matched the data recorded in the ArchEE tracking system. Equipment type, quantities, and in most cases, building/space conditions were accurately recorded compared to the efficient technology data and project file documentation reviewed. Also, across projects, most project files contained similar documentation. Most project files had, at a minimum, the signed customer proposal, project savings summary, and participant agreement. This proposal, along with the trade ally work order, typically included the list of *retrofit* measures, with pre- and post-conditions and equipment parameters identified. Many project files included pre- and post-inspection forms with field inspector notes indicating site results. Except for *direct install* projects, all project files included invoices. All invoices were found to have measure-level cost breakdowns, which helped support and confirm project details.

Many projects also included pre- and post-installation photographic documentation. Photos were included with some proposals and inspection reports, but not all. Photos were generally of high quality; however, there were a few instances where photos provided in the documentation were unclear, and photos of *lighting* and *HVAC* nameplate photos were not always provided.

In PY2022, the EM&V team found the project documentation was about as robust as last year, with very few additional data requests to the implementer needed throughout the year. It should be noted, however, the documentation did appear more sparsely provided in Q3, when compared to Q1 and Q2, with more missing *lighting* customer proposals and work orders.

The project proposals include various details; however, the EM&V team would recommend adding other key parameters captured at the site used for savings calculations—these include *building type*, and *heating and cooling space types*.

PY2022 saw continual documentation consistency for the make and model of all *lighting* products. DLC and ENERGY STAR certification sheets were included for all *lighting* projects. Manufacturer's specification sheets, however, were not included for any *lighting* projects. Manufacturers' specification sheets are essential for *LED exit signs* because DLC or ENERGY STAR certification sheets are not available for these types of lights. As *lighting* measures contribute a significant portion of the program savings, documents that support key variables that are a driver of *lighting* measure savings include the post-installation lighting wattage. Having manufacturer's specification sheets would increase clarity between similar lighting types that may differ by color temperature, voltage, and other features that can impact the equipment's qualification and fixture input wattage.

Work orders or post inspections were provided for 17 of 21 *lighting* projects sampled, which allowed for easy verification of post quantities and model numbers. Verification of baseline quantities and lighting model numbers were limited in cases where work orders and pre-inspections were not provided.

10.5 DETAILED PROCESS EVALUATION RESULTS

As part of the PY2022 evaluation for the program, the EM&V team conducted 97 telephone surveys with recent program participants. The surveys collected process evaluation information and structured questions to assess free-ridership and participant spillover for the NTG evaluation.

10.5.1 Respondent Firmographics

Most survey participants were in *retail stores* (28 percent), followed by *religious organizations* (19 percent) and *lodging* (11 percent). Table 139 shows the survey respondent's primary business activity. Nearly three-quarters of participants reported owning the facility at which the program upgrades were installed, and 94 percent said that their organization makes budget decisions at the local level. Participants, on average, had six full-time employees and three part-time employees and ranged from 0 to 55 full-time employees and 0 to 35 part-time employees. All but three participants (or 97 percent) said that their organizations *do not have a formal payback period or return-on-investment requirements* needed to approve energy efficiency projects. About one-quarter of respondents (21 participants or 24 percent) reported *experiencing challenges related to making energy-saving improvements*; these challenges were centered around cost or budget limitations, cited by 76 percent (16 respondents). The remaining participants (4 respondents) noted the *age of their building*. One respondent did not provide a meaningful response.

Table 139. Survey Respondent's Primary Business Activity, Small Business Program

Main business activity	Percentage
Retail/personal services	28%
Religious	19%
Lodging	11%
Office	9%
Other	8%
Manufacturing—1 or 2 shifts	4%

Main business activity	Percentage
Professional services	4%
Auto repair shop	3%
Medical—office/clinic	3%
Restaurant	3%
Warehouse	3%
Foot pantry	3%
Medical—hospital	1%
Respondents	93

Source: Question E1.

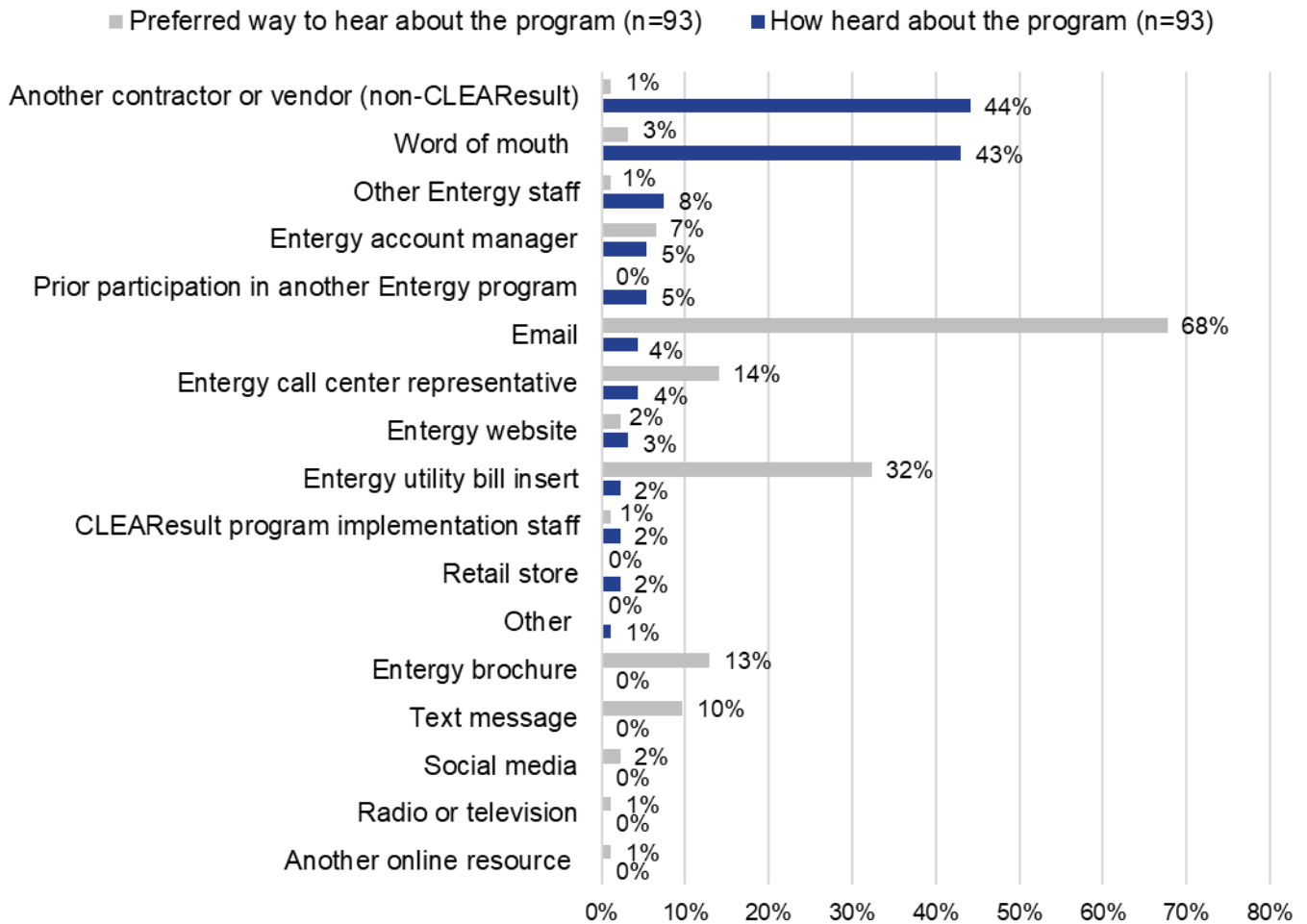
**Don't know and refused responses excluded.

The trade allies interviewed provided various services focused mainly on lighting and electrical service, and the two *Cool/Saver* contractors were traditional HVAC companies. Trade allies we talked to employ an average of 21 employees, ranging from 4 to 70 employees. Trade allies mentioned serving all commercial customers, including working with small businesses, public and private organizations, food service, retail spaces, and municipal buildings. Seven trade allies interviewed currently work in territories served by other utilities besides EAL, and an additional four said they work mainly in EAL's territory.

10.5.2 Program Marketing

Nearly one-half of respondents reported learning about the SBS program through a contractor or vendor (44 percent), followed closely by word of mouth from friends or family (43 percent). Other frequently mentioned sources were by EAL staff that was not an account manager or call center representative (8 percent), EAL account manager (5 percent), and prior participation in an EAL program (5 percent). In addition to how they learned about the program, the survey also asked respondents how they would prefer to receive information about EAL's energy efficiency programs in the future. The most frequently mentioned preferred communication channel was through email (68 percent of respondents), followed by a utility bill insert (32 percent), an Entergy call center representative (14 percent), and an Entergy brochure (13 percent). Figure 17 illustrates how participants learned and how they preferred to hear about the SBS program.

Figure 17. Actual and Preferred Sources of EAL’s Small Business Program Awareness



Source: Questions A1, A2.
 *Multiple responses were allowed.
 **Don't know and refused responses excluded.

Trade allies were divided when characterizing the level of program awareness among customers. Some trade allies consider the program well-known and continue to have repeat customers who ask about the program. Others find that customers are unaware of it and have difficulty believing the utility will give them money to make energy-efficient improvements. Ways of promoting the program varied by trade ally. One contractor mentioned promoting the program by a banner hanging on their wall, another said they rely on word of mouth to advertise the program, one makes cold calls to stir up business, and a fourth is active on social media. As mentioned in more detail below, three trade allies have indicated they no longer promote the program because it is no longer in their best interest.

10.5.3 Participant Experience

Seven participants surveyed reported experiencing any obstacles or barriers while in the program. Six of the seven participants who experienced challenges in the program noted issues associated with contractors, such as the contractor creating and leaving a mess (3 respondents), finding a contractor who was able and willing to do the project (2 respondents), or not installing the service correctly (1 respondent). The seventh participant who experienced an obstacle had an issue with faulty equipment (a belt that required replacement).

Trade allies' experiences with the program were mixed. One-half of the trade allies discussed frustrations with the program and experienced problems this year. Those trade allies tended to be involved in the program for more than ten years (compared to five years for those who have not experienced problems). Contractors cited poor communication (5 respondents) and delays in processing applications, which have been increasingly more complicated (4 respondents) and involved too much paperwork (4 respondents) as reasons for their frustrations. Additional feedback included delays in receiving their incentive checks (3 respondents) and unchanged rebate amounts compared to increased equipment prices (1 respondent). Work that the implementation contractor used to do, such as pre- and post-work has shifted to the trade ally. These experiences have negatively impacted trade allies in that three indicated they no longer use the program for small projects; it is not worth their time and energy to work through the program. Two trade allies said they direct customers to the midstream program, where they can bypass the application process. As one contractor stated, it is "not very cost-effective for us to run the incentive program anymore."

Those who have had positive experiences with the program report regular interactions with program staff, the staff has been pleasant, and the interactions are positive. The communications were mainly through email, and the inquiries were responded to quickly.

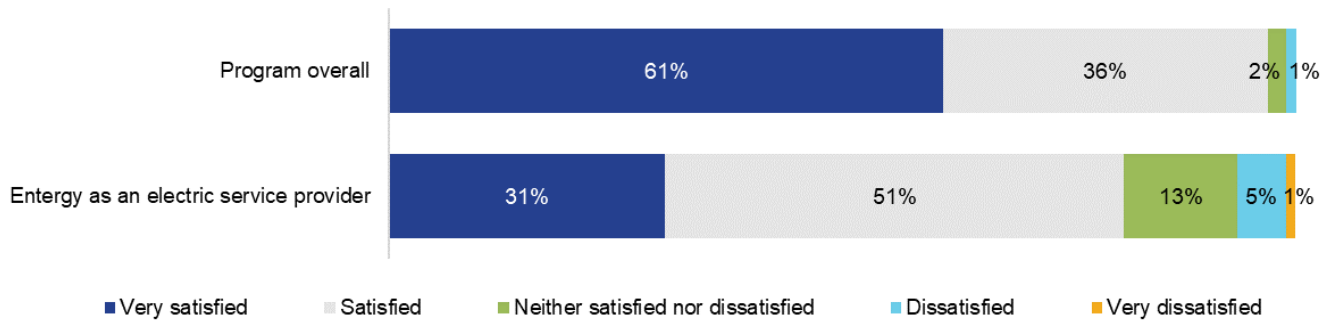
For the most part, COVID-19 pandemic-related issues have not impacted equipment availability. Alternative equipment can typically be found for any material that is delayed. One trade ally mentioned changing their recommendations based on product availability, but the alternative technology remained program eligible. A few times, the DesignLights Consortium changed which lamps were qualified, which was seen as having a more significant impact.

10.5.4 Satisfaction

Overall, participants rated their satisfaction with the program highly. Nearly two-thirds of participant respondents said they were *very satisfied* with the SBS program overall, and an additional 36 percent reported being *satisfied*. Two participants said they were neutral about the program, and one reported being *dissatisfied* with it. When those who were less than *very satisfied* with the program were asked if there was anything EAL could have done to improve their experience in the program, over 67 percent responded, *no* (25 respondents). Of the twelve respondents who said *yes*, nearly half suggested improving communication regarding awareness of the program or mentioned that they would have appreciated more communication from contractors or program staff (5 respondents). Two respondents indicated improving the contractors available through the program. Other responses included that their contractor only did half the work installing a light fixture, requests for faster installation time, higher rebates, and reimbursement for the cost of the lighting (one respondent each).

Participants' overall high satisfaction in the program was also seen in their satisfaction with EAL overall. Sixty-one percent of respondents said they were *very satisfied*, and an additional 36 percent said they were *satisfied* with EAL overall as an electric service provider.

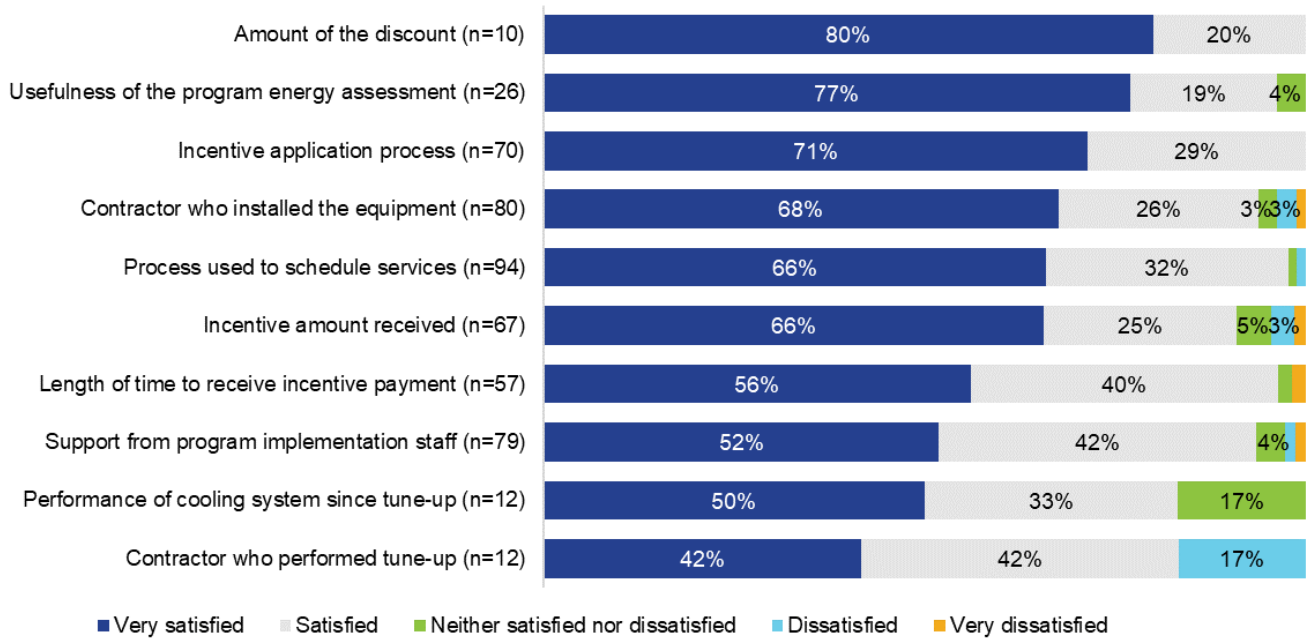
Figure 18. Participant Satisfaction with the Small Business Solutions Program and Entergy as a Service Provider



Source: Questions SAT3, SAT5
 *Don't know and refused responses excluded.

Figure 19 shows satisfaction ratings relating to specific aspects of participants' experiences with the program, including the usefulness of the energy audit, the incentive application process, the contractor, the scheduling process, the amount of the discount or incentive, the length of time to receive the incentive, the support provided by EAL or implementation staff, the performance of the cooling system since the tune-up, and contractor who performed the tune-up. Like overall program satisfaction, ratings were high across all specific program aspects queried in the survey, with at least one-half of respondents saying they were *very satisfied* with each element. The one exception was for the contractor who performed the tune-up, where 42 percent of respondents indicated they were *very satisfied* with the contractor. Dissatisfaction with the contractor performing the tune-up (2 respondents) was due to the customer not knowing the contractor was coming to their house and that the thermostat was turned down too low, lights were left on, doors left unlocked, and equipment was mislabeled.

Figure 19. Participant Satisfaction with Program Aspects



Source: Question SAT1.

*Don't know, not applicable, and refused responses are excluded. Values less than three percent have been suppressed for visual purposes.

Trade allies reported high overall satisfaction with the program, with an average rating of 3.9 on a scale where one is *not at all satisfied* and five is *very satisfied*. Satisfaction with interactions with program and implementation staff and the information and support received through the program averaged 3.6 (from 10 respondents), and the type and variety of equipment eligible for the program averaged 4.3 (from 5 respondents). While satisfaction with the program seemed high, trade allies noted several areas where the program could be improved. The most mentioned improvement (mentioned by five respondents) centered around the incentive payment process, specifically the long delays in getting payment and the payment method. Trade allies were interested and excited to have a direct deposit option as an improvement in the following program year. Communication was also an area mentioned for improvement. Three trade allies felt communication with implementation staff could be improved. Trade allies talked about how it is difficult to speak with a live person, and communication is directed to email. Once an email is sent, it could take days to get a response or multiple emails to resolve one issue. Other recommended improvements included streamlining the process (two respondents), additional training, especially when rolling out new features like the online submissions (one respondent), and improvements to the new construction portion (one respondent). One contractor in the *CoolSaver* measures felt the requirement around the refrigerant could be eliminated as it is not required in territories outside of EAL's.

Regarding incentive amounts, one trade allies had a suggestion related to the SBS program. This respondent indicated EAL could incentivize fixtures a little better than tubes.

10.6 NET-TO-GROSS RESULTS

10.6.1 Net-to-Gross Methodology

We assessed NTG via self-reports through the participant customer survey based on the guidance outlined in Protocol F of TRM 9.0. As previously mentioned, to minimize recall concerns, and to allow for enough time for spillover to occur, free-ridership and spillover questions were not asked of everyone, and free-ridership and spillover were calculated separately. The EM&V completed 97 participant surveys accounting for 110 different measures. Among those, 72 received the free-ridership battery, and 72 received the spillover battery, with 34 respondents receiving both the free-ridership and spillover series (July 2021 to December 2021 participants). Table 140 shows how the response counts broke out for free-ridership and spillover based on their participation date.

Table 140. Summary of Self-Report Participant Survey Respondents by Participation Period for the Small Business Solutions Program

Participation period	Project type	Measures evaluated	
		Free-ridership	Spillover
January 2021–June 2021	AC tune-up	N/A	5
	Domestic hot water	N/A	2
	Envelope	N/A	6
	Lighting	N/A	15
	Wi-Fi thermostat	N/A	10
	Total	N/A	38
July 2021–December 2021	AC tune-ups	6	6
	Domestic hot water	1	1
	Envelope	4	4
	Heat pump tune-ups	1	1
	Lighting	16	16
	Wi-Fi thermostat	6	6
	Total	34	34
January 2022–June 2022	AC tune-ups	5	N/A
	Domestic hot water	3	N/A
	Envelope	6	N/A
	Heat pump tune-up	3	N/A
	Lighting	13	N/A
	Wi-Fi thermostat	8	N/A
	Total	38	N/A

The survey included structured questions about the participant’s decision to pursue rebated energy-efficient upgrades to estimate free-ridership. As the TRM 9.0 does not allow for partial free riders, participants were either classified as full-free-riders (100 percent free-ridership) or non-free-riders (0 percent free-ridership) based on their responses to these decision-making questions. Table 141 below shows the survey questions we used to classify free riders.

Table 141. Self-Report Free-Ridership Survey Questions

Survey question	Response options
FR2. Before learning about the <PROGRAM> program, was your organization already planning to purchase and install the <MEASURE> project in <YEAR>? If CoolSaver: Before learning about the discount available through the <PROGRAM>, was your organization already planning to have a high level <MEASURE> performed in the same year?	01 Yes
	02 No
	88 Don't know
	99 Refused
FR3. If the program incentive/discount had not been available, would your <YEAR> budget have accommodated the full cost of the <MEASURE>?	01 Yes
	02 No
	88 Don't know
	99 Refused
FR4. If the incentive/discount or other assistance from the program had not been available, would you still have purchased the exact same <MEASURE> project, or would you have purchased something different?	01 Same [SKIP TO FR7]
	02 Different
	88 Don't know
	99 Refused
FR5. [ASK IF FR4 <> 1] Would you have purchased and installed any <MEASURE> at all? If CoolSaver: If the discount had not been available, would you still have purchased any <MEASURE>?	01 Yes
	02 No
	88 Don't know
	99 Refused
FR6. [ASK IF FR5 = 1] Would it have been the same level/efficiency, higher level/efficiency, or lower level/efficiency?	01 Same level of efficiency
	02 Higher efficiency
	03 Lower efficiency
	88 Don't know
	99 Refused
FR7. [ASK IF FR4 = 1 OR FR5 = 1] If the incentive/discount or other assistance from the program had not been available, when would you have installed/performed the <MEASURE>? Would you have installed/performed it...	01 At the same time or sooner
	02 Within one year
	03 One to two years later
	04 Three to five years later
	05 More than five years later
	88 Don't know
	99 Refused

We followed the same criteria for classifying free riders used in previous evaluation research for consistency and comparability with prior evaluation results. To be classified as a full-free-rider, respondents must have indicated all the following conditions; any respondent that did not meet all three of these conditions we classified as a non-free-rider:

- were already planning to purchase and install the project in the same year before learning about the program (FR2 = 1),
- budget would have accommodated the full cost of project in the absence of the program rebate (FR3 = 1), and
- would have purchased the same or higher efficiency measure within one year in the absence of the program ((FR4 = 1 OR (FR6 = 1 OR 2)) AND (FR7 = 1 OR 2)).

The participant survey also included several consistency checks to verify a participant's free-ridership status. These consistency checks provide additional information about the participant's decision to install the program-provided measures and substantiate their classification as full or non-free-rider. Consistency check questions include whether the participant received a recommendation to install a piece of equipment, how influential that recommendation was on their decision, and how influential the program incentive and other assistance were on their decision to install the program measure.

To assess spillover, we asked about recent installations of any additional energy-efficient improvements made since program participation *without* financial assistance from EAL. Respondents were then asked how important their experience in Entergy's SBS program was to their decision to install these additional improvements. Full savings were attributed to the program as spillover if the respondent said *very important*, and one-half-savings were attributed to the program if the respondent said *somewhat important*. Respondents who stated that their experience was *not at all important* or *not very important* received no spillover savings. We used a conservative approach and quantified spillover savings only for "like" measures eligible for commercial EAL incentives and excluded *lighting* measures. *Lighting* was excluded from this analysis due to upstream lighting rebates provided through other EAL programs; in many cases, customers may not be aware that the lighting they purchase is already discounted by EAL.

Free-ridership and spillover rates were estimated for each respondent using the methodology approach described above. Individual free-ridership and spillover rates were then weighted to adjust for proportional sampling differences, non-response, and gross energy savings to calculate overall estimates representative of the program population. NTG ratios were then calculated using the following equation:

$$NTG\ Ratio = 1 - Free-ridership + Spillover$$

10.6.2 Detailed Results

Inclusive of free-ridership and spillover, the evaluation resulted in an overall NTG ratio of 100 percent. Only one respondent said they would have completed their project without the program resulting in a free-ridership ratio of less than 1.0 percent. Because some spillover was observed, which offsets most free-ridership, the overall NTG ratio is 100 percent. Table 142 summarizes NTG results.

Table 142. Summary of NTG Results for the Small Business Solutions Program

Measure category	Free-ridership	Spillover	NTG
CoolSaver	Less than 1%	Less than 1%	99.9%
Non-CoolSaver	0%	0%	100.0%
Program overall	Less than 1%	Less than 1%	100.0%

Feedback from participants suggests that the program was highly influential in the decision to install energy-efficient measures. One respondent said they were planning to purchase and install their rebated energy efficiency measures in the same year before learning about the program and had the budget allocated to make the improvement. The measure associated with this respondent was a *Wi-Fi thermostat*. Ten other respondents said they were planning to purchase and install their rebated equipment. Five did not have the budget to accommodate the project's full cost, and the others provided conflicting information about their decision to make the improvement and the program's impact. Hence, these were determined to be non-free-riders.

Six respondents said they installed additional “like” energy-efficiency measures. We were only able to attribute spillover to one respondent who said they installed an additional thermostat because of the program. Four of these respondents said they installed additional lighting and were excluded from spillover. With *lighting* being rebated through upstream channels, we did not want to double-count any savings associated with *lighting* measures. One respondent did not provide any detail on the amount of additional equipment installed; therefore, we could not calculate spillover.

Ten respondents said they installed measures “unlike” the equipment they installed through the program and that the EAL programs were important in making the improvements. While we do not calculate savings associated with the unlike measures because we are unable to collect enough detail, we present the information as indicators. Five respondents installed *lighting* measures, two respondents installed *HVAC* equipment, one respondent installed *refrigeration* equipment including a freezer, one respondent installed a *window and installation*, and one respondent indicated they replaced some *wiring*.

Trade ally interviews support this finding. Without the program, trade allies said their sales of energy-efficient equipment would have either decreased or remained the same without the assistance from EAL's programs.

10.7 OVERALL SAVINGS ESTIMATES

The ArchEE tracking system was the primary tool for checking claimed savings and performing evaluation savings calculations across a participant census. The tracking system contained the key assumptions and parameters necessary for calculating measure savings. After performing evaluation savings calculations across all measures claimed by the SBS program, the EM&V team found discrepancies in some measure categories. Those discrepancies that had the most considerable impact on program savings were discrepancies found during the tracking system data review and project-level engineering reviews for *tune-up* measures and *lighting control* measures as detailed above.

The EM&V team calculated savings across the program measures based on the tracking data review and desk review results. The overall SBS program evaluated savings resulted in slightly lower energy and higher demand savings than those calculated by the program implementer (99.6 percent kilowatt-hour and 102.8 percent kilowatt realization rates). The evaluated savings are based on the results of savings calculations and adjustments made across the tracking system and supplemented by the results of the 25 sampled accounts, as discussed above. *Tune-up* measure savings were based on the results of the tracking system review.

The overall realization rates were affected most by variances between the claimed and evaluated savings (kilowatt and kilowatt-hour) from two *lighting* projects where the *building type* was adjusted from *retail: excluding malls & strip centers* to *service (excluding food)*. Another major contributor to savings adjustments was from *Wi-Fi thermostat* measures due to incorrect deemed energy and demand savings values being used for *heat pumps* in reported savings.

Table 143 shows that *lighting* measures had the most considerable variances and contributed the largest portion of program savings. Overall, these findings resulted in the most significant impacts on changes in kilowatt-hours and kilowatts for the program.

Table 143. Small Business Solutions Program—Final Evaluated Energy Savings and Realization Rates by Measure Strata

Strata	Ex-ante savings		Ex-post savings		Realization rate		Data source
	kW	kWh	kW	kWh	kW	kWh	
Lighting—high	564.7	3,475,635	564.7	3,475,617	100.0%	100.0%	Desk reviews and site visits
Lighting—medium	734.1	4,404,348	809.7	4,326,855	110.3%	98.2%	Desk reviews and site visits
Lighting—low	903.2	4,672,650	903.2	4,672,643	100.0%	100.0%	Desk reviews and site visits
Other	80.3	1,837,511	79.5	1,836,722	98.9%	100.0%	Desk reviews and site visits
Tune-ups	423.7	3,088,109	425.7	3,094,884	100.5%	100.2%	Tracking system review
Total	2,705.9	17,478,253	2,782.8	17,406,720	102.8%	99.6%	

10.8 QUALITY CONTROL/QUALITY ASSURANCE PROCESSES

EAL worked with the implementer CLEAResult to develop a quality management process for all EAL commercial programs. This process can be used for projects with or without a trade ally.

For trade-ally projects, CLEAResult emphasizes trade ally training to remind trade allies of program processes, technical requirements for measures, application requirements, and awareness of the QC process. QC protocols include clear pass/fail thresholds for addressing trade ally performance. During the post-inspection of any project (trade-ally-driven or not), the fail condition results if the work scope is significantly incomplete, the efficient measures are found to be ineligible, or there are safety or code issues with the installation. A failed project causes the trade ally to be removed from the reduced inspection rate list that the program maintains and is put under probationary status. Once a trade ally is removed, that contractor must complete five consecutive projects without "failures" to be returned to the reduced

inspection rate list. For a trade ally to qualify for the reduced inspection rate, they must complete five consecutive projects without a failure as determined by the program implementer.

Customers must sign a customer agreement to be eligible for the program; as part of this agreement, the customer is willing to allow a field inspector to perform a QC inspection. These inspections could happen to any project regardless of scope. An inspection form was developed to perform standardized and consistent inspections to ensure the equipment is being used following the guidelines outlined in the customer agreement.

Below are the steps that are followed during the QA/QC process, as outlined in the Quality Control and Assurance Process Manual:

- enrollment and customer verification,
- project documentation and completeness review,
- pre-engineering QC and approval,
- pre-installation inspection,
- pre-installation inspection corrections—trade-ally-driven projects,
- post-installation QC,
- post-installation inspection,
- post-installation inspection corrections—trade-ally-driven projects,
- post-engineering approval, and
- post-project review and closeout.

For all projects, the QA/QC process begins with verification that customers are eligible for participation in the program. Next, project documentation (including contact information, signed proposal, W9 forms, and pre-installation photos) is verified to be complete. Following the documentation check, the engineering team at CLEAResult checks to ensure that the project is installing eligible equipment and that savings parameters and calculations are accurate. For QA, the program staff also conducts reviews of each incentive application. After the engineering QC check, proposals that do not pass all aspects of the review are rejected and sent back for completion.

The next stage in the QA/QC process occurs during the pre-installation inspection stage, where pre-installation inspections are conducted to confirm pre-installation conditions. These inspections are completed for 100 percent of custom projects and the largest (approximately 10 percent) trade-ally projects identified by kilowatt-hour savings. For the SBS program, larger projects are defined as those with savings estimated at over 60,000 kWh. Inspections are also completed for all *prescriptive* projects submitted by a non-trade ally or submitted by a trade ally under probation. A minimum of ten percent of all other projects under 60,000 kWh are also inspected. Trade allies who are not under probationary status must have at least ten percent of their total project quantities pre- or post-inspected. Any findings during the pre-inspection stage are returned to the trade ally to make corrections before the project may proceed.

Following the installation of the project, a post-installation QC check is performed via a review of documentation, to verify invoicing, any changes to the project, and a review of submitted photos. Any findings during this QC check are once again returned to the trade ally to make corrections before the project may proceed. An on-site inspection is then conducted following the same sampling methodology as detailed in the pre-installation inspection above.

At the final stage of the process, a final engineering review of the post-installation notes, completeness of documentation, and post-inspection photos is performed. Project savings calculations or incentives are adjusted as appropriate. When this complete, the project and all required documentation is submitted to EAL for approval and project closeout.

As part of the SBS program evaluation activities, the EM&V team assessed the program's documentation and the 25 sampled projects used to inform the impact evaluation. The documentation included:

- program manual;
- program tracking system/database extracts;
- supplemental project-level documentation:
 - customer proposals and project agreements,
 - invoices,
 - pre-inspection form (where applicable),
 - post-inspection form (where applicable), and
 - photographic documentation (where applicable).

As noted in the prior sections, the EM&V team confirmed that the information presented in the ArchEE tracking system was mostly accurate compared to that in the project documentation. In general, the documentation provided project information that aligned with the stated QC goals, though the EM&V team found three specific areas for improvement:

1. Ensure photographic documentation provided is clear and legible and include nameplate photos of lighting model numbers and HVAC units, when possible,
2. Provide lighting specification sheets, and
3. Provide work orders and/or post-inspection reports on all projects.

11.0 PUBLIC INSTITUTIONS SOLUTIONS

The Public Institutions Solutions (PIS) program offers commercial customers cash and non-cash incentives for energy efficiency improvements. The program targets governments, government-owned institutions, and public-private education entities. Through technical assistance in energy performance benchmarking; energy master planning; and identifying, assessing, and implementing energy efficiency technologies, the program educates and assists customers in integrating energy efficiency into their short- and long-term planning, budgeting, and operational practices. This program was named CitySmart before program year (PY) 2020 (PY2020).

Program participants are consulted about the available offerings and financial incentives for eligible efficiency measures installed in their facilities using a network of trade allies. Trade allies are responsible for analyzing customers' energy use, identifying energy efficiency improvement projects, and installing the recommended measures. The program offers direct-install, prescriptive, and custom measures, which require measurement and verification (M&V). The incentive levels vary by the number of installed measures.

The program benchmarks customers' energy use through hands-on expertise and consulting and identifies a roadmap to success. Customers are given guidance throughout their experience in the program. The PIS program is designed to minimize the following market barriers to energy efficiency implementation for Entergy Arkansas, LLC's (EAL) PIS customers:

- budget constraints,
- lack of understanding about project financials, and
- lack of awareness of energy-efficient technologies.

The program is implemented by EAL and CLEAResult, who provide recruitment, marketing, outreach, and training to trade allies. On behalf of EAL, CLEAResult performs energy assessments, directly installs measures (e.g., *light-emitting diodes (LED)*, *low-flow faucet aerators*, *pre-rinse spray valves*, *weatherstripping*), conducts pre- and post-implementation inspections, maintains the program quality assurance/quality control (QA/QC) standards, and administers the incentive process—including program tracking—directly with participating trade allies.

In support of the impact evaluation, the evaluation, measurement, and verification (EM&V) team conducted a tracking system review for all measures, a separate database review for *tune-up* measures, desk reviews on a randomly selected sample of 30 projects, 15 site visits, and a review of program documentation. As part of the PY2022 evaluation for the program, the EM&V team conducted 59 telephone surveys with recent program participants. The surveys collected process evaluation information and structured questions to assess free-ridership and participant spillover for the NTG evaluation. Program staff interviews focused on discussing PY2022 progress and challenges and implementing PY2021 evaluation recommendations presented in the *Executive Summary* (Section 1.0).

Table 144. Public Institutions Solutions Program—Data Collection and Evaluation Activities

Net-to-gross (NTG) approach	Process evaluation activities	Gross impact evaluation completes			
		Tracking system review	Desk reviews	On-site M&V	Metered data analysis ⁷²
Updated from current evaluation research	Program staff interviews (2) Materials review Participant surveys (59) Market actor interviews (12)	Census	30	15	8

11.1 KEY FINDINGS

Based on the PY2022 program tracking data, the PIS program incentivized energy efficiency measures to 263 unique participants⁷³ through 31 trade allies. Table 145 provides the program's claimed savings by measure category, where the most considerable amount of claimed participants (41 percent) and savings (52 percent) were attributable to *tune-up* measures. The most significant participation and savings for non-*tune-up* measures were for *lighting* (36 percent of participants and 23 percent of energy savings). Another considerable measure in terms of participation was *continuous energy improvement (CEI)*, with 11 percent of participants and 14 percent of energy savings.

Table 145. Public Institutions Solutions Program—Reported Participation and Savings⁷⁴

Measure category	Trade allies	Participants**	Projects	Program savings (kWh)	Percentage of program savings (kWh)
Custom—CEI	0	30	36	2,920,350	14.3%
Custom—other	3	3	3	570,893	2.8%
Domestic hot water*	0	5	9	124,101	0.6%
Envelope*	0	20	21	833,009	4.1%
HVAC	11	19	22	659,777	3.2%
Lighting	11	90	95	4,244,330	20.8%
Lighting—New Construction	4	5	6	413,240	2.0%
Tune-ups	9	108	2,577	10,632,090	52.1%
Total	31	263	2,757	20,397,791	100.0%

* The implementer directly installed all measures.

** A participant may install measures across multiple measure categories or multiple projects. Thus, the total count of participants and projects may not equal the sum of individual rows by measure category.

⁷² This column refers to EAL customer meter data provided to the EM&V team as opposed to primary metered data collected as part of the on-site M&V.

⁷³ A unique participant is based on a single utility account number.

⁷⁴ ArchEE extract dated January 24, 2023.

In PY2022, the PIS program reported 20,398 MWh in gross energy savings and 2.9 MW in gross demand savings. Table 146 below shows the reported and evaluated savings across the program. The program fell short of achieving its planned energy and demand savings goals, reaching 78 percent of the annual energy and 46 percent of the annual demand savings goals.

Table 146. Public Institutions Solutions Program—Reported, Evaluated, and Net Savings

Energy/demand savings	Reported savings	Evaluated savings	Realization rate	NTG ratio*	Net savings	Program contribution to portfolio savings
Energy savings (MWh)	20,398	19,479	95.5%	98.7%	19,225	6.6%
Demand savings (MW)	2.9	2.8	96.5%	98.6%	2.7	2.9%

* NTG ratios displayed in the table are weighted based on the evaluated net savings results. The NTG ratios used at the measure level are 0.98 for the *tune-up* and *commercial Wi-Fi thermostats*, and 1.0 for everything else.

Table 147. Public Institutions Solutions Program—Goals vs. Achieved

Savings	Goal	Actual	Percentage achieved
Energy savings (MWh)	24,661	19,225	78%
Demand savings (MW)	5.9	2.7	46%

The PIS program's evaluated energy savings and demand savings were slightly lower than the reported savings (95.5 percent kilowatt-hour realization rate, 96.5 percent kilowatt realization rate). During the desk review and on-site process, the EM&V team adjusted *lighting* installed fixture types and quantities, and *envelope* installed gap lengths. Another finding that significantly impacted savings on many measures was adjustments to *heat pump* projects in the *tune-up* and *Wi-Fi thermostat* measures.

In previous years, key updates to the program's tracking database were made, which improved the data's clarity and accuracy. The changes included correcting duplicate trade ally names and IDs in the tracking system and including the DesignLights Consortium (DLC) or ENERGY STAR® product IDs for all products sold through the program. The recommendations presented below for PY2022 focus on further improving data accuracy and consistency.

NTG research was conducted in PY2022 for PIS program and *tune-up* measures. The evaluation researched NTG ratio is 100 percent for the non-*tune-up* portion of the program. Segmented by whether the measures were tune-ups, the *tune-up* measures NTG ratio is 97.6 percent for kilowatt-hours and kilowatts while the non-*tune up* NTG ratio is 100.0 percent.

11.2 RECOMMENDATIONS

The EM&V team has identified key findings and recommendations for consideration by EAL (Table 148), which primarily focus on improving the realization rate in the following program year and increasing the transparency, accuracy, and evaluability of program savings in the future for the PIS program.

Table 148. Public Institutions Solutions Program—PY2022 Recommendations

Type	Recommendation	Key finding
PY2022 impact recommendations	<p>Recommendation 1: Review savings algorithms for commercial <i>Wi-Fi thermostat</i> measures to ensure consistency.</p>	<p>The EM&V team found 12 projects with a reported <i>air conditioning with electric resistance heat</i> type incorrectly calculated energy and demand savings. Energy savings were calculated as if the site had a <i>heat pump</i>. The demand savings were calculated by dividing the deemed <i>heat pump heating energy savings</i> by 8,760 instead of the deemed <i>cooling savings</i>, which aligns with EAL's peak demand period.</p> <p>During the tracking system review, the EM&V team also identified 16 projects where the reported fuel type was <i>heat pump</i>, but kilowatt-hour savings were calculated using deemed savings values for only an <i>electric AC</i> unit.</p> <p>During the tracking system review, the EM&V team also identified nine projects where the reported fuel type was <i>electric AC with electric resistance heat</i>, but kilowatt-hour savings were calculated using deemed savings values associated with a <i>heat pump</i> unit.</p> <p>The EM&V team recommends reviewing the deemed savings values and calculation algorithms for <i>Wi-Fi thermostat</i> measures to ensure consistency based on the tracked fuel type.</p>
	<p>Recommendation 2: Increase QA/QC on certified/non-certified lights for <i>lighting retrofit</i> projects.</p>	<p>During the desk review, the EM&V team found three <i>lighting retrofit</i> projects where a number of the installed lights were ENERGY STAR-certified and not claimed in the savings. For another project some lights were not certified and that resulted in a reduction in the energy and demand savings.</p> <p>The EM&V team recommends more careful QA/QC procedures for the <i>lighting retrofit</i> reports to limit future data errors of these types.</p>
	<p>Recommendation 3: Increase QA/QC on square footage and perimeter estimates for <i>lighting new construction</i> projects.</p>	<p>During the desk reviews, the EM&V team found two projects with square or linear feet estimates which were reduced in the evaluated savings. For one project, the square feet for one portion of the building was calculated as if it was <i>rectangular</i> when there was a <i>significant cut-out</i>. For another project, a section of wall was included in the baseline allowance for perimeter lighting where no fixtures were installed.</p> <p>The EM&V team recommends more careful QA/QC procedures for the area and length estimates on <i>new construction lighting</i> projects to limit these types of errors in the future.</p>

Type	Recommendation	Key finding
PY2022 process recommendations	Recommendation 4: Review incentive levels related to daycares and nonprofit organizations.	One contractor felt the program incentives were fair but low, specifically for daycares and nonprofit organizations with classrooms.
	Recommendation 5: Review the time trade allies wait to receive the incentive checks.	Trade allies mentioned delays in getting rebate checks, sometimes a month or more. Delays can have a significant impact on trade allies, specifically smaller organizations. An improvement a trade ally mentioned was around having direct deposit.
	Recommendation 6: Improve communication and responsiveness to customer and trade ally questions.	Communication with implementation staff around submitted applications was mentioned as a point of frustration among trade allies. Trade allies appreciate the ability to speak to a live person, receive emails with detailed instructions on what needs to be updated, and have their application reviewed in full, not one piece at a time. Customers' areas for improvement also centered around communication and responsiveness with program staff.

Table 149. Public Institutions Solutions Program—Status of Prior Year Recommendations

Status of prior year recommendations	
PY2020 impact recommendations	<ul style="list-style-type: none"> • Work collaboratively with the EM&V team to revise the Continuous Energy Improvement M&V Plan to address peak demand concerns. <ul style="list-style-type: none"> ○ Continuing. The implementer continued to use the <i>demand analysis method</i> for most projects in PY2021, an area where smart-meter data could help refine demand impacts in the future.
	<ul style="list-style-type: none"> • Collect detailed annual operating hours (AOH) documentation to support <i>custom AOH</i> values for non-deemed <i>lighting</i> projects. <ul style="list-style-type: none"> ○ Complete. The program documentation around custom AOH increased in PY2021, and there were fewer adjustments made to the evaluated savings than in previous program years.
PY2020 process recommendations	<ul style="list-style-type: none"> • Increase QA/QC efforts of the <i>tune-up</i> measure database to ensure savings are being calculated correctly and for the appropriate equipment type. <ul style="list-style-type: none"> ○ In progress. Multiple <i>tune-up</i> measures with systematic errors incorrectly calculated energy or demand savings based on the tracked system heating and cooling parameters.
PY2021 impact recommendations	<ul style="list-style-type: none"> • Review savings algorithms for <i>commercial Wi-Fi thermostat</i> measures to ensure consistency. <ul style="list-style-type: none"> ○ In progress. <i>Wi-Fi thermostats</i> continued to have inconsistencies in the calculations of savings leading to realization rate adjustments.

Status of prior year recommendations	
PY2021 process recommendations	<ul style="list-style-type: none"> • Increase QA/QC of data recorded from <i>direct-install</i> projects and enter into ArchEE for savings to improve consistency. <ul style="list-style-type: none"> ○ In progress. In PY2022, data entered from <i>direct-install</i> projects still had consistency issues that lead to adjustments for individual projects.

11.3 METHODOLOGY

This section summarizes the methodologies used for the evaluation of the PIS program.

11.3.1 Impact Evaluation

The evaluated savings results are based on calculations and adjustments made during the tracking system review, *tune-up* measure review, 30 engineering desk reviews, and 15 site visits. Savings adjustments were made at the project level. Final evaluated savings for the *tune-up* measures are based on adjustments made during the tracking system review. All other measures' evaluated savings results are based on desk review and site-visit level adjustments by sampled strata. The tracking system informed qualitative findings and served as a guide for potential issues for investigation during desk reviews.

To perform the PY2022 impact evaluation, the EM&V team completed the following activities:

- staff interviews and ongoing discussions;
- program website review of eligible measures, incentives, and participating trade allies;
- program manual and supplemental documentation review;
- program tracking system/database reviews;
- review of the tracking system and M&V database for *tune-ups* and *commercial Wi-Fi thermostats*;
- engineering desk review of 30 sampled accounts, representing 30 individual projects; and
- on-site M&V of 15 sampled accounts that also received desk reviews.

Table 150 shows the sample design and achieved sample sizes for the different data collection types employed for the impact evaluation effort.

Table 150. Public Institutions Solutions Program—Data Collection Efforts and Project Types

Data collection activity	Design sample	Achieved sample	Custom projects	Prescriptive projects
Staff interviews	2	2	N/A	N/A
Tracking system data review ⁷⁵	Q1–Q2 census	Q1–Q2 census	N/A	90
Engineering desk review	30	30	9	21
On-site M&V visit ⁷⁶	15	15	0	15
Tune-up measure data review	Census	Census	N/A	N/A

Most of the measures incentivized by the PIS program in PY2022 are currently included in the TRM 9.0, Volume 2. Specific sections of TRM 9.0 associated with the savings developed for the PIS program measures are provided in Table 151. These prescriptive algorithms and assumptions were the basis of the savings methodology used by the implementer and the EM&V team for energy and demand savings analysis purposes.

Table 151. TRM 9.0 Prescriptive Algorithms Utilized by the Public Institutions Solutions Program

Measure category	TRM 9.0 section	TRM 9.0 measure name
Domestic hot water	3.3.2	Faucet aerators
	3.3.5	Low-flow showerheads
	3.7.12	Low-flow pre-rinse spray valves
Envelope	3.2.10	Commercial door air infiltration
HVAC	3.1.16	Unitary and split-system AC/HP equipment
	3.1.17	Air- or water-cooled chilling equipment (chillers)
Lighting	3.6.2	Lighting controls
	3.6.3	Lighting efficiency

Air conditioner, chiller, and heat pump tune-ups, and overhead door weatherstripping measures were also incentivized through the PIS program. *Overhead door weatherstripping* measures do not strictly adhere to TRM 9.0 but instead follow prescriptive approaches developed by CLEARResult based on the TRM algorithms for *commercial door air infiltration*. Additional project details outside ArchEE were required to evaluate the *tune-up* measures, which follow a partial M&V approach. A separate tracking system review was conducted for all *tune-up* measures across the three commercial programs.

⁷⁵ ArchEE extract dated August 23, 2022. The count of *prescriptive* projects is the quantity of unique *JobId* numbers for the measure categories included in the Q1–Q2 tracking database review.

⁷⁶ On-site visits were recruited from the list of participants that received desk reviews, nesting the on-site sample within the desk review sample.

Table 152. Non-TRM Prescriptive Algorithms Utilized by the Public Institutions Solutions Program

Measure category	Measure description
Tune-ups (formerly CoolSaver)	Chiller tune-up air-cooled comfort cooling
	Commercial AC post-test-out
	Commercial AC pre-clean
	Commercial central air conditioner (tune-up)
	Commercial heat pump (tune-up)
	Commercial HP post-test-out
	Commercial HP pre-clean
	Commercial Wi-Fi thermostat
Envelope	Overhead door weatherstripping

11.3.1.1 Tracking System Review

The EM&V team reviewed all tracking data to assess the extent to which it provided the key input parameters needed for TRM 9.0-based algorithms. The tracking system data review began using TRM 9.0 as a reference in our review of measure-level savings assumptions. Chapters of TRM 9.0 utilized for the tracking system review are described above in Table 151.

The EM&V team reviewed the tracking systems linkage to the TRM 9.0 deemed savings algorithms used to estimate savings. This review was completed across a census of the program measures at the end of Q2⁷⁷. The utility's tracking database stores all the critical input variables and assumptions necessary for savings calculations. This review is conducted mid-year to help facilitate changes in the algorithm applications before the end of the year, where they might cause discrepancies in reported versus verified savings. After the measure-level review, the EM&V team verified energy savings calculations for engineering fundamentals, appropriateness, and accuracy.

Our review accomplished three primary objectives. First, it identified any initial high-level tracking system concerns. Second, it verified whether the savings estimates in the tracking system are consistent with the savings outlined in TRM 9.0 used to estimate project savings. Third, it assessed the ability of the tracking system to support future evaluation needs.

⁷⁷ Tracking data downloaded September 23, 2022.

Table 153. PY2022 Q1–Q2 Tracking System Reported Energy Savings by Measure Category

Measure	Reported savings	
	kW	kWh
Domestic hot water	4.0	62,916
Envelope	3.0	323,463
HVAC	55.0	330,228
Lighting	414.0	2,682,106
Total evaluated	476.0	3,398,713
Tune-up and Wi-Fi thermostat ⁷⁸	608.0	1,141,810
Custom	90.0	570,893
Total	1,174.0	5,111,416

11.3.1.2 Tune-Up and Wi-Fi Thermostat Measurement and Verification Review

The EM&V team reviewed all the *tune-up* and *commercial Wi-Fi thermostat* measures with a comprehensive tracking system review, supplemented with engineering reviews of the M&V and deemed savings methodologies. These measures are tracked in ArchEE but have supplemental data in external databases necessary for evaluation. The tracking system reviews focused on replicating individual measure savings results and determining population variances.

11.3.1.3 Desk Reviews and Site Visits

The optimal count of sample units for the *custom*, *lighting*, and *other* strata were determined based on PY2018 through PY2021 savings representations for each stratum. These savings were compared against the savings in ArchEE quarterly to determine whether there was an under- or over-representation of specific measure categories occurring compared to past years. Also, uncertainty in savings drove sampling considerations for the *lighting* stratum and *other* strata.

The sampling plan for lighting accounted for the differences between fully deemed lighting projects and those using custom hours of use. For the whole population, *lighting* projects were considered deemed if all measures for a project were using the deemed value for annual operating hours (AOH) that is consistent with the building type as defined in ArchEE. For projects with any measure that uses annual hours of use that is not consistent with the building type, the entire project is considered *non-deemed*. For *lighting*, this is the classification process:

1. Projects were divided into deemed and non-deemed based on whether all measures used AOHs that matched their building type in the tracking system (deemed) or any measure deviated from that value (non-deemed).

⁷⁸ *Tune-up* and *Wi-Fi thermostat* measures are evaluated through a separate tracking system and M&V data reviews at the close of the program year.

2. The contribution of energy savings for both strata is examined. The base strategy is to oversample the non-deemed projects so that at 50 percent energy savings, twice as many non-deemed projects will be chosen. The amounts are then adjusted up or down for each program based on the actual percentage of energy savings for non-deemed compared to the whole population.

In addition to the sub-strata for lighting projects, three sub-strata for *custom* projects were defined. The first sub-stratum is for *CEI* projects. The other two sub-strata divide projects by whether they went through the Early Engagement for High Profile Projects Protocol (*early review*) or they did not (*other*). The contribution of savings was used to determine the number of sample points for each sub-strata, with a higher weighting for *other*, a standard weighting for *CEI*, and a lower weighting for *early review*. For PIS, there were no *early review* projects in PY2022.

The site visits were a nested selection of the desk reviews, meaning that all projects receiving a site visit assessment also received a desk review. Projects with variances that could be cleared up during the site visit were prioritized first, with remaining site visits randomly selected from within the desk review sample. Table 154 summarizes the result of the sampling for the PIS program.

Table 154. Public Institutions Solutions Program—Summary of Sampled Savings

Sampling strata	Projects	Projects sampled ⁷⁹	Reported kWh	Reported kW
Custom subtotal	39	9	3,218,248	298.8
CEI	36	7	2,594,524	203.0
Other	3	2	623,724	95.8
Lighting subtotal	101	16	694,331	120.3
Deemed	95	12	287,074	39.7
Non-deemed	6	4	407,258	80.6
Other subtotal	48	5	266,578	17.8
Total	180	30	4,179,157	436.9

11.3.2 Process and Net-to-Gross Evaluation

11.3.2.1 Participant Surveys

The EM&V team utilized a participant survey to inform the process and NTG evaluation. The survey included a series of questions that investigated sources of awareness and preferred methods of communication, participation experiences, program satisfaction, and firmographics to address the process evaluation. The survey also included a series of structured questions about the participant's decision to pursue rebated energy-efficient upgrades to calculate the NTG rate. The EM&V team based the savings and calculations on those outlined in TRM 9.0 EM&V Protocols. Where possible, TRM 9.0 recommends using a staggered data collection

⁷⁹ Two sampled projects had measures in multiple categories.

approach to collect free-ridership and spillover information to inform the NTG analysis, as free-ridership is best assessed as close as possible to participation while spillover is best assessed after a reasonable amount of time has passed since participation. This rationale is especially pertinent in the C&I sector, where decision-making processes are typically more complex and involve longer lead times than in the residential sector.

With these considerations in mind, the EM&V team stratified the sample frame for the participant survey into three 6-month participation periods; January 2021 to June 2021, July 2021 to December 2021, and January 2022 to June 2022. Only participants in the two most recent periods (July 2021-June 2022) were asked free-ridership questions and included in the free-ridership assessment, limiting recall issues. Only those who installed energy-efficient upgrades within the first two six-month periods received spillover questions to allow more time for potential spillover effects to occur (January 2021-December 2021). All respondents received process-related questions. Table 155 illustrates the number of unique program participants per period their kWh savings.

Table 155. Public Institutions Solutions Program—NTG/Process Participant Survey Sample Plan

Participation period	Measure category	Count of projects in population*	Reported (ex-Ante) kWh	Assumed # of completes	Survey Questions		
					Free-ridership	Spillover	Process
January 2021–June 2021	Custom	1	147,961	1	N	Y	Y
	Domestic hot water	2	26,052	1			
	Envelope	9	654,904	3			
	HVAC	2	20,190	1			
	Lighting	34	907,512	4			
	Thermostat	173	7,779,997	6			
	Tune-Up	77	829,676	5			
	Total	255	10,366,293	20			
July 2021–December 2021	Custom	37	3,051,850	4	Y	Y	Y
	Domestic hot water	2	10,801	1			
	Envelope	6	277,966	3			
	HVAC	1	7,272	1			
	Lighting	61	4,727,911	5			
	Thermostat	47	1,837,938	4			
	Tune-Up	79	1,398,173	5			
	Total	207	11,311,911	23			

Participation period	Measure category	Count of projects in population*	Reported (ex-Ante) kWh	Assumed # of completes	Survey Questions		
					Free-ridership	Spillover	Process
January 2022–June 2022	Custom	11	1,259,749	4	Y	N	Y
	Domestic hot water	1	41,944	1			
	Envelope	12	323,463	3			
	HVAC	7	323,471	3			
	Lighting	36	1,578,446	4			
	Thermostat	48	4,263,679	5			
	Tune-Up	44	756,190	5			
	Total	136	8,546,942	24			
Total	562	30,225,146	66				

*Aggregated by *AccountNumber* and *ServiceAddressLn1* for each measure category.

**Actual number of completed surveys will depend on level of response.

The EM&V team implemented the participant survey through our in-house Survey Research Center via computer-assisted telephone interviews. A total of 59 surveys were completed, averaging twelve minutes in length. Telephone surveys occurred between November 21 and December 15, 2022.

Table 156. Public Institutions Solutions Program—Participant Survey Response Rate

Disposition	Total
Sample	159
Not a utility customer	0
Eligible sample	159
Does not recall participating	19
Refusal	3
Incompletes (partial surveys)	1
Language barrier	0
Bad number	1
Called out	0
Not completed	76
Completed	59
Response rate	
Response rate (completed/eligible sample)	37.1%

In total, the EM&V team surveyed 48 participants on free-ridership and 47 participants on spillover based on their date of participation.

11.3.2.2 Contractor Interviews

The contractor interviews were used to inform the process evaluation and support NTG analysis. The EM&V team interviewed ten contractors that participated in the prescriptive commercial programs and two for CoolSaver measures (tune-ups and Wi-Fi thermostats) during PY2022. Eligible contractors were initially contacted to schedule the interviews via email on December 5, 2022. Interviews were conducted between December 9, and December 21, 2022.

Interviews were semi-structured using a topic guide, but evaluators followed the interview flow and modified questions as needed to fit the interviewee's circumstances. The contractor interviews explored (1) program involvement and experiences, (2) program attribution indicators, and (3) program satisfaction.

11.4 DETAILED IMPACT EVALUATION RESULTS

The PIS program's evaluated energy savings and demand savings were slightly lower than the reported savings (95.2 percent kWh realization rate, 96.2 percent kW realization rate). During the desk review and site visit process, the EM&V team corrected lighting installed fixture types and quantities, and envelope installed gap lengths. Another finding that significantly impacted savings on many measures was adjustments to heat pump projects in the tune-up and Wi-Fi thermostat measures.

Corrections to *tune-up* and *Wi-Fi thermostat* projects that contributed additional energy (kWh) savings were primarily due to:

- *heat pump tune-up* projects using algorithms associated with AC units,
- *tune-up* projects using inconsistent and erroneous tonnages for the pre-clean line items, and
- *Wi-Fi thermostat* measures using incorrect unit type (*AC* instead *heat pump*) in savings algorithms.

Corrections to *tune-up* and *Wi-Fi thermostat* projects that reduced energy (kilowatt-hour) savings were primarily due to:

- *tune-up* projects using inconsistent and erroneous tonnages for the pre-clean line items, and
- *Wi-Fi thermostat* measures using incorrect unit type (heat pump instead of AC) in savings algorithms.

Corrections to *tune-up* and *Wi-Fi thermostat* projects that contributed additional demand (kW) savings were primarily due to:

- *tune-up* projects using inconsistent and erroneous tonnages for the pre-clean line items, and
- *Wi-Fi thermostat* measures using heating savings instead cooling savings in demand (kW) savings algorithms.

Corrections to *tune-up* and *Wi-Fi thermostat* projects that reduced demand (kW) savings were primarily due to:

- *tune-up* projects using inconsistent and erroneous tonnages for the pre-clean line items.

Corrections to *lighting* projects that contributed additional savings were primarily due to:

- fixtures installed that were DLC or ENERGY STAR certified but not claimed.

Corrections to *lighting* projects that contributed reduced savings were primarily due to:

- operating hours adjustment for an unoccupied building; and
- adjustments to square footage and illuminated wall lengths for two new construction projects.

A correction to an *envelope* project that contributed to increased savings was due to:

- installed gap lengths not matching between project documentation and the values recorded in ArchEE.

Corrections to *custom* projects that contributed additional savings were primarily due to:

- change in building balance point from a regression analysis,
- formula errors which did not include the full dataset for two projects.

11.4.1 Participant Characterization

Several different measures are provided to participants through the program. Within the tracking system, qualifying products are assigned to unique measure names. The mapping of these measure names to measure categories is provided below.

Table 157. Mapping to Measure Category

Measure description	Measure category
Continuous energy improvement	Custom—CEI
Custom—heating and cooling	Custom—other
Commercial showerheads	Domestic hot water
Faucet aerators	Domestic hot water
Pre-rinse spray valves	Domestic hot water
Commercial door air infiltration	Envelope
Overhead door weatherstripping	Envelope
Unitary AC equipment—unitary AC < 65000 btu/hr —replace-on-burnout	HVAC
Unitary AC equipment—unitary AC ≥ 65000 btu/hr—replace-on-burnout	HVAC
Unitary HP equipment—heat pump < 65000 btu/hr—replace-on-burnout	HVAC
Unitary HP equipment—heat pump ≥ 65000 btu/hr—replace-on-burnout	HVAC

Measure description	Measure category
Water chilling equipment (air cooled) —replace-on-burnout	HVAC
Water chilling equipment (water cooled)—replace-on-burnout	HVAC
Halogens	Lighting
HIDs	Lighting
Integrated-ballast compact fluorescent lamps (CFL)	Lighting
Integrated-ballast LED lamps	Lighting
LEDs	Lighting
Lighting controls	Lighting
Magnetic ballast T5 or premium T8 retrofit of T12	Lighting
Modular CFLs and CCFLs	Lighting
Other linear fluorescents	Lighting
Outdoor—halogens	Lighting
Outdoor—HIDs	Lighting
Outdoor—integrated-ballast LED lamps	Lighting
Outdoor—LEDs	Lighting
Outdoor—modular CFLs and CCFLs	Lighting
NC—integrated-ballast LED lamps	Lighting
NC—interior project savings	Lighting
NC—LEDs	Lighting
NC—lighting controls	Lighting
Outdoor—NC—LEDs	Lighting
Outdoor—NC—lighting project savings	Lighting
Chiller tune-up air-cooled comfort cooling	Tune-ups
Commercial AC post-test-out	Tune-ups
Commercial AC pre-clean	Tune-ups
Commercial central air conditioner (tune-up)	Tune-ups
Commercial heat pump (tune-up)	Tune-ups
Commercial HP post-test-out	Tune-ups
Commercial HP pre-clean	Tune-ups
Commercial Wi-Fi thermostat	Tune-ups

Table 158 below outlines the claimed number of program participants and the percentage of savings by measure category in PY2022. *Tune-ups* were the dominant measure category in PY2022, accounting for 57 percent of claimed demand (kilowatt) savings and 52 percent of claimed energy use (kilowatt-hours) savings.

Table 158. PY2022 Reported Public Institutions Solutions Participation and Savings by Measure Category

Measure category	Participants*	Projects*	Program savings		Percentage of program savings	
			kW	kWh	kW	kWh
Custom—CEI	30	36	210.6	2,920,350	7%	14%
Custom—other	3	3	90.2	570,893	3%	3%
Domestic hot water	5	9	21.1	124,101	1%	1%
Envelope	20	21	10.1	833,009	0%	4%
HVAC	19	22	126.0	659,777	4%	3%
Lighting	95	101	771.6	4,657,570	27%	23%
Tune-ups	108	2,577	1,642.2	10,632,090	57%	52%
Total	263	2,757	2,871.9	20,397,791	100%	100%

* A participant is a unique account described by the ArchEE data field *AccountNumber*. A project is a unique job number defined by the ArchEE data field *JobId*. A participant may install measures across multiple measure categories and multiple projects. As a result, the total count of participants and projects may not equal the sum of the counts by measure category.

Table 159 outlines the savings and percentage of savings by measure in PY2022. *Commercial Wi-Fi thermostat* was the dominant measure in PY2022 and accounted for 34 percent of claimed gross kilowatt savings and 46 percent of claimed gross kilowatt-hour savings. *LEDs* were the second most dominant measure in PY2022, accounting for 20 percent of claimed gross kilowatt savings and 15 percent claimed gross kilowatt-hour savings. *Commercial central air conditioner (tune-up)* was the third most dominant measure with 4 percent of the kilowatt-hour savings and 15 percent of the program kilowatt savings.

Table 159. PY2022 Reported Public Institutions Solutions Program—Participation and Savings by Measure

Measure	Program savings		Percentage of program savings	
	kW	kWh	kW	kWh
Custom—CEI				
Continuous energy improvement	210.6	2,920,350	7%	14%
Custom—other				
Custom—heating and cooling	90.2	570,893	3%	3%
Domestic hot water				
Commercial showerheads	6.0	55,182	<1%	<1%
Faucet aerators	13.1	59,102	<1%	<1%
Pre-rinse spray valves	2.1	9,817	<1%	<1%

Measure	Program savings		Percentage of program savings	
	kW	kWh	kW	kWh
Envelope				
Commercial door air infiltration	5.2	237,117	<1%	1%
Overhead door weatherstripping	4.9	595,891	<1%	3%
HVAC				
Unitary AC equipment—unitary AC < 65000 btu/hr—replace-on-burnout	41.9	49,979	1%	<1%
Unitary AC equipment—unitary AC ≥ 65000 btu/hr—replace-on-burnout	34.7	175,013	1%	1%
Unitary HP equipment—heat pump < 65000 btu/hr—replace-on-burnout	-4.4	78,058	<1%	<1%
Unitary HP equipment—heat pump ≥ 65000 btu/hr—replace-on-burnout	17.3	109,782	1%	1%
Water chilling equipment (air cooled)—replace-on-burnout	8.0	97,977	<1%	<1%
Water chilling equipment (water cooled)—replace-on-burnout	28.5	148,967	1%	1%
Lighting				
HIDs	0.8	4,267	<1%	<1%
Integrated-ballast compact fluorescent lamps (CFL)	11.4	50,190	<1%	<1%
Integrated-ballast LED lamps	<1	978	<1%	<1%
LEDs	51.3	289,033	2%	1%
Lighting controls	586.3	2,992,945	20%	15%
Magnetic ballast T5 or premium T8 retrofit of T12	7.6	22,217	<1%	<1%
Modular CFLs and CCFLs	3.3	15,092	<1%	<1%
Other linear fluorescents	<1	1,108	<1%	<1%
Outdoor—halogens	33.8	192,922	1%	1%
Outdoor—HIDs	0	0	0%	0%
Outdoor—integrated-ballast LED lamps	0	380	0%	<1%
Outdoor—LEDs	0	187,309	0%	1%
Outdoor—modular CFLs and CCFLs	0	487,612	0%	2%
NC—integrated-ballast LED lamps	0	280	0%	<1%
NC—interior project savings	0	0	0%	0%
NC—LEDs	68.2	338,200	2%	2%
NC—lighting controls	0	0	0%	0%

Measure	Program savings		Percentage of program savings	
	kW	kWh	kW	kWh
Outdoor—NC—LEDs	8.7	24,986	<1%	<1%
Outdoor—NC—lighting project savings	0	0	0%	0%
HIDs	0	50,055	0%	<1%
Tune-ups				
Chiller tune-up air-cooled comfort cooling	4.3	19,578	<1%	<1%
Commercial AC post-test-out	93.4	156,676	3%	1%
Commercial AC pre-clean	79.2	134,821	3%	1%
Commercial central air conditioner (tune-up)	433.3	751,826	15%	4%
Commercial heat pump (tune-up)	22.0	84,177	1%	<1%
Commercial HP post-test-out	12.7	46,852	<1%	<1%
Commercial HP pre-clean	11.6	44,128	<1%	<1%
Commercial Wi-Fi thermostat	985.7	9,394,032	34%	46%
Total	2,871.9	20,397,791	100%	100%

* Some measures were identified in the tracking system data with no savings; these represent lighting included in site lighting inventories but were not incented by the program.

Table 160 shows the incentive structure for PY2022 compared to the previous program year. The incentives for all tiers of measures stayed the same.

Table 160. PY2022 Public Institutions Solutions Program Incentives

Measure	PY2021 incentive*	PY2022 incentive**
Directly Installed by CLEAResult		
Domestic hot water		
Commercial showerheads	Full cost	Full cost
Faucet aerators	Full cost	Full cost
Pre-rinse spray valves	Full cost	Full cost
Envelope		
Commercial door air infiltration (i.e., weatherstripping)	Full cost	Full cost
Lighting		
Integrated-ballast LED lamps	Full cost	Full cost
Outdoor—integrated-ballast LED lamps	Full cost	Full cost

Measure		PY2021 incentive*		PY2022 incentive**
Installed by trade ally				
PC power management		\$0.10/kWh		\$0.10/kWh
Gaskets and strip curtains		100 percent, contact program staff		100 percent, contact program staff
All other measures***	1 measure	2 measures	3 measures	4+ measures
PY2021 incentive*	\$0.12/kWh	\$0.13/kWh	\$0.14/kWh	\$0.15/kWh
PY2022 incentive**	\$0.12/kWh	\$0.13/kWh	\$0.14/kWh	\$0.15/kWh

* Source: PY2021 Program Manual CitySmart program.

** Source: PY2022 Program Manual CitySmart Manual.

*** To qualify for an additional tier, an energy efficiency measure must exceed 25,000 kWh of savings. Measures can be grouped to meet the 25,000 kWh minimum threshold, but only one such grouping is allowed per customer. *Direct-install* measures only count as one measure tier.

11.4.2 Program Documentation and Tracking Data Review

To understand the PIS program, the EM&V team interviewed program staff and reviewed all information available on EAL's website related to the program and supplemental documentation provided by EAL and CLEAResult. The EM&V team received the following documentation related to the program:

- ArchEE data tracking system extract containing PY2022 participant information and savings;
- supplemental project-level documentation received during quarterly data requests for sampled accounts, which typically included:
 - signed customer proposals and project agreements—sometimes files included initial and final proposals if projects had changed during development;
 - customer proposals that typically included a detailed inventory of site-captured measure-level details such as:
 - *Domestic hot water* measures (e.g., *low-flow faucet aerators*, *commercial showerheads*, and *low-flow showerheads*) were all directly installed by the implementer. A Direct Install Report typically inventoried the device and quantity installed by room. Additional notes typically included a flow rate as the new equipment may be multiple flow rates (e.g., 0.5 gallons per minute (GPM), 1.0 GPM). Also, photo documentation of the water heater and its nameplate was provided. Details of the exact installed equipment flow rates were not included, and a specification of the new equipment was not provided.
 - The implementer directly installed *commercial door air infiltration* measures (e.g., *weatherstripping*, *door sealing*). A Direct Install Report typically inventoried the device, quantity (by gap size), and new weatherstripping length installed by room. Additional notes typically included the gap size as the new equipment may be of multiple widths (e.g., one-eighth inch, one-quarter inch) and the type (e.g.,

weatherstripping, door sweep). Also, photo documentation of a sample of doors with the existing condition and gap noted by a view of a tape measure was provided. A clear description or documentation of the *HVAC type* was not included.

- *HVAC* measures included new equipment type, make and model numbers, capacity, and quantity. Manufacturers' specification sheets and Air Conditioning, Heating and Refrigeration Institute (AHRI) certificates were also provided.
 - *Lighting and lighting controls* measures included existing and new fixture types, make and model numbers, wattages, quantity, and control type. Also, DLC and ENERGY STAR certification sheets were typically provided for all models. Manufacturer specification sheets were generally not provided.
- invoices;
 - pre- or post-inspection forms indicating field inspectors' notes and results; and
 - photographic documentation pre- or post-installation.
- a Quality Control and Assurance Manual for EAL commercial programs, dated February 1, 2023;
 - PY2022 Program Manual for the Public Institutions Solutions program obtained from the EAL website; and
 - ongoing biweekly meetings with EAL and CLEAResult.

11.4.3 Detailed Tracking System/Database Review

The EM&V team reviewed all program-claimed tracking data to assess the extent to which it provided the key input parameters needed for TRM 9.0-based algorithms and the final claimed values necessary for each measure. The tracking system data review began using TRM 9.0 as a reference in our review of measure-level savings assumptions. Chapters of TRM 9.0 utilized for the tracking system review are described above in Section 11.3.1.

The EM&V team reviewed the tracking systems linkage to the TRM 9.0 deemed savings algorithms used to estimate savings; this review was completed across a census of the program measures. The utility's tracking database stores all the critical input variables and assumptions necessary for savings calculations. The EM&V team verified energy savings calculations for engineering fundamentals, appropriateness, and accuracy after the measure-level review.

Our review accomplished three primary objectives. First, it identified any initial high-level tracking system concerns. Second, it verified whether the savings estimates in the tracking system are consistent with the savings outlined in TRM 9.0 used to estimate project savings. Third, it assessed the ability of the tracking system to support future evaluation needs.

The ArchEE tracking system, which supplied all participant- and measure-level data, was the primary tool for checking claimed savings and performing evaluation savings calculations. These results were informed and supplemented with the findings from the engineering desk reviews and site visits, as further outlined in Section 11.7.

The overall PIS program evaluated tracking system savings resulted in slightly higher savings (100.6 percent kilowatt and 100.3 percent kilowatt-hour realization rates) than those calculated by the program implementer. The evaluated savings are based on adjustments made from completing engineering reviews of the program's tracking data. The overall realization rates were affected negligibly by variances between the reported and evaluated energy savings (kilowatt-hour) for *lighting* and *domestic hot water* projects. Further details of measure-based findings are provided below.

Overall, the tracking system review found the following:

- Except for the *custom*, *CEI*, *overhead door weatherstripping*, and *tune-up* measures in the PIS program, all measures utilize TRM 9.0, Volume 2 deemed algorithms. The savings equations were confirmed consistent with TRM 9.0. As described above, the *overhead door weatherstripping* and *tune-up* measures follow custom approaches developed from assumptions and methodologies in the TRM. The EM&V team confirmed the *overhead door weatherstripping* measures following the M&V plan through this tracking system review. A tracking system review of the *tune-up* measures was completed to inform *tune-up* evaluated savings separately from the mid-year tracking system review.
- The PIS program measures utilize TRM 9.0, Volume 2 deemed savings assumptions, with two notable exceptions. The *overhead door weatherstripping* measure uses extrapolated savings values based on the *commercial door air infiltration* measure in TRM 9.0. Also, some *lighting efficiency* measures use site-specific AOH instead of the deemed values in TRM 9.0 for *lighting* projects.
- The overall tracking review realization rates were 100.6 percent kilowatts and 100.3 percent kilowatt-hours. Tracking review realization rates for most measures were at 100 percent.

Table 161. PY2022 Q1–Q2 Tracking System Energy Savings and Realization Rates by Measure Category

Measure category	Claimed savings		Evaluated savings		Realization rate	
	kW	kWh	kW	kWh	kW	kWh
Domestic hot water	4.0	62,916	4.0	62,933	100%	100%
Envelope	3.0	323,463	3.0	304,410	111%	94%
HVAC	55.0	330,228	55.0	330,228	100%	100%
Lighting	414.0	2,682,106	417.0	2,711,822	100%	100%
Total	476.0	3,398,713	479.0	3,409,393	100.6%	100.3%

11.4.3.1 Domestic Hot Water

- No issues were found.

11.4.3.2 Envelope

- Project numbers EA-0000716243, EA-0000719724, and EA-0000719725 reported Weather Zone 6 in the *WeatherZone* field. However, the address and zip code for each project show these facilities to be in Weather Zone 7. Reported savings used *Weather Zone 6 deemed savings values* for normal temperature. The EM&V team recalculated savings for these projects using *Weather Zone 7 deemed values*, resulting in increased demand savings and decreased energy savings.

11.4.3.3 HVAC

- No issues were found.

11.4.3.4 Lighting (i.e., Retrofits Including Controls)

- No issues were found.

11.4.4 Tune-Up and Wi-Fi Thermostat Measurement and Verification Review

The EM&V team reviewed all program-reported tracking data to assess the extent to which it provided the algorithms and ex-ante values necessary for each measure. The tracking system data review began using the TRM 9.0, the CoolSaver Program M&V Plan⁸⁰, and the Memorandum of Understanding for the review of measure-level savings assumptions. The EM&V team reviewed the tracking systems linkage to the TRM deemed savings and supplemental documentation methods used to estimate savings. The EM&V team verified energy savings calculations for engineering fundamentals, appropriateness, and accuracy after the measure-level review.

Our review accomplished three primary objectives. First, it identified any initial high-level tracking system concerns. Second, it verified that the savings estimates in the tracking system are consistent with the savings outlined in TRM 9.0, used to estimate project savings. Third, it assessed the ability of the tracking system to support future evaluation needs.

The ArchEE database includes the key data for all projects and reported savings for *AC* and *heat pump tune-up* and *Wi-Fi thermostat* measures, which totaled 2,580 measures.

A CLEAResult tracking system extract was provided, including pre- and post-test-out projects used as the basis for CLEAResult's PY2019–PY2021 efficiency loss (EL) calculations. The EM&V team reviewed this dataset, examined it for outliers, and calculated the PY2019–PY2021 EL values for two sectors (*commercial <25 tons*, and *commercial ≥25 tons*) and whether a refrigerant charge adjustment was performed.

The findings from the *tune-up* tracking system showed similar findings to last year's review. Most of the key *tune-up* measure data is maintained in a separate database outside of ArchEE. The database was useful for the evaluation team to reference during the review. An instance where the supplemental database was required was when verifying the efficiency loss values,

⁸⁰ The *tune-up* measure methodology was developed separately under the CoolSaver program prior to being included in the PIS program.

as ArchEE did not capture all four refrigerant charge values from iManifold. As recommended last year, with continuous development and changes, the EM&V team recommends developing and maintaining a data dictionary to describe the data and document changes within this database.

Finally, as with previous years, it appears that the *commercial wi-fi thermostat* measures still require manual input of deemed energy (kWh/ton) and demand savings (kW/ton) values. This led to many instances of human error, leading to savings deviations (described in further detail below). Automating this process in the future will allow for more effective QA/QC and reduce the likelihood of errors.

11.4.4.1 Tune-Up and Wi-Fi Thermostat Measurement and Verification Findings

The EM&V team evaluated CLEAResult's savings calculations by reviewing the M&V sample of participants to confirm the savings methodology and results obtained, repeating the steps, and making calculation adjustments.

The ArchEE tracking system supplied all participant and unit-level data, and claimed savings was the primary tool for checking reported savings and performing evaluation savings calculations.

Detailed findings from the M&V review for *tune-up* and *Wi-Fi thermostat* measures are presented below.

- Sixteen *commercial Wi-Fi thermostats* measures installed on *heat pump* systems were using incorrect energy savings. For energy savings, reported savings were calculated as if the thermostat was installed on an *electric AC* system by excluding energy savings associated with the *heat pump* heating algorithms. The EM&V team adjusted the energy savings to include the *heat pump* heating algorithm; this adjustment increased energy savings. Ten of the affected *JobIds* are listed below, with the complete list available upon request:
 - 2022-278414,
 - 2022-278413,
 - 2022-278574,
 - 2022-278419,
 - 2022-278416,
 - 2022-278421,
 - 2022-278420,
 - 2022-278417,
 - 2022-278415, and
 - 2022-278378.

- Nine *commercial Wi-Fi thermostats* measures installed on *air conditioning with electric resistance heat* systems were using incorrect energy savings. For energy savings, reported savings were calculated as if the thermostat was installed on a *heat pump* system by including energy savings associated with the *heat pump* heating algorithms. The EM&V team adjusted the energy savings to include only the *air conditioning cooling* algorithm; this adjustment decreased energy savings. The affected *Joblds* are listed below:
 - 2022-305702,
 - 2022-284902,
 - 2022-284901,
 - 2022-284900,
 - 2022-284899,
 - 2022-290118,
 - 2022-290116,
 - 2022-313451, and
 - 2022-309034.
- Twelve *commercial Wi-Fi thermostats* measures installed on *air conditioning with electric resistance heat* systems were using incorrect energy and demand savings. For energy savings, reported savings were calculated as if the thermostat was installed on a *heat pump* system by including energy savings associated with the *heat pump* heating algorithms. The EM&V team adjusted the energy savings to include only the *air conditioning cooling* algorithm; this adjustment decreased energy savings.

The reported demand savings were calculated using the *heat pump* heating deemed energy savings divided by 8,760 instead of the *AC unit* kilowatt-hour savings divided by 8,760. The EM&V team adjusted the demand savings to only include the energy savings associated with cooling savings, which coincides with the peak demand period in Arkansas. The demand savings was adjusted by dividing the cooling kilowatt-hour savings by 8,760; this increased demand savings for all forty measures. Ten of the affected *Joblds* are listed below, with the complete list available upon request:

- 2022-278734,
- 2022-278733,
- 2022-278732,
- 2022-278731,
- 2022-278730,
- 2022-278721,
- 2022-278720,
- 2022-278696,
- 2022-278694, and

- 2022-278692.
- Thirty-seven *commercial Wi-Fi thermostats* measures installed on *heat pump* systems were using incorrect demand savings. The reported demand savings were calculated using the *heat pump* heating deemed energy savings divided by 8,760 instead of the *AC unit* kilowatt-hour savings divided by 8,760. The EM&V team adjusted the demand savings to only include the energy savings associated with cooling savings, which coincides with the peak demand period in Arkansas. The demand savings was adjusted by dividing the cooling kilowatt-hour savings by 8,760; this increased demand savings for all thirty-seven measures. Ten of the affected *JobIds* are listed below, with the complete list available upon request:
 - 2022-278743,
 - 2022-278742,
 - 2022-278741,
 - 2022-278740,
 - 2022-278739,
 - 2022-278738,
 - 2022-278736,
 - 2022-278735,
 - 2022-278729, and
 - 2022-278728
- Two *commercial AC tune-up* projects reported incorrect energy and demand savings because the *HVAC tonnage* reported in ArchEE and used in the pre-clean savings calculation was inconsistent with the post-clean savings and ultimately determined to be incorrect. The EM&V team verified that the correct *HVAC tonnage* was reported in the post-clean line item and in the supplemental data. Adjusting the *HVAC tonnage* increased energy and demand savings for one project and decreased energy and demand savings for the other project. The affected *JobIds* are listed below:
 - 2022-287465 and
 - 2022-287450.

11.4.5 Engineering Desk Reviews

The EM&V team evaluated CLEAResult's savings calculations by reviewing the program tracking data and project documentation to confirm the savings methodology and results, repeating the calculation steps, and making adjustments.

The engineering desk reviews included reviewing the available project documentation in determining the source of key parameters for the deemed savings protocols from TRM 9.0. After selecting the best source of the key parameters from the available documentation, the savings were calculated based on TRM 9.0 algorithms and compared to the claimed savings.

In addition to the tracking system review, the engineering desk reviews also showed a consistent use of TRM 9.0 algorithms across all the measures claimed in the PIS program. The EM&V team made various minor adjustments to specific projects described in detail in the project review results section below.

The EM&V team completed 30 engineering desk reviews of the PIS program accounts. These projects represented all measure categories in the program, except for *tune-up* measures, and had gross savings of 4,179,157 kWh, or 20 percent of the total PIS program recorded gross savings of 20,397,791 kWh. This percentage of total program savings is based on finalized ArchEE data from January 24, 2023.

11.4.6 Site Visits

The EM&V team's evaluation plan included conducting 15 site visits to PIS program customers. These site visits also received an engineering review, as discussed above. The EM&V team's field inspector recorded the verified quantities, operation, building type, and space conditioning for each measure observed while on-site and collected additional information on critical parameters. For the PIS program, some of the key data and spot measurements obtained for essential parameters, as applicable, included:

- *domestic hot water* measures: type of service, number of installed units, and rated output of installed units;
- *envelope* measures: length of the installed door, gap width, and heating/cooling system type;
- *HVAC* measures: quantity, building type, and make/model of installed units;
- *lighting* measures: base/new wattage, number of lamps per fixture, lamp/fixture make/model/type, base/new control type, building type, space heating/cooling type, and AOH.

The site visits found that most parameters recorded in the project documentation to calculate savings were accurate. Out of the 15 site visits conducted, there were five adjustments. For one site, the building is currently unoccupied and would not be occupied until 2023 at the earliest. Another site visit found that the building type was different than reported in the documentation. Three site visits found fewer fixtures that were retrofitted as part of the project and not recorded in the documentation. The adjustments from the site visits are described in further detail in the following section.

11.4.7 Desk Review and Site-Visit Results

As noted earlier, the PY2022 PIS program impact evaluation efforts included an engineering analysis for a sample of 30 projects and a site visit for 15 of those projects reviewed. For 19 of the projects in the sample, no savings adjustments were made. For the remaining 11 projects, the impact evaluation found various discrepancies in the project documentation or the site visit that required adjustments of parameters from the claimed savings estimates. The table below provides project-level realization rates, by measure category, for the 30 PIS projects reviewed by the evaluation. Detailed descriptions of the 11 projects with energy or demand savings adjustments follow Table 162.

Table 162. Public Institutions Solutions—PY2022 Desk Review and Site Visit Results by Project

EM&V participant ID	EM&V review type*	Ex-ante savings		Ex-post savings		Realization rate	
		kW	kWh	kW	kWh	kW	kWh
Custom—CEI							
123001	Desk review	203.0	690,835	203.0	690,835	100.0%	100.0%
423001	Desk review	0.0	1,716,468	0.0	1,716,468	N/A	100.0%
423003	Desk review	0.0	1,201	0.0	1,201	N/A	100.0%
423004	Desk review	0.0	2,292	0.0	2,292	N/A	100.0%
423005	Desk review	0.0	6,390	0.0	6,390	N/A	100.0%
423006	Desk review	0.0	158,098	0.0	159,530	N/A	100.9%
423008	Desk review	0.0	19,239	0.0	19,239	N/A	100.0%
Custom—CEI total		203.0	2,594,524	203.0	2,595,956	100.0%	100.1%
Custom—other							
123004	Desk review	61.4	537,742	61.5	538,698	100.2%	100.2%
123007	Desk review	8.9	16,367	8.4	15,482	94.6%	94.6%
323002	Site visit	19.9	16,785	16.8	16,785	84.5%	100.0%
Custom—other total		90.2	570,893	86.7	570,965	96.2%	100.0%
Lighting—deemed							
123002	Desk review	0.9	5,698	0.9	5,698	100.0%	100.0%
123003	Desk review	1.4	5,991	1.4	5,991	100.0%	100.0%
123005	Site visit	0.9	4,070	0.9	4,070	100.0%	100.0%
123007	Desk review	8.0	47,615	8.0	46,646	100.0%	98.0%
223001	Site visit	0.3	1,114	0.3	1,114	100.0%	100.0%
223002	Desk review	0.7	3,256	0.7	3,256	100.0%	100.0%
223003	Site visit	4.6	39,031	4.6	39,031	100.0%	100.0%
223004	Site visit	0.0	21,399	0.0	21,399	N/A	100.0%
223008	Site visit	9.1	87,906	1.7	16,304	18.9%	18.5%
323001	Desk review	9.1	49,885	9.1	49,885	100.0%	100.0%
323003	Site visit	4.6	24,785	4.6	25,168	100.0%	101.5%
323004	Site visit	7.2	39,169	7.2	39,490	100.3%	100.8%
323005	Site visit	0.9	4,770	0.8	4,652	97.5%	97.5%
Lighting—deemed total		47.8	334,688	40.3	262,704	84.5%	78.5%

EM&V participant ID	EM&V review type*	Ex-ante savings		Ex-post savings		Realization rate	
		kW	kWh	kW	kWh	kW	kWh
Lighting—non-deemed							
123008	Site visit	23.1	131,525	21.6	118,771	93.4%	90.3%
323002	Site visit	9.6	62,440	9.6	62,440	100.0%	100.0%
423002	Site visit	2.1	20,695	2.1	20,695	100.0%	100.0%
423007	Site visit	32.5	137,002	31.9	134,480	98.2%	98.2%
Lighting—non-deemed total		67.3	351,662	65.2	336,386	96.9%	95.7%
Other							
123006	Site visit	0.0	77,027	0.0	82,555	N/A	107.2%
223005	Desk review	0.9	36,656	0.9	36,656	100.0%	100.0%
223006	Desk review	0.7	15,650	0.7	15,650	100.0%	100.0%
323006	Desk review	0.7	110,049	0.7	110,049	100.0%	100.0%
123007	Desk review	2.4	30,042	2.4	30,042	100.0%	100.0%
123008	Site visit	3.6	6,119	3.6	6,119	100.0%	100.0%
223007	Site visit	15.6	27,198	15.6	27,198	100.0%	100.0%
323002	Site visit	5.0	6,757	5.0	6,757	100.0%	100.0%
423002	Site visit	0.5	2,836	0.5	2,836	100.0%	100.0%
423007	Site visit	-0.6	15,057	-0.7	15,057	100.7%	100.0%
Other total		28.6	327,389	28.6	332,917	100.0%	101.7%

The project-based savings adjustments are provided below by measure category and EM&V participant ID.

11.4.7.1 Custom

The *custom* strata consist of custom measures that do not have a prescriptive algorithm outlined in the TRM. The projects rely heavily on metered data for analysis and follow one of the four prescribed paths for energy efficiency analysis outlined in the International Performance Measurement & Verification Protocol (IPMVP). For the PIS program, the *custom* strata included desk reviews for one HVAC projects, one *custom non-heating and cooling*, and seven CEI projects, with one site visit conducted on the HVAC project, with three adjustments to savings.

- Participant ID 423006 adjustment incorrect calculation type.** This project is for CEI at North Arkansas College—South Campus. Participants receive tools, coaching, and the resources to identify and implement operations and maintenance energy savings opportunities. These savings are tracked and reported using a whole-site statistical model(s) for the CEI measure. The reported savings used a regression model with a cooling-degree-day (CDD) base of 60. The evaluated savings found a CDD base of 65 was slightly more statistically significant. The evaluated savings adjusted to using the

WX_BPK_CDD65 weather variable, which resulted in slightly increased energy savings.

- **Participant ID 123004 adjustment for a calculation error.** This project was for a school district that installed *smart thermostats* throughout its operations. The formula for the CDD did not include all the rows in the *Corrected Data* file. Including November and December 2021 CDD slightly increased energy and demand savings from the regression analysis.
- **Participant ID 323002 adjustment for incorrect calculation type.** This project was for a new construction school that installed *25 air conditioners*, one *heat pump*, one *dedicated outdoor air system* unit, and *LED lighting*. The formula for the CDD did not include all the rows in the *Corrected Data* file. Including November and December 2021 CDD slightly increased energy and demand savings from the regression analysis.

11.4.7.2 Other

The *other* strata consist of prescriptive *non-lighting* measures, including *HVAC replace-on-burnout*, *commercial showerheads*, *faucet aerators*, and *commercial door air infiltration* projects. Five desk reviews and two site visits were conducted on this stratum, with one adjustment to savings.

- **Participant ID 123006 adjustment for installed gap lengths.** This project was for water treatment facility that installed *envelope* measures, including 132 feet of *commercial door weatherstripping* and 80 feet of *overhead door stripping*. The linear footage on the direct install agreement form (132 feet) matched the linear footage in the tracking system; however, the linear footage of the three-eighths inch door gap differed from the total linear footage on the *room by room* inventory page in the packet (152 feet). Adjusting the linear length to *152 feet* increased energy savings.

11.4.7.3 Lighting—Deemed

The *lighting—deemed* strata consists of lighting projects that strictly adhere to the deemed lighting AOH and CF outlined in the TRM. The deemed lighting strata consisted of 95 projects with over 4,235 MWh of claimed savings. Twelve desk reviews and site visits were conducted for all of them on this stratum, with four adjustments to the claimed savings.

- **Participant ID 223008 savings adjustment for operating hours.** This project was for a former school (now men's shelter) that replaced *interior fluorescent*, *incandescent*, *exit signs*, and *exterior metal halide lighting* with *LED lighting*. The on-site inspection found that the building was not in use and would not be used until 2023. Operating hours and CF for interior non-exit lighting were set to 5 percent of annual hours for a conservative estimate on a non-occupied building. This adjustment significantly reduced energy and demand savings.
- **Participant ID 323003 savings adjustment for nonqualified fixtures.** This project was for a school that replaced *integrated LED* and *linear fluorescent lamps* with *LED fixtures and lamps* throughout the interior and exterior of the school. A quantity of eight *screw LED lamps* (Entegri model ENLED-A19-008W-50K-D, ES ID 2312449) was found to be ENERGY STAR-certified but was not included in the reported savings. Including these fixtures increased energy and demand savings.

- **Participant ID 323004 savings adjustment for nonqualified fixtures and installed quantities.** This project was for a school that replaced *integrated LED* and *fluorescent fixtures* with *LED fixtures* throughout the interior and exterior of the school. A quantity of two *screw LED lamps* (Entegry model ENLED-A19-008W-50K-D, ES ID 2312449) was found to be ENERGY STAR-certified but was not included in the reported savings. This adjustment increased energy and demand savings. Also, the on-site inspection found the quantity of ENLED-A19-010W-40K-D lamps installed was *one* instead of the reported *two*. Adjusting the quantities resulted in slightly increased energy and demand savings.
- **Participant ID 323005 savings adjustment for installed quantities.** This project was for a school that replaced *integrated LED*, and *fluorescent fixtures* with *LED fixtures* throughout the interior and exterior of the school. A quantity of three *CFLs* in the press box was found *not retrofitted* during the on-site inspection. Removing these lamps from the evaluated savings resulted in slightly decreased energy and demand savings.

11.4.7.4 Lighting—Non-Deemed

The *lighting—non-deemed* strata consisted of lighting projects with an AOH or CF tracked in the tracking system different from the deemed TRM value. These TRM value differences sometimes consist of 8,760-hour safety lighting for individual projects or custom estimated AOH for each facility area. A total of six projects were in the *non-deemed lighting* strata, which accounted for over 422 MWh of claimed savings. Four desk reviews and three site visits were conducted on this stratum with three adjustments to the claimed savings.

- **Participant ID 123007 adjustment for a calculation error and illuminated wall length.** This project was for a new construction high school that installed *LED lighting*, a 30 ton *VRF heat recovery unit*, a 22,000 Btu/hr *mini-split heat pump*, and a *heat recovery wheel*. As a result of the desk review two adjustments to quantities were made:
 - The illuminated wall length was adjusted for the exterior lighting from 319.3 ft to 270.8 ft. A 51.83 ft. segment was included in the illuminated wall length for the reported savings that does not have any fixtures installed. This adjustment decreased energy savings.
 - For the energy recovery ventilator, some of the psychrometric properties obtained by Tetra Tech differed from those obtained in the ex-ante calculation. The evaluated savings calculated the outdoor air enthalpy as 43.646 Btu/lb, while the ex-ante analysis had 43.8. For the leaving air enthalpy, the evaluated savings calculated 34.852, while the ex-ante savings had 34.9. These adjustments resulted in lower energy and demand savings.

Overall, these adjustments resulted in decreased energy and demand savings.

- **Participant ID 123008 savings adjustment for installed quantities, calculation type and area.** This project was for a new construction indoor practice facility that installed ten *air conditioners* and one *heat pump* and *LED lighting*. As a result of the desk review and the site visit; three adjustments to quantities were made:
 - The interior building area in Building A was adjusted from *20,008 sq. ft.* to *17,664 sq. ft.* based on the engineering drawings. The total adjustments decreased energy savings.
 - For the exterior lighting savings on "01-White Hall NC - Wall Packs, 135," the evaluated savings were much lower than the reported savings. The EM&V team believes this differs from how the non-qualified fixtures were handled. Following the most recent agreed-upon non-qualified treatment reduced the energy savings for this measure.
 - During the on-site inspection, fewer fixtures were installed in the laundry and TLT areas than specified in the project documentation. The tracking system specified *three* Lightoiler P4R fixtures installed in the TLT area, but the on-site inspection found *two* fixtures installed. In the laundry area, the tracking system specified *two* Signify FSS440L840 and *eleven* Signify 2CAXG54L840 fixtures, while the on-site inspection found *one* and *six* fixtures installed, respectively. Adjusting these quantities resulted in slightly increased energy and demand savings.

Overall, these adjustments resulted in decreased energy and demand savings.

- **Participant ID 423007 savings adjustment for fixture input wattage.** This project was for new construction at a school district's administration building that installed *LED lighting* and 7 x 24,000 Btuh, 36,000 Btuh, and 47,000 Btuh *split units*. The wattage for 20 *LED fixtures* (LCAT22-35HLG-EDU & LCAT22-35HLG-EDU-ELL14) was adjusted from *32 W* to *35 W* per the DLC listing. 18 *LED fixtures* (5160-24-H16-35K) were adjusted from *10 W* to *16 W* per the product specification; these fixtures were non-qualified, but the input wattage affects the baseline allowance. These adjustments slightly decreased energy and demand savings.

11.4.8 Program Website and Documentation Review

To understand the PIS program, the EM&V team interviewed program staff and reviewed all information available on EAL's website related to the program and supplemental documentation provided by EAL and CLEAResult. The EM&V team received the following documentation related to the program:

- ArchEE data tracking system extract containing PY2022 participant information and savings;
- Quality Control and Assurance Manual for EAL commercial programs, dated February 1, 2023;
- PY2022 Program Manual for the Public Institutions Solutions program obtained from the EAL website; and
- *Overhead door weatherstripping* deemed savings methodology and calculations.

11.4.8.1 Program Website Review

Information found on the PIS program website includes a general description of the program, such as eligibility and how participation works. The website also provides a list of eligible measures and their incentive discounts. Example projects at an elementary school and a wastewater facility are displayed along with the estimated energy savings, incentive amount, and utility cost savings. A copy of the program manual was easily found on the website. A search link is provided to find a participating trade ally by zip code lookup. Health and safety guidelines that employees and trade allies will follow in response to COVID-19 were also displayed at the top of the page.

11.4.8.2 Program Documentation Review

The EM&V team received program-related documentation—key to understanding the program and participation processes—including the PY2022 Program Manual and Quality Control and Assurance Manual. Key documents to understanding the program savings methodologies and measuring-level savings include the project-level files, ArchEE data, TRM 9.0, supplementary deemed savings methodologies for *overhead door weatherstripping*, and ongoing reviews with EAL and CLEAResult staff.

The project details and documentation collected by EAL, the implementer, and trade allies for many sampled projects are sufficiently extensive. As bulleted in the section above, the critical baseline and new equipment assumptions—drivers of the *prescriptive* measure savings—are well described in trade ally proposals and equipment inventories. Additional documents collected at project approval support the equipment quantities and performance metrics. The documentation included invoices (support claimed quantities, equipment make, and models) and manufacturers' specification sheets (confirm equipment makes, models, sizes, types, efficiencies). These are industry-standard best practices for documentation collection, which reduce the uncertainty of the project savings assumptions and development.

The EM&V team found that documentation, in most cases, matched the data recorded in the ArchEE tracking system. Equipment type, quantities, and in most cases, building/space conditions were accurately recorded compared to the efficient technology data and project file documentation reviewed. Also, across projects, most project files contained similar documentation. Most project files had, at a minimum, the signed customer proposal and project agreement. The proposal typically included the list of *retrofit* measures, with pre- and post-conditions and equipment parameters identified. Some files included multiple copies (e.g., initial proposal, final proposal) depending on whether the scope had changed during project development. Many project files included pre- and post-inspection forms with field inspector notes indicating site results. Many projects also included pre- and post-installation photographic documentation. Photos were included with some proposals and inspection reports, but not all. Except for *direct install* projects, all project files included invoices. All invoices were found to have measure-level cost breakdowns, which helped support and confirm project details. Documentation of site-stipulated AOH was included in project file requests for the four projects that used stipulated AOH. In PY2022, the EM&V team found the project documentation was consistently more thorough than previous evaluations, and as a result, additional data requests to the implementer remained low compared to prior evaluations.

The project proposals include various details; however, the EM&V team would recommend adding other key parameters captured at the site used for savings calculations—these include *building type* and *heating and cooling space types*.

PY2022 saw an improvement in the documentation's consistency for the make and model of all lighting products. Model numbers were often found on the work order forms and in all invoices with itemized quantities. DLC and ENERGY STAR certification sheets were also included for most lighting models. However, most lighting projects did not include the manufacturers' specification (spec) sheets. Manufacturers' specifications sheets are essential for LED exit signs because DLC or ENERGY STAR certification sheets are not available for these types of lights. As *lighting* measures contribute a significant portion of the program savings, documents that support key variables that are a driver of *lighting* measure savings include the post-installation lighting wattage. Having manufacturer's specification sheets would increase clarity between similar lighting types that may differ by color temperature, voltage, and other features that can impact the equipment's qualification and fixture input wattage.

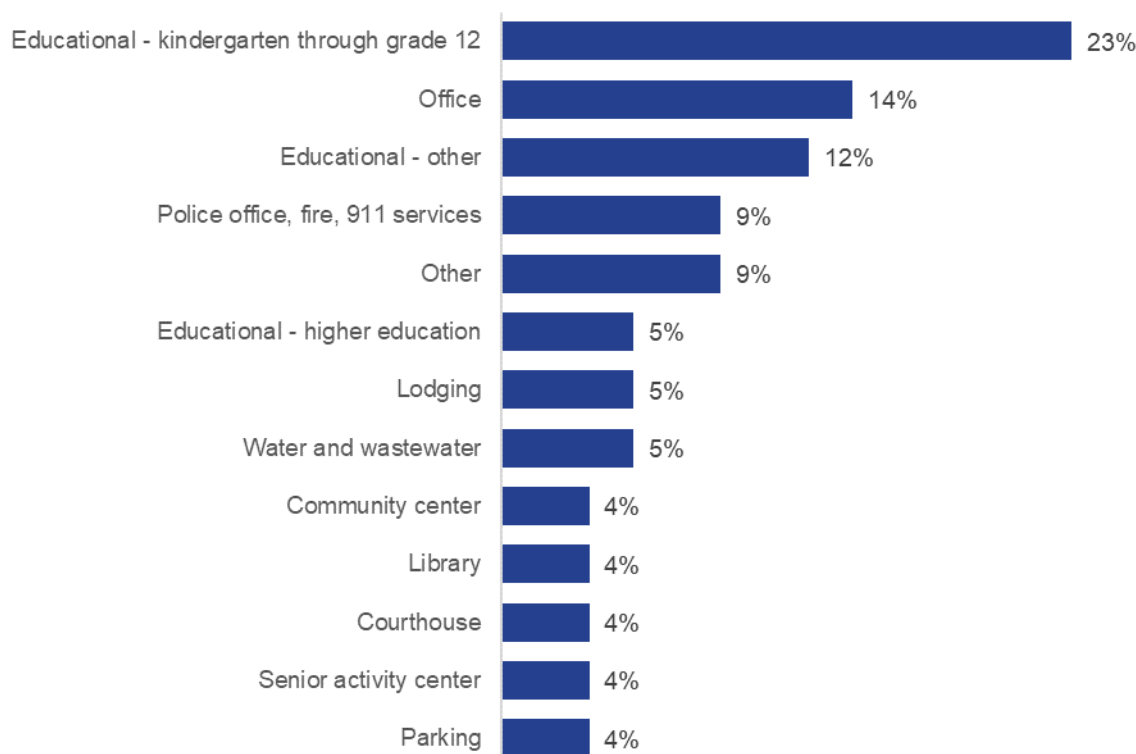
11.5 DETAILED PROCESS EVALUATION RESULTS

As part of the PY2022 evaluation for the program, the EM&V team conducted 59 telephone surveys with recent program participants. In addition to process information, the participant survey included a series of structured questions to assess free-ridership and participant spillover for the NTG evaluation.

11.5.1 Respondent Firmographics

Most survey participants were educational facilities serving students in kindergarten through grade 12 (23 percent), educational—other (12 percent), and higher education (5 percent). Office and police, fire, and 911 services were the next most common responses (14 percent and 9 percent, respectively). Figure 20 shows the main business activity of participant respondents. Almost 90 percent of respondents reported owning the facility at which the program upgrades were installed. Participants, on average, had 156 full-time employees and 64 part-time employees and ranged from one to 4,000 full-time employees and one to 1,000 part-time employees. All but one participant surveyed also reported that their organization makes fiscal decisions at the local level (one participant makes decisions at the regional level). All but three participants said that their organizations do not have a formal payback period or return-on-investment requirements needed to approve energy efficiency projects (94 percent). Approximately one-third of the participants reported experiencing challenges related to making energy-saving improvements. Of those facing challenges, 70 percent mentioned cost or budget limitations as significant challenges.

Figure 20. Main Business Activity for Respondents in the Public Institutions Solutions Program (n=57)



Question: E1

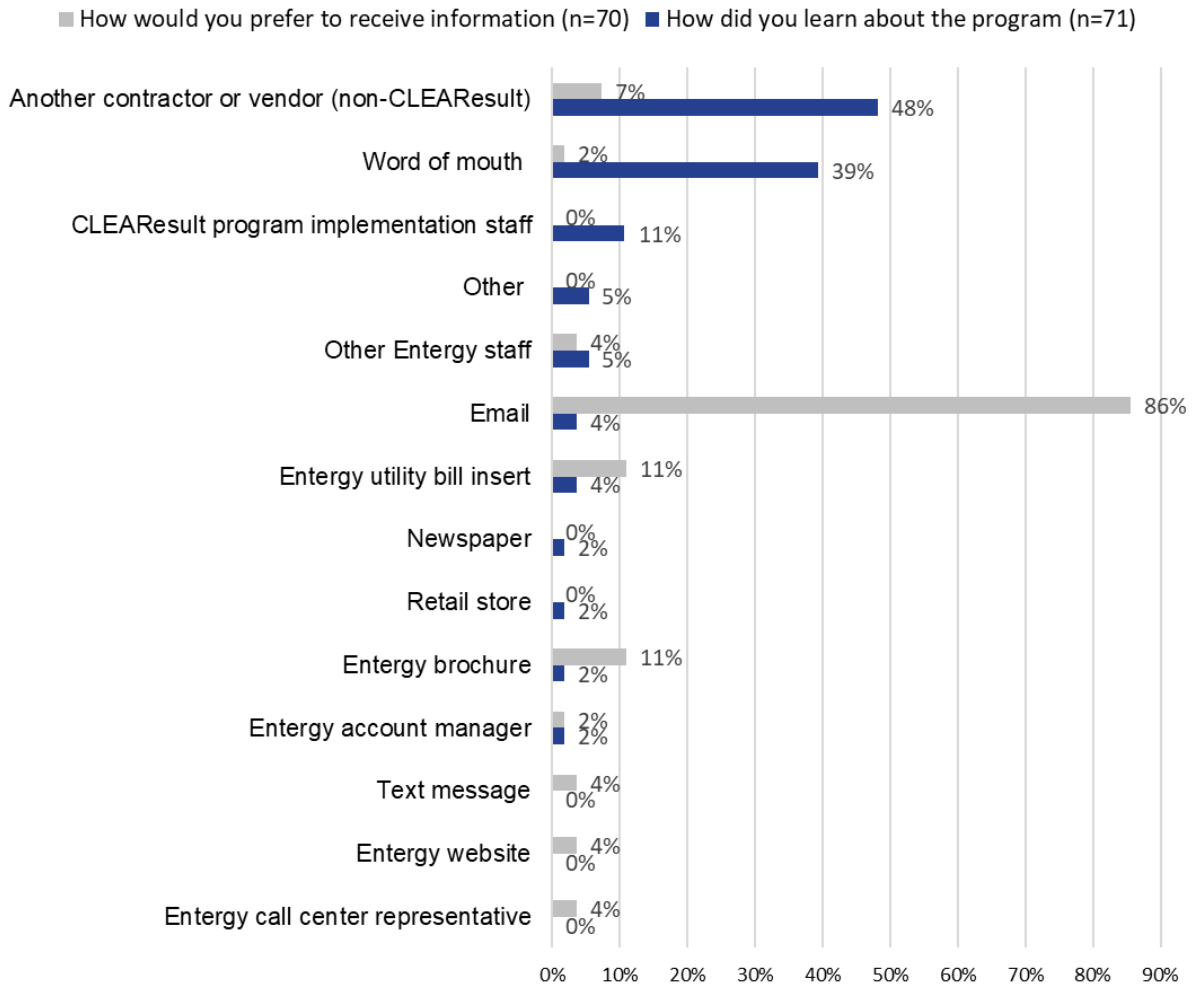
**Don't know and refused responses excluded.

The trade allies interviewed provided various services focused mainly on lighting and electrical service, and the two *Cool/Saver* contractors were traditional HVAC companies. Trade allies we talked to employ an average of 21 employees, ranging from 4 to 70 employees. Trade allies mentioned serving all commercial customers, including working with small businesses, public and private organizations, food service, retail spaces, and municipal buildings. Seven trade allies interviewed currently work in territories served by other utilities besides EAL, and an additional four said they work mainly in EAL's territory.

11.5.2 Program Marketing

Nearly one-half of respondents reported learning about the PIS program through a contractor or vendor (48 percent). The next most frequently mentioned sources were word of mouth from friends or family (39 percent), followed by program implementation staff (11 percent). In contrast, respondents reported preferring to receive information about the program via email (86 percent). Other preferred methods included through their utility bill or brochure (11 percent each). Figure 21 illustrates respondents' actual method of awareness and preferred sources of information.

Figure 21. Source of Awareness and Preferred Methods for the Public Institutions Solutions Program



Question: A1, A2

*Multiple responses were allowed.

**Don't know and refused responses excluded.

Trade allies were divided when characterizing the level of program awareness among customers. Some trade allies consider the program well-known and continue to have repeat customers who ask about the program. Others find that customers are unaware of it and have difficulty believing the utility will give them money to make energy-efficient improvements. Ways of promoting the program varied by trade ally. One contractor mentioned promoting the program by a banner hanging on their wall, another said they rely on word of mouth to advertise the program, one makes cold calls to stir up business, and a fourth is active on social media. As mentioned in more detail below, three trade allies have indicated they no longer promote the program because it is no longer in their best interest.

11.5.3 Participant Experience

Nearly 90 percent of participants surveyed reported experiencing no obstacles or barriers while in the program. Two of the six participants who experienced challenges in the program noted issues associated with insects, preventing work from being done. Two respondents mentioned their thermostat equipment, one needed additional training on how to use it, and one needed someone to come out to replace the thermostat that stopped working. The remaining two had problems with the contractor, with one mentioning there were long periods where they did not hear from the implementation staff.

Trade allies' experiences with the program were mixed. One-half of the trade allies discussed frustrations with the program and experienced problems this year. Those trade allies tended to be involved in the program for more than ten years (compared to five years for those who have not experienced problems). Contractors cited poor communication (five respondents) and delays in processing applications, which have been increasingly more complicated (4 respondents) and involved too much paperwork (4 respondents) as reasons for their frustrations. Additional feedback included delays in receiving their incentive checks (3 respondents) and unchanged rebate amounts compared to increased equipment prices (1 respondent). Work that the implementation contractor used to do, such as pre- and post-work has shifted to the trade ally. These experiences have negatively impacted trade allies in that three indicated they no longer use the program for small projects; it is not worth their time and energy to work through the program. Two trade allies said they direct customers to the POPS program, where they can bypass the application process. As one contractor stated, it is "not very cost-effective for us to run the incentive program anymore."

Those who have had positive experiences with the program report regular interactions with program staff; the staff has been pleasant; and the interactions are positive. The communications were mainly through email, and the inquiries were responded to quickly.

For the most part, COVID-19 pandemic-related issues have not impacted equipment availability. Alternative equipment can typically be found for any material that is delayed. One trade ally mentioned changing their recommendations based on product availability, but the alternative technology remained program eligible. A few times, the DLC changed which lamps were qualified, which was seen as having a more significant impact.

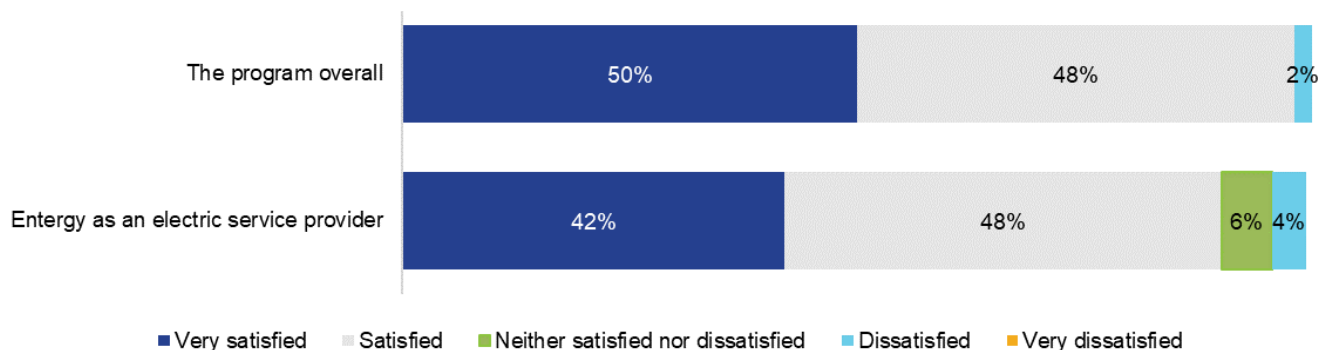
11.5.4 Satisfaction

Overall, participants rated their satisfaction with the program highly. Ninety-eight percent of participants said they were either *very satisfied* or *satisfied* with the PIS program overall. Only one respondent (two percent) said they were *dissatisfied* with the program. This dissatisfaction appears to revolve around communication and going long periods of not hearing from anybody and, after an email, another long period of not hearing.

Five other customers felt there were things EAL could do differently to improve their experiences with the program. Two cited changes in equipment, with one indicating the program was limited and thought *windows* could be added to the program. Another preferred *fixtures* and *lighting* installed at the same time but only received *lighting*. Two recommended program changes included more timely delivery of the program and more direct contact. The last one wanted a change to the [unspecified] contractor.

In addition to overall program satisfaction, customers were satisfied with EAL as their electric service provider. Ninety percent of customers were either *very satisfied* or *satisfied* with EAL. Only two respondents (four percent) indicated *dissatisfaction* with their service provider. Figure 22 shows satisfaction ratings with the program and EAL.

Figure 22. Participant Satisfaction with the Public Institution Solution Program and Entergy

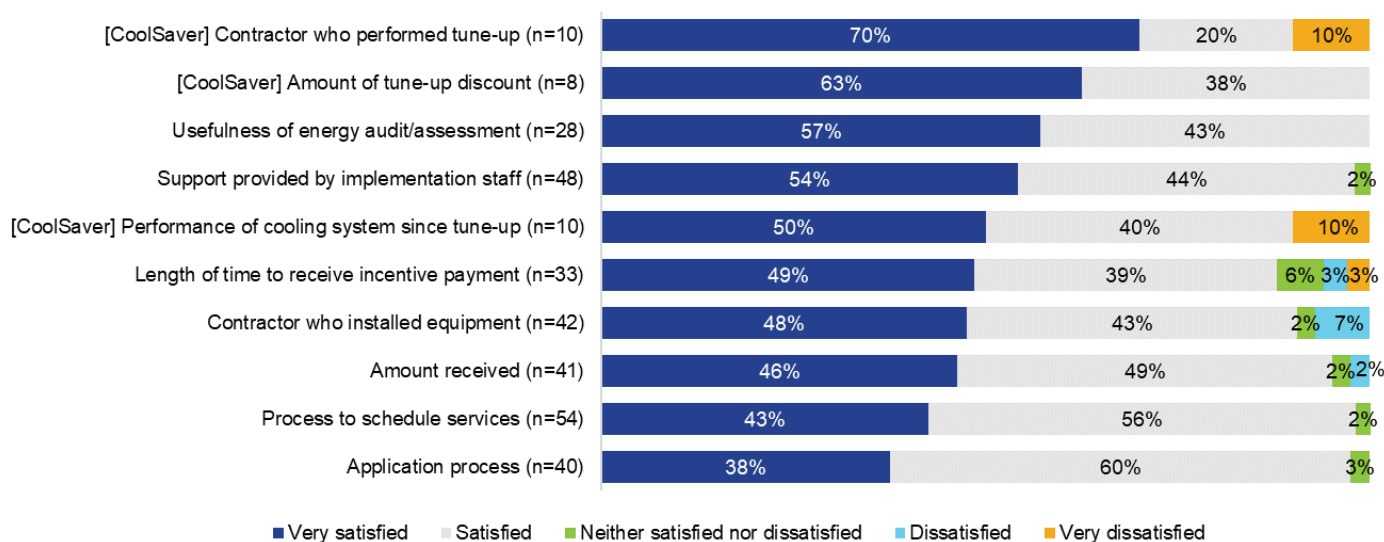


Question: Sat3, Sat5

*Don't know and refused responses are excluded.

Figure 23 shows satisfaction ratings relating to specific aspects of participants' experiences with the program, including the incentive amount (or discount) received, the application process, the support provided by implementation staff, the length of time it took to receive the incentive, the contractor who installed program measures (or performed services), the performance of the equipment serviced, the process to schedule services, and the usefulness of the program's energy audit if one was conducted. Similar to overall program satisfaction, satisfaction ratings were high across all specific program aspects, with at least 88 percent of respondents saying they were *very satisfied* or *satisfied* with each aspect. The ten percent *dissatisfaction* with the contractor who performed the *tune-up* and the *cooling system's performance* since the tune-up was from the same customer. This customer was unhappy with the contractor and felt they should not be part of the program.

Figure 23. Participant Satisfaction with Program Aspects—Public Institutions Solutions Program



Question: Sat1.

*Don't know, not applicable and refused responses are excluded.

Trade allies reported high overall satisfaction with the program, with an average rating of 3.9 on a scale of 5, where 1 is *not at all satisfied* and 5 is *very satisfied*. Satisfaction with interactions with program and implementation staff and the information and support received through the program averaged 3.6 (from ten respondents), and the type and variety of equipment eligible for the program averaged 4.3 (from five respondents). While satisfaction with the program seemed high, trade allies noted several areas where the program could be improved. The most mentioned improvement (mentioned by five) centered around the incentive payment process, specifically, the long delays in getting payment and the payment method. Trade allies were interested and excited to have a direct deposit option as an improvement in the following program year. Communication was also an area mentioned for improvement. Three trade allies felt communication with implementation staff could be improved. Trade allies talked about how it is difficult to speak with a live person, and communication is directed to email. Once an email is sent, it could take days to get a response or multiple emails to resolve one issue. Other recommended improvements included streamlining the process (two respondents), additional training, especially when rolling out new features like the online submissions (one respondent), and improvements to the new construction portion (one respondent). One contractor in the *CoolSaver* measures felt the requirement around the refrigerant could be eliminated as it is not required in territories outside Entergy Arkansas.

Regarding incentive amounts, two trade allies had suggestions. One indicated EAL could incentivize fixtures a little better than tubes. While they felt the incentives were fair, the second trade ally thought the incentive amounts were low for the PIS program, specifically for daycares and nonprofit organizations with classrooms.

11.6 NET-TO-GROSS RESULTS

11.6.1 Net-to-Gross Process

NTG was assessed via self-reports through the participant customer survey based on the guidance outlined in Protocol F of the Arkansas TRM 9.0. The sample frame for the survey consisted of customers who installed energy-saving upgrades for qualifying measures through the program between January 2021 and June 2022,⁸¹ stratified into three six-month participation periods. To limit the potential for recall issues, only participants in the preceding 12 months (July 2021–June 2022) were asked free-ridership questions and included in the free-ridership assessment. Spillover was assessed for participants who installed energy-efficient upgrades in the two less recent six-month periods to allow more time for potential spillover effects to occur (January 2021–December 2021).

The EM&V team randomly sampled participating customers over this timeframe for participation in the survey, ensuring that participants were drawn equally across periods. If a sampled participant installed more than one type of energy-efficient upgrade through the program, we randomly selected two rebated measures per participant for inclusion in the survey.

In total, 47 participants were surveyed on free-ridership, and 48 participants were surveyed on spillover based on their date of participation. Table 163 summarizes the number of measures ultimately evaluated by measure and participation period.

Table 163. Summary of Measures Evaluated by Participation Period for the Public Institutions Solutions Program

Participation period	Measure category	Measures evaluated	
		Free-ridership	Spillover
January 2021– June 2021	Custom	N/A	0
	Domestic hot water	N/A	0
	Envelope	N/A	0
	HVAC	N/A	0
	Lighting	N/A	8
	Thermostat	N/A	9
	Tune-up	N/A	7
	Total	N/A	24

⁸¹ Project dates were determined by using ArchEE data snapshots downloaded on July 1, 2021, and July 1, 2022 for partial year data, and the final ArchEE data for PY2022.

Participation period	Measure category	Measures evaluated	
		Free-ridership	Spillover
July 2021– December 2021	Custom	5	5
	Domestic hot water	1	1
	Envelope	1	1
	HVAC	0	0
	Lighting	9	9
	Thermostat	4	4
	Tune-up	4	4
	Total	24	24
January 2022– June 2022	Custom	1	N/A
	Domestic hot water	0	N/A
	Envelope	0	N/A
	HVAC	1	N/A
	Lighting	9	N/A
	Thermostat	7	N/A
	Tune-up	5	N/A
	Total	23	N/A

The survey included a series of structured questions about the participant's decision to pursue rebated energy-efficient upgrades to estimate free-ridership. As the Arkansas TRM does not allow for partial-free-riders, participants were either classified as full-free-riders (100 percent free-ridership) or non-free-riders (0 percent free-ridership) based on their responses to these decision-making questions. Table 164 below shows the survey questions that were used to classify free riders.

Table 164. Self-Report Free-Ridership Survey Questions

Survey question	Response options
FR2. Before learning about the <PROGRAM> program, was your organization already planning to purchase and install the <MEASURE> project in <YEAR>? <i>If CoolSaver:</i> Before learning about the discount available through the <PROGRAM>, was your organization already planning to have a high level <MEASURE> performed in the same year?	01 Yes
	02 No
	88 Don't know
	99 Refused
FR3. If the program incentive/discount had not been available, would your <YEAR> budget have accommodated the full cost of the <MEASURE>?	01 Yes
	02 No
	88 Don't know
	99 Refused

Survey question	Response options
FR4. If the incentive/discount or other assistance from the program had not been available, would you still have purchased the exact same <MEASURE> project, or would you have purchased something different?	01 Same [SKIP TO FR7]
	02 Different
	88 Don't know
	99 Refused
FR5. [ASK IF FR4 <> 1] Would you have purchased and installed any <MEASURE> at all? <i>If Cool/Saver: If the discount had not been available, would you still have purchased any <MEASURE>?</i>	01 Yes
	02 No
	88 Don't know
	99 Refused
FR6. [ASK IF FR5 = 1] Would it have been the same level/efficiency, higher level/efficiency, or lower level/efficiency?	01 Same level of efficiency
	02 Higher efficiency
	03 Lower efficiency
	88 Don't know
	99 Refused
FR7. [ASK IF FR4 = 1 OR FR5 = 1] If the incentive/discount or other assistance from the program had not been available, when would you have installed/performed the <MEASURE>? Would you have installed/performed it...	01 At the same time or sooner
	02 Within one year
	03 One to two years later
	04 Three to five years later
	05 More than five years later
	88 Don't know
	99 Refused

We followed the same criteria for classifying free riders as used in prior evaluation research for consistency and comparability with prior evaluation results. To be classified as a full-free-rider, respondents must have indicated all the following conditions; any respondent that did not meet all three of these conditions was classified as a non-free-rider:

- were already planning to purchase and install the project in the same year before learning about the program (FR2 = 1),
- budget would have accommodated the full cost of project in the absence of the program rebate (FR3 = 1), and
- would have purchased the same or higher efficiency measure within one year in the absence of the program ((FR4 = 1 OR (FR6 = 1 OR 2)) AND (FR7 = 1 OR 2)).

The participant survey also included several consistency checks to verify a participant's free-ridership status. These consistency checks are intended to provide additional information about the participant's decision to install the program provided measures and are used to substantiate their classification as a full-free-rider or non-free-rider. Consistency check questions include whether the participant received a recommendation to install a piece of equipment and how

influential that recommendation was on their decision and how influential the program incentive and other assistance were on their decision to install the program measure.

To assess spillover, the survey asked about recent installations of any additional energy-efficient improvements since program participation that were made *without* financial assistance from EAL. Respondents were then asked how important their experience in EAL's PIS program was on their decision to install these additional improvements. Full savings resulting from the measure were attributed to the program as spillover if the respondent said, *very important*, and one-half-savings were attributed to the program if the respondent said, *somewhat important*. Respondents stating that their experience was *not at all important* or *not very important* received no spillover savings. We used a conservative approach and quantified spillover savings only for measures eligible for commercial EAL incentives and excluded *lighting* measures. *Lighting* was excluded from this analysis due to upstream lighting rebates provided through other EAL programs; in many cases, customers may not be aware that the lighting they purchase is already discounted by EAL. Per-unit savings for qualified measures were estimated based on average savings values for similar measures in EAL's PIS program participant tracking data.

Free-ridership and spillover rates were estimated for each respondent using the methodology described above. Individual free-ridership and spillover rates were then weighted to adjust for proportional sampling differences, non-response, and gross energy savings to calculate overall estimates representative of the program population. NTG ratios were then calculated using the following equation:

$$NTG\ Ratio = 1 - Free-Ridership + Spillover$$

11.6.2 Detailed Results

Inclusive of free-ridership and spillover, the participant survey resulted in an overall NTG ratio of 99 percent. One respondent had identifiable free-ridership and one respondent had spillover attributable to the program, resulting in an overall NTG ratio of 99 percent. Interviews with trade allies corroborate this finding with the majority of trade allies interviewed saying that their sales and installations of energy-efficient equipment would have been lower in the past 12 months in the absence of the program (7 of 11 respondents). Table 165 below summarizes NTG results.

Table 165. Summary of Net-to-Gross Results for Public Institutions Solutions

Measure category	Free-ridership	Spillover	NTG
CoolSaver measures	3.9%	1.4%	97.6%
Non-CoolSaver measures	0.0%	0.0%	100.0%
Program overall	1.6%	0.8%	99.2%

11.6.2.1 Free-Ridership

Table 166 below presents free-ridership results. Feedback from participants suggests that the program was highly influential in most participants' decision to install energy-efficient measures. Three respondents said they were planning to purchase but that the audit they received was useful and attributable to the program. Hence, these customers are considered non-free-riders. One respondent said they were planning on having a *tune-up* done within the year and had the funds already allocated to do so and would have done the exact same *tune-up*. This respondent was considered a full free-rider.

Table 166. Free-Ridership Results for Public Institutions Solutions Program

Surveyed (n)	Free-ridership
48	1.6%

11.6.2.2 Spillover

Seven respondents said they installed additional energy-efficient measures without an EAL incentive. Only one respondent had savings we could quantify. One respondent indicated they installed another *thermostat* without a program incentive and that the program was influential. This customer stated they did not use the EAL program because the program would not do the installation. For the other customers where we did not qualify spillover, one installed *LED lights* at his home, which we excluded since we did not know they were purchased through the upstream program. Five others could not recall what equipment they installed, so we could not quantify any spillover. Table 167 presents the spillover results from the participant survey.

Table 167. Participant Spillover Results for Public Institutions Solutions Program

Surveyed (n)	Spillover
47	0.8%

11.7 OVERALL SAVINGS ESTIMATES

The ArchEE tracking system was the primary tool for checking claimed savings and performing evaluation savings calculations across a participant census. The tracking system contained the key assumptions and parameters necessary for calculating measure savings. After performing evaluation savings calculations across all measures claimed by the PIS program, the EM&V team found discrepancies in some measure categories. Those discrepancies that had the most considerable impact on program savings were discrepancies found during the tracking system data review and project-level engineering reviews for *tune-up* and *lighting control* measures, as detailed above.

The EM&V team calculated savings across the program measures based on the tracking data review and desk review results. The overall PIS program evaluated savings resulted in slightly lower energy and demand savings than those calculated by the program implementer (95.5 percent kilowatt-hour and 96.5 percent kilowatt realization rates). The evaluated savings are based on the results of savings calculations and adjustments made across the tracking system and supplemented by the results of the 30 sampled accounts, as discussed above. *Tune-up* measure savings were based on a comprehensive tracking system review.

The overall realization rates were affected most by variances between the claimed and evaluated savings (kilowatt and kilowatt-hour) from one *envelope* measure where the direct-install lengths of *weatherstripping* were not tracked consistently through the project and *lighting* projects where different fixture types or quantities were found during site visits. Another major contributor to savings adjustments was from *Wi-Fi thermostat* measures due to incorrect energy and demand savings values used for *heat pumps* in reported savings.

Table 168 shows that *lighting* measures had the most considerable variances while the *tune-up* measures had the most significant portion of ex-ante and ex-post savings.

Table 168. Public Institutions Solutions Program—Final Evaluated Energy Savings and Realization Rates by Measure Strata

Strata	Ex-ante savings		Ex-post savings		Realization rate		Data source
	kW	kWh	kW	kWh	kW	kWh	
Custom—CEI	210.6	2,920,350	210.6	2,921,962	100.0%	100.1%	Desk reviews
Custom—other	90.2	570,893	86.7	570,965	96.2%	100.0%	Desk reviews
Lighting—deemed	693.6	4,235,413	585.9	3,324,464	84.5%	78.5%	Desk reviews and site visits
Lighting—non-deemed	78.0	422,157	75.5	403,818	96.9%	95.7%	Desk reviews and site visits
Other	157.2	1,616,887	157.2	1,644,191	100.0%	101.7%	Desk reviews and site visits
Tune-ups	1,642.2	10,632,090	1,654.5	10,614,041	100.7%	99.8%	Tracking system and M&V review
Total	2,871.9	20,397,791	2,770.6	19,479,440	96.5%	95.5%	

11.8 QUALITY CONTROL/QUALITY ASSURANCE PROCESSES

EAL worked with the implementer CLEAResult to develop a quality management process for all EAL commercial programs. This process can be used for projects with or without a trade ally.

For trade-ally projects, CLEAResult emphasizes trade ally training to remind trade allies of program processes, technical requirements for measures, application requirements, and awareness of the QC process. QC protocols include clear pass/fail thresholds for addressing trade ally performance. During the post-inspection any project (trade-ally-driven or not), the fail condition results if the work scope is significantly incomplete, the efficient measures are found to be ineligible, or there are safety or code issues with the installation. A failed project causes the trade ally to be removed from the reduced inspection rate list that the program maintains and is put under probationary status. Once a trade ally is removed, that contractor must complete five consecutive projects without "failures" to be returned to the reduced inspection rate list. For a trade ally to qualify for the reduced inspection rate, they must complete five consecutive projects without a failure as determined by the program implementer.

Customers must sign a customer agreement to be eligible for the program; as part of this agreement, the customer is willing to allow a field inspector to perform a QC inspection. These inspections could happen to any project regardless of scope. An inspection form was developed to perform standardized and consistent inspections to ensure the equipment is being used following the guidelines outlined in the customer agreement.

Below are the steps that are followed during the QA/QC process, as outlined in the Quality Control and Assurance Process Manual:

- enrollment and customer verification,
- project documentation and completeness review,
- pre-engineering QC and approval,
- pre-installation inspection,
- pre-installation inspection corrections—trade-ally-driven projects,
- post-installation QC,
- post-installation inspection,
- post-installation inspection corrections—trade-ally-driven projects,
- post-engineering approval, and
- post-project review and closeout.

For all projects, the QA/QC process begins with verification that customers are eligible for participation in the program. Next, project documentation (including contact information, signed proposal, W9 forms, and pre-installation photos) is verified to be complete. Following the documentation check, the engineering team at CLEAResult checks to ensure that the project is installing eligible equipment and that savings parameters and calculations are accurate. For QA, the program staff also conducts reviews of each incentive application. After the engineering QC check, proposals that do not pass all aspects of the review are rejected and sent back for completion.

The next stage in the QA/QC process occurs during the pre-installation inspection stage, where pre-installation inspections are conducted to confirm pre-installation conditions. These inspections are completed for 100 percent of custom projects and the largest (approximately ten percent) trade-ally projects identified by kilowatt-hour savings. For the PIS program, larger projects are defined as those with savings estimated at over 150,000 kWh. Inspections are also completed for all *prescriptive* projects submitted by a non-trade ally or submitted by a trade ally under probation. A minimum of ten percent of all other projects between 10,000 and 150,000 kWh are also inspected. Also, for trade allies who are not under probationary status, at least ten percent of their total project quantities submitted are pre- or post-inspected. Any findings during the pre-inspection stage are returned to the trade ally to make corrections before the project may proceed.

Following the installation of the project, a post-installation QC check is performed via a review of documentation to verify invoicing, any changes to the project, and a review of submitted photos. Any findings during this QC check are once again returned to the trade ally to make corrections before the project may proceed. An on-site inspection is then conducted following the same sampling methodology as detailed in the pre-installation inspection above.

At the final stage of the process, a final engineering review of the post-installation notes, completeness of documentation, and post-inspection photos is performed. Project savings calculations or incentives are adjusted as appropriate. When this is complete, the project and all required documentation are submitted to EAL for approval and closeout.

As part of the PIS program evaluation activities, the EM&V team assessed the program's documentation and the 30 sampled projects used to inform the impact evaluation. The documentation included:

- program manual;
- program tracking system/database extracts;
- supplemental project-level documentation:
 - customer proposals and project agreements,
 - invoices,
 - pre-inspection form (where applicable),
 - post-inspection form (where applicable), and
 - photographic documentation (where applicable).

As noted in the prior sections, the EM&V team confirmed that the information presented in the ArchEE tracking system was mostly accurate compared to that in the project documentation. In general, the documentation provided project information that aligned with the stated QC goals, though the EM&V team found three specific areas for improvement:

1. Ensure photographic documentation provided is clear and legible and include nameplate photos of *lighting* model numbers and HVAC units, when possible,
2. Provide *lighting* specification sheets, and
3. Provide work orders and/or post-inspection reports on all projects.

12.0 AGRICULTURAL ENERGY SOLUTIONS

The Agricultural Energy Solutions (AES) program offers farmers and agricultural customers the opportunity to make their property more efficient by offering farm audits, incentives for energy efficiency improvements, and education of agricultural equipment suppliers. The AES program aims to produce long-term, cost-effective electric savings for agribusinesses by installing energy efficiency measures and replacing aging, inefficient equipment. The program is available—on an agricultural commercial or industrial rate schedule—to all nonresidential Entergy Arkansas, LLC (EAL) agribusiness customers, including various poultry, dairy, cattle, swine, delta/row crops, aquaculture, and horticulture facilities.

Incentives are available for agricultural customers to install energy efficiency equipment when building a new facility or replace aging, inefficient equipment. The program offers incentives for custom projects; custom is a comprehensive and customized approach for farmers who have energy efficiency needs. In some cases, *custom* measures use a combination of site-specific parameters as well as methodologies outlined in the TRM 9.0.

The program uses a streamlined process designed to overcome barriers to implementing energy efficiency projects. These barriers include:

- lack of customer awareness of energy efficiency technologies, benefits, and project payback;
- limited resources to identify energy efficiency opportunities;
- limited access to financial capital;
- absence of tools to quantify energy savings; and
- limited availability of energy efficiency technologies.

In support of the impact evaluation, the evaluation, measurement, and verification (EM&V) team conducted desk reviews on a randomly selected sample of eight projects and on-site measurement and verification (M&V) of two projects. Participant surveys were conducted with 17 participating customers to support the process and net-to-gross (NTG) evaluations.

Table 169. Agricultural Energy Solutions—Data Collection and Evaluation Activities

NTG approach	Process evaluation activities	Gross impact evaluation completes			
		Tracking system review	Desk reviews	On-site M&V	Metered data analysis ⁸²
Updated from current evaluation research	Program staff interviews (2)	Census	10	2 ⁸³ (ride alongs)	None
	Materials review Participant surveys (17)				

12.1 KEY FINDINGS

From a process and NTG perspective, the program is operating as intended. Participating customers are satisfied with the program and the program was influential in customers making energy efficient improvements. Based on the program year (PY) 2022 (PY2022) program tracking data,⁸⁴ the AES program reported implementing 8,066 *lighting* measures and 15 *lighting control* measures to 15 unique participants. Table 170 provides the program's participation and reported savings by measure category. In PY2022, *new construction lighting* projects provided the most savings for the program, similar to PY2021.

Table 170. Agricultural Energy Solutions Program—Reported Participation, Measures, and Savings

Measure category	Participants	Measures (quantity)	Reported program savings (kWh)	Percentage of program savings (kWh)
Custom—new construction	9	6,702	10,514,612	90.6%
Custom—retrofit	9	1,364	322,934	2.8%
Custom—non-lighting	1	15	767,913	6.6%
Grand total	15	8,081	11,605,460	100.0%

In PY2022, the AES program reported 11,605 MWh in gross energy savings and 3.0 MW in gross demand savings, as shown in the table below. The AES program's evaluated savings resulted in slightly lower than reported energy savings and demand savings, resulting in realization rates of 97.0 percent and 98.1 percent for energy and demand savings respectively. The program has far exceeded the energy and demand goals, achieving 186 percent and 321 percent of energy and demand goals, respectively.

⁸² This column refers to EAL customer meter data provided to the EM&V team as opposed to primary metered data collected as part of the on-site M&V.

⁸³ The EM&V team conducted ride-alongs for two unique accounts for three completed projects during three separate site visits.

⁸⁴ The tracking system data extract is from February 7, 2023.

Table 171. Agricultural Energy Solutions Program—Reported, Evaluated, and Net Savings

Energy/demand savings	Reported savings	Evaluated savings	Realization rate	NTG ratio	Net savings	Program contribution to portfolio savings
Energy savings (MWh)	11,605	11,255	97.0%	99.0%	11,143	3.8%
Demand savings (MW)	3.0	2.9	98.1%	99.0%	2.9	3.1%

Table 172. Agricultural Energy Solutions Program—Goals vs. Achieved

Savings	Goal	Actual	Percentage achieved
Energy savings (MWh)	5,998	11,143	186%
Demand savings (MW)	0.9	2.9	321%

12.2 RECOMMENDATIONS

The EM&V team has identified six key findings and recommendations for consideration by EAL through the evaluation process.

Table 173. Agricultural Energy Solutions —PY2022 Recommendations

Type	Recommendation	Key finding
PY2022 impact recommendations	Recommendation 1: Continue to work collaboratively with the EM&V team and seek review of large or unique <i>custom</i> projects.	Engaging the EM&V team early in the project timeline provides the opportunity to agree on calculation approaches, assumptions, and data collection needs for projects. This process has worked particularly well in developing assumptions and calculation methodology for large horticulture projects, which can be complex and unique.
	Recommendation 2: Collect heating and cooling documentation when present on site.	Several projects had discrepancies in the documentation on whether the buildings had heating and cooling and what type it was. When there is heating and cooling present, ensure documentation is collected to verify HVAC equipment (e.g., nameplate photos).
	Recommendation 3: Clearly define program requirements to determine if retrofit or new construction methodology should be used. If unclear which method should be used, consult the EM&V team to discuss and reach agreement.	The EM&V team found uncertainty surrounding one project to be considered eligible to use the <i>new construction savings methodology</i> for an <i>existing building</i> .

Type	Recommendation	Key finding
	Recommendation 4: Define additional measure descriptions to ArchEE to clarify measure type as the program expands with new measure offerings beyond <i>lighting</i> .	The current AES measures are listed in the ArchEE field <i>MeasureDesc</i> as <i>custom—new construction</i> , <i>custom—retrofit</i> , and <i>custom—non-lighting</i> . In PY2022, the measure description <i>custom—non-lighting</i> was used for a <i>lighting controls</i> measure. This recommendation persists from PY2020 and PY2021.
PY2022 process recommendations	Recommendation 5: Monitor the time it takes for incentive checks to be sent.	Overall, customers were satisfied with the program. The only obstacle that was mentioned was around the time it took to get an incentive check. Two customers experienced delays, although they remained satisfied with their program experience.
	Recommendation 6: Increase internal QA/QC practices.	The EM&V team found several errors on the post inspection forms. Increasing internal QA/QC practices and collecting sufficient project documentation may help mitigate these types of errors.

Table 174. Agricultural Energy Solutions Program—Status of Prior Year Recommendations

Status of prior year recommendations	
PY2020 impact recommendations	<ul style="list-style-type: none"> Follow the guidance in Appendix F of the TRM (Table F4) to determine <i>exterior lighting</i> power density in the calculation methodology for <i>new construction exterior lighting</i>. <ul style="list-style-type: none"> Continuing.
	<ul style="list-style-type: none"> To clarify the measure type, define additional measure descriptions to ArchEE as the program expands with new measure offerings beyond <i>lighting</i>. <ul style="list-style-type: none"> Continuing.
PY2020 process recommendations	<ul style="list-style-type: none"> Consider increasing documentation for <i>custom</i> projects to verify new building types, annual operating hours (AOH), and lighting end-use. <ul style="list-style-type: none"> Continuing.
PY2021 impact recommendations	<ul style="list-style-type: none"> Define additional measure descriptions to ArchEE to clarify measure type as the program expands with new measure offerings beyond <i>lighting</i>. <ul style="list-style-type: none"> Continuing.
PY2021 process recommendations	<ul style="list-style-type: none"> Continue to work collaboratively with the EM&V team and seek review of large custom projects. <ul style="list-style-type: none"> Continuing.

12.3 METHODOLOGY

12.3.1 Impact Evaluation

The evaluated savings results presented in this report are based on the results of savings calculations and adjustments made during the program documentation review, ten engineering desk reviews, and on-site M&V.

Program staff provided background information on the approach to energy savings, including savings calculations and data presented in those calculators and project close-out documents. The EM&V team also referred to relevant sections in TRM 9.0 to understand the savings methodology calculations used for *custom* projects and the general formulations of project savings approaches.

The EM&V team evaluated ICF's savings calculations by reviewing the program tracking data and project documentation to confirm the savings methodology and results, repeating the calculation steps to verify accuracy.

12.3.1.1 Desk Reviews

The EM&V team generated a stratified sample by measure category and then randomly selected projects. The desk review sample consisted of five *retrofit lighting* and five *new construction lighting* projects. The eight⁸⁵ sampled desk reviews also included two on-site M&V projects for PY2022. Eight accounts were sampled for reviews, with most having multiple measures tracked in ArchEE. A total of 30 measures in ArchEE were in the sample, approximately 59 percent of the recorded measures. These sampled projects represented gross savings of 5,499,937 kWh; 47 percent of the total AES recorded gross savings. The sampling was conducted by stratifying the participants by measure category and randomly selecting projects.

The EM&V team found that the approaches used to calculate savings were generally reasonable. The *lighting* calculation workbooks were comprehensive, detailed, high quality, and followed good industry practices. As a result, the EM&V team utilized the underlying calculation approaches to verify savings.

12.3.1.2 Site Visit Ride-Alongs

The EM&V team also coordinated post-installation site visits with program implementation staff as part of the PY2022 impact evaluation. These site visits were conducted with ICF program staff to reduce the burden on program participants and manage biosecurity access issues while allowing both the EM&V team and implementation staff to gather necessary post-installation data points.

⁸⁵ Two accounts implemented both *retrofit* and *new construction* projects.

12.3.2 Process and Net-to-Gross Evaluation

The EM&V team utilized a participant survey to inform the process and NTG evaluation. The survey included a series of questions that investigated sources of awareness and preferred methods of communication, participation experiences, program satisfaction, and demographics to address the process evaluation. The survey also included a series of structured questions about the participant's decision to pursue rebated energy-efficient upgrades to calculate the NTG rate. The EM&V team based the savings and calculations on those outlined in TRM 9.0 EM&V Protocols.

Where possible, to address recall concerns, TRM 9.0 recommends using a staggered data collection approach to collecting free-ridership and spillover information. Free-ridership is best assessed when asking about program participation as close as possible to the participation dates, while spillover is best assessed after a reasonable amount of time has passed to allow for additional energy savings activities to occur.

With these considerations in mind, the EM&V team stratified the sample frame for the participant survey into three six-month participation periods: January 2021 to June 2021, July 2021 to December 2021, and January 2022 to June 2022. Only participants in the two most recent periods (July 2021 to June 2022) were asked free-ridership questions and included in the free-ridership assessment, limiting recall issues. Only those who installed energy-efficient upgrades within the first two six-month periods received spillover questions to allow more time for potential spillover effects to occur (January 2021 to December 2021). Research from prior EAL program evaluations suggests that spillover rates in the most recent period are much lower when participants are asked about any energy-saving activities performed outside of the program compared to other participation periods. All respondents received process-related questions.

Due to the low number of program participants, the EM&V sampled a census of all participants in the sample frame. In total, the EM&V team surveyed 17 participants on free-ridership and 30 participants on spillover based on their date of participation. Table 175 illustrates the number of unique program participants per period and their kilowatt-hour savings.

Table 175. Agricultural Energy Solutions Program NTG/Process Participant Survey Sample Plan

Participation period	Project type	Count of projects in population*	Reported (ex-ante) kwh	Survey questions		
				Free-ridership	Spillover	Process
January 2021–June 2021	New construction	11	3,502,701	No	Yes	Yes
	Retrofit	16	792,471			
	Total	27	4,295,172			
July 2021–December 2021	New construction	1	9,080,510	Yes	Yes	Yes
	Retrofit	2	49,952			
	Total	3	9,130,462			
January 2022–June 2022	New construction	8	6,252,556	Yes	No	Yes
	Retrofit	6	162,274			
	Total	14	6,414,830			
Total		44	19,840,464			

The EM&V team implemented the participant survey through our in-house Survey Research Center via computer-assisted telephone interviews. A total of 17 surveys were completed, averaging ten minutes in length. Telephone surveys occurred between August 2 and August 12, 2022.

Table 176. Agricultural Energy Solutions Program—Participant Survey Response Rate

Disposition	Total
Sample	39
Not a utility customer	0
Eligible sample	39
Does not recall participating	2
Refusal	6
Language barrier	0
Bad number	0
Not completed	14
Completed	17
Response rate	
Response rate (completed/eligible sample)	43.6%

12.4 DETAILED IMPACT EVALUATION RESULTS

12.4.1 Reported Savings Methodology

The AES program's savings algorithms and approaches followed standard industry practice and TRM requirements for *custom* projects. There were distinct differences in the savings algorithms for *new construction lighting* and *retrofit lighting*. Using standard TRM algorithms for *lighting* projects involving heated spaces, a therm heating penalty was calculated. The details of each approach are described below.

12.4.1.1 New Construction Lighting

New construction lighting projects calculated savings based on an assumed lighting power density (LPD) of 0.8 W per sq. ft. This LPD was developed in 2015 between EAL, ICF, and the EM&V team. The algorithms for savings are:

$$kWh_{savings} = AOH \times \frac{LPD * Sq. Ft. - Installed Watts}{1,000} \times IEF_e$$

where:

- AOH* = custom annual operating hours of the lit space
- Sq. Ft.* = square footage of the lit space
- LPD* = 0.8 W per square foot

Installed Watts = sum of efficient lighting watts installed in the lit space
IEF_e = interactive effects factor for energy based on heating and cooling types

$$kW_{savings} = c.f. \times \frac{LPD * Sq.Ft. - Installed Watts}{1,000} \times IEF_d$$

where:

c.f. = coincidence factor (CF), typically 0.77
IEF_d = interactive effects factor for energy based on heating and cooling types

$$therm_{penalty} = IEF_g * kWh_{savings}$$

where:

IEF_g = 0.008 therms/kWh
kWh savings = savings calculated by the kilowatt-hour savings formula above for interior lighting projects

12.4.1.2 Retrofit Lighting

Retrofit lighting projects calculate savings by comparing the less efficient baseline wattage to the installed high efficiency wattage. The algorithms for savings are:

$$kWh_{savings} = AOH \times \frac{Baseline Watts - Efficient Watts}{1,000} \times IEF_e$$

where:

Baseline Watts = total watts of the replaced lighting prior to the project

$$kW_{savings} = c.f. \times \frac{Baseline Watts - Efficient Watts}{1,000} \times IEF_d$$

$$therm_{penalty} = IEF_g * kWh_{savings}$$

12.4.2 Desk Review Results

As noted earlier, the PY2022 AES program impact evaluation efforts included an engineering analysis for a sample of projects from 15 unique account holders. Table 177 provides measure-level realization rates for the eight AES projects reviewed by the evaluation. Desk review findings from projects that did not receive 100 percent realization rates are detailed below.

Table 177. Agricultural Energy Solutions Program—PY2022 Desk Review Results by Measure Category

Measure category	Reported savings		Evaluated savings		Realization rate	
	kWh	kW	kWh	kW	kWh	kW
Custom—new construction	5,329,415	1,019.4	5,145,257	994.2	96.5%	97.5%
Custom—retrofit	170,522	27.4	177,357	26.3	104.0%	96.1%
Total	5,499,937	1,046.8	5,322,614	1,020.5	96.8%	97.5%

EAACCR1549437730. The project included *new construction lighting* in a horticultural facility. The reported savings estimate indicates that key calculation parameters, IEF_e and IEF_d , are consistent with *gas* and *air conditioner* heating and cooling types, respectively. However, the post-installation form provided in the documentation package indicated the *heating type* was *electric*. The EM&V team updated savings accordingly resulting in realization rates of 79.8 percent and 100.0 percent for energy and demand savings, respectively. However, additional documentation was provided by the implementer after the evaluation interim results were published. The heating and cooling types were reviewed and adjusted to *air conditioner with no heat*, resulting in an overall project-level realization rate of 100.0 percent and 100.0 percent for energy and demand savings, respectively.

EAACCR1548266976. The project reported *new construction lighting* at a poultry farm. Based on the documentation, the EM&V team found the lamp model was not eligible for savings in the program as it was not certified under ENERGY STAR, DLC, Consortium for Energy Efficiency (CEE), or other third-party certification. TRM 9.0 allows for exceptions to third-party certification for agricultural uses for fixtures designed for animal use. However, the lamps installed were A19 lamps, and the manufacturer specification sheet lists *household use* and *office* as the primary application. The EM&V team concluded an eligible alternative could have reasonably been installed and adjusted savings accordingly. The EM&V team also found uncertainty surrounding whether this project should be considered eligible for new construction. The photos and invoice showed an existing building and a cost estimate for existing lighting removal. The documentation showed the building type did not change, but it did not verify the existing system, so it was insufficient to determine if the *new construction baseline* was appropriate.

EAACCR1549313591. The project included *new construction lighting* in a horticultural facility. The reported savings estimate indicates that key calculation parameters, IEF_e and IEF_d , are consistent with *gas* and *air conditioner* heating and cooling types, respectively. However, the post-installation form provided in the documentation package indicated the heating type was *electric*. The EM&V team also conducted a ride-along at this facility. Tracking data indicated *16 lamps* were installed in the propagation room; however, the ride-along found *20 lamps* were installed. The EM&V team updated savings accordingly, resulting in realization rates of 80.4 percent and 100.4 percent for energy and demand savings, respectively. However,

additional documentation was provided by the implementer after the evaluation interim results were published. The heating and cooling types were reviewed and adjusted to *air conditioner with no heat*, resulting in an overall project-level realization rate of 100.7 percent and 100.4 percent for energy and demand savings, respectively.

EAACCR1549171277. The project included *new construction lighting* in a horticultural facility. The reported savings estimate indicates that key calculation parameters, IEF_e and IEF_d , are consistent with *gas* and *air conditioner* heating and cooling types, respectively. However, the post-installation form provided in the documentation package indicated the heating type was *electric*. The EM&V team also conducted a ride-along at this facility. Tracking data indicated *623 lamps* were installed in the vegetation room; however, the ride-along found *588 lamps* were installed. The EM&V team updated savings accordingly, resulting in realization rates of 75.3 percent and 94.4 percent for energy and demand savings, respectively. However, additional documentation was provided by the implementer after the evaluation interim results were published. The lamp count and heating and cooling types were reviewed and adjusted accordingly, resulting in an overall project-level realization rate of 100.0 percent and 100.0 percent for energy and demand savings, respectively.

EAACCR1550001697. The project included a *lighting retrofit* at a poultry farm. The reported savings estimate for the grow-out area indicates that key calculation parameters, IEF_e and IEF_d , are consistent with *electric heating* and *air conditioner* heating and cooling types, respectively. However, the post-installation form in the documentation package indicated no cooling, *only electric heating* in the grow-out area. Since there are no *heating-only* IEF_e and IEF_d factors in the TRM, the EM&V team calculated savings using 0.8 IEF_e and 1.0 IEF_d , as agreed upon in a previous evaluation where only *electric heating* was found. The EM&V team updated savings accordingly, resulting in realization rates of 85.1 percent and 99.2 percent for energy and demand savings, respectively. However, additional documentation was provided by the implementer after the evaluation interim results were published. The documentation showed no heating or cooling in any of the areas, including the grow-out areas, and adjusted all areas accordingly, resulting in an overall project-level realization rate of 105.8 percent and 98.2 percent for energy and demand savings, respectively.

EAACCR1549785903. The project included a *lighting retrofit* at a poultry farm. The reported savings estimate for the egg rooms indicates that key calculation parameters, IEF_e and IEF_d , are consistent with *no heating and cooling* present. However, the post-installation form in the documentation package indicated *electric heating and cooling* in the egg rooms. The EM&V team also found that the baseline wattage for the outdoor lamp should be *65 W* based on the manufacturer specification sheet indicating the installed lamp is a *65 W equivalent*. The EM&V team updated savings accordingly, resulting in realization rates of 99.8 percent and 100.2 percent for energy and demand savings, respectively. However, additional documentation was provided by the implementer after the evaluation interim results were published. The documentation confirmed *no heating or cooling* in the egg rooms and the EM&V team adjusted accordingly, resulting in an overall project-level realization rate of 100.0 percent and 99.9 percent for energy and demand savings, respectively.

EAACCR1548871809. The project included a *lighting retrofit* at a farm shop. The reported savings estimate indicates that key calculation parameters, annual operating hours (AOH), and coincidence factor (CF) are consistent with the *service (excluding food)* building type. However, the EM&V team determined that the *warehouse—non-refrigerated* building type would be more appropriate based on the photos showing what appears to be an unconditioned garage space. The *service (excluding food)* building type is intended for a business that relies on patrons but is not food-related, such as salons. The EM&V team updated savings accordingly, resulting in

realization rates of 109.2 percent and 71.3 percent for energy and demand savings, respectively.

12.4.3 Site Visit Results

In PY2022, the EM&V team coordinated post-installation site visits with program implementation staff for two projects, reducing the burden on program participants and managing biosecurity access issues while allowing both the EM&V team and implementation staff to gather necessary post-installation data points. The two PY2022 projects received rebated light-emitting diode (LED) lighting through EAL's program; all projects installed *new construction LED lighting*.

At each project, the EM&V team confirmed the lamp type and location and that all lamps were successfully installed and operational. Additionally, the buildings' dimensions were confirmed—a key parameter for *new construction lighting* projects. Lighting schedules and programs were confirmed with farmers.

Overall, the EM&V team verified that most lamps on-site rebated through the AES program were installed, functional, and matched wattages claimed through program tracking data, resulting in adjustments to the reported savings for one project, as described above.

12.5 DETAILED PROCESS EVALUATION RESULTS

Next, we present the process results from the participant survey, organized by the following topic areas: respondent firmographics, program marketing, participant experience and satisfaction, and in-service rates.

12.5.1 Respondent Firmographics

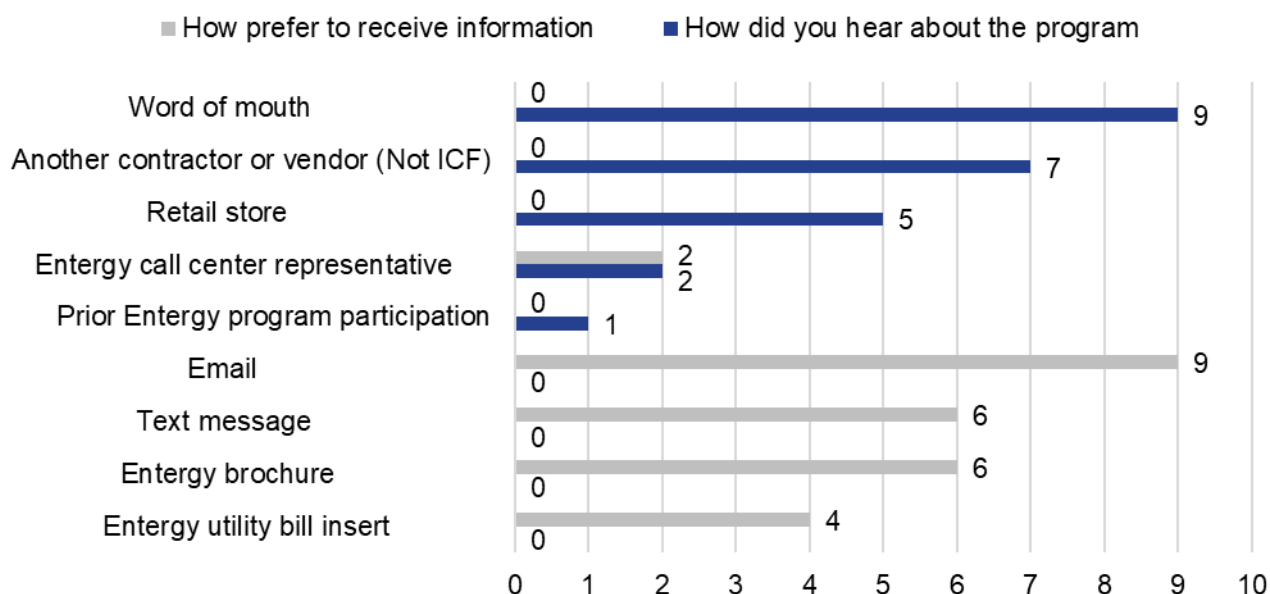
Most survey participants had *poultry* as the main production at their facilities (8 of 17 respondents), with an additional three facilities having *poultry and cattle*. Three respondents indicated their main activity was *horticulture* (plants) and the remaining three were a mix of *corn, rice, and soybeans*. On average, facilities had 26.4 full-time employees and 5.0 part-time employees. The number of full-time employees ranged from 0 to 300, and part-time employees ranged from 0 to 40. Four facilities had only full-time staff, and one had only part-time staff. The horticulture facilities tend to have the most employees.

One respondent mentioned having any payback period or return-on-investment requirements to approve the implementation of energy efficiency projects. This respondent said their payback period was “soon as I can pay the debt off,” which was ten years. For this specific project, they wanted to do it in two to three years with the rebate. When asked if their organization faces challenges when making energy-saving improvements, five respondents mentioned having challenges, sometimes multiple challenges. Four customers said the cost and the time needed was mentioned by two. Other challenges mentioned included the weather, the location of pumps, and general information about equipment improvements.

12.5.2 Program Marketing

Over one-half of respondents reported learning about the AES program through word of mouth from family or friends (nine respondents, 53 percent). Other commonly cited methods included a contractor or vendor other than the program implementer (seven respondents), a retail store (five respondents), Entergy call center representative (two respondents), and prior participation in an EAL program (one respondent). By contrast, when respondents were asked how they prefer to receive information about EAL’s energy efficiency programs, the most frequently mentioned communication channel was by email (nine respondents). Text messages (six respondents) and an EAL brochure (six respondents) were the following most preferred methods. Figure 24 illustrates how participants learned about the AES program and their preferred method.

Figure 24. Source of Program Awareness and Preferred Methods (n=17)



Source: Participant Survey A1, A2.

*Multiple responses were allowed.

**Don't know and refused responses excluded.

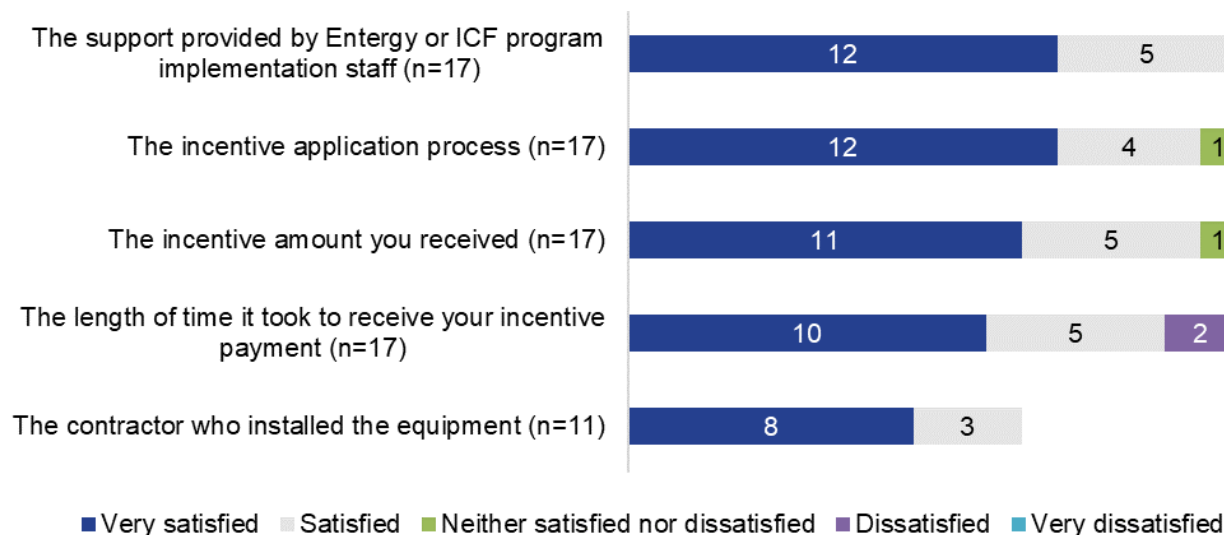
12.5.3 Participant Experience and Satisfaction

Over 80 percent (14 of 17) respondents said they received an energy audit or assessment for the project they did through the program. One respondent said they did not receive an audit, and two did not recall if they did. Of those who received an audit, all but one (13 of the 14) said the audit was *very useful*, and one said the audit was *somewhat useful*.

All respondents reported being satisfied with the AES program overall; 13 being *very satisfied* and 4 *satisfied*. We asked those who were less than *very satisfied* with the program if there was anything EAL could have done to improve their experience in the program. Three of the four respondents said *no*, and the fourth said *did not know*.

Figure 25 shows satisfaction ratings relating to specific aspects of participants' experiences with the program, including the support provided by EAL or program implementation staff, the incentive application process, the incentive amount received, the length of time it took to receive the incentive, and the contractor who installed program measures. Similar to overall program satisfaction, ratings were high across all specific program aspects, with most respondents saying they were *very satisfied* with each aspect. Additionally, almost three-quarters of respondents said they were satisfied with EAL overall as an electric service provider (8 respondents were *very satisfied*, and three respondents were *satisfied*).

Figure 25. Participant Satisfaction with Program Aspects



Source: Participant Survey SAT1

*Don't know, not applicable, and refused responses excluded.

Almost all participants surveyed (15 of 17 respondents) reported experiencing no obstacles or barriers while participating in the program. The two participants who experienced challenges noted issues related to the incentive; both respondents said it took two months to receive the incentive. The delay impacted one respondent that incurred late charges. These challenges do not appear to impact their satisfaction with the program, as both indicated they were *satisfied* with the program overall.

12.5.4 In-Service Rates

The participant survey detected a program installation rate of 94 percent. All respondents reported the energy-saving measures installed through the program were still fully installed and operating at the facility at the time of the participant survey, with one respondent indicating that 98 percent of the *lighting* equipment was installed and operating. This respondent said that two percent of the bulbs have burnt out since they were installed.

12.6 NET-TO-GROSS RESULTS

12.6.1 Net-to-Gross Methodology

We assessed NTG via self-reports through the participant customer survey based on the guidance outlined in Protocol F of TRM 9.0.

As previously mentioned, to minimize recall concerns, and to allow for enough time for spillover to occur, free-ridership and spillover questions were not asked of everyone, and free-ridership and spillover were calculated separately. The EM&V completed 17 participant surveys accounting for 18 different measures. Among those, 8 received the free-ridership battery, and 11 received the spillover battery, with one of those respondents receiving both the free-ridership and spillover series (July 2021 to December 2021 participants). Table 178 below shows how the response counts broke out for both free-ridership and spillover based on their participation date.

Table 178. Summary of Self-Report Participant Survey Respondents by Participation Period

Participation period	Project type	Measures evaluated	
		Free-ridership	Spillover
January 2021– June 2021	New Construction	N/A	2
	Retrofit	N/A	8
	Total	N/A	10
July 2021– December 2021	New Construction	0	0
	Retrofit	1	1
	Total	1	1
January 2022– June 2022	New Construction	5	N/A
	Retrofit	2	N/A
	Total	7	N/A
Total		8	11

The survey included a series of structured questions about the participant's decision to pursue rebated energy-efficient upgrades to estimate free-ridership. As the TRM 9.0 does not allow for partial free riders, participants were either classified as full-free-riders (100 percent free-ridership) or non-free-riders (0 percent free-ridership) based on their responses to these decision-making questions. Table 179 below shows the survey questions we used to classify free riders.

Table 179. Self-Report Free-Ridership Survey Questions

Survey question	Response options
FR2. Before learning about the <PROGRAM> program, was your organization already planning to purchase and install the <MEASURE> project in <YEAR>?	01 Yes
	02 No
	88 Don't know
	99 Refused

Survey question	Response options
FR3. If the program incentive had not been available, would your <YEAR> budget have accommodated the full cost of the <MEASURE>?	01 Yes
	02 No
	88 Don't know
	99 Refused
FR4. If the incentive or other assistance from the program had not been available, would you still have purchased the exact same <MEASURE> project, or would you have purchased something different?	01 Same [SKIP TO FR7]
	02 Different
	88 Don't know
	99 Refused
FR5. [ASK IF FR4 <> 1] Would you have purchased and installed any <MEASURE> at all?	01 Yes
	02 No
	88 Don't know
	99 Refused
FR6. [ASK IF FR5 = 1] Would it have been the same level of efficiency, higher efficiency, or lower efficiency?	01 Same level of efficiency
	02 Higher efficiency
	03 Lower efficiency
	88 Don't know
	99 Refused
FR7. [ASK IF FR4 = 1 OR FR5 = 1] If the incentive or other assistance from the program had not been available, when would you have installed the <MEASURE>? Would you have installed it...	01 At the same time or sooner
	02 Within one year
	03 One to two years later
	04 Three to five years later
	05 More than five years later
	88 Don't know
	99 Refused

We followed the same criteria for classifying free riders used in previous evaluation research for consistency and comparability with prior evaluation results. To be classified as a full-free-rider, respondents must have indicated all the following conditions; any respondent that did not meet all three of these conditions we classified as a non-free-rider:

- were already planning to purchase and install the project in the same year before learning about the program (FR2 = 1),
- budget would have accommodated the full cost of project in the absence of the program rebate (FR3 = 1), and
- would have purchased the same or higher efficiency measure within one year in the absence of the program ((FR4 = 1 OR (FR6 = 1 OR 2)) AND (FR7 = 1 OR 2)).

The participant survey also included several consistency checks to verify a participant's free-ridership status. These consistency checks provide additional information about the participant's decision to install the program-provided measures and substantiate their classification as full or non-free-rider. Consistency check questions include whether the participant received a recommendation to install a piece of equipment, how influential that recommendation was on their decision, and how influential the program incentive and other assistance were on their decision to install the program measure.

To assess spillover, we asked about recent installations of any additional energy-efficient improvements made since program participation *without* financial assistance from EAL. Respondents were then asked how important their experience in EAL's AES program was to their decision to install these additional improvements. Full savings were attributed to the program as spillover if the respondent said *very important*, and half-savings were attributed to the program if the respondent said *somewhat important*. Respondents stating that their experience was *not at all important* or *not very important* received no spillover savings.

Free-ridership and spillover rates were estimated for each respondent using the methodology approach described above. Individual free-ridership and spillover rates were then weighted to adjust for proportional sampling differences, non-response, and gross energy savings to calculate overall estimates representative of the program population. NTG ratios were then calculated using the following equation:

$$NTG\ Ratio = 1 - Free-ridership + Spillover$$

12.6.2 Detailed Results

Inclusive of free-ridership and spillover, the evaluation resulted in an overall NTG ratio of 99 percent. Only one respondent said they would have completed their project without the program resulting in a free-ridership ratio of 1.7 percent. Because some spillover was observed, which offsets most free-ridership, the overall NTG ratio is 99 percent. Table 180 below summarizes NTG results.

Table 180. Summary of NTG Results

Free-ridership	Spillover	NTG
1.7%	Approx. 1%	99.0%

Feedback from participants suggests that the program was highly influential in the decision to install energy-efficient measures. Only one respondent said they were planning to purchase and install their rebated energy efficiency measures in the same year before learning about the program. This respondent said they had the budget available for the total cost of the energy-efficient measures but also said the contractor was important by talking about the lighting and savings on their energy bills. This respondent (who owned a poultry farm) installed *lighting* as both *retrofit and new construction*, and both projects were deemed to be a free-rider.

Two respondents said they planned to purchase and install their rebated energy-efficiency measures in the same year before learning about the program, but they did not have the budget allocated for the improvements. Therefore, these respondents were not deemed a free-rider. The remaining respondents were *not* planning to purchase and install their rebated energy efficiency measures in the same year before learning about the program or were unsure.

One respondent said they installed additional energy-efficiency measures, specifically *insulation*, since participating in the program. This respondent could not provide details on how much but said their experience with EAL's AES program was very important in deciding to do the insulation project.

12.7 OVERALL SAVINGS ESTIMATES

The EM&V team calculated savings results at the measure category level. The overall AES program evaluated savings resulted in 97.0 percent and 98.1 percent realization rates for energy and demand respectively. Table 181 shows the evaluated savings.

Table 181. Agricultural Energy Solutions Program—Final Evaluated Energy Savings and Realization Rates by Measure Category

Measure category	Reported savings		Evaluated savings		Realization rate		EM&V source
	kWh	kW	kWh	kW	kWh	kW	
Custom—new construction	10,514,612	2,158.0	10,151,280	2,104.6	96.5%	97.5%	Desk review and on-site M&V
Custom—retrofit	322,934	47.4	335,878	45.6	104.0%	96.1%	Desk review and on-site M&V
Custom non-lighting	767,913	772.1	767,913	772.1	100.0%	100.0%	N/A
Total	11,605,460	2,977.5	11,255,071	2,922.2	97.0%	98.1%	

12.8 QUALITY CONTROL/QUALITY ASSURANCE PROCESSES

The AES program implementer, ICF, has developed quality assurance/quality control (QA/QC) processes. QA emphasizes trade ally training to keep trade allies updated on program processes, technical requirements for measures, application requirements, and awareness of the QC process. For QC, ICF reviews each incentive application, confirms pre-installation conditions, conducts on-site inspections to confirm post-installation conditions, and adjusts project savings calculations or incentives as appropriate.

As part of the AES evaluation activities, the EM&V team assessed the documentation provided for the ten sampled projects used to inform the impact evaluation. The documentation included the following:

- completed application,
- post-inspection form,
- invoices, and
- savings calculation workbook.

As noted in the prior section, the EM&V team confirmed that the tracking system's information was generally accurate in terms of that shown in the project documentation. Across the multiple projects and points for documentation, the AES documentation provided a mostly consistent description of the project aligned with the stated QC goals. However, the EM&V team found that the pre-inspection form was not included in the documentation package in retrofit cases. The EM&V team also found several errors on the implementor post-inspection form on most of the projects sampled for desk review.

13.0 RESIDENTIAL DIRECT LOAD CONTROL

The Residential Direct Load Control (DLC) program (Summer Advantage) is a demand response program focusing on residential air-conditioning loads. The program is implemented by Itron, who (1) provides marketing services, a call center, and load control receiver (LCR) equipment and services; (2) conducts program tracking; and (3) calculates event-level and program savings for Entergy Arkansas, LLC (EAL).

The program aims to reduce peak kilowatt loads during load control events in the summer months (June 1 through September 30). To reduce the amount of time an air-conditioner operates, participants in the program have an LCR installed on their air-conditioner. Participant incentives are based on the participant's choice of 50 percent cycling or 75 percent cycling. The participant receives an installation incentive based on their participation rate, and annually the participant will receive a loyalty incentive equal to the installation bonus.

In program year (PY) 2022 (PY2022), the Residential DLC program responded to two events on two separate days, both in June 2022. One of the events was a test event, used to verify equipment operability and measurement and verification (M&V) sample functionality, and the other was used to reduce load. An M&V sample is maintained by Itron, with 120 participants having interval data loggers that provide five-minute readings of equipment kilowatts. The M&V sample is structured to represent the program population (15,685 participants at the end of the event season) and provides the data to calculate savings. Calculating savings would not be possible with only the customers' standard utility revenue meters. The evaluation, measurement, and verification (EM&V) team estimated kilowatt savings via Midcontinent Independent System Operator (MISO) demand response curtailment algorithms and regression analysis to support the impact evaluation.

Table 182. Residential Direct Load Control Program—Data Collection and Program Inputs

Net-to-gross (NTG) approach	Process evaluation activities	Gross impact evaluation completes			
		Tracking system review	Desk reviews	On-site M&V	Metered data analysis ⁸⁶
Deemed at 1.0 as industry practice	Materials review	Census	None	None	Census

13.1 KEY FINDINGS

In PY2022, the program achieved 15.4 MW in gross demand savings, as shown in Table 183. The EM&V team found that the approach to using the M&V sample deployed on direct control units in demand response curtailment calculations is appropriate. The evaluated savings using the MISO-based calculations differed slightly from Itron's calculations due to rounding differences in calculating per-device savings. These differences resulted in a realization rate of 97.0 percent and will be further detailed in Section 13.4 of this report.

⁸⁶ This column refers to EAL customer meter data provided to the EM&V team as opposed to primary metered data collected as part of the on-site M&V.

Table 183. Residential Direct Load Control Program Savings—Reported, Evaluated, and Net Savings

Energy/demand savings	Reported savings	Evaluated savings	Realization rate	NTG ratio*	Net savings	Program contribution to portfolio savings
Energy savings (MWh)	-	-	N/A	N/A	N/A	N/A
Demand savings (MW)	15.8	15.4	97.0%	100.0%	15.4	16.3%

* The PY2022 NTG ratio was deemed 100 percent, keeping with industry practice for demand-response programs requiring participation in utility curtailment events.

** The Residential DLC program does not claim energy savings. Therefore, these cells are represented with a dash.

The program met 53 percent of the demand savings goal, as detailed in Table 184.

Table 184. Residential Direct Load Control Program—Goals vs. Achieved

Savings	Goal	Actual	Percentage achieved
Energy savings (MWh)	-	-	-
Demand savings (MW)	29.0	15.4	53.0%

* The Residential DLC program does not claim energy savings. Therefore, these cells are represented with a dash.

13.2 RECOMMENDATIONS

The EM&V team has identified one recommendation for consideration by EAL through the evaluation process, presented in Table 185.

Table 185. Residential Direct Load Control Program — PY2022 Recommendations

Type	Recommendation	Key finding
PY2022 impact recommendations	Recommendation 1: Explore the effects of limiting the baseline to periods with similar weather.	The current weather baseline uses data from the entire load control season (June 1 through September 30). Limiting the baseline to periods with weather that is more like event days could improve the model’s accuracy. For example, limiting the weather baseline to days with an average temperature of at least 90 degrees would more accurately replicate the conditions experienced on event days.

Table 186. Residential DLC Program —Status of Prior Year Recommendations

Status of prior year recommendations	
PY2020 impact recommendations	<ul style="list-style-type: none"> Calculate program savings using the highest current program year event instead of a previous year's event. <ul style="list-style-type: none"> Complete.
PY2020 process recommendations	<ul style="list-style-type: none"> Consider an annual <i>thank you</i> that includes information about the customer's financial benefit for participating and the benefit to the overall system. <ul style="list-style-type: none"> Complete.
PY2021 impact recommendations	<ul style="list-style-type: none"> Consider estimating kilowatt-hour savings for the Residential DLC program. <ul style="list-style-type: none"> In progress.
PY2021 process recommendations	<ul style="list-style-type: none"> There are no process recommendations in PY2021. The program appears to be operating as intended. <ul style="list-style-type: none"> Complete.

13.3 METHODOLOGY

Itron provides three savings calculations to EAL, all evaluated by the EM&V team. Savings are calculated with three methods approved by MISO to support EAL's settlement with MISO. Each method used for EAL savings results is described below; Table 187 shows the events in PY2022.

Table 187. Residential Direct Load Control Program—PY2022 Load Control Events

Date	Start time (CDT)	End time (CDT)	Participants	Event type
06/01/2022	13:00	14:00	16,353	Test event
06/16/2022	14:00	16:00	16,353	Normal event

For each event, savings are based on the M&V sample meter data. The baseline is constructed using ten eligible days before the event and applying no adjustment (*MISO Calculation #1*), a symmetrical multiplicative adjustment (*MISO Calculation #2*), or weather-based adjustment (*MISO Calculation #3*). These are described in more detail below.

13.3.1 MISO Calculation Evaluated Savings

The EM&V team evaluated Itron's calculations of Residential DLC program savings registered with MISO. MISO's Business Practice Manual⁸⁷ specifies three calculation options.

⁸⁷ Business Practices Manual Demand Response. MISO, July 2019.

13.3.1.1 MISO Calculation #1—Unadjusted Baseline

MISO's unadjusted baseline calculation approach utilizes the ten most recent eligible days (non-holiday, non-event weekdays) before the event. The average load for each 15-minute interval is calculated by averaging the five-minute kilowatt load intervals recorded by the data loggers for each M&V sample member. An average (per active device) load is calculated for the M&V sample for that interval. For a given 15-minute period, the average device load is averaged across the ten days to represent the unadjusted baseline load for that period.

13.3.1.2 MISO Calculation #2—Symmetrical Multiplicative-Adjusted Baseline

MISO's symmetrical multiplicative-adjusted baseline corrects the unadjusted baseline load schedule to represent actual event-day loads. Adjustment is conducted to generate a more accurate counterfactual baseline load to represent what would have occurred on an event day without a DLC event. The adjustment factor uses pre-event loads during baseline and event days to inform the degree of adjustment required. If pre-event loads on event days exceed baseline loads, baseline loads will be scaled upwards. If pre-event loads on event days are less than baseline loads, baseline loads will be scaled downwards. The multiplicative adjustment procedure is as follows:

1. Extract three hours of pre-event loads beginning four hours prior to the event start from both the unadjusted baseline load and the event-day load. For example, for an event starting at 14:00, extract unadjusted baseline and event-day loads for three hours spanning 10:00 to 13:00.
2. Calculate the *symmetrical multiplicative adjustment factor* by taking the ratio of (1) the sum of the three hours of event-day loads and (2) the sum of three hours of unadjusted baseline loads. This adjustment factor may not adjust the baseline by more than 20 percent in either direction. If the multiplicative adjustment exceeds 1.2, then assume the multiplicative adjustment is 1.2. If the multiplicative adjustment is less than 0.8, assume the multiplicative adjustment is 0.8.
3. Calculate the *symmetrical multiplicative-adjusted baseline* by multiplying the unadjusted baseline load by the *symmetrical multiplicative adjustment factor*.

13.3.1.3 MISO Calculation #3—Weather-Adjusted Baseline

MISO's weather-adjusted approach to baseline calculations incorporates an unadjusted baseline with a factor describing how temperature affects non-event loads. Adjustment is conducted to generate a more accurate counterfactual baseline load to represent what would have occurred on an event day without a direct load control event. Instead of using pre-event loads to determine the adjustment to baseline loads, the sensitivity of loads to temperature changes is used to predict what loads would have been in the absence of an event. The procedure is as follows:

1. Determine the change in loads relative to a change in temperature (the temperature adjustment, expressed in kilowatt per degree Fahrenheit) using data from eligible non-event, non-holiday weekdays.

2. Determine the average temperature during baseline days' hours corresponding to each hour of an event. These baseline days are the same ten prior non-event, non-holiday weekdays used to calculate the unadjusted baseline load.
3. Calculate the difference in temperature between (1) the average of the baseline days' hours corresponding to the event hours and (2) the actual temperatures recorded during the event's hours.
4. Calculate the weather adjustment factor by multiplying the temperature difference by the temperature adjustment.
5. Calculate the weather-adjusted baseline by adding the weather adjustment factor to the unadjusted baseline load.

13.3.1.4 Baseline Calculation

A baseline calculation uses the five eligible days prior to the event and the four days with the highest energy usage across the entire day. Eligible days include non-holiday weekdays without events. Next, the average load for each 15-minute interval is calculated by averaging the five-minute kilowatt load intervals recorded by the data loggers for each M&V sample member. An average (per active device) load is calculated for the M&V sample for each 15-minute period. For a given 15-minute period, the average device load is averaged across the four days to represent the unadjusted baseline load for those 15 minutes.

A baseline adjustment factor is calculated by comparing the loads on the hour before the event starting for baseline days and event days (the pre-event load). For example, in an event beginning at 14:00, kilowatt loads are drawn for the hour spanning 13:00 to 14:00 for baseline and event days. For this hour before the event, the sum of the 15-minute pre-event load on the event day is divided by the sum of the 15-minute pre-event unadjusted baseline load to arrive at the adjustment factor.

The final baseline kilowatt for a 15-minute period is the unadjusted baseline multiplied by the adjustment factor. For baseline days with loads lower than the event day loads for the hour before the event starts, the result is a multiplier greater than 1.0. If baseline days' pre-event loads are more significant than event day pre-event loads, the result is a multiplier less than 1.0.

13.3.1.5 Savings Calculation

Savings for a given 15-minute period are calculated by subtracting the event-day per-device load from the adjusted baseline per-device load. The resulting per-device savings are multiplied by the number of devices active in the program. For contract purposes, the number of devices used to calculate savings is the device count at the end of the PY2022 load control season (15,685 active devices in PY2022). Using the ending device count is a conservative approach since some participant attrition does occur during the control season.

13.3.1.6 Kilowatt-Hour Savings Method

The EM&V team developed estimates of kilowatt-hour impacts produced by the Residential DLC program; however, results had a high level of instability dependent primarily on baseline definitions. Due to this, the EM&V team recommends estimating energy savings at zero kilowatt-hours in PY2022. For the Summer Advantage program, kilowatt-hour savings occur when cycling HVAC compressors lower demand. However, after the event, kilowatt-hour consumption can be higher than expected as HVAC systems are released from control and work to address cooling loads unmet during the event hours. This post-event increase in consumption is termed *snapback*, with the snapback consumption subtracted from the in-event kilowatt-hour savings.

The team developed a baseline model to estimate kilowatt-hour savings of loads that would have occurred absent the event being called. Energy impacts are then calculated using the actual metered consumption of the M&V sample. Average hourly per-device kilowatt demand was estimated from 15-minute average per-device kilowatt demand schedules used in kilowatt demand savings calculations. This approach generated one hourly load schedule for the entire period spanning June 1, 2022, through September 30, 2022. Data used in the model included only kilowatt demand recorded during event days and eligible non-holiday, non-event weekdays.

The EM&V team developed two models to determine baseline load that would have occurred without an event. The sections below describe the methods used to generate these baseline loads.

Baseline Calculation #1

The EM&V team's first baseline calculation method developed a baseline estimate using a load forecast model; the model was derived from a regression analysis of the M&V sample loads. Each day's hours receive its own regression model, and its kilowatt-hour impacts are analyzed.

Calculated Baseline

For each hour, the following model is estimated using the following equation:

$$kW_t = \alpha_t + \beta Event_t + \gamma temp_t + \lambda temp_t^2 + \omega hum_t + e_t$$

Where:

- kW_t = average per-device kilowatt load for a given hour
- α_t = hour-specific intercept to capture baseload for hour t
- $Event_t$ = indicator for whether an hour period occurred on an event day
- $temp_t$ = hourly temperature in Fahrenheit for the hour period
- $temp_t^2$ = squared value of $temp_t$ to model nonlinear impact on kilowatt load
- hum_t = relative humidity for the hour period

Kilowatt-Hour Savings Calculation

Energy impacts are calculated by fitting each event day's consumption for the baseline condition. The baseline for a given event day is then constructed by generating a fitted estimate of kilowatt load using the above model's parameter estimates. The load predicted by the above model uses the exact temperature and humidity that were observed during a specific event day but absent the $\beta Event_t$ effect. For example, the June 1 event that occurred between 14:00 and 15:00 has a baseline kilowatt load for hour-ending 15:00 equal to:

$$\widehat{kW}_{14} = \hat{\alpha}_{14} + \hat{\gamma}temp_{14} + \hat{\lambda}temp_{14}^2 + \hat{\omega}hum_{14}$$

Once the baseline condition has been calculated, savings are computed by subtracting the average per-device load recorded by the M&V loggers during a specific one-hour event period. Energy savings are determined by the value of this difference, as kilowatt load was the average over one hour. Changes in kilowatt-hour consumption are computed during event and post-event hours for each event day. The results are summed within each event day to determine the total change in event-day consumption to capture in-event savings and any snapback that may have occurred.

Baseline Calculation #2

The EM&V team's second baseline calculation method developed a baseline estimate using another load forecast model; the model was derived from a regression analysis of the M&V sample loads. Instead of running individual regressions for each hour of the day, one all-in model is estimated to generate an estimate of the load. Each hour of the day receives a dummy variable to capture how kilowatt load moves throughout the day.

One concern associated with the model used under *Baseline Calculation #1* above is modeling event-day hour differences in kilowatt load. Modeled in the baseline calculation method, *Baseline Calculation #1* is the average impact of *any* event-day hour on kilowatt load. However, one specific event day's hours may impart larger or smaller impacts on kilowatt load than another event day's hours. Failure to control for this variation in event-day hour impacts can affect the precision of the modeled baseline; therefore, the EM&V team incorporates event-day specific-hour intercepts to better control the impact of a specific event-day on kilowatt load.

Another concern of the EM&V team is the potential for the demand of prior hours to impact current kilowatt demand. That is, during a particularly hot morning, the cooling-based load is expected to be higher than it would on an average morning. Further, cooling-based loads could remain higher than average during future hours of the same day as HVAC systems work to maintain a comfortable indoor temperature. With this concern in mind, the EM&V team conducted a *Breusch-Godfrey test* for autocorrelation (correlation of current load with past iterations of itself). The EM&V team identified the existence of autocorrelation, reaching as far back as six hours. To model baseline kilowatt demand more accurately, the EM&V team incorporated six additional controls for the pre-existing load before hour t .

Calculated Baseline

For the entire load control season, one all-in model is estimated using the following equation:

$$kW_t = \gamma temp_t + \lambda temp_t^2 + \omega hum_t + \sum_{hour=0}^{23} \alpha_{hour} + \sum_{Event\ j=1}^6 \left(\sum_{hour=0}^{23} \beta_{hour} * Event_{j,t} \right) + \sum_{k=1}^6 \sigma_k kW_{t-k} + e_t$$

Where:

- kW_t = average per-device kilowatt load for a given hour
- $temp_t$ = hourly temperature in Fahrenheit for the hour period
- $temp_t^2$ = squared value of $temp_t$ to model nonlinear impact on kilowatt load
- hum_t = relative humidity for the hour period
- α_{hour} = hour-of-day indicator
- $\beta_{hour} * Event_{j,t}$ = hour-of-day indicator for event day j during hour t
- kW_{t-k} = kilowatt load recorded k hours prior to the current time t .

Kilowatt-Hour Savings Calculation

The baseline for a given event-day is then constructed by generating a fitted estimate of kilowatt load using the parameter estimates of the above model. The load predicted by the above model uses the exact temperature and humidity that were observed during a specific event day, but absent the $\beta_{hour} * Event_t$ effect. However, loads observed for the six prior hours now enter the expected kilowatt load calculation for the current hour. For example, the June 1 event that occurred between 14:00 and 15:00 has a baseline kilowatt load for hour ending 15:00 equal to:

$$\widehat{kW}_{14} = \hat{\alpha}_{14} + \hat{\gamma} temp_{14} + \hat{\lambda} temp_{14}^2 + \hat{\omega} hum_{14} + \hat{\sigma}_{13} \widehat{kW}_{13} + \dots + \hat{\sigma}_8 \widehat{kW}_8$$

Once the baseline condition has been calculated, savings are computed by subtracting the average per-device load recorded by the M&V loggers during each one-hour period. The change in kilowatt-hour consumption is determined by the value of this difference, as kilowatt load was the average over one hour. Changes in kilowatt-hour consumption are computed during event and post-event hours for each event day to capture in-event savings and any snapback that may have occurred.

13.4 DETAILED IMPACT EVALUATION RESULTS

13.4.1 MISO Calculation Evaluated Savings

The EM&V team evaluated Itron's MISO savings calculations by reviewing the M&V sample load data, confirming the methodology and results, repeating the calculation steps, and making adjustments. To conduct the evaluation, the EM&V team received the following from Itron:

- M&V sample five-minute load data, spanning June 1 through September 30, 2022;
- a savings report Itron provides to EAL describing Itron's methodology for sampling and savings calculations, along with a description of the sample, descriptions of each event, and other pertinent PY2022 program details; and
- discussions to clarify data definitions, calculation methodology steps, and information interpretations in their report.

The EM&V team and Itron's per-device savings calculations were nearly identical, as were the overall evaluated savings. Itron reported a savings of 15.84 MW was calculated using the weather-adjusted savings from the event on June 16 from 14:00 to 15:00 of 1.01 kW per device multiplied by the 15,685 active endpoint devices. The EM&V team calculated a savings value of 0.98 kW per meter during the same event. Using this per-device savings value multiplied by the same 15,685 active endpoint devices, the EM&V team calculated an evaluated savings of 15.37 MW.

MISO Calculation #1—Unadjusted Baseline

All MISO Calculation methods require the selection of baseline days. The *MISO Business Practices Manual (BPM) method* stipulates that the ten prior non-event event eligible days are selected to represent the baseline. The average load during those baseline days is calculated for a given event hour, representing an unadjusted baseline. Table 188 below highlights the unadjusted baseline calculations undertaken by Itron and the EM&V team.

Table 188. Residential Direct Load Control Program—MISO Calculation #1—MISO Unadjusted Baseline Calculations

Date	Start time (CDT)	End time (CDT)	Itron baseline	EM&V team baseline
06/01/2022	13:00	14:00	0.41	0.42
06/16/2022	14:00	15:00	0.78	0.79
06/16/2022	15:00	16:00	0.86	0.88

MISO Calculation #2—Symmetrical Multiplicative-Adjusted Baseline

MISO's *symmetrical multiplicative-adjusted baseline* corrects the unadjusted baseline load schedule calculated above to be more representative of actual event-day loads. Adjustment is conducted to generate a more accurate counterfactual baseline load to represent what would have occurred on an event day without a direct load control event. The adjustment factor uses pre-event loads during baseline and event days to inform the degree of adjustment required. If pre-event loads on event days exceed baseline loads, baseline loads will be scaled upwards. If pre-event loads on event days are less than baseline loads, baseline loads will be scaled downwards. The multiplicative adjustment procedure is as follows:

1. Extract three hours of pre-event loads beginning four hours prior to the event start from both the unadjusted baseline load and the event-day load.
2. Calculate the *symmetrical multiplicative adjustment factor* by taking the ratio of (1) the sum of the three hours of event-day loads and (2) the sum of three hours of unadjusted baseline loads.
3. Calculate the *symmetrical multiplicative-adjusted baseline* by multiplying the unadjusted baseline load by the *symmetrical multiplicative adjustment factor*.

The MISO BPM requires that the *symmetrical multiplicative adjustment* not lead to an adjustment greater than 20 percent of the unadjusted baseline load. Calculated *symmetrical multiplicative adjustment factors* exceeded 1.20 for all event days; therefore, all event days are assigned a *symmetrical multiplicative adjustment* of 1.20. The EM&V team's assignment of these 20 percent adjustment caps matches Itron's.

Savings Calculation

The savings calculation for each event hour is as follows:

$$\text{kW Savings} = \text{Symmetrical Multiplicative Adjusted Baseline kW} - \text{Metered Load}$$

Across all the event hours during PY2022, the highest single hour is selected to represent the program savings. Under the *symmetrical multiplicative adjustment method*, both Itron and the EM&V team determined this hour to be on June 16 from 14:00 to 15:00. For this hour, the realization rate is 104.5 percent. Table 189 summarizes each hour's load reduction, with Table 190 summarizing the corresponding event-hour total kilowatt savings and realization rates.

Table 189. Residential Direct Load Control Program—MISO Calculation #2—MISO Adjusted Baseline and Per-Device Savings Comparisons

Date	Start time (CDT)	End time (CDT)	Itron adjusted baseline	EM&V team adjusted baseline	Itron SMA adjusted reduction (per device kW)	EM&V team SMA adjusted reduction (per device kW)
06/01/2022	13:00	14:00	0.49	0.50	0.04	0.04
06/16/2022	14:00	15:00	0.93	0.95	0.22	0.23
06/16/2022	15:00	16:00	1.03	1.05	0.11	0.13

Table 190. Residential Direct Load Control Program—MISO Calculation #2 Results

Date	Start time (CDT)	End time (CDT)	Number of participating devices	Itron per device kW savings	EM&V team per device kW savings	Itron event-hour savings	EM&V team event-hour savings	Realization rate (%)
06/01/2022	13:00	14:00	16,353	0.04	0.04	654	654	100.0
06/16/2022	14:00	15:00	16,353	0.22	0.23	3,598	3,761	104.5
06/16/2022	15:00	16:00	16,353	0.11	0.13	1,799	2,126	118.2

MISO Calculation #3—Weather-Adjusted Baseline

Itron calculated a temperature adjustment by developing a regression equation that explained air temperatures' influence⁸⁸ on the resulting M&V sample loads. As detailed in Itron's Evaluation Report, five-minute load data were aggregated to create a single per-device load covering the hours of 12:00 to 20:00 from June 1 through September 30, 2022. Event days were excluded from the temperature adjustment analysis, as were holidays and weekends. Itron's regression model used the entirety of the date range, absent the excluded days. The result is a dataset of the average load for each hour.

Itron then conducted a regression analysis using the following equation:

$$kW_t = \alpha + \beta \text{Temperature}_t + \gamma HE_t + \lambda HE_t^2 + e_t$$

This equation posits that load during a given hour (t) can be primarily explained by (1) the hour of the day (represented by HE_t) and (2) a given hour's dry-bulb air temperature. Itron's resulting regression output showed a temperature coefficient of 0.068 kW per degree Fahrenheit. The statistical results showed that the model explained 87.75 percent of the variability in load.

The EM&V team replicated the analysis utilizing the same equation structure as Itron and limited the date range to the control season (June 1 through September 30, 2022), excluding holidays, weekends, and event days. Consistent with Itron, the EM&V team also limited the hours of the selected days to fall between 12:00 and 20:00. The EM&V team's regression equation results for temperature ($\hat{\beta}$) of 0.068 kW per degree Fahrenheit is identical to Itron's coefficient. Additionally, the EM&V team found a comparable percentage of variability (80.8 percent) in load.

The EM&V team and Itron have nearly identical calculation results for the weather-adjusted baseline method. For the event hour with the highest performance—June 16, 2022, from 14:00 to 15:00—Itron calculated a savings of 1.01 kW per device, while the EM&V team calculated a savings of 0.98 kW per device.

Weather-Adjusted Baseline

All MISO Calculation methods require the selection of baseline days. The MISO BPM method stipulates that the ten-prior non-event, event-eligible days are selected to represent the baseline. The average load during those baseline days is calculated for a given event hour, representing an unadjusted baseline. Next, the average temperature for that same hour on the baseline days is calculated. The temperature of the event day's hour is then subtracted from the average baseline days' temperature for that hour to determine the temperature differential between the baseline days' and event day's temperature. The temperature coefficient is multiplied by the temperature difference to calculate an additive kilowatt adjustment to the unadjusted baseline kilowatt.

⁸⁸ Temperature data provided by NOAA for Little Rock, AR, weather station KLIT; 2-meter dry bulb temperature. See: www.ncdc.noaa.gov.

The baseline condition is based on the average hourly load per device for EAL's MISO calculation. This baseline is calculated using the M&V sample's metered results, averaging each sampled participant's five-minute metered data into hourly increments. The resulting equation for the weather-adjusted baseline for a given event hour is as follows:

$$\text{Baseline kW} = \text{Unadjusted Baseline Load} + \text{Temperature Coefficient} * (\text{Baseline Temperature} - \text{Event Hour Temperature})$$

The EM&V team's calculation of the baseline loads and temperature records is identical to those presented in Itron's MISO Calculation, shown in Table 191. Minor differences of 0.03 kW per device or less are attributable to rounding temperature values and are not consequential.

Table 191. Residential Direct Load Control Program—MISO Calculation #3—MISO Temperature and Per-Device Savings Comparisons

Date	Start time (CDT)	End time (CDT)	Itron baseline temperature	EM&V team baseline temperature	Itron weather-adjusted reduction (per-device kW)	EM&V team weather-adjusted reduction (per-device kW)
06/01/2022	13:00	14:00	82.3	81.0	0.55	0.57
06/16/2022	14:00	15:00	81.0	82.6	1.01	0.98
06/16/2022	15:00	16:00	81.7	82.2	0.91	0.88

Savings Calculation

The savings calculation for each event hour is as follows:

$$\text{kW Savings} = \text{Weather Adjusted Baseline kW} - \text{Metered Load}$$

Across all the event hours during PY2022, the highest single hour is selected to represent the program savings. Itron and the EM&V team determined the highest performing hour to be June 16 from 14:00 to 15:00. The realization rate is 97.0 percent for this hour, with a kilowatt savings of 0.98 per device. Table 192 summarizes each hour's load reduction, with Table 193 summarizing the corresponding event-hour realization rates, ranging from 96.7 percent to 103.6 percent across events.

Table 192. MISO Calculation #3 Results

Date	Start time (CDT)	End time (CDT)	Number of participating devices	Itron per device kW savings	EM&V team per device kW savings	Itron event-hour savings	EM&V team event-hour savings
06/01/2022	13:00	14:00	16,353	0.55	0.57	8,994	9,321
06/16/2022	14:00	15:00	16,353	1.01	0.98	16,517	16,026
06/16/2022	15:00	16:00	16,353	0.91	0.88	14,881	14,391

Table 193. MISO Calculation #3 Realization Rates

Date	Start time (CDT)	End time (CDT)	Itron event-hour savings (kW)	EM&V team event-hour savings (kW)	Realization rate (%)
06/01/2022	13:00	14:00	8,994	9,321	103.6%
06/16/2022	14:00	15:00	16,517	16,026	97.0%
06/16/2022	15:00	16:00	14,881	14,391	96.7%

13.4.2 Evaluated Kilowatt-Hour Savings Results

The following discussion highlights the kilowatt-hour impacts calculated across the events using two regression models to construct baseline kilowatt loads. Only event and post-event hours with statistically significant ($p < 0.05$) coefficients are used for calculating kilowatt-hour impacts and savings. Otherwise, differences between the baseline and actual event-day load observed are assumed to be zero.

Baseline Calculation #1

Calculation of the baseline under the *Baseline Calculation #1* approach utilizes an average impact of the average event hour during the load control season spanning June 1 through September 30, 2022. It is important to note that the effect described for any event is not specific to that event's actual performance; instead, the regression model's effect is to identify average savings associated with all times that events were being called during the 2022 load-control season.

Under *Baseline Calculation #1*, loads during event hours were not significantly different ($p < 0.05$) from the baseline. Post-event snapback was substantially different from the baseline only for the hour ending at 15:00. On average, hourly regressions explained 85.3 percent of the variation in load.⁸⁹ Table 194 illustrates that each participant had negative savings of 2.69 kWh across all event days after accounting for both in-event savings and post-event snapback. Table 195 illustrates that all PY2022 events' net effect shows a kilowatt-hour consumption increase of 43.99 MWh.

Table 194. Residential Direct Load Control Program—Baseline Calculation #1—PY2022 Per-Device Load-Control Savings

Date	Modeled in-event per-device kWh savings	Modeled post-event per-device snapback kWh	Net program per-device kWh savings
06/01/2022	0.58	-3.68	-3.1
06/16/2022	1.68	-1.27	0.41
Total	2.26	-4.95	-2.69

⁸⁹ R-squared should not be used to directly compare the fitness of *Baseline Calculation #1* to that of *Baseline Calculation #2*. R-squared values will always be higher for models with more covariates.

**Table 195. Residential Direct Load Control Program—Baseline Calculation #1—PY2022
Total Load-Control Savings**

Date	LCRs participating	Modeled in-event kWh savings	Modeled post-event snapback kWh	Net program kWh savings
06/01/2022	16,353	9,485	-60,179	-50,694
06/16/2022	16,353	27,473	-20,768	6,705
Total		36,958	-80,947	-43,990

Note negative event savings (or consumption increases) associated with all events. As illustrated in Figure 26, post-event snapback associated with these events was higher than in-event savings. The EM&V team attributes this to average event-hour effects modeled in the regression used to model the baseline load. Under this approach, the effect of individual event-day hours may not be sufficiently controlled, thus affecting the accuracy of the modeled baseline. Further, average event-day hour effects may indicate significant in-event or post-event hour differences in kilowatt load that does not hold within some specific event days, a finding highlighted in the discussion of *Baseline Calculation #2* below. Regression modeling within *Baseline Calculation #2* remedies this problem by modeling baseline load while controlling individual event-day hour effects on load. The EM&V team further illustrates improvements in baseline load calculations using this approach below.

Figure 26. Residential Direct Load Control Program—Calculated Baseline #1—June 1 Test Direct Load Control Event

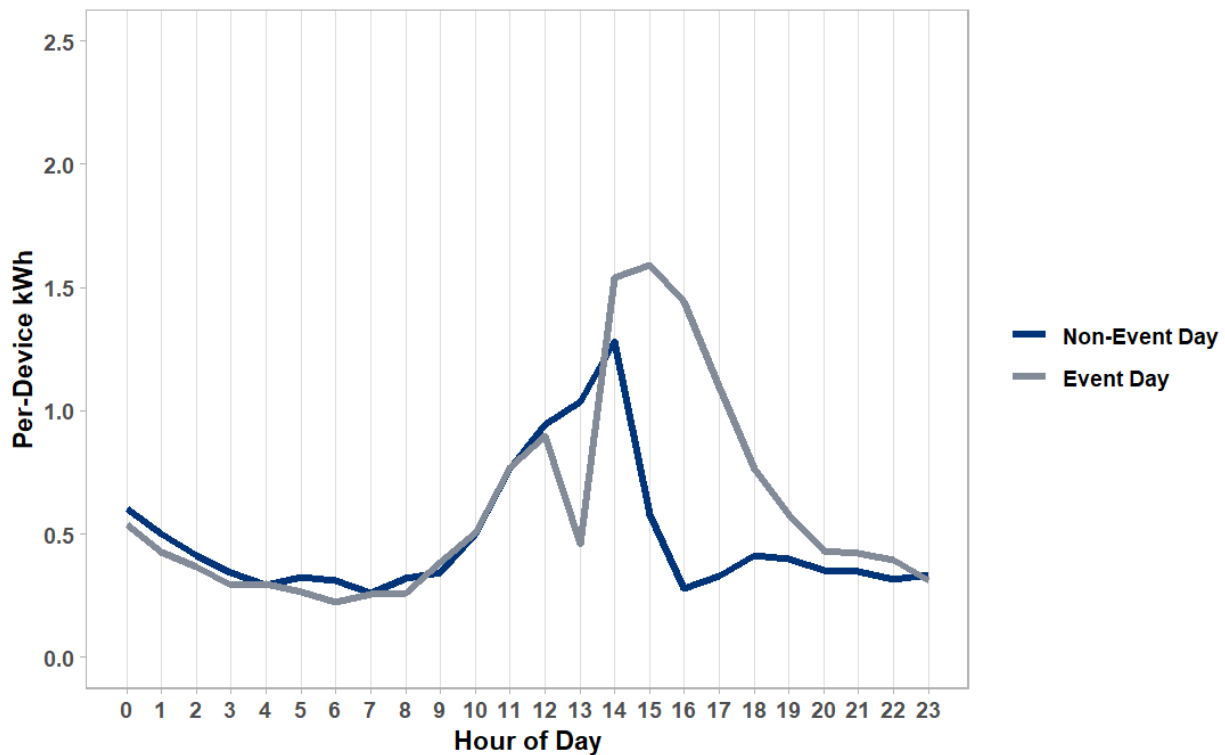
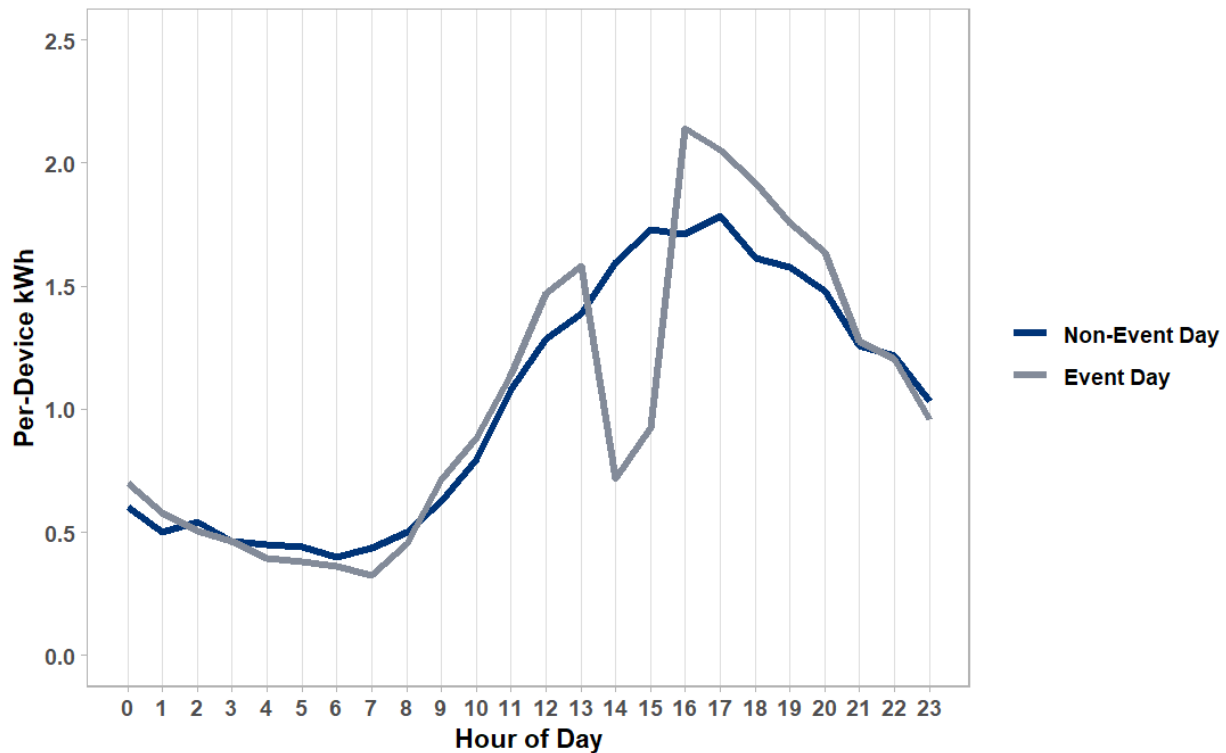


Figure 27. Residential Direct Load Control Program—Calculated Baseline #1—June 16 Direct Load Control Event



Baseline Calculation #2

Calculation of the *Baseline Calculation #2* utilizes event-day specific hour-of-day intercepts to better control each event-day hour during load control season spanning June 1 through September 30, 2022. Further, after the EM&V team identified the risk of autocorrelation (current kilowatt load being correlated with past iterations of itself), the *Baseline Calculation #2* approach incorporated six hours of prior kilowatt load to inform modeling of current baseline kilowatt load.

Under *Baseline Calculation #2*, on average, both in-event hours yielded kilowatt load significantly different ($p < 0.05$) from the baseline. Post-event snapback was substantially different from the baseline for up to three hours following an event, depending on the event day. The model under the *Baseline Calculation #2* approach explained 99.65 percent of the variation in load.⁹⁰ Table 196 illustrates that each participant saved a total of 0.8. kWh across all event days after accounting for in-event savings and post-event snapback. Table 197 illustrates that the net effect of all PY2022 events shows a kilowatt-hour consumption decrease (savings) of 13.57 MWh.

⁹⁰ R-squared should not be used to directly compare the fitness of *Baseline Calculation #1* to that of *Baseline Calculation #2*. R-squared values will always be higher for models with more covariates.

Table 196. Residential Direct Load Control Program—Baseline Calculation #2—PY2022 Per-Device Load-Control Savings

Date	Modeled in-event per-device kWh savings	Modeled post-event per-device snapback kWh	Net program per-device kWh savings
06/01/2022	0.60	-0.36	0.24
06/16/2022	0.87	-0.28	0.59
Total	1.47	-0.64	0.83

Table 197. Residential Direct Load Control Program—Baseline Calculation #2—PY2022 Load-Control Events

Date	LCRs participating	Modeled in-event kWh savings	Modeled post-event snapback kWh	Net program kWh savings
06/01/2022	16,353	9,812	-5,887	3,925
06/16/2022	16,353	14,227	-4,579	9,648
Total		24,039	-10,466	13,573

Note that negative event savings (or consumption increases) associated with the first calculation events have fallen away. As shown in Table 197, post-event snapback associated with these events has significantly diminished. The EM&V team attributes this to modeling specific event-day hour loads in the regression. Depending on the event, modeling specific event-day-hour effects revealed that snapback was statistically significant during hours-ending 14:00 through 16:00. This result contrasts with solely hour-ending 15:00 being significant under *Baseline Calculation #1*.

As highlighted in Figure 28, baseline loads modeled under *Baseline Calculation #2* appear to follow actual pre-event and post-event consumption more closely than under *Baseline Calculation #1*. The EM&V team believes this can be attributed to a combination of controls for individual event-day hours and the incorporation of controls for autocorrelation. First, specific event-day hour controls can better identify non-event day hourly loads by excluding these event-day hours from representing the modeled baseline. One event day's hour may impart larger or smaller impacts on kilowatt load than another event day's hours. Failure to control for this variation in event-day hour impacts can affect the precision of the modeled baseline.

On the other hand, autocorrelation imparts a smoothing effect on the baseline. Smoothing is observed during post-event hours for the baseline on both events compared to the first calculation baseline.

Figure 28. Residential Direct Load Control Program—Calculated Baseline #2—June 1 Test Direct Load Control Event

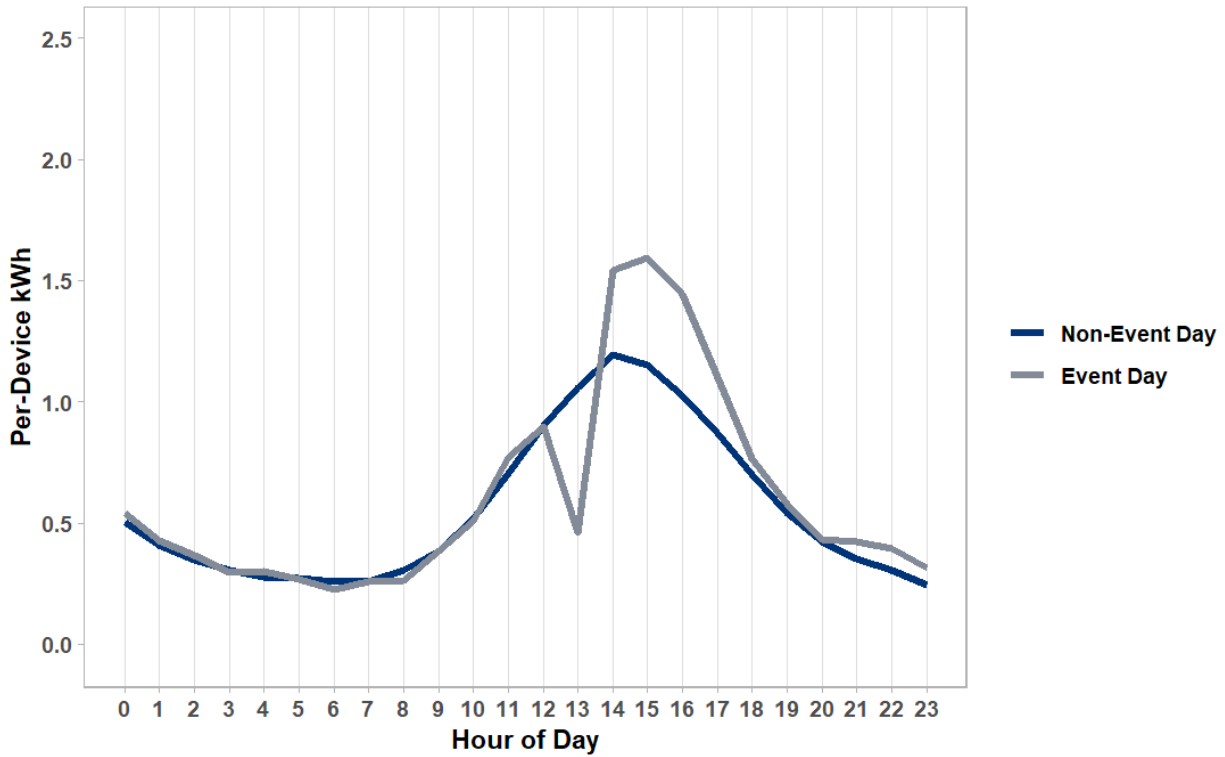
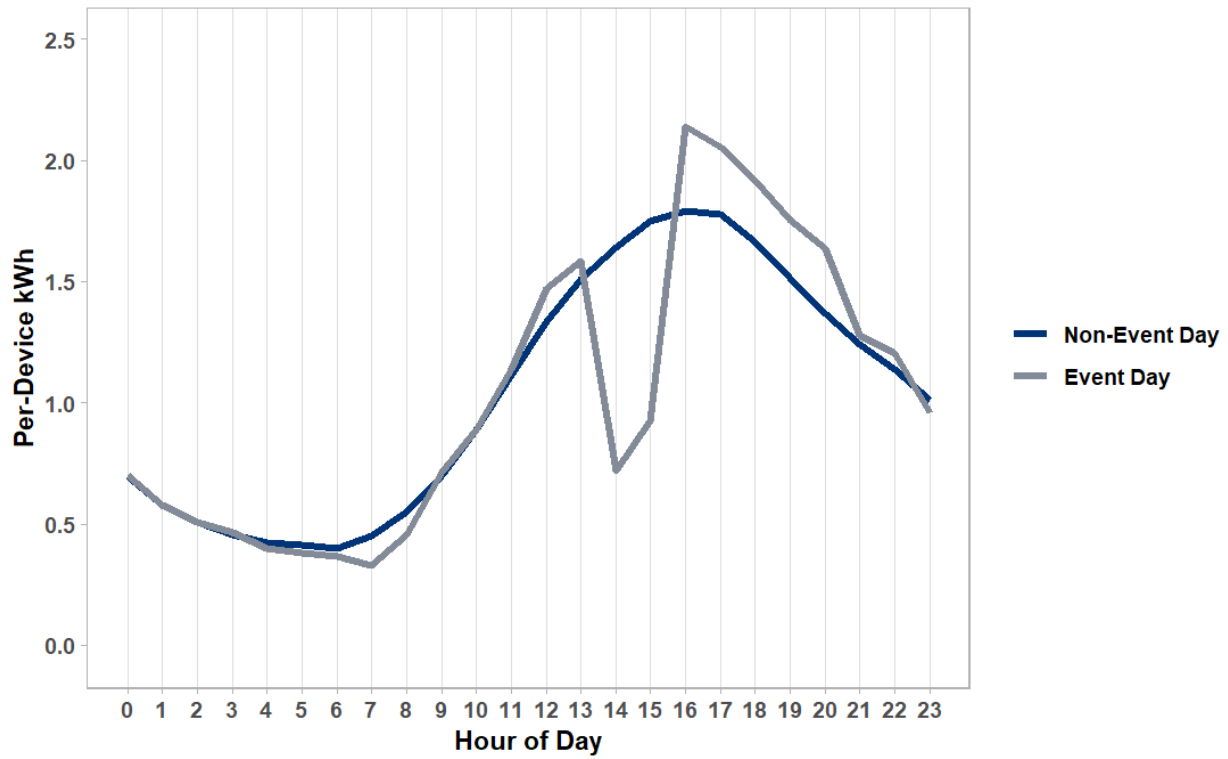


Figure 29. Residential Direct Load Control Program—Calculated Baseline #2—June 16 Direct Load Control Event



14.0 SMART DIRECT LOAD CONTROL PILOT

The Smart Direct Load Control (SDLC) pilot program is a demand response pilot focusing on controlling load through smart thermostats in residential and small nonresidential buildings. The pilot is in its second year of existence and is implemented by ICF Consulting (ICF), which (1) provides marketing services and a call center, and (2) conducts program tracking.

The SDLC pilot program aims to reduce peak kilowatt loads during load control events in the summer months (June 1 through September 30). Participants in the program have a smart thermostat and allow Entergy Arkansas, LLC (EAL) to reduce the time an individual air conditioner operates remotely.

Incentives for participation are divided into two payment streams: one for annual enrollment and one based on participation in load-control events. Customers with an existing, qualifying thermostat receive an enrollment incentive of up to \$50 (residential) or \$100 (nonresidential). In comparison, customers without an existing smart thermostat receive a smart thermostat in addition to an annual enrollment incentive of up to \$40 (residential) or up to \$100 (nonresidential).

Upon completion of the load-control season, customers receive rebates based on their participation. If a customer participates in all load-control events (i.e., does not opt out of any events) or opts out of a single event, the customer receives \$40 (residential) or \$100 (nonresidential). Customers who opt out of two or three events receive \$25 (residential) or \$50 (nonresidential), and customers that opt out of more than three events receive no annual participation rebate.

In program year (PY) 2022 (PY2022), the SDLC pilot called four events on four days, spanning June through August of 2022. The first event, which occurred on June 1, 2022, was a test event used to verify equipment operability; the remaining events were used to reduce load across EAL's territory.

In support of the impact evaluation, the evaluation, measurement, and verification (EM&V) team calculated energy savings achieved by installing new thermostats and demand savings from load-control events during the 2022 load-control season. The EM&V team deployed three different methods for estimating load reductions, all summarized in the Midcontinent Independent System Operator's (MISO) *Business Practice Manual for Demand Response*⁹¹ (MISO's Business Practice Manual, or MISO BPM). Process evaluation activities included biweekly meetings with implementation and EAL staff for the duration of PY2022. Table 198 details the evaluation activities conducted for the program in PY2022.

⁹¹ Midcontinent Independent System Operator Demand Response Business Practices Manual. BPM-026-r7. Effective December 7, 2021.

Table 198. Smart Direct Load Control Pilot—Data Collection and Program Inputs

Net-to-gross (NTG) approach	Process evaluation activities	Gross impact evaluation completes			
		Tracking system review	Desk reviews	On-site M&V	Metered data analysis ⁹²
Deemed from prior research	Program staff interviews (2) Materials review	Census	None	None	Census

14.1 KEY FINDINGS

In PY2022, the SDLC pilot achieved 3,296 MWh in gross energy savings and 3.9 MW in gross demand savings, as shown in Table 199. The EM&V team found that energy savings using deemed values in the TRM 9.0 were applied correctly to residential applications. No energy savings were claimed for smart thermostats that received rebates during previous program years. Energy savings among small business participants were accurately calculated, resulting in a realization rate of 99.6 percent for energy savings. Duplicate thermostat records created a slight difference between reported and evaluated energy savings. The program met 58 percent of the energy savings goal, as detailed in Table 200.

Table 199. Smart Direct Load Control Pilot Savings—Reported, Evaluated, and Net Savings

Energy/demand savings	Reported savings	Evaluated savings	Realization rate	NTG ratio*	Net savings	Program contribution to portfolio savings
Energy savings (MWh)	3,308	3,296	99.6%	87.5%	2,884	1.0%
Demand savings (MW)	3.9	3.9	100.0%	100.0%	3.9	4.1%

*The PY2022 NTG ratio uses a weighted average of residential (Home Energy Solutions) and commercial (CoolSaver) *smart thermostats* for energy savings.

Table 200. Smart Direct Load Control Pilot—Goals vs. Achieved

Savings	Goal	Actual	Percentage achieved
Energy savings (MWh)	4,973	2,884	58.0%
Demand savings (MW)	27.5	3.9	14.1%

⁹² This column refers to EAL customer runtime data provided to the EM&V team as opposed to primary metered data collected as part of the on-site M&V.

14.2 RECOMMENDATIONS

The EM&V team identified two recommendations for EAL's consideration through the evaluation process, presented in Table 201.

Table 201. Smart Direct Load Control Pilot—PY2022 Recommendations

Type	Recommendation	Key finding
PY2022 impact recommendations	Recommendation 1: Model the effect of weather on demand using a lagged time variable.	Demand is highly dependent upon the external air temperature, but this dependence is delayed by several hours, as seen in Figures 1, 2, and 3.

Table 202 Smart Direct Load Control Pilot—Status of Prior Year Recommendations

Status of prior year recommendations	
PY2020 impact recommendations	<ul style="list-style-type: none"> • Install sufficient M&V devices to estimate demand savings in future years accurately. <ul style="list-style-type: none"> ○ Review and rejected as potentially unneeded. If air conditioner runtime is collected from the program population, an M&V sample is unnecessary. • Update energy savings methodology for <i>commercial thermostats</i>. <ul style="list-style-type: none"> ○ Continuing. Both the implementor and EM&V team monitor this as more <i>commercial thermostats</i> join the program to provide sufficient data.
PY2020 process recommendations	<ul style="list-style-type: none"> • Consider an annual <i>thank you</i> that includes information about the customer's financial benefit for participating and the benefit to the overall system, reported by program staff as already in progress. <ul style="list-style-type: none"> ○ Complete.
PY2021 impact recommendations	<ul style="list-style-type: none"> • Estimate demand savings after each event during the season. <ul style="list-style-type: none"> ○ Complete.
PY2021 process recommendations	<ul style="list-style-type: none"> • Consider tracking opt-outs by event. <ul style="list-style-type: none"> ○ Complete.

14.3 METHODOLOGY

The evaluated savings results are based on savings calculations made during the tracking system review, using deemed savings values in TRM 9.0 and characteristics of each participant's heating system, square footage, and previous thermostat. *Commercial thermostats* applied a deemed savings value per ton of cooling capacity, an average value based on past evaluations of *commercial smart thermostats*.

Estimates of demand savings used air conditioner runtime data from participating thermostats during the control season and deployed three evaluation methods defined in MISO's BPM.

14.3.1 Tracking System Review

The EM&V team reviewed all program-reported tracking data to assess the extent to which it provided the algorithms and ex-ante values necessary for each measure. The tracking system data review referenced TRM 9.0 for savings assumptions; the EM&V team checked the tracking systems' linkage to TRM deemed savings and methods used to estimate savings.

Our review accomplished three primary objectives: (1) identify initial high-level tracking system concerns, (2) verify whether the savings estimates in the tracking system are consistent with the savings algorithms' results as outlined in TRM 9.0, and (3) assess the tracking system's ability to support quality assurance and quality control (QA/QC) activities, including future evaluation needs.

Participants in the SDLC pilot program come from several distinct streams. The most direct participation route is through the SDLC pilot program web portal. Participants can choose between self-installation or direct installation of their thermostat by a trade ally. Customers with an existing smart thermostat that was *not* rebated or provided through an EAL energy efficiency program can enroll the thermostat to participate in demand response events through the SDLC pilot program portal as well. Additional participants come from other residential energy efficiency programs provided by EAL and participants in programs that no longer exist in EAL's portfolio. It is important to note that energy savings are only claimed for new participants that receive a rebated smart thermostat (i.e., only new SDLC pilot program participants that did not have a smart thermostat before enrollment). Regardless of installation or registration method, all thermostats can claim demand savings.

14.3.2 Impact Evaluation

The EM&V team used different methods to estimate energy savings for residential and commercial participants, ensuring that thermostats rebated during prior program years or through other EAL Solutions programs were not attributed to PY2022 SDLC pilot program energy savings.

14.3.2.1 Residential Participants

The EM&V team used Section 2.1.12 of TRM 9.0 to calculate savings for *smart thermostats* installed for residential customers. Table 203⁹³ provides the kilowatt-hour savings per square foot of conditioned space for *smart thermostats* installed residentially.

Table 203. Smart Thermostats—Deemed Savings Value per Square Foot of Conditioned Space

Baseline	Electric cooling (kWh/ft ²)	Electric resistance heat (kWh/ft ²)	Electric HP heating (kWh/ft ²)
Manual thermostat	0.450	0.845	0.395
Programmable thermostat	0.113	0.212	0.099
Default	0.399	0.750	0.351

⁹³ Reproduced from Table 70, Page 80, Volume 2, TRM 9.0.

The EM&V team calculated savings for each new *residential smart thermostat* rebated through the SDLC pilot program using Equation 1, using the square footage of each site's conditioned space and the appropriate energy savings factor from Table 203 to estimate energy savings.

Equation 1. Smart Thermostat Energy Savings (Residential)

$$kWh_{i,b,h} = \left(\frac{kWh_{b,h}}{ft^2} \right) \times ft_i^2$$

Where:

$kWh_{i,b,h}$ is the savings of household i with baseline thermostat b and heating type h

$\frac{kWh_{b,h}}{ft^2}$ is the savings of baseline thermostat b and heating type h

ft_i^2 is the square footage of household i

Most *residential smart thermostats* were in homes with *gas heat*, and 26 percent of participants had *heat pumps*. Table 204 provides full results, while Table 205 details the types of thermostats customers had before installing their new *smart thermostats*.

Table 204. Distribution of Heating Type (Residential)

Heating	Unique devices	Percentage
AC with resistance heat	356	17.9%
AC with gas heat	1,110	55.8%
Heat pump	524	26.3%
Total	1,990	100.00%

Table 205. Type of Thermostat Removed (Residential)

Type of thermostat removed	Unique devices	Percentage
Manual	1,934	97.2%
Programmable	48	2.4%
Unknown	8	0.4%
Total	1,990	100.0%

Using participants' square footage, previous thermostat type, heating type, and participation method, the EM&V team estimated energy savings for residential smart thermostat installation in PY2022. As noted above, participants who enrolled in the SDLC pilot's demand response portion after receiving a smart thermostat from another EAL program, or participants who enrolled a previously purchased (non-rebated) device, produced no energy savings for the SDLC pilot program.

Energy savings are only applicable for customers that enrolled through the SDLC pilot portal, received a rebated smart thermostat, and either self-installed the thermostat or had the thermostat installed by a trade ally.

The SDLC pilot program saved 2,164,174 kWh in PY2022 residential installations, resulting in a 99.5 percent realization rate. Net savings, which applied an NTG ratio of 86.2 percent,⁹⁴ were 1,865,518 kWh.

14.3.2.2 Commercial Participants

In PY2022, the SDLC pilot program rebated 326 smart thermostats. Energy savings for smart thermostats installed in *commercial buildings* used an energy savings factor of 819 kWh/ton of cooling capacity, as shown in Equation 2.

Equation 2. Smart Thermostat Energy Savings (Commercial)

$$kWh_i = tonnage_i \times \left(819 \frac{kWh}{ton} \right)$$

Table 206 summarizes the air conditioner and heat pump cooling capacities distribution for PY2022 SDLC pilot program commercial participants. Over 53 percent of commercial smart thermostats connect to HVAC units under five tons; an additional 43 percent of commercially installed smart thermostats connect to HVACs with five to six tons of capacity. However, some larger units also participated in the pilot.

Table 206. Commercial Cooling Tonnage (SDLC)

Cooling capacity (tons)	Count	Percentage	Cumulative percentage
< 2 tons	10	3.1%	3.1%
≥ 2 tons and < 3 tons	33	10.1%	13.2%
≥ 3 tons and < 4 tons	89	27.3%	40.5%
≥ 4 tons and < 5 tons	41	12.6%	53.1%
≥ 5 tons and < 6 tons	140	42.9%	96.0%
≥ 6 tons and < 7 tons	1	0.3%	96.3%
≥ 7 tons and < 8 tons	4	1.2%	97.5%
≥ 8 tons and < 9 tons	0	0.0%	97.5%
≥ 9 tons and < 10 tons	0	0.0%	97.5%
≥ 10 tons and < 11 tons	2	0.6%	98.2%
≥ 11 tons and < 20 tons	6	1.8%	100.0%
Total	326	100.0%	100.0%

⁹⁴ Based on primary NTG research conducted in PY2019 for residential smart thermostats.

After applying the energy savings factor of 819 kWh/ton of capacity, the EM&V team estimated 1,131,858 kWh in energy savings achieved through the installation of smart thermostats in commercial buildings in PY2022. These findings were slightly less than the reported savings of 1,134,315 kWh, resulting in a realization rate of 99.8 percent among commercial installations. The NTG ratio for commercial thermostats was deemed 90.0 percent from previous evaluations, resulting in a net savings of 1,018,672 kWh.

14.3.3 Demand Response

Tetra Tech received five-minute HVAC runtime data for SDLC participants spanning the load control season. Opt-outs were removed from the data for each event, and unenrolled devices were removed from the analysis file. In PY2022, EAL called four events that spanned eight hours, including a test event on June 1. Table 207 provides a summary of called events during PY2022, including the number of participating thermostats during each event.

Table 207. Smart Direct Load Control Pilot—PY2022 Load Control Events

Date	Start time (CST)	End time (CST)	Participating thermostats	Event type
06/01/2022	12:55	14:00	4,146	Test event
06/16/2022	13:55	16:00	4,203	Normal event
07/13/2022	13:55	16:00	4,373	Normal event
08/16/2022	12:55	16:00	4,679	Normal event

For each event, savings are based on runtime data. Depending on the calculation method, the baseline is constructed using ten eligible days before the event and applying no adjustment (*MISO Calculation #1*), a symmetrical multiplicative adjustment (*MISO Calculation #2*), or weather-based adjustment (*MISO Calculation #3*). These are described in more detail below.

14.3.3.1 MISO Calculation Evaluation Methodology

The EM&V team evaluated SDLC runtime data using three calculation options detailed in MISO's BPM.

14.3.3.2 MISO Calculation #1—Unadjusted Baseline

MISO's unadjusted baseline calculation approach utilizes the ten most recent eligible days (non-holiday, non-event weekdays) before the event. The average load for each hour is calculated by averaging the five-minute kilowatt load intervals recorded for each thermostat. A total load is calculated for participating thermostats for that interval. For a given hour, the total load is averaged across the ten days to represent the unadjusted baseline load for that period.

14.3.3.3 MISO Calculation #2—Symmetrical Multiplicative-Adjusted Baseline

MISO's *symmetrical multiplicative-adjusted baseline* modifies the unadjusted baseline load schedule to represent actual event-day loads. Adjustment is conducted to generate a more accurate counterfactual baseline load to represent what would have occurred on an event day without an SDLC event. The adjustment factor uses pre-event loads during baseline and event days to inform the degree of adjustment required. If pre-event loads on event days exceed baseline loads, baseline loads will be scaled upwards. If pre-event loads on event days are less than baseline loads, baseline loads will be scaled downwards. The multiplicative adjustment procedure is as follows:

1. Extract three hours of pre-event loads beginning four hours before the event start from both the unadjusted baseline load and the event-day load. For example, for an event starting at 14:00, extract unadjusted baseline and event-day loads for three hours spanning 10:00 to 13:00.
2. Calculate the *symmetrical multiplicative adjustment factor* by taking the ratio of (1) the sum of the three hours of event-day loads and (2) the sum of three hours of unadjusted baseline loads. This adjustment factor may not adjust the baseline by more than 20 percent in either direction. If the multiplicative adjustment exceeds 1.2, then assume the multiplicative adjustment is 1.2. If the multiplicative adjustment is less than 0.8, assume the multiplicative adjustment is 0.8.
3. Calculate the *symmetrical multiplicative-adjusted baseline* by multiplying the unadjusted baseline load by the *symmetrical multiplicative adjustment factor*.

14.3.3.4 MISO Calculation #3—Weather-Adjusted Baseline

MISO's *weather-adjusted* approach to baseline calculations incorporates an unadjusted baseline with a factor describing how temperature affects non-event loads. Adjustment is conducted to generate a more accurate counterfactual baseline load to represent what would have occurred on an event day without an SDLC event. Instead of using pre-event loads to determine the adjustment to baseline loads, the sensitivity of loads to temperature changes is used to predict what loads would have been in the absence of an event. The procedure is as follows:

1. Determine the *change in loads* relative to a change in temperature (the temperature adjustment, expressed in kilowatt per degree Fahrenheit) using data from eligible non-event, non-holiday weekdays.
2. Determine the *average temperature* during baseline days' hours corresponding to each hour of an event. These baseline days are the same ten prior non-event, non-holiday weekdays used to calculate the *unadjusted baseline load*.
3. Calculate the *difference in temperature* between (1) the average of the baseline days' hours corresponding to the event hours and (2) the actual temperatures recorded during the event's hours.
4. Calculate the *weather adjustment factor* by multiplying the temperature difference by the temperature adjustment.
5. Calculate the *weather-adjusted baseline* by adding the *weather adjustment factor* to the *unadjusted baseline load*.

The EM&V team used two models to estimate weather-adjusted load reductions. The first used only average hourly temperature, while the second used both temperature and relative humidity as predictors. Ultimately, the model with only temperature outperformed the model incorporating temperature and humidity (humidity typically failed to produce a statistically significant effect on demand at p-value = 0.05).⁹⁵

14.4 DETAILED IMPACT EVALUATION RESULTS

14.4.1 Evaluated Kilowatt-Hour Savings Results

Applying deemed savings methodology to residential smart thermostats detailed in Table 70 of Section 2.1.12 of TRM 9.0 resulted in gross savings of 2,164,174 kWh in PY2022 and a 99.5 percent realization rate. Net savings, which applied an NTG ratio of 86.2 percent,⁹⁶ totaled 1,865,518 kWh.

Among commercial installations, the EM&V team estimated 1,131,858 kWh in gross energy savings after applying the energy savings factor of 819 kWh/ton of capacity. These findings were slightly lower than reported savings, resulting in a realization rate of 99.8 percent. The NTG ratio⁹⁷ for commercial thermostats resulted in net savings of 1,018,672 kWh.

The discrepancy between reported and evaluated savings among residential and commercial thermostats came from duplicate thermostats in the tracking system. The EM&V team identified *seven* thermostats in the tracking system with multiple entries, each claiming energy savings. Retaining a single record per thermostat ID decreased savings by 12,433 kWh; this is the entirety of the difference between reported and evaluated savings.

Combining the residential and commercial energy savings achieved through the SDLC pilot program in PY2022 resulted in gross energy savings of 3,296,032 kWh, with a corresponding realization rate of 99.6 percent. Based on NTG rates of 86.2 percent for residential smart thermostats and 90.0 percent for commercial smart thermostats, net savings were estimated at 2,884,190 kWh in PY2022. Table 208 provides full details on the savings the SDLC pilot program achieved during its third year of operation.

Table 208. Final Evaluated Energy Savings—Smart Direct Load Control Pilot

Sector	Participants	Device count	Reported savings (kWh)	Evaluated savings (kWh)	Realization rate	NTG ratio	Net savings
Residential	1,734	1,990	2,174,150	2,164,174	99.5%	86.2%	1,865,518
Commercial	152	326	1,134,315	1,131,858	99.8%	90.0%	1,018,672
Total	1,886	2,316	3,308,465	3,296,032	99.6%	87.5%	2,884,190

⁹⁵ All weather data for the SDLC evaluation are from Bill and Hillary Clinton National Airport (KLIT).

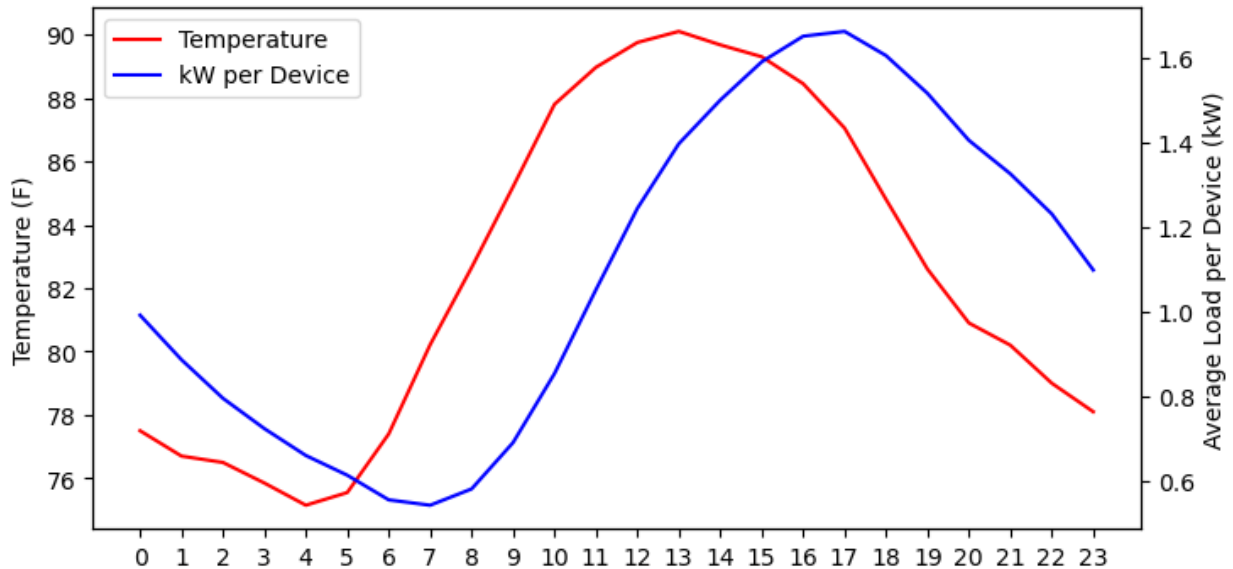
⁹⁶ Based on primary NTG research conducted in PY2019 for *residential smart thermostats*.

⁹⁷ Based on primary NTG research conducted in PY2019 for *commercial smart thermostats*.

14.4.2 Evaluated Kilowatt Savings Results (MISO Calculations)

In support of the SDLC evaluation, the EM&V team received the following five-minute HVAC runtime data from ICF for event days and the periods preceding each event day. After removing opt-outs from each respective event (and pre-event baseline period), the EM&V team aggregated data to hourly records by thermostat; this allowed for straightforward estimation of demand reductions using each of the three MISO calculation methods. The EM&V team's final estimated demand reduction total of 3.86 MW occurred during the August 16, 2022, event using MISO Calculation #3 (weather-adjusted baseline). The opinion of the EM&V team is that the weather-adjusted baseline methodology provides the best estimation of counterfactual events, as it incorporates historical loads from days immediately preceding an event and the important interaction between observed load and observed temperature. Figure 30 shows the relationship between demand and temperature using data from the ten baseline days before August 16, 2022. The August 16, 2022 event produced estimated demand reductions of 0.83 kW per participating thermostat.

Figure 30. Kilowatt per Device and Temperature (Degrees Fahrenheit)



MISO Calculation #1—Unadjusted Baseline

All MISO Calculation methods require the selection of baseline days. The *MISO BPM* method stipulates that the ten prior non-event event eligible days are selected to represent the baseline. The average load during those baseline days is calculated for a given event hour, representing an unadjusted baseline. Table 209 below highlights the unadjusted baseline calculations undertaken by the EM&V team.

Table 209. Smart Direct Load Control Pilot—MISO Calculation #1—MISO Unadjusted Baseline Calculations

Date	Start time (CST)	End time (CST)	Baseline (kW per device)
6/1/2022	12:55 PM	2:00 PM	0.54
6/16/2022	1:55 PM	3:00 PM	0.91
6/16/2022	3:00 PM	4:00 PM	0.98
7/13/2022	1:55 PM	3:00 PM	1.57
7/13/2022	3:00 PM	4:00 PM	1.67
8/16/2022	12:55 PM	2:00 PM	1.40
8/16/2022	2:00 PM	3:00 PM	1.50
8/16/2022	3:00 PM	4:00 PM	1.59

MISO Calculation #2—Symmetrical Multiplicative-Adjusted Baseline

MISO's *symmetrical multiplicative-adjusted baseline* modifies the unadjusted baseline load schedule calculated above to be more representative of actual event-day loads. Adjustment is conducted to generate a more accurate counterfactual baseline load to represent what would have occurred on an event day without an event. The adjustment factor uses pre-event loads during baseline and event days to inform the degree of adjustment required. If pre-event loads on event days exceed baseline loads, baseline loads will be scaled upwards. If pre-event loads on event days are less than baseline loads, baseline loads will be scaled downwards. The multiplicative adjustment procedure is as follows:

1. Extract three hours of pre-event loads beginning four hours before the event start from both the unadjusted baseline load and the event-day load.
2. Calculate the *symmetrical multiplicative adjustment factor* by taking the ratio of (1) the sum of the three hours of event-day loads and (2) the sum of three hours of unadjusted baseline loads.
3. Calculate the *symmetrical multiplicative-adjusted baseline* by multiplying the unadjusted baseline load by the *symmetrical multiplicative adjustment factor*.

The MISO BPM requires that the *symmetrical multiplicative adjustment* not lead to an adjustment greater than ± 20 percent of the unadjusted baseline load. The symmetrical multiplicative adjustments are outlined in Table 210.

Table 210. Symmetrical Multiplicative Adjustment Factor by Event Date

Date	Symmetrical multiplicative adjustment factor
6/1/2022	1.200
6/16/2022	1.200
7/13/2022	1.030
8/16/2022	1.016

Savings Calculation

The savings calculation for each event hour is as follows:

$$\text{kW Savings} = \text{Symmetrical Multiplicative Adjusted Baseline kW} - \text{Observed Load}$$

Table 211 summarizes each hour's load reduction, with Table 212 summarizing the corresponding event-hour total kilowatt savings and realization rates.

Table 211. Smart Direct Load Control Pilot—MISO Calculation #2—MISO Adjusted Baseline and Per-Device Savings

Date	Start time (CST)	End time (CST)	Adjusted baseline	SMA adjusted reduction (per device kW)
6/1/2022	12:55 PM	2:00 PM	0.65	0.29
6/16/2022	1:55 PM	3:00 PM	1.09	0.12
6/16/2022	3:00 PM	4:00 PM	1.18	0.22
7/13/2022	1:55 PM	3:00 PM	1.62	0.67
7/13/2022	3:00 PM	4:00 PM	1.72	0.85
8/16/2022	12:55 PM	2:00 PM	1.42	0.69
8/16/2022	2:00 PM	3:00 PM	1.52	0.76
8/16/2022	3:00 PM	4:00 PM	1.62	0.91

Table 212. Smart Direct Load Control Pilot—MISO Calculation #2 Results

Date	Start time (CDT)	End time (CDT)	Number of participating devices	Per device kW savings	Event-hour savings (kW)
6/1/2022	12:55 PM	2:00 PM	4,146	0.29	1,192.0
6/16/2022	1:55 PM	3:00 PM	4,203	0.12	512.8
6/16/2022	3:00 PM	4:00 PM	4,203	0.22	945.2
7/13/2022	1:55 PM	3:00 PM	4,373	0.67	2,923.9
7/13/2022	3:00 PM	4:00 PM	4,373	0.85	3,735.3
8/16/2022	12:55 PM	2:00 PM	4,679	0.69	3,234.8
8/16/2022	2:00 PM	3:00 PM	4,679	0.76	3,575.5
8/16/2022	3:00 PM	4:00 PM	4,679	0.91	4,238.9

MISO Calculation #3—Weather-Adjusted Baseline

All MISO Calculation methods require the selection of baseline days. The *MISO BPM* method stipulates that the ten-prior non-event, event-eligible days are selected to represent the baseline. The average load during those baseline days is calculated for a given event hour, representing an unadjusted baseline. Next, the average temperature for that same hour on the baseline days is calculated. The temperature of the event day's hour is then subtracted from the average baseline days' temperature for that hour to determine the temperature differential between the baseline days' and event days' temperature. The temperature coefficient is multiplied by the temperature difference to calculate an additive kilowatt adjustment to the unadjusted baseline kilowatt.

Tetra Tech created a model that incorporated the effect of weather on load, developing a regression equation that explained air temperatures' influence on the resulting load for each hour. Five-minute load data were aggregated to create a single hourly load covering the event hour and the corresponding hour during the prior ten eligible baseline days. Event days were excluded from the temperature adjustment analysis, as were holidays and weekends. The result is a dataset of the average load for each hour.

The resulting regression analysis explored the equation:

Equation 3. Modeling Demand as a Function of Temperature

$$kW_t = \alpha + \beta \text{ Temperature}_t + e_t$$

Equation 3 estimates the effect to which load during a given hour (t) can be primarily explained by a given hour's dry-bulb air temperature. The resulting regression, run for each event hour, produced coefficients that were then applied to observed conditions during each event hour to estimate the counterfactual demand that would have occurred in lieu of the load control event.

Table 213. Weather-Adjusted Regression Output by Event Day-Hour

Date	Start time (CST)	End time (CST)	kW per degree Fahrenheit	t-value
6/1/2022	12:55 PM	2:00 PM	0.044	90.8
6/16/2022	1:55 PM	3:00 PM	0.055	110.3
6/16/2022	3:00 PM	4:00 PM	0.058	116.7
7/13/2022	1:55 PM	3:00 PM	0.064	61.8
7/13/2022	3:00 PM	4:00 PM	0.063	59.1
8/16/2022	12:55 PM	2:00 PM	0.011	12.2
8/16/2022	2:00 PM	3:00 PM	0.017	17.8
8/16/2022	3:00 PM	4:00 PM	0.024	27.9

Results from Figure 31 show temperature coefficients ranging between 0.011 kW per degree Fahrenheit to 0.064 per degree Fahrenheit. With a t -value of at least 12, each model could use the dry-bulb air temperature to predict the resulting load in a statistically significant way.

The regression does not consider the apparent lag between the time the temperature increases and the increase in demand. This is illustrated in Figure 31 and Figure 32, both of which demonstrate the relationship between temperature and demand in the qualifying days leading up to the August 16, 2022, event. A shift in the temperature of three hours helps to counteract this lag, leading to a fit with 98 percent of the variation in demand being explained by variation in the shifted temperature. This shifted temperature and its suitability to predict the demand are illustrated in Figure 32.

Figure 31. Kilowatt per Device and Temperature (F)

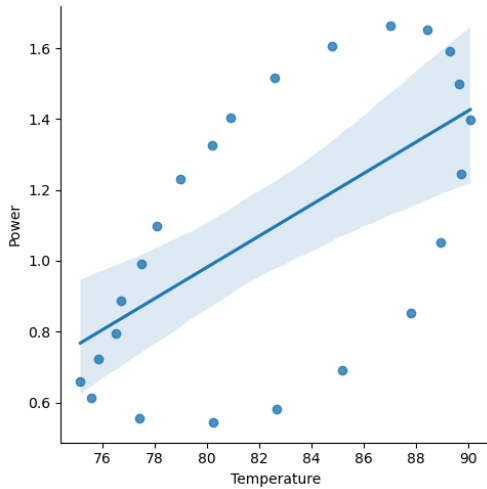
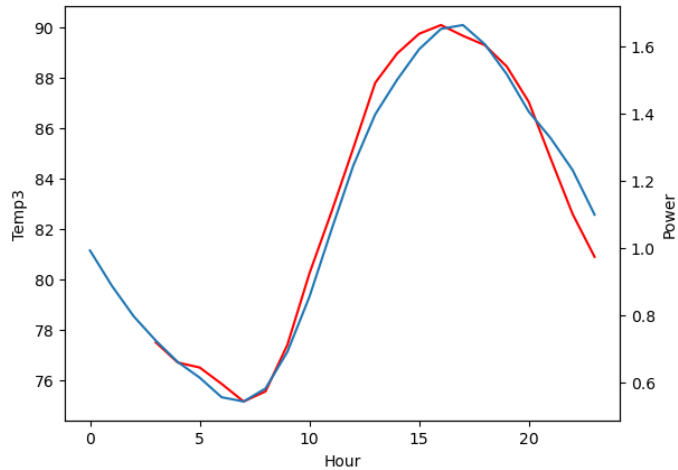


Figure 32. Kilowatt per Device and Temperature (°F) Shifted by Three Hours



Savings Calculation

The savings calculation for each event hour is as follows:

$$\text{kW Savings} = \text{Weather Adjusted Baseline kW} - \text{Observed Load}$$

Across all the event hours during PY2022, the highest single hour is selected to represent the program savings. Table 214 summarizes each hour's load reduction, with the final evaluated load reduction in **bold**.

Table 214. MISO Calculation #3 Results

Date	Start time (CST)	End time (CST)	Number of participating devices	Per device savings (kW)	Event-hour savings (kW)
6/1/2022	12:55 PM	2:00 PM	4,146	0.57	2,376.6
6/16/2022	1:55 PM	3:00 PM	4,203	0.68	2,841.4
6/16/2022	3:00 PM	4:00 PM	4,203	0.83	3,492.0
7/13/2022	1:55 PM	3:00 PM	4,373	0.68	2,994.1

Date	Start time (CST)	End time (CST)	Number of participating devices	Per device savings (kW)	Event-hour savings (kW)
7/13/2022	3:00 PM	4:00 PM	4,373	0.74	3,238.6
8/16/2022	12:55 PM	2:00 PM	4,679	0.70	3,278.4
8/16/2022	2:00 PM	3:00 PM	4,679	0.73	3,412.9
8/16/2022	3:00 PM	4:00 PM	4,679	0.83	3,868.3

Based on the results from the regression analysis, the SDLC event on August 16, 2022, produced the highest savings among participants. Overall, 4,679 participating smart thermostats reduced load by an average of 0.83 kW per device from 15:00 to 16:00, equating to 3,868.3 kW in total load reduction.

15.0 AGRICULTURAL IRRIGATION LOAD CONTROL

The Agricultural Irrigation Load Control (AIRC) program is a demand response program focusing on irrigation systems employed in the agricultural sector. The program is implemented by Connected Energy, which (1) provides marketing, a call center, control devices, metering equipment and services, (2) conducts program tracking, and (3) calculates event-level savings for Entergy Arkansas, LLC (EAL).

The objective of the AIRC program is to reduce kilowatt (kW) demand loads when load control events occur during the summer (June 1 through August 31). Participants in the program have a control device installed on their motor, allowing the program to turn the motor off or on remotely. Participants can remotely control their motors, subject to program limits associated with event participation, or protect the motor from rapid on/off cycles. Except in emergency events, curtailment events are scheduled on weekdays for up to four hours and are limited between 12:00 p.m. and 9:00 p.m. Participants receive an email or text notification of the upcoming event two hours before the event starts, including the duration of the curtailment. Incentives are paid to participants every month and vary according to the horsepower (HP) of the enrolled motors.

The EM&V team deployed three different methods for estimating load reductions, all summarized in the Midcontinent Independent System Operator's (MISO) Business Practice Manual for Demand Response⁹⁸ (MISO Business Practice Manual). In addition, the process evaluation research activities included 57 participant surveys. Table 215 details the evaluation activities completed for the program in PY2022.

Table 215. AIRC Program—Data Collection and Evaluation Activities

NTG approach	Process evaluation activities	Gross impact evaluation completes			
		Tracking system review	Desk reviews	On-site verification	Metered data analysis ⁹⁹
Deemed at 1.0 as industry practice	Program staff interviews (2) Material review Participant surveys (57)	N/A	N/A	N/A	Census

15.1 KEY FINDINGS

In PY2022, the AIRC program responded to five events called on five separate days. The first of the events was a test event (June 1), used to verify equipment operability and verify measurement and verification (M&V) data collection, while the other events were used to reduce load during the event hours. Of the five events, the three that took place on June 1, July 12, and July 27 were one hour each; the June 16 event was two hours; and the June 23 event was five hours. The data collected by the metering equipment allows each participant to have their load metered in a 15-minute interval for the entire load-control season, providing highly granular data to support program baseline and event savings calculations.

⁹⁸ Midcontinent Independent System Operator Demand Response Business Practices Manual. BPM-026-r7. Effective December 7, 2021.

⁹⁹ This column refers to EAL customer meter data provided to the EM&V team as opposed to primary metered data collected as part of the on-site M&V.

The AILC program's evaluated savings match those calculated by the program implementer, Connected Energy. The approach taken by Connected Energy and the evaluation, measurement, and verification (EM&V) team uses the MISO *symmetric multiplicative adjustment (SMA) baseline calculation*, which is appropriate for registering savings with MISO.

In PY2022, the AILC program achieved 21.8 MW in gross demand savings and a realization rate of 99.3 percent, highlighted in Table 216. These savings are based on the maximum event savings that occurred during the hour ending 16:00 on July 12. Overall, 1,857 customers participated in the AILC program during PY2022.

Table 216. Agricultural Irrigation Load Control Program—Reported, Evaluated, and Net Savings

Energy/demand savings	Reported savings	Evaluated savings	Realization rate	NTG ratio ¹⁰⁰	Net savings	Program contribution to portfolio savings
Energy savings (MWh)	-	-	N/A	N/A	N/A	N/A
Demand savings (MW)	22.0	21.8	99.3%	100.0%	21.8	23.1%

* The AILC program does not claim energy savings. Therefore, these cells are represented with a dash.

The program fell short of savings goals, achieving 43.7 percent of the demand savings goal, as detailed in Table 217.

Table 217. Agricultural Irrigation Load Control Program—Savings Goals and Achievements

Energy/demand savings	Savings goal	Net savings achieved	Percentage of goal achieved
Energy savings (MWh)	-	-	-
Demand savings (MW)	49.9	21.8	43.7%

* The AILC program does not have an energy savings goal. Therefore, these cells are represented with a dash.

¹⁰⁰ NTG for demand response programs is inherently 100 percent.

15.2 RECOMMENDATIONS

The EM&V team found a new area for program improvement. A specific recommendation to address this is described in Table 218.

Table 218. Agricultural Irrigation Load Control Program—PY2022 Recommendations

Type	Recommendation	Key finding
PY2022 process recommendations	Recommendation 1: Continue to educate customers on the functionality of the equipment and their ability to control their pumps remotely.	Few respondents use the load control device to adjust their wells remotely, and most were unaware of this capability. Those who have used the functionality reported being satisfied with accessing their wells remotely and using the remote feature during both event and non-event days.

Table 219. Agricultural Irrigation Load Control Program—Status of Prior Year Recommendations

Status of prior year recommendations	
PY2020 process recommendations	<ul style="list-style-type: none"> Streamline the evaluation process by providing MISO with a savings report earlier in the analysis process. <ul style="list-style-type: none"> In progress.
PY2021 process recommendations	<ul style="list-style-type: none"> Streamline the evaluation process by providing a MISO savings report with 15-minute-level data. <ul style="list-style-type: none"> In progress.

15.3 METHODOLOGY

The subsections below summarize the methodology used to evaluate demand savings achieved through the AILC program.

15.3.1 Impact Evaluation

Connected Energy's methodology follows the *SMA method* to calculate the baseline conditions. The *SMA method* is one of the three methods approved by MISO to register program savings with MISO and is used by the EM&V team to evaluate the program's event savings. The *SMA method* is described in greater detail in subsequent sections of this report.

The events called in PY2022 are described in Table 220 below.

Table 220. PY2022 Load Control Events

Date	Start time (CDT)	End time (CDT)	Active devices	Event type
06/01/2022	13:00	14:00	586	Test event
06/16/2022	14:00	16:00	784	Normal event

Date	Start time (CDT)	End time (CDT)	Active devices	Event type
06/23/2022	12:00	17:00	1,022	Normal event
07/12/2022	15:00	16:00	1,120	Normal event
07/27/2022	13:00	14:00	1,102	Normal event

For each event, savings are based on the participants' interval meter data. For each hour of the day, loads from event participants are summed together to create a single *irrigation load control* load. Observation of the loads on days before the event, on the same hour as an event hour, is adjusted by observing differences between pre-event hours on the baseline and event days. This process is described in more detail below.

15.3.2 Process Evaluation

15.3.2.1 Staff Interviews

The EM&V team conducted interviews with the EAL program manager during project kick-off. The interview confirmed the team's understanding of program operations and M&V strategies. The EM&V team maintained open communications with the implementation team throughout PY2022, ensuring that data transfers occurred, and necessary documentation and strategic program designs were communicated.

15.3.2.2 Participant Survey

The participant survey was used to inform the process evaluation of the program, based on the guidance outlined in the Arkansas TRM, Version 9.0 EM&V Protocols. The participant survey included a series of questions exploring how participants became aware of the program and their preferred methods of communication and investigated participation experiences, program satisfaction, and firmographics.

The sample frame for the participant survey consisted of customers that participated in at least one load-control event during the 2022 control season.¹⁰¹ Based on previous experiences with EAL customers, Tetra Tech estimated a survey response rate of 30 percent and selected a random sample of 167 participants to support the survey effort, in an effort to target 50 completes.

Table 221. Agricultural Irrigation Load Control Program—Participant Survey Sample Plan

Category	Unique BP count	Sampled records	Expected number of completes
Unique BP accounts	372	167	50

¹⁰¹ Tetra Tech accessed ArchEE on September 13, 2022 to obtain AILC program tracking data.

Tetra Tech's in-house Survey Research Center implemented the participant survey via computer-assisted telephone interviews. On average, surveys took approximately 11 minutes to complete. Surveys were conducted between November 9 and November 16, 2022.

Table 222. Agricultural Irrigation Load Control Program—Participant Survey Response Rate

Disposition	Total
Eligible sample	158
Does not recall participating	2
Refusal	8
Incompletes (partial surveys)	1
Language barrier	0
Bad number	12
Called out	1
Not completed	76
Completed	57
Response rate	
Response rate (completed/eligible sample)	36.1%

15.4 DETAILED IMPACT EVALUATION RESULTS

Next, we present evaluation results by calculation method.

15.4.1 Baseline Calculation

MISO's *SMA baseline calculation* uses the ten most recent eligible days (non-holiday, non-event weekdays) before the event to construct a baseline load schedule. Since event- and non-event-day loads do not coincide during non-event hours, an adjustment factor corrects the baseline load schedule to be more representative of actual event-day loads. MISO's *SMA baseline calculation* is used to measure both the implementer's performance for EAL and MISO savings registration. The baseline and resulting savings calculations focus on individual event hours.

The baseline calculation has three components: the unadjusted baseline, the adjustment factor, and the application of the adjustment factor to the unadjusted baseline to create a final baseline calculation.

15.4.1.1 Unadjusted Baseline Calculation

The baseline calculation is conducted in the following steps applied to each hour of the event:

1. Before the event, the ten most recent eligible days (non-holiday, non-event weekdays) are selected.
2. An unadjusted hourly baseline is calculated for a given hour by summing the participating 15-minute metered loads for each hour corresponding to the event hours for each of the ten baseline days.

3. The event's baseline hourly load is calculated by averaging the summed 15-minute metered intervals; the result is an unadjusted hourly baseline.

15.4.1.2 Symmetrical Multiplicative-Adjusted Baseline Factor

MISO's *SMA baseline* corrects the unadjusted baseline load schedule to represent actual event-day loads. Adjustment is conducted to generate a more accurate counterfactual baseline load to represent what would have occurred on an event day without a load control event. The adjustment factor uses pre-event loads during baseline and event days to inform the degree of adjustment required. If pre-event loads on event days exceed baseline loads, baseline loads will be scaled upwards. If pre-event loads on event days are less than baseline loads, baseline loads will be scaled downwards. The multiplicative-adjustment procedure is as follows:

1. Extract three hours of pre-event load data beginning four hours before the event starts from the unadjusted baseline load and the event-day load. For example, for an event beginning at 14:00, extract unadjusted baseline and event-day loads for three hours spanning 10:00 to 13:00.
2. Calculate the *SMA factor* by taking the ratio of (1) the mean of the three hours of event-day loads and (2) the mean of three hours of unadjusted-baseline loads. This adjustment factor may not adjust the baseline by more than 20 percent in either direction. If the multiplicative adjustment exceeds 1.2, then assume the multiplicative adjustment is 1.2. If the multiplicative adjustment is less than 0.8, assume the multiplicative adjustment is 0.8.
3. Calculate the *SMA baseline* by multiplying the unadjusted baseline load by the *SMA factor*.

15.4.1.3 Final Baseline Calculation

The final baseline calculation combines the unadjusted baseline with the adjustment factor. A cap of 0.20 is placed on this adjustment factor, limiting the positive or negative adjustment to the baseline to 20 percent. If the calculated adjustment factor is greater than 1.20 or less than 0.80, the adjustment factor is set at the cap. The following formula is used to calculate a given event hour's baseline:

$$\text{Adjusted Baseline kW} = \text{Unadjusted Baseline kW} * \text{Adjustment Factor}$$

15.4.1.4 Savings Calculation

Savings under the MISO *SMA calculation method* is presented for each hour of an event. The savings formula is:

$$\text{Savings kW} = \text{Adjusted Baseline kW} - \text{Event Hour kW}$$

15.4.2 Materials Review

Information found on the AILC program website includes a general description of the program, detailing eligibility requirements and payment schedules for participating customers. The payment schedule accurately describes the relationship between pump size (HP) and payment. A copy of the program manual, a frequently-asked-questions section, and program contact information was easily found on the website.

15.5 DETAILED PROCESS EVALUATION RESULTS

Next, we present the process results from the participant survey and program staff interviews. Program staff interviews focused on discussing the implementation of PY2022 evaluation recommendations presented in the Executive Summary (Section 1.0) and program design and delivery. We present detailed results from the participant survey below, organized by the following topic areas: respondent firmographics, program marketing, and participant experience, and program satisfaction.

15.5.1 Respondent Firmographics

Most survey participants had crop production at their facilities: *rice* (36 percent), *soybeans* (26 percent), *row crops* (9 percent), and *corn* (6 percent). Other facility production included *horticulture* (11 percent), *fish* (9 percent), and one respondent said *row crops and cattle*. On average, facilities had 5.5 full-time employees and 1.8 part-time employees. The number of full-time employees ranged from 1 to 28, and part-time employees varied from 0 to 12, with 21 of 52 facilities having only full-time staff.

Respondents mentioned the different challenges they face in making energy-saving improvements. Of the 19 customers who said they have challenges, almost one-half (nine respondents) mentioned cost and not having funds for improvements. Two respondents mentioned not knowing about making improvements, two respondents said Entergy does not support solar projects, and two mentioned trying to upgrade equipment. Other responses included:

Trying to get lines built, it's a challenge to get them done in a timely manner. It's hard to get anybody that knows what's going on locally.

The solar farm next to us is taking away our acres for farming.

Arkansas disallows a lot of things that other states allow when it comes to irrigation.

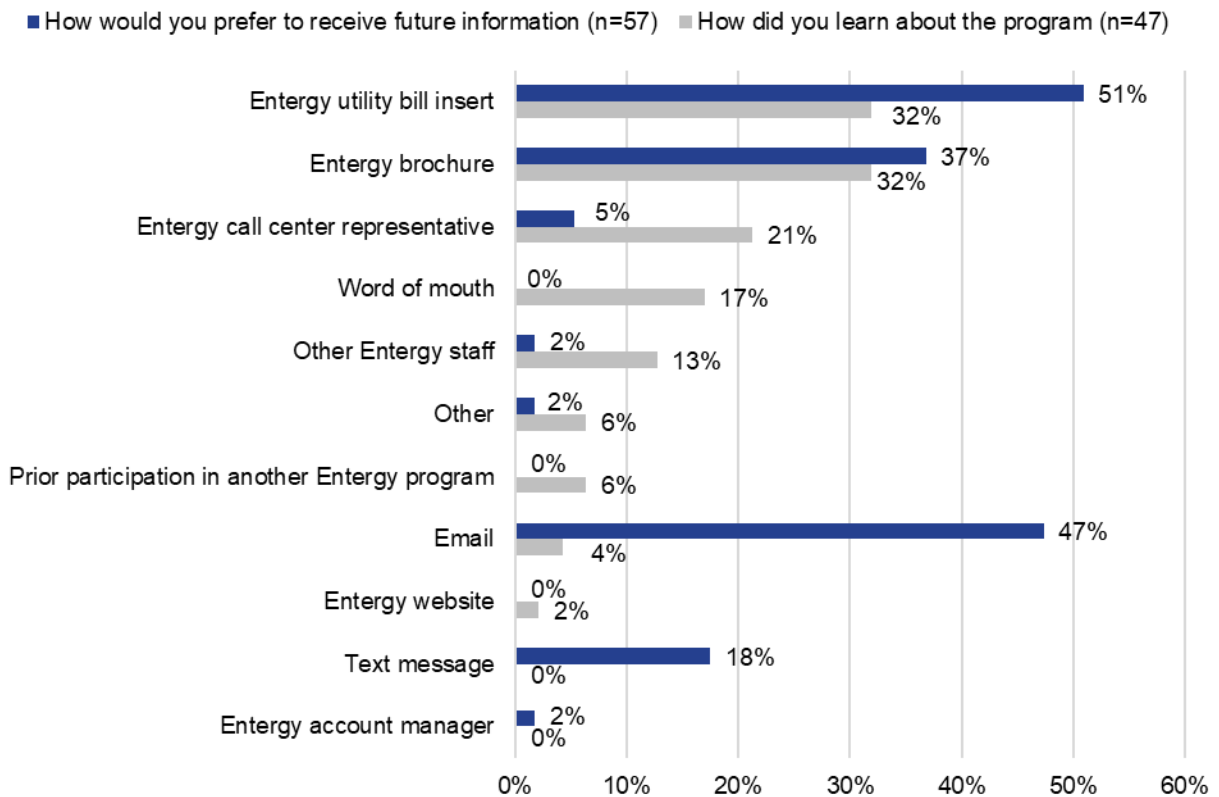
The rural location.

Trying not to run the well so long.

15.5.2 Program Marketing

Nearly one-third of respondents reported learning about the AILC program through an Entergy bill insert or an Entergy brochure (32 percent each). These methods were also mentioned as some of the respondents' most preferred ways to hear about the program. Over one-half of respondents said their preferred way of receiving information about Entergy’s energy efficiency programs were from their utility bill, and 37 percent said an Entergy brochure. An email was also a preferred method mentioned by 47 percent of respondents. Figure 33 illustrates how participants learned about the AILC program and their preferred sources.

Figure 33. Actual and Preferred Sources of Agricultural Irrigation Load Control Program—Program Awareness



Source: Participant Survey A1, A2

*Multiple responses were allowed.

**Don't know and refused responses excluded.

Eighteen percent of respondents said they did not recall how they first heard about the program.

15.5.3 Participant Experience

On average, respondents have been participating in the program for almost eight years. Responses ranged from two to 44 years, and the main driver for continuing to participate in the AILC program was to save money, as mentioned by 88 percent of respondents (49 of 56). Respondents liked the money they received and the cost savings. Four respondents said the program had a “good cause” and was conserving energy. Two respondents mentioned the

ability to control the wells as a motivator to continue enrolling, and one talked about how easy it was to participate. Some specific comments included the following:

I like getting money back. I like that it is conserving energy.

The money. It's been a good place in the Entergy systems.

Cost savings; and to be able to control it and y'all give a discount.

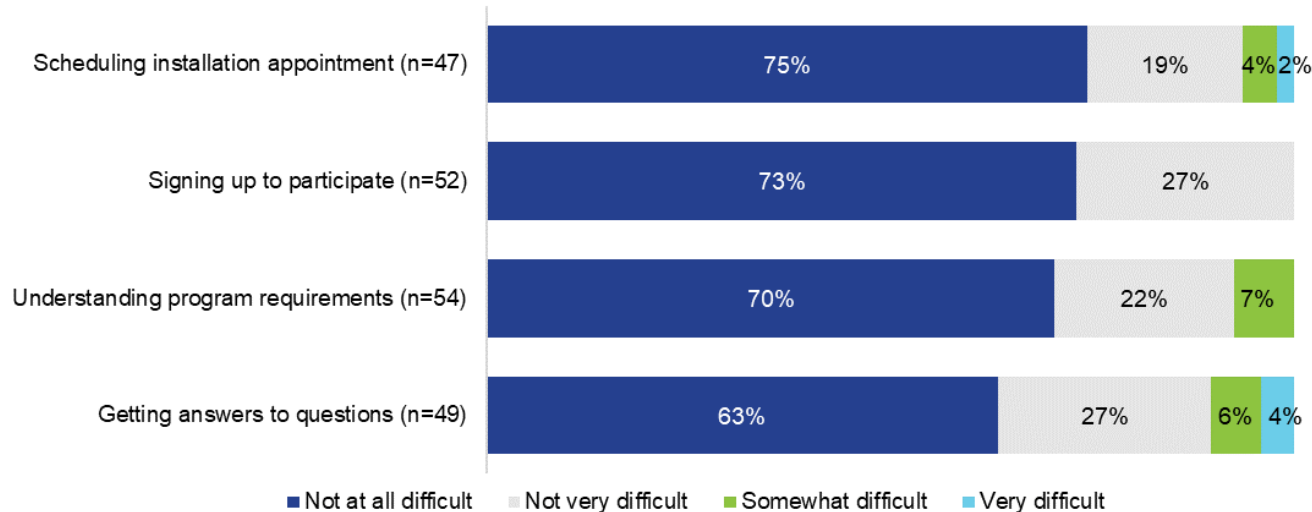
The cost savings. They send out a check each month and it's been significant; so that's working fine for us.

Just over one-half (53 percent) had all their *irrigation pumps* enrolled in the program. The 25 respondents who only had some pumps enrolled were asked why. Nine respondents said the pumps were not eligible due to various reasons, including not being electric (two respondents), not being an Entergy provider (two respondents), the pumps being too weak (two respondents), or that Entergy did not deem them eligible (three respondents). Eight respondents said they needed to run their pumps continuously, and an additional two did not like the disruption (although they did not specifically say the pumps ran continuously). These respondents did not want the pumps enrolled in the program because they did not want their operations hurt. Three respondents mentioned pumps on a central pivot and the potential disruption that could occur.

The load control devices installed on the pumps allow customers to remotely turn their wells on and off. When asked if they use this feature, 20 percent of respondents said they have. Of those who have not (45 respondents), over one-half (53 percent) were unaware of this feature. Most of those who used the capability were satisfied with the ability to access their wells remotely and use the remote feature during both event and non-event days. One respondent said they were *very dissatisfied* because that capability was not working.

Respondents were also asked about the difficulty with different aspects of the program. Most respondents felt the program elements were *not at all difficult* or *not very difficult*, as shown in the Figure 34. Program aspects where respondents experienced more difficulty was with getting questions answered, understanding program requirements, and getting an appointment scheduled to have the equipment installed.

Figure 34. Difficulty Level with Different Program Aspects



Source: Participant Survey P7
 **Don't know and refused responses excluded.

For those who experienced difficulty, more and better communication was requested. Respondents requested local staff who were knowledgeable that could talk to about program requirements, ability to opt out of events, and the installation of equipment.

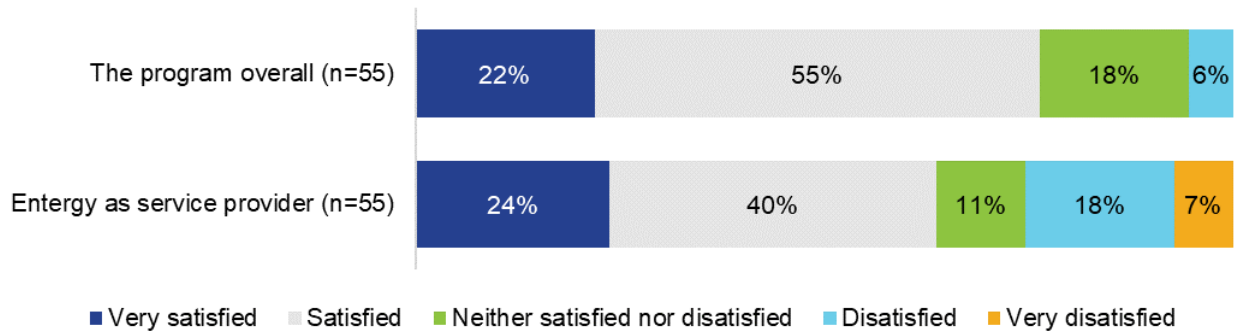
15.5.4 Program Satisfaction

Overall, participants were generally satisfied with the program. About 80 percent of participants said they were either *very satisfied* or *satisfied* with the AILC program overall. Only three participants said they were *dissatisfied* with the program. Two of those *dissatisfied* with the program indicated the equipment was not working, and the third said there was nothing Entergy could do to improve their experience.

Similar ratings can be seen with respondent satisfaction with Entergy as their electric service provider. Two-thirds of respondents reported being *satisfied* with the utility, and 14 said they were *dissatisfied*. Satisfaction with the program and Entergy is shown in the figure below.

Figure 35. Participant Satisfaction with the Program and Entergy

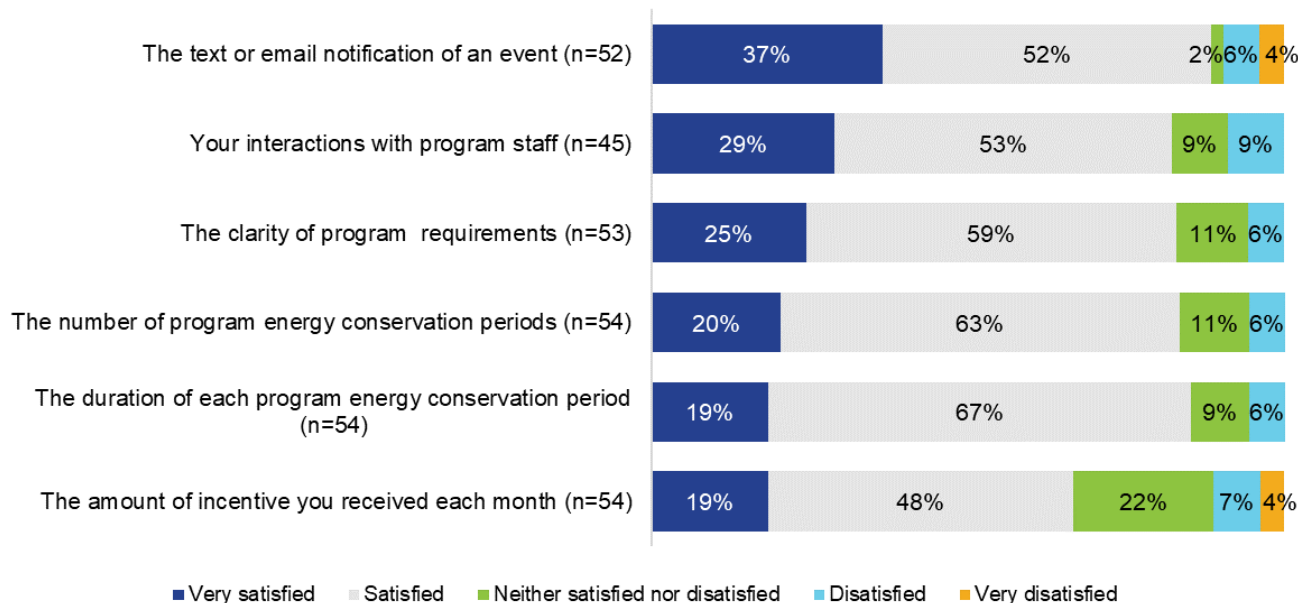
Source: Participant survey SAT3, SAT5



*Don't know, not applicable, and refused responses are excluded.

When those who were *satisfied* or *neither satisfied nor dissatisfied* with the program (40 respondents) were asked if there was anything EAL could have done to improve their experience in the program, almost half responded *no* (16 respondents). Of the 24 participants who said *yes*, 9 suggested increasing program incentives. Five respondents wanted better equipment or their equipment maintained, and three respondents were looking for better communication. Communication improvements around promptly responding to requests, duplicate messages when multiple pumps are enrolled, and enrolling additional pumps. Other improvements include streamlining the service for turning pumps on/off, more staff, and fixing billing issues.

As far as participant satisfaction with different program aspects, responses were like the program overall. Respondents were generally *satisfied* with the program, with a few participants *dissatisfied* with varying elements of the program. As shown in the figure below, the notification of an event and interactions with program staff had the most customers reporting being *very satisfied*. In contrast, the amount of the incentive had the most *dissatisfied* respondents.

Figure 36. Participant Satisfaction with Program Aspects

Source: Participant survey SAT1

*Don't know, not applicable, and refused responses are excluded.

Almost all respondents (91 percent, or 50 of 55) *plan to continue participating* in the program again next summer. Three respondents said they *did not know*, and two said they *would not*. Two of these five respondents said their participation would depend on the weather. If the weather is dry or “not too hot,” they would participate because they do not have to irrigate as much. Two respondents said it was “not worth the trouble,” and one respondent retired and no longer owned the farm. Of the five who *did not know* or *would not participate* next summer, two said they would recommend the program to others. Two respondents said they *did not know* if they would recommend the program, and one said they *would not*.

15.6 OVERALL SAVINGS ESTIMATES

The EM&V team evaluated Connected Energy's savings calculation by reviewing the program's metered load data, confirming the methodology and results, repeating the calculation steps, and reviewing additional input assumptions. To conduct the evaluation, the EM&V team received the following information from Connected Energy:

- 15-minute load data spanning May 15, 2022 through August 31, 2022 and
- calculations of the savings for each event hour for 2022.

The EM&V team finds that the MISO *SMA baseline calculation* is the most appropriate for the AILC program; of the three MISO approaches, this method best captures the variability in irrigation loads. Irrigation presents a challenge for demand-response programs in that the key driver is precipitation. Precipitation is not a factor that MISO currently includes in its weather adjustment method, based solely on load responses to temperature. MISO's other option—a *10 of 10 unadjusted baseline method*—is appropriate for more stable loads less influenced by weather or scheduling factors during event hours. Given MISO's three options, the EM&V team

finds this approach is the most appropriate, and no adjustments were made based on the calculation method.

Next, the EM&V team attempted to replicate the savings calculations provided by Connected Energy. The savings are based on average hourly baseline loads, the adjustment factor, and event-day hourly average loads. Table 223 describes the key calculation factors for each PY2022 event hour. Realization rates on savings range from 86.5 to 137.6 percent. Both Connected Energy and the EM&V team found agreement that the peak performing event hour was 15:00 to 16:00 on July 12 (in bold in Table 223).

Table 223. Agricultural Irrigation Load Control Program Load Control Event Baseline and Savings Comparison¹⁰²

Date	Hour starting (CDT)	Event hour load (kW)	Connected energy unadjusted baseline load (kW)	EM&V team unadjusted baseline load (kW)	Baseline adjusted factor	Connected energy event hour savings (kW)	EM&V team event hour savings (kW)	Realization rate (%)
6/1/2022	13:00	264	707	755	1.2	533	641	120.2
6/16/2022	14:00	834	3,692	4,692	1.2	3,487	4,796	137.6
6/16/2022	15:00	986	3,663	4,691	1.2	3,413	4,643	136.0
6/23/2022	12:00	18,548	7,865	8,807	1.2	-9,034	-7,979	88.3
6/23/2022	13:00	18,612	7,973	8,937	1.2	-9,043	-7,887	87.2
6/23/2022	14:00	18,847	8,210	9,205	1.2	-8,994	-7,802	86.7
6/23/2022	15:00	18,853	8,327	9,326	1.2	-8,859	-7,662	86.5
6/23/2022	16:00	19,223	8,268	9,286	1.2	-9,301	-8,080	86.9
7/12/2022	15:00	1,924	19,766	19,766	1.2	21,958	21,795	99.3
7/27/2022	13:00	1,511	17,396	17,396	1.2	19,387	19,364	99.9

There are minor differences in both unadjusted baseline kilowatt and SMA factors between Connected Energy and the EM&V team; the baseline adjustment factors for the EM&V team and Connected Energy are the same for all four events. Unadjusted baseline loads are different for all event hours covered during PY2022; however, differences are minor in absolute terms and are similar in magnitude between Connected Energy and the EM&V team on all event days.

¹⁰² Savings results may not be exact per the data in the table due to rounding occurring at several steps of the calculation.

16.0 CONSISTENT WEATHERIZATION APPROACH AND ACT 1102

This section presents the evaluation, measurement, and verification (EM&V) team’s consistent weatherization approach (CWA) estimates for Entergy Arkansas, LLC (EAL) residential programs in the PY2022. An overview of EAL’s implementation of the CWA is outlined in the TRM 9.0, Volume 1: EM&V Protocol C. EAL implements the CWA through four residential programs: Home Energy Solutions, Low-Income Solutions, Energy Solutions for Manufactured Homes, and Energy Solutions for Multifamily Homes.

Order No.7 in Docket No.13-002-U (Order) of the Arkansas Public Service Commission (APSC) requires all investor-owned utilities (IOU) to implement a consistent approach to providing weatherization services to eligible Arkansas residents. The Order identified key programmatic features that this CWA must include; these features were further developed and refined into a recommended framework—referred to as the Core program—for implementation by the IOUs.

Critical components of the Core program are:

- direct installation of low-cost energy-saving measures;
- installation of a set of *weatherization* measures, including *insulation* and *air sealing*; and
- management of the contractors that deliver the home assessments and installations.

The EM&V team presents estimates of direct installation, *weatherization* measures, and information regarding the number of contractors that participated in these installations during PY2022.

16.1 CONSISTENT WEATHERIZATION APPROACH FINDINGS

Table 224 provides program-specific counts of participants and quantities of energy-saving measures provided under the Home Energy Solutions, Low-Income Solutions, Energy Solutions for Manufactured Homes, and Energy Solutions for Multifamily Homes programs. A total of 12,114 unique participants were enrolled in the four programs, providing a total of 90,209 energy-saving measure units across the installed measures. The number of installed measures slightly decreased by three percent compared to 93,682 measures installed in PY2021.

Within the EAL residential program offerings, *weatherization* improvements continue to be among the most popular measures in the residential programs. *Air sealing* and *duct sealing* comprised over 13,314 of the energy efficiency units installed in PY2022, representing about 77 percent of energy savings across the year. These results are equal to PY2021, where 77 percent of savings were also provided by *air sealing* and *duct sealing* measures across the Home Energy Solutions, Energy Solutions for Multifamily Homes, and Energy Solutions for Manufactured Homes and Low-Income Solutions programs.

Table 224. PY2022 Participation in CWA Programs

Program	Participants ¹⁰³	Measure quantity
Home Energy Solutions	7,375	57,311
Energy Solutions for Multifamily Homes	2,349	12,561
Energy Solutions for Manufactured Homes	627	4,497
Low-Income Solutions	1,763	15,840
Total	12,114	90,209

Table 225 highlights the number of participants and quantities of measures received under the Home Energy Solutions, Energy Solutions for Manufactured Homes, and Energy Solutions for Multifamily Homes programs. A total of 90,209 energy efficiency measures were installed, most of which were *direct-install LED* bulbs.

Table 225. PY2022 Consistent Weatherization Measures Received—All Programs

Measure type	Measure description	Participants	Measure quantity
Appliance	Advanced power strip	5,030	5,040
Domestic hot water	Faucet aerator	885	1,685
	Low-flow showerhead	944	1,349
Envelope	Air infiltration	4,721	4,732
	Ceiling insulation	2,942	3,059
HVAC	Central air conditioner tune-up	1,206	1,322
	Heat pump tune-up	525	542
	Duct sealing/replacement	8,600	9,367
	Smart thermostat	437	522
Lighting	LED	5,672	62,591
Total		12,114	90,209

* A participant may install measures across multiple measure categories. Thus, the total count of participants may not equal the sum of the counts by measure category.

Below we highlight home energy audits and measures received by program participants within the Home Energy Solutions, Energy Solutions for Manufactured Homes, Energy Solutions for Multifamily Homes, and Low-Income Solutions programs.

¹⁰³ Participant count includes all participants reported in each program, including those that did not claim energy or demand savings such as duplicate *smart thermostat* measures claimed in the Smart DLC program, *health and safety* measures, *contractor performance bonus* measures, and *audit* measures.

16.1.1 Home Energy Solutions Program

The Home Energy Solutions program helps single-family residential customers identify opportunities to improve their home's energy efficiency. Local home energy consultants work with customers to develop long-term, cost-effective energy savings by analyzing their energy use. Program participants receive home energy assessments conducted by a trained trade ally and direct installation of no-cost measures, including *LEDs, low-flow faucet aerators, low-flow showerheads, and advanced power strips*. When the home assessment results indicate additional energy-saving work could be performed on-site, contractors encourage customers to install premium efficiency upgrades and cost-effective *weatherization* measures, including *ceiling insulation, air infiltration, duct sealing, duct replacement, air conditioner and heat pump tune-ups, and smart thermostats*. The program offers incentives for these premium energy efficiency upgrades.

Table 226 highlights the Core program's types, quantities, and cost of *direct-install* and *weatherization* measures implemented under the Home Energy Solutions program. A total of 7,375 eligible customers took part in the program, ultimately installing 57,311 energy-saving measures.

Table 226. PY2022 Consistent Weatherization Measures Installed—Home Energy Solutions Program

Measure category	Measure type	Participants ^{104*}	Measure quantity	Incentive (\$)
Domestic hot water	Faucet aerator	164	279	372
	Showerhead	206	280	1,780
Envelope	Air infiltration	2,451	2,453	474,224
	Ceiling insulation	2,254	2,369	3,137,179
Appliances	Advanced power strip	3,143	3,151	52,826
HVAC	Air conditioner tune-up	524	611	152,750
	Residential heat pump tune-up	260	275	68,750
	Duct sealing	5,199	5,909	4,340,198
	Smart thermostat	309	386	86,252
Lighting	LED	3,605	41,598	53,246
Total		7,375	57,311	\$8,367,577

* A participant may install measures across multiple measure categories. Thus, the total count of participants may not equal the sum of the counts by measure category.

¹⁰⁴ Participant count includes all participants reported in each program, including those that did not claim energy or demand savings such as duplicate *smart thermostat* measures claimed in the Smart DLC program, *contractor performance bonus* measures, and *audit* measures.

A total of 2,131 Home Energy Solutions participants received a home energy audit (1,641 *Tier 1 Audits* and 490 *Tier 2 Audits*). All participants that received a home energy audit also installed at least one energy efficiency measure through the program, bringing the conversion rate (the ratio of audits to projects) to 1:1. Approximately eight energy-saving units were installed per participating customer, on average. The program's cost¹⁰⁵ is estimated at \$8,783,194 (including the cost associated with energy audits and contractor performance bonus) across the 7,375 participating households throughout EAL's territory in PY2022, producing a total of 29,393 MWh and 9.7 MW in net savings. The average cost of the program was approximately \$1,191 per participant.

Ultimately, 35 contractors conducted home energy audits or installations through the program. All 35 contractors installed at least one energy-efficiency measure type. All 35 contractors implemented weatherization measures; 22 of these 35 implemented direct-install measures as well.

16.1.2 Energy Solutions for Manufactured Homes Program

The Energy Solutions for Manufactured Homes program provides cost-effective energy efficiency measures to manufactured home communities throughout EAL's service territory. After installing no-cost direct-install energy efficiency measures in participating customers' homes, program technicians provide an audit of the home to provide property owners and residents details about additional energy-saving opportunities. Suppose additional energy-saving work could be performed on the site. In that case, contractors encourage customers to install premium efficiency upgrades and cost-effective weatherization measures, including air conditioner and heat pump tune-ups, air sealing, duct sealing, and smart thermostats. The program offers incentives for these premium energy efficiency upgrades.

Table 227 highlights the types and quantities of Core program direct-install and weatherization measures implemented under the Energy Solutions for Manufactured Homes program. A total of 627 eligible customers took part in the program, ultimately installing 4,497 energy-saving units.

Table 227. PY2022 Consistent Weatherization Measures Received—Energy Solutions for Manufactured Homes Program

Measure category	Measure type	Participants ^{106*}	Measure quantity	Incentive (\$)
Domestic hot water	Faucet aerator	297	297	209
	Showerhead	72	174	664
Envelope	Air infiltration	72	105	67,977
Appliances	Advanced power strip	261	261	5,018
HVAC	Air conditioner tune-up	114	114	28,500
	Residential heat pump tune-up	10	10	2,500
	Duct sealing	529	532	577,387
	Smart thermostat	26	31	6,927
Lighting	LED	296	2,973	3,691
Total		627	4,497	\$692,873

* A participant may install measures across multiple measure categories. Thus, the total count of participants may not equal the sum of the counts by measure category.

A total of 138 Home Energy Solutions participants received a home *energy audit* (80 *Tier 1 Audits* and 58 *Tier 2 Audits*). All participants that received a home *energy audit* also installed at least one energy efficiency measure through the program, bringing the conversion rate (the ratio of *audits* to projects) to 1:1. Approximately seven energy-saving units were installed per participating customer, on average. The program's cost¹⁰⁷ is estimated at \$705,498 (including the cost associated with *energy audit* and *contractor performance bonus*) across the 627 participating households throughout EAL's territory in PY2022, producing a total of 6,227 MWh and 0.8 MW in net savings. The average cost of the program was approximately \$1,125 per participant.

Ultimately, 20 contractors conducted home *energy audits* and installations through the program. All contractors installed at least one energy-efficiency measure. All contractors implemented *weatherization* measures, and 15 also implemented *direct-install* measures.

16.1.3 Energy Solutions for Multifamily Homes Program

The Energy Solutions for Multifamily Homes program provides cost-effective energy efficiency measures to multifamily residences with at least five units. After installing no-cost energy efficiency measures in units of participating customers, program contractors provide energy audits to multifamily property owners with details about additional energy-saving opportunities. Suppose additional energy-saving work could be performed on the site. In that case, contractors encourage customers to install premium efficiency upgrades and cost-effective *weatherization* measures, including *air conditioner tune-ups and heat pump tune-ups, air sealing, and duct sealing*. The program offers incentives for these premium energy efficiency upgrades.

Table 228 highlights the types and quantities of the Core program *direct-install* and *weatherization* measures implemented under the Energy Solutions for Multifamily Homes program. A total of 2,349 eligible participants took part in the program, ultimately installing 12,561 energy-saving units.

¹⁰⁵ The program's cost is estimated based on the *Total Incentive Amount* per installed measure as reported by the program's tracking database.

¹⁰⁶ Participant count includes all participants reported in each program, including those that did not claim energy or demand savings such as duplicate *smart thermostat* measures claimed in the Smart DLC program, *contractor performance bonus* measures, and *audit* measures.

¹⁰⁷ The program's cost is estimated based on the *Total Incentive Amount* paid per installed measure as reported by the program's tracking database.

Table 228. PY2022 Consistent Weatherization Measures Received—Energy Solutions for Multifamily Homes Program

Measure category	Measure type	Participants ^{108*}	Measure quantity	Incentive (\$)
Domestic hot water	Faucet aerator	577	579	663
	Showerhead	336	651	1,998
Envelope	Air infiltration	353	481	225,504
	Ceiling insulation	1,363	1,371	230,123
Appliances	Advanced power strip	326	326	9,616
HVAC	Air conditioner tune-up	527	555	80,475
	Residential heat pump tune-Up	118	118	17,700
	Duct sealing	1,526	1,552	757,053
Lighting	LED	732	6,928	9,156
Total		2,349	12,561	\$1,332,288

* A participant may install measures across multiple measure categories. Thus, the total count of participants may not equal the sum of the counts by measure category.

A total of 78 Home Energy Solutions participants received a home *energy audit* (64 *Tier 1 Audits* and 14 *Tier 2 Audits*). All participants that received a home energy audit also installed at least one energy efficiency measure through the program, bringing the conversion rate (the ratio of *audits* to projects) to 1:1. Approximately five energy-saving units were installed per participating customer, on average. The program's cost¹⁰⁹ is estimated at \$1,350,103 (including the cost associated with *energy audits* and *contractor performance bonus*) across the 2,349 participating households throughout EAL's territory in PY2022, producing a total of 10,646 MWh and 1.8 MW in net savings. The average cost of the program was approximately \$575 per participant.

Ultimately, 20 contractors conducted home *energy audits* and installations through the program. All contractors installed at least one energy-efficiency measure. All 20 contractors implemented *weatherization* measures; of these 20, 13 also installed *direct-install* measures.

¹⁰⁸ Participant count includes all participants reported in each program, including those that did not claim energy or demand savings such as duplicate *smart thermostat* measures claimed in the Smart DLC program, *contractor performance bonus* measures, and *audit* measures.

¹⁰⁹ The program's cost is estimated based on the *Total Incentive Amount* paid per installed measure as reported by the program's tracking database.

16.1.4 Low-Income Solutions Program

The Low-Income Solutions program helps low-income households become more comfortable, safe, and energy-efficient through *home weatherization* and *health and safety upgrades* at no cost to customers. The Low-Income Solutions program also helps with home repairs to correct minor problems that may otherwise prevent the building from receiving *weatherization* upgrades or pose a *health or safety* risk. As part of the Low-Income Solutions program, EAL offers the following services at no cost to qualifying customers: *home energy assessments* by qualified field technicians, *LEDs*, *low-flow showerheads*, *faucet aerators* (for kitchens and bathrooms), and *advanced power strips*. EAL also offers the following measures at no cost to the customer: *air sealing*, *duct sealing*, *ceiling insulation*, *air conditioner and heat pump tune-ups*, and *smart thermostats*. Table 229 highlights the types and quantities of the Core program *direct-install* and *weatherization* measures implemented under the Low-Income Solutions program. A total of 1,763 eligible participants took part in the program, ultimately installing 15,840 energy-saving units.

Table 229. PY2022 Consistent Weatherization Measures Received Low-Income Solutions Program

Measure category	Measure type	Participants ^{110*}	Measure quantity	Incentive (\$)
Domestic hot water	Faucet aerator	313	581	903
	Showerhead	313	483	2,513
Envelope	Air infiltration	646	647	177,084
	Ceiling insulation	362	364	514,338
Appliances	Advanced power strip	1,013	1,013	17,016
HVAC	Air conditioner tune-up	41	42	10,185
	Residential heat pump tune-up	137	139	32,150
	Duct sealing	1,346	1,374	983,294
	Smart thermostat	102	105	23,462
Lighting	LED	1,039	11,092	14,157
Total		1,763	15,840	\$1,775,102

* A participant may install measures across multiple measure categories. Thus, the total count of participants may not equal the sum of the counts by measure category.

¹¹⁰ Participant count includes all participants reported in each program, including those that did not claim energy or demand savings such as duplicate *smart thermostat* measures claimed in the Smart DLC program, *health and safety* measures, *contractor performance bonus* measures, and *audit* measures.

Table 230 shows the types and quantities of the Core program health and safety measures implemented under the Low-Income Solutions program. A total of 1,536 participants, 87 percent, received *health and safety* measures out of 1,763 total program participants. On average, two *health and safety* measure units were installed per customer that received this measure.

Table 230. PY2022 Consistent Weatherization Health and Safety Measures Received Low-Income Solutions Program

Measure description	Health and safety incentives spent	Percentage of health and safety incentives spent	Quantity installed
Capping unvented gas wall heater	760	0.2%	3
CO/smoke detector	79,842	26.3%	2,042
Dryer	55,204	18.2%	413
Drywall repair	8,772	2.9%	25
Duct repair/replacement	5,162	1.7%	16
Electrical repairs	2,028	0.7%	10
Floor repair	465	0.2%	1
HVAC	15,613	5.1%	63
Other	3,748	1.2%	11
Plumbing repair	267	0.1%	1
Roof repair	275	0.1%	1
Subfloor repair	1,000	0.3%	2
Ventilation	128,576	42.3%	416
Window/door repair or replacement	2,395	0.8%	12
Total	\$304,108	100%	3,016

A total of 421 Home Energy Solutions participants received a home energy audit (389 *Tier 1 Audits* and 32 *Tier 2 Audits*). All participants that received a home energy audit also installed at least one energy efficiency measure through the program, bringing the conversion rate (the ratio of *audits* to projects) to 1:1. Approximately nine energy-saving units were installed per participating customer, on average. The program's cost¹¹¹ is estimated at \$2,125,964 (including the cost associated with *energy audits*, *contractor performance bonus*, and *health and safety* measures) across the 1,763 participating households throughout EAL's territory in PY2022, producing a total of 7,856 MWh and 1.9 MW in net savings. The average cost of the program was approximately \$1,206 per participant.

¹¹¹ The program's cost is estimated based on the *Total Incentive Amount* paid per installed measure as reported by the program's tracking database.

Ultimately, 13 contractors conducted home energy audits and installations through the program. All 13 contractors installed at least six energy-efficient measure types. Among them, all 13 implemented *audit* or *weatherization* measures; 12 of those 13 contractors also installed *direct-install* measures.

16.2 ACT 1102

To meet the objectives outlined in Act 1102, EAL launched the Low-Income Energy Solutions program in PY2020 and continued to implement the program in PY2022. The program is designed to serve low-income (defined as Low-Income Home Energy Assistance Program (LIHEAP)-eligible) or seniors (defined as 65 and older).

16.2.1 Key Findings

As by design, the Low-Income Energy Solutions program fully meets Act 1102 objectives, with about three-quarters (71.1 percent) of participants being LIHEAP-eligible. Almost one-half (45.2 percent) of participants are 65 or older. Some fall into both categories; households have to be in one of the two categories to qualify to participate in the Low-Income Energy Solutions program.

At the same time, it is important to note that the other three existing programs—Home Energy Solutions, Energy Solutions for Manufactured Homes, and Energy Solutions for Multifamily Home—also continue to serve residential households to meet Act 1102 objectives.

16.2.2 Methodology Overview

Act 1102 information in this section is based on the most recent process evaluations available, including PY2020 process evaluation results for Home Energy Solutions and Low-Income Solutions programs and PY2018 process evaluation results implemented for Energy Solutions for Manufactured Homes and Energy Solutions for Multifamily Homes programs (note that the PY2021 Energy Solutions for Manufactured Homes and Energy Solutions for Multifamily Homes process research focused on in-depth interviews with decision-makers and the majority were landlords or property managers. Therefore, the participant surveys from PY2018 are a more reliable estimate for Act 1102 purposes.)

Table 231 provides program-specific counts of participants and the number of completed process evaluation surveys for EAL's four residential programs that directly serve customers' homes. A total of 12,951 unique accounts participated, with a total of 346 surveys completed.¹¹²

¹¹² Survey respondents were those in the household that were most knowledgeable of the details of and the overall experience from participation in residential program offerings.

Table 231. PY2022 in Residential Programs (Excluding Upstream Programs)

Program	Participants	Completed process surveys
Home Energy Solutions	7,369	108
Energy Solutions for Manufactured Homes	627	90
Energy Solutions for Multifamily Homes	2,348	104
Low-Income Solutions	1,727	44
Total	12,071	346

Combining data collected on household size and household income, the EM&V team generated an estimate of the number and share of survey respondents eligible for assistance under LIHEAP. To do so, the EM&V team utilized a table of LIHEAP-eligibility cutoffs contained in Table 232, where LIHEAP eligibility is determined through a combination of household size and household income.

Table 232. PY2022 Income and Household Size Cutoffs to Determine LIHEAP Eligibility¹¹³

Household size	Annual income
1	\$21,870
2	\$29,580
3	\$37,290
4	\$45,000
5	\$52,710
6	\$60,420
7	\$68,130
8	\$75,840

16.2.3 Program-Level Results

Below we summarize program participant information for the Low-Income Solutions, Home Energy Solutions, Energy Solutions for Manufactured Homes, and Energy Solutions for Multifamily Homes programs. Consistent with guidance from the independent evaluation monitor, the most recent process evaluation survey results have been applied to each program's total number of participants in PY2022. The survey results are used to estimate the number of program participants falling into (1) age, (2) income, and (3) LIHEAP eligibility bins to determine the approximate total number of participants falling within each respective bin.

¹¹³ LIHEAP eligibility is reported for the current program year and can be found at <https://www.benefits.gov/benefit/1542>. LIHEAP eligibility is updated annually, and the applicable program year is used in calculating process survey participants' eligibility. For households with more than eight people, \$7,710 per additional person is added.

16.2.4 Low-Income Solutions Program

This program targets low-income households eligible for LIHEAP or EAL customers aged 65 or older. In PY2022, the program incentivized *ceiling insulation, air infiltration, duct sealing, air conditioner and heat pump tune-ups, and smart thermostats* measures while providing direct installation of *faucet aerators, low-flow showerheads, advanced power strips, and lighting* measures at no cost to the customers.

Table 233 highlights key demographic information for participants. The EM&V team applied process survey responses and the resulting shares of respondents falling into age, income, and LIHEAP eligibility bins to determine the approximate total number of participants falling within each respective bin.

Based on the survey conducted in PY2020, approximately 45.2 percent of surveyed program participants were aged 65 or older, and approximately 71.1 percent were eligible for LIHEAP benefits. Applying these shares to PY2022 participation numbers, approximately 797 participants were 65 or older, and approximately 1,253 participants were eligible for LIHEAP benefits.

Table 233. PY2022 Demographic Information—Low-Income Solutions Program

Respondent characteristic		Percentage	Participants ¹¹⁴
Respondent age	18–24	2.40%	42
	25–34	4.80%	85
	35–44	7.10%	125
	45–54	7.10%	125
	55–64	33.30%	587
	65 or older	45.20%	797
	Participants (n)		1,763
LIHEAP status	LIHEAP-eligible	71.10%	1,253
	Not LIHEAP-eligible	28.90%	510
	Participants (n)		1,763

*Percentages are estimated from PY2020 process surveys.

16.2.5 Home Energy Solutions Program

Home Energy Solutions helps single-family residential customers analyze their energy use and identify opportunities to improve their homes' energy efficiency. Program participants receive home energy assessments conducted by a trained trade ally and direct installation of low-cost measures, including *LEDs, low-flow faucet aerators, low-flow showerheads, and advanced power strips*. When the home assessment results indicate additional energy-saving work could be performed at the site, contractors encourage customers to install premium efficiency

¹¹⁴ Participant count includes all participants reported in each program including those that did not claim energy or demand savings such as duplicate smart thermostat measures claimed in the Smart DLC program, *health and safety* measures, *contractor performance bonus* measures, and *audit* measures.

upgrades and cost-effective *weatherization* measures, including *ceiling insulation*, *air infiltration*, *duct sealing* or *duct replacement*, *air conditioner* and *heat pump tune-ups* and *smart thermostat* measures.

Table 234 highlights key demographic information for the Home Energy Solutions program participants. The EM&V team applied PY2020 process survey responses and the resulting shares of respondents falling into age, income, and LIHEAP-eligibility bins to determine the approximate total number of participants falling within each respective bin. In PY2020, approximately 24 percent of surveyed Home Energy Solutions participants were aged 65 or older. Applying these shares to PY2022 participation numbers, 1,741 participants were 65 or older. Approximately 14 percent of surveyed participants were LIHEAP-eligible, resulting in an estimated 1,033 participants for PY2022.

Table 234. PY2022 Demographic Information—Home Energy Solutions

Respondent characteristic		Percentage	Participants ¹¹⁵
Respondent age	18–24	0.9%	66
	25–34	15.1%	1,114
	35–44	19.8%	1,460
	45–54	21.7%	1,600
	55–64	18.9%	1,394
	65 or older	23.6%	1,741
	Participants (n)		
Income	Less than \$25,000	11.1%	819
	\$25,000 to less than \$50,000	20.4%	1,505
	\$50,000 to less than \$75,000	18.5%	1,364
	\$75,000 to less than \$100,000	22.2%	1,637
	\$100,000 or greater	27.8%	2,050
	Participants (n)		
LIHEAP status	LIHEAP-eligible	14.0%	1,033
	Not LIHEAP-eligible	86.0%	6,343
	Participants (n)		

*Percentages are estimated from PY2020 process surveys.

¹¹⁵ Participant count includes all participants reported in each program, including those that did not claim energy or demand savings such as duplicate *smart thermostat* measures claimed in the Smart DLC program, *contractor performance bonus* measures, and *audit* measures.

16.2.6 Energy Solutions for Manufactured Homes Program

The Energy Solutions for Manufactured Homes program provides cost-effective energy efficiency measures to manufactured home communities throughout EAL's service territory. After installing no-cost *direct-install* energy efficiency measures in participating customers' homes, program technicians provide an audit of the home to provide property owners and residents details about additional energy-saving opportunities. Suppose additional energy-saving work could be performed on-site. In that case, contractors encourage customers to install premium efficiency upgrades and cost-effective *weatherization* measures, including *air conditioner and heat pump tune-ups, air sealing, duct sealing and smart thermostats*. The program offers incentives for these premium energy efficiency upgrades.

Table 235 highlights key demographic information for participants in the Energy Solutions for Manufactured Homes program. The EM&V team applied process survey responses and the resulting shares of respondents falling into age, income, and LIHEAP-eligibility bins to determine the approximate total number of participants falling within each respective bin. In PY2018, approximately 24 percent of surveyed Energy Solutions for Manufactured Homes participants were aged 65 or older, and approximately 22 percent were eligible for LIHEAP benefits. Applying these shares to PY2022 participation numbers, approximately 150 were 65 or older and approximately 135 participants were eligible for LIHEAP benefits in PY2022.

Table 235. PY2022 Demographic Information—Energy Solutions for Manufactured Homes Program

Respondent characteristic		Percentage*	Participants* ¹¹⁶
Respondent age	18–24	2.8%	18
	25–34	11.3%	71
	35–44	18.3%	115
	45–54	23.9%	150
	55–64	19.7%	124
	65 or older	23.9%	150
	Participants (n)		
Income	Less than \$25,000	44.6%	280
	\$25,000 to less than \$50,000	38.5%	241
	\$50,000 to less than \$75,000	10.8%	68
	\$75,000 to less than \$100,000	4.6%	29
	\$100,000 of greater	1.5%	9
	Participants (n)		
LIHEAP status	LIHEAP eligible	21.5%	135
	Not LIHEAP eligible	78.5%	492
	Participants (n)		

*Percentages are estimated from PY2018 process surveys.

¹¹⁶ Participant count includes all participants reported in each program, including those that did not claim energy or demand savings such as duplicate *smart thermostat* measures claimed in the Smart DLC program, *contractor performance bonus* measures, and *audit* measures.

16.2.7 Energy Solutions for Multifamily Homes Program

The Energy Solutions for Multifamily Homes program provides cost-effective energy efficiency measures to multifamily residences with at least five units. After installing no-cost energy efficiency measures in units of participating customers, program technicians provide energy audits to multifamily property owners with details about additional energy-saving opportunities. When additional energy-saving work could be performed on-site, contractors encourage customers to install premium efficiency upgrades and cost-effective *weatherization* measures, including *ceiling insulation*, *air conditioner* and *heat pump tune-ups*, *air sealing*, and *duct sealing*. The program offers incentives for these premium energy efficiency upgrades.

Table 236 highlights key demographic information for participants in the Energy Solutions for Multifamily Homes program. The EM&V team applied process survey responses and the resulting shares of respondents falling into age, income, and LIHEAP-eligibility bins to determine the approximate total number of participants falling within each respective bin. In PY2018, approximately nine percent of surveyed Energy Solutions for Multifamily Homes participants were aged 65 or older, and approximately 26 percent were eligible for LIHEAP benefits. Applying these shares to PY2022 participation numbers, approximately 204 participants were 65 or older in PY2022. Approximately 618 participants were eligible for LIHEAP benefits in PY2022.

Table 236. PY2022 Demographic Information—Energy Solutions for Multifamily Homes

Respondent characteristic		Percentage*	Participants ¹¹⁷
Respondent age	18–24	4.3%	101
	25–34	21.7%	510
	35–44	30.4%	714
	45–54	17.4%	409
	55–64	17.4%	409
	65 or older	8.7%	204
	Participants (n)		2,349
Income	Less than \$25,000	57.9%	1,360
	\$25,000 to less than \$50,000	26.3%	618
	\$50,000 to less than \$75,000	5.3%	124
	\$75,000 to less than \$100,000	5.3%	124
	\$100,000 of greater	5.3%	124
	Participants (n)		2,349
LIHEAP status	LIHEAP-eligible	26.3%	618
	Not LIHEAP-eligible	73.7%	1,731
	Participants (n)		2,349

*Percentages are estimated from PY2018 process surveys.

¹¹⁷ Participant count includes all participants reported in each program, including those that did not claim energy or demand savings such as duplicate *smart thermostat* measures claimed in the Smart DLC program, *contractor performance bonus* measures, and *audit* measures.

17.0 NON-ENERGY BENEFITS

The key measure of success for electric energy efficiency programs is the direct savings achieved in energy (kilowatt-hours, kWh) and demand (kilowatts, kW). However, the energy efficiency industry recognizes that other benefits related to the implementation of these measures exist. These additional benefits can include reductions in maintenance, water usage, wastewater needs, fossil fuel consumption, arrears, terminations and reconnections, cooling loads due to the reduced heat inputs, and potentially even insurance premiums. These benefits can account for increases in health, safety, comfort, property values, and even productivity.

In 2015, the Arkansas Public Service Commission issued a directive to the independent evaluation monitor (IEM) to establish an approach for quantifying non-energy benefits (NEB) in cases where they are material and quantifiable. The Arkansas Technical Reference Manual (TRM) Evaluation, Measurement, and Verification (EM&V) Protocol L (Protocol L) provides a framework and orientation for quantifying benefits not included under standard forms of EM&V savings calculations. Sections of Protocol L identify three types of NEBs calculations:

- *Protocol L1*: NEBs for electricity, natural gas, and liquid propane (*other fuels*);
- *Protocol L2*: NEBs for water savings; and
- *Protocol L3*: NEBs of avoided and deferred equipment replacement costs (ADRC).

Protocol L1: NEBs for Electricity, Natural Gas, and Liquid Propane

Measures installed through Entergy Arkansas, LLC's (EAL) energy efficiency programs occasionally generate savings for multiple fuel types. NEBs are calculated for *other fuels* (i.e., not electricity) not supplied by EAL when the EM&V team can identify them, and gas utilities cannot claim the savings. Projects delivered jointly through EAL and gas utilities cannot provide other fuel NEBs to EAL, as the respective gas utility already claims the gas savings. These other fuels typically include natural gas and propane.¹¹⁸ Such calculations multiply the additional benefits of other fuels by the present value of the avoided cost-per-unit energy savings. The analysis of *other fuel NEBs* uses the following equation:

$$\text{Benefit} = \text{Energy Savings} \times \text{Avoided Other Fuel Costs}$$

Where:

- Benefit* = avoided economic costs per unit of energy savings of the other fuel savings over the lifetime of the measure, expressed in current dollars
- Energy savings* = annual number of other fuel kilowatt-hours, therms, or gallons of propane saved per measure installed
- Avoided costs* = present value of the avoided cost-per-unit energy saving

¹¹⁸ Propane savings = therm savings * 1.1.

Protocol L2: NEBs for Water Savings

Some energy efficiency measures reduce water and wastewater consumption. NEBs calculations for *water savings* use an algorithm to estimate the value of avoided water and wastewater consumption due to measures installed in energy efficiency programs. Program year (PY) 2022 (PY2022) marginal water rates were \$0.00859 (residential) and \$0.00741 (commercial) per gallon.¹¹⁹ The EM&V team multiplied projects' total gallons by these rates to obtain total avoided costs.

The calculation of avoided costs resulting from *water savings* uses the following equation:

$$\textit{Benefit} = \textit{Water Savings} \times \textit{Avoided Water Costs}$$

Where:

Benefit = avoided cost of water and water savings (per gallon) over the lifetime of the measure, expressed in current dollars

Water savings = annual number of gallons saved per measure installed

Avoided water costs = present value of the avoided costs-per-unit energy saving

Protocol L3: NEBs of Avoided and Deferred Equipment Replacement Costs

The EM&V team quantified ADRCs by estimating the future value of the current price of not replacing a less-energy efficient piece of equipment with a more energy-efficient piece of equipment. This calculation accounts for the disparity between the estimated useful life (EUL) of baseline measures and their more efficient replacements. There are two main types of ADRCs: *replace-on-burnout (ROB)* and *early replacement (ER)*; many of the NEBs identified for each measure in EAL's portfolio fall under the *ER* category.

17.1 CALCULATION INPUTS

The NEBs calculations for EAL's 2022 energy efficiency portfolio use the static inputs presented in Table 237. Where appropriate, prices have been updated to 2022 dollars using a compounding annual inflation rate of 2.09 percent.

Table 237. PY2022 Static Non-Energy Benefit Parameters

Parameter	Value	Source
Nominal discount rate	6.33%	EAL
Inflation rate	2.09%	EAL
Real discount rate	4.15%	Equation 4
Propane	\$2.43 per gallon	Arkansas TRM 9.0 (2022 dollars)
Natural gas	\$0.59 per therm	EAL 2017; updated to 2022 dollars

¹¹⁹ Arkansas TRM 9.0, Volume 1: Section L2, Table 9.

Parameter	Value	Source
Water (residential)	\$0.00859 per gallon	TRM 9.0 (2022 dollars)
Water (commercial)	\$0.00741 per gallon	TRM 9.0 (2022 dollars)
Water (unknown)	\$0.00803 per gallon	TRM 9.0 (2022 dollars)
Net-to-gross (NTG) ratio	Variable by program and measure	EM&V team research

Equation 4. Real Discount Rate

$$RDR = \frac{(0.0633 - 0.0209)}{(1 + 0.0209)} = 0.0415$$

Equation 5. Compound Interest

$$Price_{2020} = Price_y \left(1 + \frac{i}{(2022 - y)} \right)^{2022-y}$$

Where:

$Price_y$ = original price in year y

i = inflation rate

y = year corresponding to original price

The EM&V team employed algorithms defined in TRM 9.0 for each measure and NEB category. The EM&V team adapted the Excel-based calculator created by the Parties Working Collaboratively (PWC). Using this calculator, the EM&V team estimated the avoided and deferred replacement costs of installed measures, using a dual baseline when warranted under TRM 9.0.

17.2 IDENTIFICATION OF NON-ENERGY BENEFITS IN THE PY2022 PORTFOLIO

Using data extracts from the tracking system,¹²⁰ the EM&V team identified energy-efficient measures offered to customers through EAL's portfolio of energy efficiency programs and determined which type(s) of NEBs are attributable to each measure. Table 238 and Table 239 summarize EAL's PY2022 portfolio measures and NEBs the EM&V team calculated for each measure. The table also provides the relevant TRM subsection for each measure used to calculate primary energy impacts and NEBs.

¹²⁰ Files for analysis were downloaded in February and March 2023 and contain finalized PY2022 data.

Table 238. Non-Energy Benefits by Measure (Residential Sector)

Measure	Water reduction	Other fuel	Avoided/deferred replacement costs	TRM 9.0, Vol. 2 subsection
Advanced strips				2.6.1
Air conditioner tune-up				2.1.5
Air infiltration		✓		2.2.9
Ceiling insulation		✓		2.2.2
Duct sealing—air conditioner (AC) with resistance heat				2.1.11
Duct sealing—electric cooling		✓		2.1.11
Duct sealing—heat pump				2.1.11
Duct sealing electric resistance no cooling				2.1.11
Efficient hot water heaters				2.3.1
ENERGY STAR® dehumidifiers				2.4.4
ENERGY STAR freezers				N/A
ENERGY STAR directional light-emitting diode (LED)		✓	✓	2.5.1.3
ENERGY STAR omnidirectional LEDs		✓	✓	2.5.1.4
ENERGY STAR pool pumps				2.6.2
ENERGY STAR room air-cleaners				2.4.5
ENERGY STAR window AC replacement				2.1.10
Faucet aerators	✓	✓		2.3.4
Hard-wired LED fixtures		✓	✓	2.5.1.3
Heat pump tune-up				2.1.5
Low-flow showerheads	✓	✓		2.3.5
Smart thermostats		✓		2.1.12
Variable frequency drive				N/A

Table 239. Non-Energy Benefits by Measure (Commercial Sector)

Measure	Water reduction	Other fuel	Avoided/deferred replacement costs	TRM 9.0, Vol. 2 subsection
Commercial AC/HP tune-up				3.1.6
Commercial door air infiltration		✓		3.2.10
Commercial showerheads	✓	✓		3.3.5
Commercial Wi-Fi thermostats		✓		N/A

Measure	Water reduction	Other fuel	Avoided/deferred replacement costs	TRM 9.0, Vol. 2 subsection
Continuous energy improvement		✓		N/A
Custom—heating and cooling		✓		N/A
Custom—non-heating and cooling		✓		N/A
Custom controls		✓		N/A
Custom—non-lighting		✓		N/A
Electronically commutated motors for refrigeration				3.4.1
Evaporator fan controls				3.7.10
Faucet aerators	✓	✓		3.3.2
Halogens				3.6.3
High-efficiency battery chargers				3.6.3
High-intensity discharge (HID) lamps		✓	✓	3.6.3
Integrated-ballast compact fluorescent lamps (CFL)		✓	✓	3.6.3
Integrated-ballast LED lamps		✓	✓	3.6.3
LEDs		✓	✓	3.6.3
Lighting controls		✓		3.6.2
Low-flow pre-rinse spray valves	✓			3.7.12
Low-flow showerheads	✓			3.3.5
Magnetic ballast T5 or premium T8 retrofit of T12		✓	✓	3.6.3
Midstream: exterior fixtures			✓	3.6.3
Midstream: interior fixtures		✓	✓	3.6.3
Midstream: interior lamps		✓	✓	3.6.3
Modular CFLs and cold cathode fluorescent lamp (CCFL)		✓	✓	3.6.3
Occupancy-based PTHP/PTAC controls (packaged terminal heat pump/package terminal air conditioner)		✓		3.1.14
Other linear fluorescents		✓	✓	3.6.3
Refrigeration door gaskets				3.5.7
Refrigeration strip curtains				3.5.6
Unitary and split system AC/HP equipment				3.1.16

Measure	Water reduction	Other fuel	Avoided/deferred replacement costs	TRM 9.0, Vol. 2 subsection
Variable frequency drives				N/A
Water-chilling equipment—air-cooled				3.1.17
Water-chilling equipment—water-cooled centrifugal				3.1.17
Zero energy doors				3.5.8

17.3 NON-ENERGY BENEFITS METHODOLOGIES

Below we describe the methodologies used by the EM&V team to calculate savings associated with three primary categories of NEBs: ADRCs (associated with *lighting* measures), NEBs for *water savings*, and NEBs for *other fuels*. Note that all NEBs calculations are at the program-by-measure level for which the EM&V team conducted NTG research. To ensure that we present net NEBs in the final results, we multiply the calculations detailed below by NTG ratios at the program-by-measure level.

17.3.1 Avoided and Deferred Replacement Costs: Lighting Measures

Installed energy-efficient *lighting* may have a longer EUL than the inefficient/baseline equipment it replaced. Customers avoid replacing the technology that would have been present absent the efficient equipment over the efficient equipment's lifetime (*avoided replacement costs*). When customers replace energy-using equipment before the end of its functional life, this ER accelerates the replacement cycle, deferring the replacement of baseline equipment (*deferred replacement costs*).

Participants in energy efficiency programs can receive energy-efficient *lighting* technologies. Typically, these technologies have longer-rated lives than the baseline technologies they replace. For example, consider a customer with *incandescent lamps* throughout their home that they replace with *LED lamps*. *Incandescent lamps* have a rated measure life that is one-eighth the life of an *LED lamp*. Had the customer not participated in an energy-efficient lighting program, they would have replaced the *incandescent lamp* with one-eighth the life of an *LED lamp* eight times over the *LED lamp's* life. This longevity affords the customer savings in replacement costs they would have incurred in the program's absence. Therefore, efficient *lighting* technology comes with savings from avoided replacement. The extent of these savings depends on the baseline *lighting* technology replaced and the efficient technology's lifetime replacing it.

Baseline technology assumptions for efficient lighting technologies depend on whether efficient lighting is installed at a residential or commercial site. In PY2022, the residential lighting baseline is *halogen* or *incandescent lighting*. Commercial customers currently have deferred replacement costs based on baseline lighting technologies before replacement with efficient lighting.

17.3.1.1 Deferred Replacement Cost Equations

Equations below detail the deferred replacement costs for ER and ROB projects. Equation 6 and Equation 7 below relate to deferred replacement costs associated with efficient *lighting* technologies with static baseline technologies.

Equation 6. Deferred Replacement Cost—Replace-on-Burnout—Static Baseline

$$ROB_{Static} = \left\{ \frac{1 - [(1 + RDR)^{EUL_{base} - EUL_{eff}}]}{[(1 + RDR)^{EUL_{base}}] - 1} \right\} * Cost_{base}$$

Equation 7. Deferred Replacement Cost—Early Retirement—Static Baseline

$$ER_{Static} = \left\{ \frac{[(1 + RDR)^{EUL_{base} - RUL_{base}} - (1 + RDR)^{EUL_{base} - EUL_{eff}}]}{[(1 + RDR)^{EUL_{base}}] - 1} \right\} * Cost_{base}$$

Inputs contained in the above equations correspond with the following:

RDR = real discount rate, corresponding with Equation 4.

$$EUL_{base} = \frac{BaselineLifeHours}{AOH * PAF}$$

$$EUL_{eff} = \frac{EfficientLifeHours}{AOH * PAF}$$

Where:

BaselineLifeHours corresponds with the rated life in hours associated with the baseline lighting technology.

EfficientLifeHours corresponds with the rated life in hours associated with efficient lighting technology.

AOH = Annual Operating Hours, the annual operating hours of the site receiving efficient lighting technology.

PAF = Power Adjustment Factor, adjustments to lighting power corresponding with the existence of lighting controls—equal to one for all lighting projects in the tracking system

$$RUL_{base} = \frac{EUL_{base}}{3}$$

Cost_{Base} corresponds to the total replacement costs for the baseline lighting technology.

17.3.1.2 Residential Lighting

EAL's residential programs offer *LED lighting* to residential customers. When computing deferred replacement costs, the EM&V team utilized assumptions about efficient lighting measures' lives contained within TRM 9.0. For residential *lighting* projects, deferred replacement cost calculations followed the following logic:

Early Retirement Versus Replace-on-Burnout

Deferred replacement cost calculations will differ based on whether the *lighting* project was an ER or ROB. For the Home Energy Solutions, Energy Solutions for Manufactured Homes, Energy Solutions for Multifamily Homes, and Low-Income Solutions programs, all *lighting* projects in the tracking system file extracts were ER. All ER projects have baseline technology with a remaining useful life. The EM&V team assumed a remaining useful life equal to one-third of the baseline technology's EUL. The EM&V team used Equation 7 determine deferred replacement costs associated with efficient *lighting*.

For the Point of Purchase Solutions program, all *lighting* projects in the tracking system file extracts were ROB. In this case, no remaining useful life exists for the baseline technology. The EM&V team used Equation 6 to determine deferred replacement costs associated with efficient lighting.

17.3.1.3 Commercial Lighting

The EM&V team's methodologies used to determine deferred replacement costs for commercial projects are detailed below. The EM&V team worked with CLEARResult to understand the tracking system inputs and how they relate to deferred replacement cost calculations for each commercial project. Table 240 highlights lighting and *lighting* assumptions used by CLEARResult and the EM&V team for commercial *lighting* projects. For commercial *lighting* projects, replacement costs are broken into *indoor* or *outdoor* replacement costs within the table. We highlight how these parameters, alongside other parameters and assumptions, enter into the deferred replacement cost calculations below.

Table 240. PY2022 CLEARResult Measure Life and Fixture Cost by Fixture Type

Fixture type	Life (hours)	Material cost	Labor rate	Indoor hours	Outdoor hours	Indoor replacement costs	Outdoor replacement costs
CFL exit sign (self-ballasted pin)	10,000	\$2.53	\$59.83	0.08	0.08	\$7.51	\$7.51
CFL pin lamp	11,111	\$7.42	\$59.83	0.08	0.08	\$12.41	\$12.41
Integrated-ballast CFL lamp	10,000	\$8.07	\$59.83	0.08	0.08	\$13.06	\$13.06
Halogen	1,930	\$4.21	\$59.83	0.08	0.08	\$9.19	\$9.19
High-pressure sodium	33,429	\$66.16	\$70.71	0.25	0.50	\$83.84	\$101.52
Incandescent (use A-lamp)	2,722	\$1.19	\$59.83	0.08	0.08	\$6.17	\$6.17

Fixture type	Life (hours)	Material cost	Labor rate	Indoor hours	Outdoor hours	Indoor replacement costs	Outdoor replacement costs
Induction	100,000	\$278.28	\$70.71	0.25	0.50	\$295.95	\$313.63
LED exit sign	50,000	\$15.63	\$59.83	0.25	0.25	\$30.59	\$30.59
LED fixture	50,000	\$280.86	\$70.71	0.25	0.50	\$298.54	\$316.21
Integrated-ballast LED lamp	20,000	\$12.88	\$59.83	0.08	0.08	\$17.87	\$17.87
LED tube lamp	50,000	\$16.09	\$59.83	0.08	0.08	\$21.08	\$21.08
Metal halide	14,000	\$71.16	\$70.71	0.25	0.50	\$88.84	\$106.52
Mercury vapor	14,000	\$108.33	\$70.71	0.25	0.50	\$126.00	\$143.68
Non-high-output T5 lamp	19,500	\$20.04	\$59.83	0.08	0.08	\$25.02	\$25.02
High-output T5 lamp	28,500	\$20.42	\$70.71	0.25	0.50	\$38.09	\$55.77
T12 (assume the same as T8)	27,000	\$26.92	\$59.83	0.08	0.08	\$31.90	\$31.90
CEE T8	28,500	\$14.93	\$59.83	0.08	0.08	\$19.92	\$19.92

Annual Operating Hours

Annual operating hours (AOH) for commercial projects vary depending on whether they had stipulated or deemed savings. Projects with stipulated savings have AOH directly entered into the tracking system. Therefore, these values were used in the equations highlighted above when determining deferred replacement costs associated with efficient lighting. Projects with deemed savings required the use of AOH based on building type. AOH was extracted directly from TRM 9.0 Volume 2, Table 418, and matched the building type identifiers in the tracking system. Table 241 provides a mapping of AOH to building type. The EM&V team merged this information onto *lighting* projects with deemed savings. The resulting building-type-specific AOH were used in the equations highlighted above to determine deferred replacement costs associated with efficient lighting.

Table 241. PY2022 Annual Operating Hours by Building Type

Building description	AOH	Coincidence factor
All building types: exit signs*	8,760	1.00
All building types: outdoor*	3,996	0.00
Education: K–12, without summer session	2,777	0.47
Education: college, university, vocational, daycare, and K–12 with summer session	3,577	0.69
Food sales: non-24-hour supermarket/retail	4,706	0.95
Food sales: 24-hour supermarket/retail	6,900	0.95
Food service: fast food	6,188	0.81

Building description	AOH	Coincidence factor
Food service: sit-down restaurant	4,368	0.81
Health care: out-patient	3,386	0.77
Health care: in-patient	5,730	0.78
Lodging (hotel/motel/dorm): common areas	6,630	0.82
Lodging (hotel/motel/dorm): rooms	3,055	0.25
Manufacturing—1 and 2 shifts	4,547	0.64
Manufacturing—3 shifts	6,631	0.89
Multifamily housing: common areas	4,772	0.87
Nursing and resident care	4,271	0.78
Office	3,227	0.54
Outdoor athletic fields	503	0.00
Parking structure	7,884	1.00
Public assembly	2,638	0.56
Public order and safety	3,472	0.75
Religious	1,824	0.53
Retail: excluding malls and strip centers	3,668	0.69
Retail: enclosed mall	4,813	0.93
Retail: strip shopping and non-enclosed mall	3,965	0.90
Service (excluding food)	3,406	0.90
Warehouse: non-refrigerated	3,501	0.77
Warehouse: refrigerated	3,798	0.84

Baseline

Deferred replacement costs were computed using a static baseline. Depending on whether the project was ROB or ER, the EM&V team used Equation 6 (ROB) or Equation 7 (ER).

Early Retirement Versus Replace-on-Burnout

Deferred replacement cost calculations will differ based on whether the *lighting* project was ER or ROB. All *lighting* projects that are not *new construction* projects are *retrofits*. *Retrofit* projects in the tracking system explicitly assume that the ER of the baseline lighting technology took place when EAL conducted each project. The EM&V team presumed a remaining useful life equal to one-third of the baseline technology's EUL. The EM&V team used Equation 7 to determine deferred replacement costs associated with efficient lighting.

For *new construction efficient lighting* projects, these projects had the same assumptions as ROB. The EM&V team adopted CLEAResult's approach to determining the baseline technology that customers would have adopted in the absence of efficient lighting. Table 242 highlights the EM&V team's methodology for deciding the baseline lighting depending on the *new construction efficient lighting* technology. Equation 6 was used to determine the deferred replacement costs.

Table 242. PY2022 Baseline Lighting for New Construction Projects

Efficient lighting technology	Efficient wattage	Baseline lighting technology
LED fixture	Less than 26 W	One-lamp T8 fixture
LED fixture	Between 26 W and 59 W	Two-lamp T8 fixture
LED fixture	Greater than 60 W	HID—metal halide fixture
Integrated-ballast LED lamp	Any wattage	Integrated-ballast CFL lamp
LED tube lamp	Less than 26 W	One T8 lamp
LED tube lamp	Greater than 26 W	One T5 high-output lamp
Generic fixture/lamp, exterior, not screw-in	Any wattage	Metal halide fixture/lamp
Generic fixture/lamp, interior or exterior, not LED or induction	Any wattage	No baseline—no deferred replacement savings

17.3.2 Non-Energy Benefits for Water Savings

Some energy efficiency measures reduce water and wastewater consumption. Using TRM 9.0 Volume 2, the EM&V team followed TRM guidance to deem water savings associated with efficient measures for residential and commercial customers. The EM&V team measured water savings in gallons for the first year (PY2022) and the lifetime over which the efficient measure may remain installed. To quantify the monetary value of water NEBs, the EM&V team put first-year water savings in cost savings by multiplying changes in water consumption by their respective prices (contained in Table 237). PY2022 marginal water rates were calculated and set at \$0.00859 (residential) and \$0.00741 (commercial) per gallon. First-year savings are assumed to be repeated as an annual cash flow over the efficient measure's life. To determine lifetime savings in dollars, the EM&V team discounted this cash flow using a real discount rate of 4.15 percent (contained in Table 237).

17.3.3 Non-Energy Benefits for Other Fuels

Efficient measures occasionally generate savings for multiple fuel types. Conversely, efficient measures such as *lighting* can create a penalty for various fuel types, as heat output from efficient lighting is lower than that of baseline lighting technologies typically in place. This lower heat output requires more fuel consumption to maintain the same temperature at gas-heated sites.

NEBs for other fuels—including natural gas and propane—were computed for residential and commercial projects with fuel savings or penalties. The EM&V team followed TRM guidance to deem other fuel savings or penalties associated with efficiency measures. Other fuel savings or penalties were quantified only for the projects with fuel savings or penalties that gas utilities had not claimed.

The EM&V team measured other fuel savings (or penalties) in therms or gallons for the first year (PY2022) and the lifetime over which the efficient measure may remain installed. To quantify the monetary value of other fuel NEBs, first-year savings (or penalties) were calculated in terms of cost savings (or penalties) by multiplying changes in consumption of other fuels by their respective prices (contained in Table 237). First-year savings are assumed to be repeated as an

annual cash flow over the efficient measure's life. To determine lifetime savings in dollars, the EM&V team discounted this cash flow using a real discount rate of 4.15 percent (contained in Table 237).

17.4 ESTIMATES OF NON-ENERGY BENEFITS IN THE PY2022 PORTFOLIO

Below we highlight the EM&V team's NEBs findings for PY2022 using the methodologies described above.

17.4.1 Home Energy Solutions

The Home Energy Solutions program offered 13 unique types of measures for PY2022. The EM&V team calculated water NEBs for *faucet aerators* and *low-flow showerheads*. Gas NEBs were calculated for all *lighting* measures, *air infiltration*, *ceiling insulation*, *duct sealing (with electric cooling)*, and *smart thermostat* measures. Finally, ADRCs were calculated for *lighting* measures, and NEBs were categorized for all measures in this program as ER. Potential gas savings resulting from projects jointly delivered with a gas utility were excluded from EAL's NEBs estimates (see Table 243 through Table 247).

Table 243. Home Energy Solutions Measures and Potential Non-Energy Benefits

Measure	Water reduction	Other fuel	Avoided/deferred replacement costs
Advanced power strips			
Air conditioner tune-up			
Air infiltration		✓	
Ceiling insulation		✓	
Duct sealing—AC with resistance heat			
Duct sealing—electric cooling		✓	
Duct sealing—heat pump			
ENERGY STAR directional LEDs		✓	✓
ENERGY STAR omnidirectional LEDs		✓	✓
Faucet aerators	✓		
Heat pump tune-up			
Low-flow showerheads	✓		
Smart thermostats		✓	

Table 244. Gas Savings—Home Energy Solutions

First-year savings (therms)	Lifetime savings (therms)	First-year savings	Lifetime savings (net present value (NPV))
1,094,758	19,346,396	\$645,907	\$8,275,450

Table 245. Propane Savings—Home Energy Solutions

First-year savings (gallons)	Lifetime savings (gallons)	First-year savings	Lifetime savings (NPV)
2,997	48,294	\$7,283	\$87,061

Table 246. Water Savings—Home Energy Solutions

First-year savings (gallons)	Lifetime savings (gallons)	First-year savings	Lifetime savings (NPV)
966,461	9,664,610	\$8,302	\$69,610

Table 247. Avoided and Deferred Replacement Costs—Home Energy Solutions

Avoided and deferred replacement costs (NPV)
\$577,994

17.4.2 Energy Solutions for Multifamily Homes

The Energy Solutions for Multifamily Homes program offered 12 unique types of measures for PY2022. The EM&V team calculated water NEBs for *faucet aerators* and *low-flow showerheads*. We calculated gas NEBs for all *lighting* measures, *air infiltration*, *ceiling insulation*, and *duct sealing with electric cooling* measures. Finally, we calculated ADRCs for *lighting* measures. NEBs for all measures in this program are categorized as ER (see Table 248 to Table 252).

Table 248. Multifamily Measures and Potential Non-Energy Benefits

Measure	Water reduction	Other fuel	Avoided/deferred replacement costs
Advanced power strips			
Air conditioner tune-up			
Air infiltration		✓	
Ceiling insulation		✓	
Duct sealing—AC with resistance heat			
Duct sealing—electric cooling		✓	
Duct sealing—heat pump			
ENERGY STAR directional LEDs		✓	✓

Measure	Water reduction	Other fuel	Avoided/deferred replacement costs
ENERGY STAR omnidirectional LEDs		✓	✓
Faucet aerators	✓		
Heat pump tune-up			
Low-flow showerheads	✓		

Table 249. Gas Savings—Energy Solutions for Multifamily Homes

First-year savings (therms)	Lifetime savings (therms)	First-year savings	Lifetime savings (NPV)
37,543	638,955	\$22,151	\$275,464

Table 250. Propane Savings—Energy Solutions for Multifamily Homes

First-year savings (gallons)	Lifetime savings (gallons)	First-year savings	Lifetime savings (NPV)
0	0	\$0	\$0

Table 251. Water Savings—Energy Solutions for Multifamily Homes

First-year savings (gallons)	Lifetime savings (gallons)	First-year savings	Lifetime savings (NPV)
1,702,202	17,022,020	\$14,622	\$122,601

Table 252. Avoided and Deferred Replacement Costs—Energy Solutions for Multifamily Homes

Avoided and deferred replacement costs (NPV)
\$95,121

17.4.3 Energy Solutions for Manufactured Homes

The Energy Solutions for Manufactured Homes program offered 13 unique types of measures for PY2022. The EM&V team calculated water NEBs for *faucet aerators* and *low-flow showerheads*. We calculated gas NEBs for all *lighting* measures, *air infiltration*, *duct sealing with electric cooling*, and *smart thermostat* measures. Finally, we calculated ADRCs for *lighting* measures and categorized NEBs for all measures in this program as ER (see Table 253 to Table 257).

Table 253. Energy Solutions for Manufactured Homes Measures and Potential Non-Energy Benefits

Measure	Water reduction	Other fuel	Avoided/deferred replacement costs
Advanced strips			
Air conditioner tune-up			
Air infiltration		✓	
Duct sealing—AC with resistance heat			
Duct sealing—electric cooling		✓	
Duct sealing—heat pump			
Duct sealing electric resistance no cooling			
ENERGY STAR directional LEDs		✓	✓
ENERGY STAR omnidirectional LEDs		✓	✓
Faucet aerators	✓		
Heat pump tune-up			
Low-flow showerheads	✓		
Smart thermostats		✓	

Table 254. Gas Savings—Energy Solutions for Manufactured Homes

First-year savings (therms)	Lifetime savings (therms)	First-year savings	Lifetime savings (NPV)
34,313	594,910	\$20,245	\$256,075

Table 255. Propane Savings—Energy Solutions for Manufactured Homes

First-year savings (gallons)	Lifetime savings (gallons)	First-year savings	Lifetime savings (NPV)
1,317	22,298	\$3,201	\$39,743

Table 256. Water Savings—Energy Solutions for Manufactured Homes

First-year savings (gallons)	Lifetime savings (gallons)	First-year savings	Lifetime savings (NPV)
383,031	3,830,310	\$3,290	\$27,588

Table 257. Avoided and Deferred Replacement Costs—Energy Solutions for Manufactured Homes

Avoided and deferred replacement costs (NPV)
\$40,819

17.4.4 Low-Income Solutions

The Low-Income Solutions program offered 14 unique types of measures for PY2022. The EM&V team calculated water NEBs for *faucet aerators* and *low-flow showerheads*; and calculated gas NEBs for all *lighting* measures, *air infiltration*, *duct sealing with electric cooling*, and *smart thermostat* measures. Finally, we calculated ADRCs for *lighting* measures, and we defined all measures in this program as ER (see Table 258 to Table 262).

Table 258. Low-Income Solutions Measures and Potential Non-Energy Benefits

Measure	Water reduction	Other fuel	Avoided/deferred replacement costs
Advanced power strips			
Air conditioner tune-up			
Air infiltration		✓	
Ceiling insulation		✓	
Duct sealing—AC with resistance heat			
Duct sealing—electric cooling		✓	
Duct sealing—heat pump			
Duct sealing—electric resistance no cooling			
ENERGY STAR directional LEDs		✓	✓
ENERGY STAR omnidirectional LEDs		✓	✓
Faucet aerators	✓		
Heat pump tune-up			
Low-flow showerheads	✓		
Smart thermostats		✓	

Table 259. Gas Savings—Low-Income Solutions

First-year savings (therms)	Lifetime savings (therms)	First-year savings	Lifetime savings (NPV)
267,551	4,670,028	\$157,855	\$2,003,002

Table 260. Propane Savings—Low-Income Solutions

First-year savings (gallons)	Lifetime savings (gallons)	First-year savings	Lifetime savings (NPV)
0	0	\$0	\$0

Table 261. Water Savings—Low-Income Solutions

First-year savings (gallons)	Lifetime savings (gallons)	First-year savings	Lifetime savings (NPV)
1,683,178	16,831,780	\$14,458	\$121,231

Table 262. Avoided and Deferred Replacement Costs—Low-Income Solutions

Avoided and deferred replacement costs (NPV)
\$152,293

17.4.5 Point of Purchase Solutions

The Point of Purchase Solutions program offered 14 unique types of measures (nine residential, three commercial) for PY2022. The EM&V team calculated gas NEBs for all *indoor lighting* measures, *air infiltration*, *duct sealing with electric cooling*, and *smart thermostat* measures. We also calculated ADRCs for all *lighting* purchases, and we defined all purchases as ROB (see Table 263 to Table 267).

Table 263. Point of Purchase Solutions Measures and Potential Non-Energy Benefits

Measure	Water reduction	Other fuel	Avoided/deferred replacement costs
Advanced power strips			
Efficient hot water heaters			
ENERGY STAR dehumidifiers			
ENERGY STAR directional LEDs		✓	✓
ENERGY STAR freezers			
ENERGY STAR omnidirectional LEDs		✓	✓
ENERGY STAR pool pumps			
ENERGY STAR room air-cleaners			
ENERGY STAR window AC replacement			
Hard-wired LED fixtures		✓	✓
Midstream: exterior fixtures			✓
Midstream: interior fixtures		✓	✓
Midstream: interior lamps		✓	✓
Smart thermostats		✓	

Table 264. Gas Savings—Point of Purchase Solutions

First-year savings (therms)	Lifetime savings (therms)	First-year savings	Lifetime savings (NPV)
-402,701	-5,155,154	-\$237,594	-\$2,415,429

Table 265. Propane Savings—Point of Purchase Solutions

First-year savings (gallons)	Lifetime savings (gallons)	First-year savings	Lifetime savings (NPV)
373	4,107	\$907	\$8,212

Table 266. Water Savings—Point of Purchase Solutions

First-year savings (gallons)	Lifetime savings (gallons)	First-year savings	Lifetime savings (NPV)
0	0	\$0	\$0

Table 267. Avoided and Deferred Replacement Costs—Point of Purchase Solutions

Avoided and deferred replacement costs (NPV)
\$30,961,400

17.4.6 Large Commercial and Industrial Solutions

The Large Commercial and Industrial Solutions program offered 32 types of measures for PY2022. The EM&V team calculated water NEBs for *commercial showerheads*, *faucet aerators*, and *low-flow pre-rinse spray valves*. We also calculated gas NEBs for all *interior lighting* projects and *commercial door air infiltration* for gas heating sites. Finally, we calculated ADRCs for all *lighting* measures, and we defined all *lighting* measures as ER (see Table 268 to Table 272).

Table 268. Large Commercial and Industrial Solutions Program—Measures and Potential Non-Energy Benefits

Measure	Water reduction	Other fuel	Avoided/deferred replacement costs
Commercial AC/HP tune-up			
Commercial door air infiltration		✓	
Commercial showerheads	✓		
Commercial Wi-Fi thermostats		✓	
Continuous energy improvement		✓	

Measure	Water reduction	Other fuel	Avoided/deferred replacement costs
Custom—heating and cooling		✓	
Custom—non-heating and cooling		✓	
Custom controls		✓	
Electronically commutated motors for refrigeration			
Engineering nozzles (compressed air)			
Evaporator fan controls			
Faucet aerators	✓		
Halogens		✓	✓
High-efficiency battery chargers			
High-intensity discharge (HID) lamps		✓	✓
Integrated-ballast CFL lamps		✓	✓
Integrated-ballast LED lamps		✓	✓
LEDs		✓	✓
Lighting controls		✓	
Low-flow pre-rinse spray valves	✓		
Magnetic ballast T5 or premium T8 retrofit of T12		✓	✓
Modular CFLs And CCFLs		✓	✓
Occupancy-based PTHP/PTAC controls			
Other linear fluorescents		✓	✓
Refrigeration door gaskets			
Refrigeration strip curtains			
Unitary and split system AC/HP equipment			
Variable frequency drives			
Water-chilling equipment—air-cooled			
Water chilling equipment—water-cooled centrifugal			
Water-chilling equipment—water-cooled			
Zero energy doors			

Table 269. Gas Savings—Large Commercial and Industrial Solutions Program

First-year savings (therms)	Lifetime savings (therms)	First-year savings	Lifetime savings (NPV)
-130,270	-1,932,993	-\$158,934	-\$1,777,152

Table 270. Propane Savings—Large Commercial and Industrial Solutions Program

First-year savings (gallons)	Lifetime savings (gallons)	First-year savings	Lifetime savings (NPV)
0	0	\$0	\$0

Table 271. Water Savings—Large Commercial and Industrial Solutions Program

First-year savings (gallons)	Lifetime savings (gallons)	First-year savings	Lifetime savings (NPV)
1,134,415	10,287,355	\$8,406	\$64,582

Table 272. Avoided and Deferred Replacement Costs—Large Commercial and Industrial Solutions Program

Avoided and deferred replacement costs (NPV)
\$5,611,581

17.4.7 Small Business Solutions

The Small Business Solutions program offered 18 unique types of measures for PY2022. The EM&V team calculated water NEBs for *commercial showerheads*, *faucet aerators*, and *low-flow pre-rinse spray valves*. We calculated gas NEBs for all *interior lighting* projects, and *commercial door air infiltration* sites with *gas* heating. Finally, we calculated ADRCs for *lighting* measures, and we defined all *lighting* measures as ER (see Table 273 to Table 277).

Table 273. Small Business Solutions Program—Measures and Potential Non-Energy Benefits

Measure	Water reduction	Other fuel	Avoided/deferred replacement costs
Commercial AC/HP tune-up			
Commercial door air infiltration		✓	
Commercial showerheads	✓		
Commercial Wi-Fi thermostats		✓	
Faucet aerators	✓		
Halogens		✓	✓
High-intensity discharge lamps		✓	✓
Integrated-ballast CFL lamps		✓	✓

Measure	Water reduction	Other fuel	Avoided/deferred replacement costs
Integrated-ballast LED lamps		✓	✓
LEDs		✓	✓
Lighting controls		✓	
Low-flow pre-rinse spray valves	✓		
Magnetic ballast T5 or premium T8 retrofit of T12		✓	✓
Modular CFLs and CCFLs		✓	✓
Other linear fluorescents		✓	✓
Refrigeration door gaskets			
Refrigeration strip curtains			
Unitary and split system AC/HP equipment			

Table 274. Gas Savings—Small Business Solutions Program

First-year savings (therms)	Lifetime savings (therms)	First-year savings	Lifetime savings (NPV)
-73,241	-1,092,381	-\$43,212	-\$492,551

Table 275. Propane Savings—Small Business Solutions Program

First-year savings (gallons)	Lifetime savings (gallons)	First-year savings	Lifetime savings (NPV)
0	0	\$0	\$0

Table 276. Water Savings—Small Business Solutions Program

First-year savings (gallons)	Lifetime savings (gallons)	First-year savings	Lifetime savings (NPV)
163,993	1,393,552	\$1,215	\$8,813

Table 277. Avoided and Deferred Replacement Costs—Small Business Solutions Program

Avoided and deferred replacement costs (NPV)
\$3,495,364

17.4.8 Public Institutions Solutions

The Public Institutions Solutions program offered 19 unique types of measures for PY2022. The EM&V team calculated gas NEBs for all *lighting* projects and *commercial door air infiltration* sites with *gas* heating. We also calculated ADRCs for *lighting* measures and defined these projects as ER (see Table 278 to Table 282).

Table 278. Public Institutions Solutions Program—Measures and Potential Non-Energy Benefits

Measure	Water reduction	Other fuel	Avoided/deferred replacement costs
Commercial AC/HP tune-up			
Commercial door air infiltration		✓	
Commercial showerheads	✓		
Commercial Wi-Fi thermostats		✓	
Custom—non-heating and cooling		✓	
Custom controls		✓	
Faucet aerators	✓		
Halogens		✓	✓
HID lamps		✓	✓
Integrated-ballast CFL lamps		✓	✓
Integrated-ballast LED lamps		✓	✓
LEDs		✓	✓
Lighting controls		✓	
Magnetic ballast T5 or premium T8 retrofit of T12		✓	✓
Modular CFLs and CCFLs		✓	✓
Other linear fluorescents		✓	✓
Unitary and split system AC/HP equipment			
Water-chilling equipment—air-cooled			
Water-chilling equipment—water-cooled			

Table 279. Gas Savings—Public Institutions Solutions Program

First-year savings (therms)	Lifetime savings (therms)	First-year savings	Lifetime savings (NPV)
-30,654	-447,888	-\$18,086	-\$202,753

Table 280. Propane Savings—Public Institutions Solutions Program

First-year savings (gallons)	Lifetime savings (gallons)	First-year savings	Lifetime savings (NPV)
0	0	\$0	\$0

Table 281. Water Savings—Public Institutions Solutions Program

First-year savings (gallons)	Lifetime savings (gallons)	First-year savings	Lifetime savings (NPV)
1,198,104	11,397,724	\$8,878	\$71,183

Table 282. Avoided and Deferred Replacement Costs—Public Institutions Solutions Program

Avoided and deferred replacement costs (NPV)
\$1,426,996

17.4.9 Agricultural Energy Solutions

The Agricultural Energy Solutions program offered two measures in PY2022. The EM&V team calculated ADRCs for *lighting* measures (see Table 283 to Table 287).

Table 283. Agricultural Energy Solutions Program—Measures and Potential Non-Energy Benefits

Measure	Water reduction	Other fuel	Avoided/deferred replacement costs
Custom lighting			✓
Custom non-lighting			

Table 284. Gas Savings—Agricultural Energy Solutions Program

First-year savings (therms)	Lifetime savings (therms)	First-year savings	Lifetime savings (NPV)
N/A	N/A	N/A	N/A

Table 285. Propane Savings—Agricultural Energy Solutions Program

First-year savings (gallons)	Lifetime savings (gallons)	First-year savings	Lifetime savings (NPV)
N/A	N/A	N/A	N/A

Table 286. Water Savings—Agricultural Energy Solutions Program

First-year savings (gallons)	Lifetime savings (gallons)	First-year savings	Lifetime savings (NPV)
N/A	N/A	N/A	N/A

Table 287. Avoided and Deferred Replacement Costs—Agricultural Energy Solutions

Avoided and deferred replacement costs (NPV)
\$1,917

17.4.10 Residential Direct Load Control

No NEBs applied to the Residential Direct Load Control program.

17.4.11 Smart Direct Load Control Pilot

The Smart Direct Load Control pilot offered two types of measures for PY2022. The EM&V team calculated gas NEBs for all residential *smart thermostat* projects at sites with *gas heating* (see Table 288 to Table 292).

Table 288. Smart Direct Load Control Pilot—Measures and Potential Non-Energy Benefits

Measure	Water reduction	Other fuel	Avoided/deferred replacement costs
Commercial Wi-Fi thermostats		✓	
Smart thermostats		✓	

Table 289. Gas Savings—Smart Direct Load Control Pilot

First-year savings (therms)	Lifetime savings (therms)	First-year savings	Lifetime savings (NPV)
49,158	540,738	\$29,003	\$262,498

Table 290. Propane Savings—Smart Direct Load Control Pilot

First-year savings (gallons)	Lifetime savings (gallons)	First-year savings	Lifetime savings (NPV)
N/A	N/A	N/A	N/A

Table 291. Water Savings—Smart Direct Load Control Pilot

First-year savings (gallons)	Lifetime savings (gallons)	First-year savings	Lifetime savings (NPV)
N/A	N/A	N/A	N/A

Table 292. Avoided and Deferred Replacement Costs—Smart Direct Load Control Pilot

Avoided and deferred replacement costs (NPV)
N/A

17.4.12 Agricultural Irrigation Load Control

No NEBs applied to the Agricultural Irrigation Load Control program.

17.5 TOTAL NON-ENERGY BENEFITS IN PY2022 PORTFOLIO

Table 293 summarizes first-year *gas* and *water* NEBs, and Table 294 provides lifetime NEBs for each of EAL's programs, including totals for the EAL portfolio.

Table 293. PY2022 First Year Non-Energy Benefits by Program

Program	Gas savings			Water savings		First-year total savings (\$)
	First-year savings (therms)	First-year propane savings (gallons)	First-year savings (\$)	First-year savings (gallons)	First year savings (\$)	
Home Energy Solutions	1,094,758	2,997	\$653,190	966,461	\$8,302	\$661,492
Energy Solutions for Multifamily Homes	37,543	-	\$22,151	1,702,202	\$14,622	\$36,772
Energy Solutions for Manufactured Homes	34,313	1,317	\$23,446	383,031	\$3,290	\$26,736
Low-Income Solutions	267,551	-	\$157,855	1,683,178	\$14,458	\$172,313
Point of Purchase Solutions	-402,701	373	-\$236,686	-	-	-\$236,686
Large Commercial and Industrial Solutions	-130,270	-	-\$158,934	1,134,415	\$8,406	-\$150,528
Small Business Solutions	-73,241	-	-\$43,212	163,993	\$1,215	-\$41,997
Public Institutions Solutions	-30,654	-	-\$18,086	1,198,104	\$8,878	-\$9,208
Agricultural Energy Solutions	-	-	-	-	-	\$-
Residential Direct Load Control	-	-	-	-	-	\$-
Smart Direct Load Control Pilot	49,158	-	\$29,003	-	-	\$29,003
Agricultural Irrigation Load Control	-	-	-	-	-	\$-
Total	846,457	4,688	\$428,727	7,231,384	\$59,172	\$487,899

Dashes in tables ("-") denote values of zero.

Table 294. PY2022 Lifetime Non-Energy Benefits by Program

Program	Gas savings			Water savings		Avoided & deferred replacement cost (NPV)	Total savings (NPV)
	Lifetime savings (therms)	Lifetime propane savings (gallons)	Lifetime savings (NPV)	Lifetime savings (gallons)	Lifetime savings (NPV)		
Home Energy Solutions	19,346,396	48,294	\$8,362,511	9,664,610	\$69,610	\$577,994	\$9,010,115
Energy Solutions for Multifamily Homes	638,955	-	\$275,464	17,022,020	\$122,601	\$95,121	\$493,187
Energy Solutions for Manufactured Homes	594,910	22,298	\$295,818	3,830,310	\$27,588	\$40,819	\$364,225
Low-Income Solutions	4,670,028	-	\$2,003,002	16,831,780	\$121,231	\$152,293	\$2,276,526
Point of Purchase Solutions	-5,155,154	4,107	-\$2,407,216	-	-	\$30,961,400	\$28,554,184
Large Commercial and Industrial Solutions	-1,932,993	-	-\$1,777,152	10,287,355	\$64,582	\$5,611,581	\$3,899,011
Small Business Solutions	-1,092,381	-	-\$492,551	1,393,552	\$8,813	\$3,495,364	\$3,011,626
Public Institutions Solutions	-447,888	-	-\$202,753	11,397,724	\$71,183	\$1,426,996	\$1,295,426
Agricultural Energy Solutions	-	-	-	-	-	\$1,936	\$1,936
Residential Direct Load Control	-	-	-	-	-	-	\$-
Smart Direct Load Control Pilot	540,738	-	\$262,498	-	-	-	\$262,498
Agricultural Irrigation Load Control	-	-	-	-	-	-	\$-
Total	17,162,612	74,699	\$6,319,621	70,427,350	\$485,608	\$42,363,506	\$49,168,734

Dashes in tables (“-”) denote values of zero.



ENTERGY ARKANSAS, LLC

Arkansas Energy Efficiency Program Portfolio Annual Report

Docket No. 07-085-TF

2022 PROGRAM YEAR

May 1, 2023

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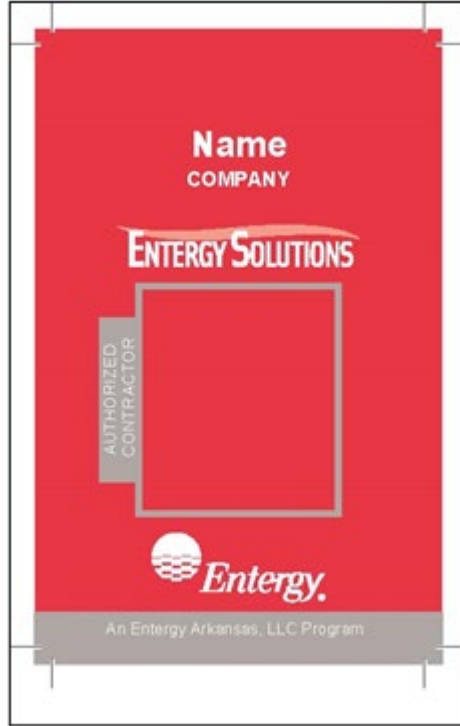
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Entergy released a new Entergy logo in February 2022, and a new Entergy Solutions logo in December 2022. This appendix covers program year 2022 so it includes a mix of old logo items from beginning of 2022 (and items still in the market from previous years), items with new logo and an interim Entergy Solutions logo (black typeface), and a few items from end of the year updated with both the new Entergy logo and new Entergy Solutions logo.

1. CROSS PROGRAMS

1.1 EAL_Badge TEMPLATE APPROVED 9.17.19



1.2 2022 EAL Branded Give Aways

KINETIC 9-CAN COOLER
Imprint Area: 3.5" H x 3" W

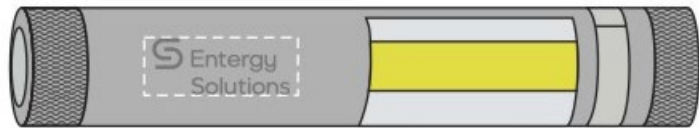
Order#: 23996745-2 To: Christina Buehner x8844 877-446-7746
Date: 11-10-22 From: **Art Proof**

[DOTTED LINE WILL NOT APPEAR ON YOUR IMPRINTED ITEM]
THIS ART PROOF SHOWS THE APPROXIMATE SIZE, COLOR AND PLACEMENT OF YOUR IMPRINT RELATIVE TO THE SIZE OF THE ITEM.





200% of actual size
S Entergy
Solutions



ENERGY SOLUTIONS
AN ENTERGY ARKANSAS PROGRAM

Entergy.

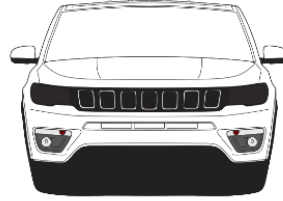
You want savings.
We've got solutions.

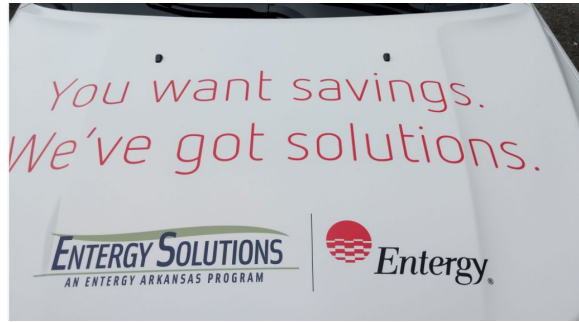
Entergy Arkansas offers a number of programs that can help lower your energy use. Find new ways to save around your home or business.

entergysolutionsar.com

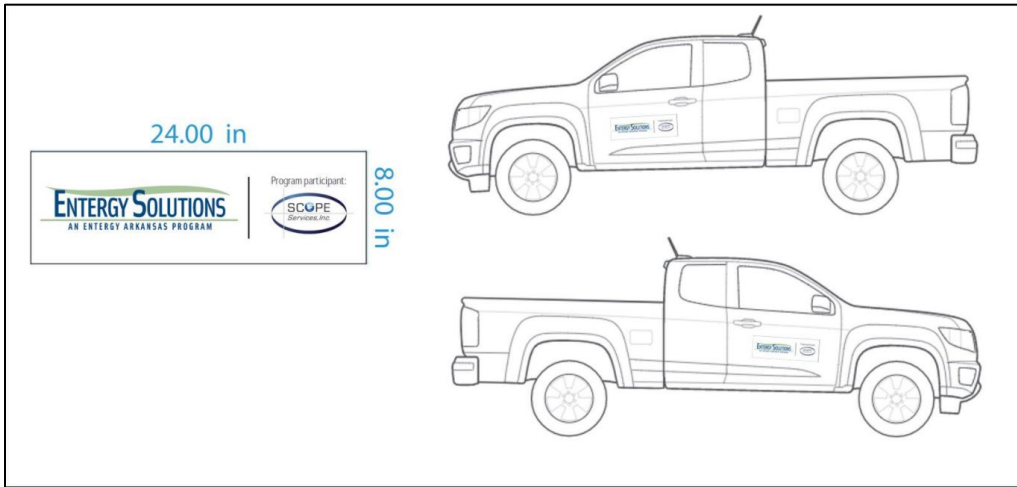
WE POWER LIFE®

NOTE TO VENDOR: Match red color with Entergy red (PMS 185)
Entergy Solutions logo = (PMS 541 & PMS 7494)





1.5 Scope Truck Signage



1.6 2022 EAL Branded Apparel

- FRONT LOCATION :: Left Chest
- IMPRINT SIZE :: 3.5" W
- THREAD COLORS :: Red
- :: Violet
- :: Black



2 Cross Residential Programs

2.1 Find A Trade Ally Tool



Welcome to the Find a Trade Ally Tool

To find an authorized trade ally for air conditioner tune-ups, insulation installation, air sealing or duct sealing, please answer the questions below.

Which Entergy Solutions program would you like to sign up for? Please refer to the program descriptions to the right to determine which program is right for you.

Entergy Solutions Program

Which energy efficiency measure are you interested in?

Services Provided (Optional)

City, Zip or Address

OR

Contractor or Trade Ally Name

Entergy Solutions offers residential programs to help improve your home's energy efficiency. Please refer to each program page for additional details.

- Home Energy Solutions Program** – program for residents of single-family, site-built homes.
- Manufactured Homes Program** – program for residents of manufactured homes.
- Multifamily Homes Program** – program for residents of apartment complexes, duplexes, triplexes, condos and townhomes.
- Low Income Solutions Program** – program for residents of single-family, site-built homes, multifamily homes and manufactured homes who meet LIHEAP eligibility requirements or are 65 years of age or older.
- Smart Direct Load Control Program** – program that offers a smart thermostat and professional installation, a \$225 value, at absolutely no additional cost when you enroll.

To participate in an Entergy Solutions Program, you must be an Entergy Arkansas customer. In order to qualify for air sealing and duct sealing incentives, A/C tune-up, insulation installation, the service must be performed by an authorized trade ally. Other requirements may apply.



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Welcome to the Find a Trade Ally Tool

To find an authorized trade ally for air conditioner tune-ups, insulation installation, air sealing or duct sealing, please answer the questions below.

Which Entergy Solutions program would you like to sign up for? Please refer to the program descriptions to the right to determine which program is right for you.

Entergy Solutions Program
 Home Energy Solutions Program
 Manufactured Homes Program
 Multifamily Homes Program
 Low-Income Solutions Program
 Smart Direct Lead Control Program

Which energy efficiency measure are you interested in?

(Services Provided (Optional))

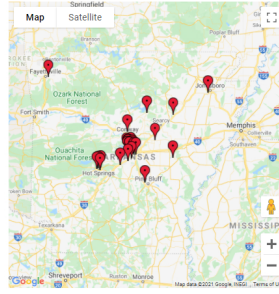
315 Maraces Cr, Maumelle, AR 72113, USA

OR

Contractor or Trade Ally Name

Click on the company below for more information.

- Weatherization Pros LLC (0.72 mi)**
11133 Paul Eells Drive #202, North Little Rock, AR 72115
- NXTgen Energy (5.78 mi)**
154 Hickory Creek Cir, Little Rock, AR 72212
- Arkansas Energy Conservation (5.78 mi)**
154 Hickory Creek Circle, Little Rock, AR 72212
- First Star Energy (5.78 mi)**
154 Hickory Creek Cir, Little Rock, AR 72212
- Cowling Electric P.L.L.C. (6.61 mi)**
PO Box 241278, Little Rock, AR 72223
- Lighting Energy Distribution L.L.C. (6.5 mi)**
197 Valley Ranch Way, Little Rock, AR 72223
- Xcel Home Energy, LLC (6.78 mi)**
2511 N. Pierce St., Little Rock, AR 72207
- Home Energy Rx (8.11 mi)**
125 Gamble Road, Little Rock, AR 72211
- ZZ Energy Conservation LLC (8.35 mi)**
17200 Chenal Pkwy, Suite 300 #536, Little Rock, Arkansas 72223
- Home Energy Efficiency (8.4 mi)**
11701 Hermitage Rd, Little Rock, AR 72211
- Arkansas Energy Innovation (8.5 mi)**
PO Box 250974, Little Rock, AR 72225
- Home Energy Xperts (8.53 mi)**
17000 Chenal Pkwy, Ste 300 #344, Little Rock, AR 72223
- Better Community Development, Inc. (10.06 mi)**
3805 W. 12th St, Suite 206, Little Rock, Arkansas 72204
- Future Green Services (11.43 mi)**
400 V. Capitol Suite 1700, Little Rock, Arkansas 72201
- M & I Heating and Air (14.83 mi)**
7700 Baseline Rd, Suite 1000, Little Rock, AR 72201
- Epic Technicians HVAC, LLC (19.22 mi)**
6115 Stargate Cove, Alexander, Arkansas 72002
- E3 Solutions LLC (24.68 mi)**
15 Eagle Stone Dr, Conway, AR 72032
- Matt's Home Sealers (28.53 mi)**
1 Industrial Park, Benton, AR 72015
- INTEK Heating & Air (37.34 mi)**
9402 Hwy 38, Ward, AR 72376
- Custom Insulation and Supply Inc. (51.3 mi)**
112 Cloud Rest Ct, Hot Springs, AR 71901
- Bryans Conservation Services Inc. (54.11 mi)**
6900 Cambridge Dr, Pine Bluff, AR 71602
- MJ Services (54.56 mi)**
109 Blueridge Place, Hot Springs, AR 71901
- McGrew Service Company (55.24 mi)**
507 Hobson Ave, Hot Springs, AR 71913
- AGHco Energy (57.23 mi)**
PO Box 4004, Hot Springs, AR 71914
- Energy Efficiency Vanguard of Arkansas (57.27 mi)**
100 Evergreen Dr, Heber Springs, AR 72543
- Bobby Derden Heat & Air (63.12 mi)**
6953 Hwy 98E, DeWitt Bluff, AR 72041
- Velvet Ridge Services LLC (79.48 mi)**
940 Velvet Ridge Rd, Bradford, AR 72020
- ACI Insulation (139.33 mi)**
2816 Summerton Dr, Jonesboro, AR 72404
- Energy Misers, Inc. (158.73 mi)**
157 N Skyview Ln, Fayetteville, AR 72701
- EnerCon Resources (396.7 mi)**
376 N. LIND Dr., Lumberton, TX 77657
- Big Star Conservation Inc. (423.82 mi)**
2423 Bainbridge St, Ste 101, Kenner, LA 70062
- Free Lighting Corporation (471.66 mi)**
15205 Gulf Freeway, 1508, Houston, TX 77034
- UtiliSav, Inc. (668.28 mi)**
710 Buffalo St STE 311, Corpus Christi, TX 78401



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Got It!



Return to Search Results

Home Energy Rx

125 Gamble Road
Little Rock, AR 72211
Contact:
501-414-8094
Theresa@homeenergyrx.com

This participating trade ally provides the following services:

- Home Energy Solutions Program
 - Air Sealing or Duct Sealing
 - Audit and Direct Install Measures
 - A/C Tune-up
 - Insulation Installation
 - Smart Thermostats
- Manufactured Homes Program
 - Air Sealing or Duct Sealing
 - Audit and Direct Install Measures
 - A/C Tune-up
 - Smart Thermostats
- Multifamily Homes Program
 - Air Sealing or Duct Sealing
 - Audit and Direct Install Measures
 - A/C Tune-up
 - Insulation Installation
 - Smart Thermostats
- Low-Income Solutions Program
 - Air Sealing or Duct Sealing
 - Audit and Direct Install Measures
 - A/C Tune-up
 - Insulation Installation
 - Smart Thermostats
- Smart Direct Load Control Program
 - Smart Thermostats



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Get it

2.2 EAL_Weatherization_Newsletter Article_Nov_2022.docx

Weatherize your home to stay nice and cozy.

Keep your home comfortable while saving energy by weatherizing your home. Did you know that your home's attic is where you can often find the greatest opportunities to increase energy efficiency? Most homes in the U.S. are under-insulated and have significant air leaks. Sealing air leaks around your home and adding insulation can help you be more comfortable and can save up to 11%* on your energy costs.

Through our [Entergy Solutions Programs](#), you may be eligible to take advantage of air sealing, duct sealing and attic insulation installation measures, all **at no additional cost to you**. By making these upgrades, you can help keep your home comfortable and save energy no matter the season.

Weatherization upgrades can help your home's:

1. **Energy efficiency:** Sealing leaks and adding insulation increases the efficiency of your home, which can help save energy and money.
2. **Comfort level:** Sealing and insulating can help with common comfort problems, such as rooms that are too cold in the winter or too hot in the summer.
3. **Air quality:** A well-sealed, well-insulated home keeps out more humidity, dust, pollen and pests.
4. **Safety:** Leaky ducts can allow gases from furnaces, stoves and water heaters to enter rooms throughout your home. Sealing leaks reduces this risk.

Save energy while improving your home's comfort for years to come. Visit entergysolutionsar.com or call 866-627-9177 to find a [participating trade ally](#) or to learn more.

*Source: energystar.gov



Keep your home cool and clean with Room ACs, Air Purifiers and Dehumidifiers.

Room ACs, air purifiers and dehumidifiers are all great tools for controlling your home's comfort and freshness level. These ENERGY STAR® certified products are also more energy-efficient than the standard models and could save you money overtime.

Did you know:

- ENERGY STAR certified room air conditioners use 10 percent less energy and, on average, cost less than \$70 per year to run.
- ENERGY STAR certified room air purifiers are over 25% more energy-efficient than standard models, saving consumers about 120 kWh/year and \$15 annually on utility bills. These savings could add up to \$120 over its lifetime.
- ENERGY STAR certified dehumidifiers use more efficient refrigeration coils, compressors, and fans to remove the same amount of moisture as a similarly sized conventional unit but uses nearly 15% less energy.

Don't wait, start saving

Visit entergyarkansas.com/ or call 833-807-7682 to learn how you can start living your life comfortably.





Stay Cool This Summer with an A/C Tune-up at No Additional Cost.

The hot days of summer will be here soon but you don't have to sacrifice your home's comfort. Be ready for rising temperatures with a high-performance air conditioning tune-up through our [Energy Solutions programs](#) to help keep you cool and comfortable all summer long.

Making smart decisions about your heating and cooling system can have a big impact on improving your home's efficiency and comfort level. As much as half of the energy used in your home goes to heating and cooling, according to EnergyStar.gov. You may qualify for an air conditioning tune-up at no additional cost through one of our energy efficiency programs. Beyond a typical seasonal service check, your equipment will be evaluated, and necessary adjustments will be made to ensure your system is operating as efficiently as possible, saving you energy and money.

A/C Tune-up Benefits:

- **Get more from your tune-up.** A participating trade ally will evaluate your equipment's energy performance and make necessary adjustments to ensure that your system is operating as efficiently as possible. Typical adjustments include a comprehensive diagnostic check and cleaning the outdoor condenser.
- **Save money and energy.** Get incentives toward your air conditioning tune-up. Plus, your system will run more efficiently, so you will save on energy costs all summer long.
- **Worry less.** A properly maintained air conditioner lasts longer, is more reliable and is safer for your family.
- **Stay cool.** An energy-efficient air conditioner keeps you and your family cool and comfortable during even the hottest summer days.

Ready to schedule your air conditioning tune-up? Contact one of our [participating trade allies](#). For more information or to explore other ways Energy Solutions can help you save energy, visit energysolutionsar.com.



PROGRAM TERMS AND CONDITIONS

These terms and conditions are only valid for service completed on or after Jan. 1, 2021. Only trade allies may submit applications for incentive consideration.

ENERGY AUDIT REPORT: The energy audit report provides the customer with a compiled review of energy-saving measures installed throughout the property, as well as recommendations related to energy efficiency programs available. Energy Arkansas is not responsible for lost documentation.

ELIGIBILITY: Participants must be Energy Arkansas electric utility customers with a working central air conditioner or heat pump. For homes without working central air conditioning, the home must have central electric heating. **FOR HOME ENERGY SOLUTIONS PROGRAM ONLY,** the residence must be at least 10 years old or have energy costs of 10 cents or more of the conditioned square footage on the highest summer cooling bill. **FOR LOW-INCOME SOLUTIONS ONLY,** the participant represents that he/she meet the LIHEAP criteria to participate. Funds are limited, and services are available in select geographic areas on a first-come, first-served basis. In order for participants to qualify for measures such as Air Sealing, Duct Sealing and Air Conditioning Tune-up services, the service must be performed by an Energy Arkansas trade ally. For other Energy Arkansas programs, please visit entergyarkansas.com.

APPROVAL AND VERIFICATION: Energy Arkansas reserves the right to verify the delivery of services and to have reasonable access to the participant's residence to verify the performance of energy efficiency direct install measures and/or energy efficiency work. Prior to any payment of incentives, Energy Arkansas reserves the right to verify sales transactions. The customer's trade ally will verify that the installed energy-saving measures meet all applicable building codes, zoning laws, local, state and federal requirements, and other relevant requirements. The customer's trade ally is responsible for any applicable permits as required by law. Outdoor temperatures and other weather conditions may affect this verification process. The participant acknowledges and agrees to participate if their home is selected for a quality-control post-installation verification by Energy Arkansas or its program implementer ICF. No warranty is expressed or implied by this verification.

PAYMENT: Each measure may only receive one full incentive payment from Energy Solutions within the life of the measure.

TAX LIABILITY: The customer is responsible for declaring and paying any and all applicable federal, state and local taxes that may be owed on any incentive. Energy Arkansas will not be responsible for any tax liability that may be imposed on the customer as a result of the delivery of the energy efficiency measures. Please contact your tax professional for more information.

REMOVAL OF EQUIPMENT: The customer agrees, as a condition of participation in the program, to allow removal and disposal of the equipment being replaced by energy efficiency measures in accordance with all laws, rules and regulations. The customer agrees not to reinstall any newly installed equipment anywhere in Arkansas or transfer it to any other party for installation in Arkansas.

ENDORSEMENT: Energy Arkansas does not endorse any particular manufacturer, product, system design, claim, trade ally or service in promoting this program.

INFORMATION RELEASE: The participant agrees that Energy Arkansas may include participant's name, address, Energy Arkansas account number, Energy Arkansas services and resulting energy savings in reports or other documentation submitted to the program implementer on Energy Arkansas' behalf and/or the Arkansas Public Service Commission. Energy Arkansas will treat all other information gathered in evaluations as confidential, and the information in the reports shall be in the aggregate, where practicable.

LIMITATION OF LIABILITY: ENERGY ARKANSAS' AND PROGRAM IMPLEMENTER ICF'S LIABILITY IS LIMITED TO PAYING THE INCENTIVE SPECIFIED. IN NO EVENT WILL ENERGY ARKANSAS OR ICF BE LIABLE WHETHER IN CONTRACT, TORT (INCLUDING NEGLIGENCE), STRICT LIABILITY, WARRANTY OR OTHERWISE FOR SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES INCURRED, WITH OR RESULTING FROM PARTICIPATION IN THE PROGRAM. ENERGY ARKANSAS RESERVES THE RIGHT TO NOT PAY THIS INCENTIVE IF THE APPLICATION FORM AND ALL REQUIRED ADDITIONAL INFORMATION ARE NOT COMPLETE OR ACCURATE.

LIABILITY WAIVER: By executing an Enrollment Form, the customer voluntarily agrees not to hold Energy Arkansas, ICF, its trade allies or any of their affiliates, directors, officers, employees, agents, or contractors liable for any losses or injury. Customer further agrees not to engage in any inappropriate actions or otherwise endanger the safety or health of same.

WARRANTIES: Energy Arkansas and ICF do not warrant the proper completion of work or performance of installed or serviced equipment, expressly or impliedly. Energy Arkansas and ICF do not endorse, guarantee or warrant any particular manufacturer or product, and Energy Arkansas and ICF provide no warranties, expressed or implied, for any products or services. Energy Arkansas and ICF make no warranties of any kind, whether statutory, expressed or implied, including without limitations, warranties of merchantability or fitness for a particular purpose regarding energy efficiency measures. Energy Arkansas and ICF make no guarantee of energy-saving results by receiving measure installation. The customer acknowledges that neither Energy Arkansas nor ICF nor any of its consultants are responsible for ensuring the design, engineering or installation of the measures is proper or complies with any particular laws (including patent laws), codes or industry standards. Customers should contact their independent contractors for details regarding equipment performance and warranties.

PROPERTY RIGHTS: The participant represents that he/she has the right to complete and/or install the energy-saving equipment on the property on which the equipment is completed and/or installed and that any necessary landlord's or tenant's consent, as the case may be, has been obtained.

RENTER'S CERTIFICATION: Renter certifies that he/she has received consent from the landlord or homeowner for receipt of the energy audit and associated direct installation of energy efficient measures.

CUSTOMER'S CERTIFICATION: Property manager/owner certifies that he/she has contacted for the received service(s) listed on the application at the defined location. Property manager/owner agrees that all information is true and that he/she has conformed to all program and equipment requirements listed.

RIGHT TO REFUSE: The Energy Arkansas trade ally has the right to refuse service or end the delivery when confronted by a customer acting inappropriately or when facing an unsafe situation. "Inappropriate" includes but is not limited to the following: unreasonable demands for service, personally threatening or offensive language, threatening or erratic behavior or failure to comply with Arkansas Department of Health and/or any applicable health and safety recommendations. Authorized trade ally reserves the right to exclude any premises, or vicinity thereof, deemed potentially unsafe or harmful.

TERMINATION OF SERVICE: Either party may terminate this agreement upon 30 days' advance written notice. The trade ally shall be reimbursed for all services properly performed and approved up to the date of termination.

CUSTOMER COMMUNICATION: Participant agrees that Energy Arkansas or Energy Arkansas' program implementer may contact participant via mail, phone, text message or email in connection with the program, including quality assurance communication.

AUTHORIZATION, PROGRAM CHANGES, SUSPENSION OR CANCELLATION: Energy Arkansas may change the program requirements, incentives, or terms and conditions, including suspending acceptance of applications or terminating the program, at any time without notice.

MISCELLANEOUS: These terms and conditions constitute the agreement between the parties and supersede all other communications and representations. By executing an Enrollment Form, the customer agrees to be bound by these terms and conditions.

PRIVACY POLICY: You may view Entergy's privacy policy at entergy.com/privacy-policy.

Customer Information	
Name:	Select One: <input type="checkbox"/> Owner <input type="checkbox"/> Renter
Company/Property Name: (if applicable)	Email Address:
Daytime Phone Number:	Alternate Phone Number:
Street Address:	City: ZIP Code: County:
Program: <input type="checkbox"/> Home Energy Solutions <input type="checkbox"/> Low-Income Solutions <input type="checkbox"/> Manufactured Homes <input type="checkbox"/> Multifamily Homes	
Terms and Conditions	
Please review the attached program terms and conditions and sign (or type) your name below to confirm that you agree to the terms and conditions of the program selected above.	
Signature:	Date:
Property Service Information	
Measures Requested:	
<input type="checkbox"/> Direct Install	<input type="checkbox"/> Air Sealing
<input type="checkbox"/> Smart Thermostat	<input type="checkbox"/> Duct Sealing
<input type="checkbox"/> Insulation	<input type="checkbox"/> A/C Replacement
<input type="checkbox"/> A/C Tune-up	<input type="checkbox"/> Ductless Mini Split
<input type="checkbox"/> A/C Tune-up Pre-clean	<input type="checkbox"/> Window A/C
<input type="checkbox"/> Pool Pump	<input type="checkbox"/> Lighting
*The A/C tune-up pre-clean measure requires a second visit to your home within 30 days in order to complete the full A/C tune-up. The second visit will occur on _____.	
Primary Fuel Type:	Water Heater Fuel Type:



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Visit entergysolutions.com for more information.



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2.6 19131_EAL_NoCostLowCost_TipCard_v04_RELEASE

No-cost energy-saving tips for your entire home

KITCHEN
Clean your refrigerator coils. Dirty coils can require as much as 25% more energy to function properly.
Set your refrigerator to 35 degrees Fahrenheit. If it's any cooler, it forces a defrost cycle and uses additional energy.

BATH
Shorten your 10-minute showers by two minutes. Save 20% of the energy needed.
Check for leaks. One faucet with a constant drip can leak up to 10,000 gallons a year. Toilets can leak as much as 20,000 gallons a year.

LAUNDRY
Rinse your clothes with cold water. Over the course of a year, the savings can add up.
Clean your dryer vent. Blocked vents result in unnecessary long dry times. They're also a fire hazard.

HOME OFFICE
Unplug electronics when not in use. Even equipment that is turned off draws a small amount of power that adds up.
Use power-saving settings for computer equipment. You can save by setting your equipment properly.

AIR QUALITY AND COMFORT
Lower settings for heating to 68 degrees Fahrenheit and raise settings for cooling to 78 degrees Fahrenheit. Often, this will have little to no effect on your comfort.
Adjust your HVAC system when you leave. Why spend money when you're not there to enjoy it?
Clean your dehumidifier regularly. Other wise, it will work harder to maintain your preferred setting.
Close your window coverings. In the winter, this keeps heat from escaping. In the summer, it keeps out hot, direct sunlight.

To save even more money, read the full list of energy efficiency tips at entergysolutionsrewards.com/myplan/energytips

WE POWER LIFE

2.7 21216_EAL_ACTuneUp_Trifold_v07_RELEASE_print

Want more ways to save energy?

Energy Solutions programs also offer weatherization and direct install measures such as:

- Duct sealing.
- Air sealing, showerheads and both aerators.
- LED light bulbs.
- Smart thermostats.*

Plus, an energy efficiency consultant will survey your home to identify opportunities for future energy efficiency improvements and incentives.

*Measures installed vary by program.

Ready to get started?
 Visit: energy@esolutions.com
 Call: 866-623-9177
 Email: energy@esolutions.com

When you service your air conditioning equipment with the Energy Arkansas Energy Solutions program, it's a double win. The air conditioning tune-up helps your home's system to run more efficiently and provides better comfort. You'll save energy and add value to your home.

Make it a win-win with incentives on a high-performance air conditioning tune-up.

Energy Solutions logo and Entergy logo.

WE POWER LIFE™

Air conditioning tune-up

Keep your air conditioner running smoothly to help save energy.

Air conditioning tune-up

The Energy Arkansas Energy Solutions program provides an incentive to eligible customers who take advantage of our high-performance tune-up for their cooling equipment. You can save energy with a tune-up for your home.

More than a standard tune-up, ours involves evaluating the energy efficiency of your equipment and adjusting the equipment so it operates closer to the performance level of a new unit - saving energy.

On qualifying tune-ups, a participating trade ally will perform the following steps:

- Verify and clean the condenser, evaporator coils and blower.
- Clean the condensate drain.
- Check the refrigerant level and adjust to manufacturer specifications (additional costs may apply).
- Measure the airflow across the cooling coil and adjust to manufacturer specifications.
- Clean or change air filters.
- Check system controls to ensure proper and safe operation.
- Check the running cycle of the equipment to ensure that the system starts, operates and shuts off properly.
- Provide documentation showing completion and results of the above items, with a calculation of the system's efficiency before and after the tune-up.

Benefits

- GET FINANCIAL INCENTIVES.
- REDUCE YOUR ENERGY USE.
- POTENTIALLY SAVE ON ENERGY COSTS.
- INCREASE HOME COMFORT.
- REDUCE EQUIPMENT MAINTENANCE.

Energy Solutions logo and Entergy logo.

2.8 21216_EAL_ACTuneUp_Cobranded_Trifold_OnDemand_v07_RELEASE_print

Want more ways to save energy?

Energy Solutions programs also offer weatherization and direct install measures such as:

- Duct sealing.
- Air sealing, showerheads and both aerators.
- LED light bulbs.
- Smart thermostats.*

Plus, an energy efficiency consultant will survey your home to identify opportunities for future energy efficiency improvements and incentives.

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Energy Solutions logo, EverGreen Energy Services logo, and Entergy logo.

WE POWER LIFE™

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- Clean or change air filters.
- Check system controls to ensure proper and safe operation.
- Check the running cycle of the equipment to ensure that the system starts, operates and shuts off properly.
- Provide documentation showing completion and results of the above items, with a calculation of the system's efficiency before and after the tune-up.

Benefits

- GET FINANCIAL INCENTIVES.
- REDUCE YOUR ENERGY USE.
- POTENTIALLY SAVE ON ENERGY COSTS.
- INCREASE HOME COMFORT.
- REDUCE EQUIPMENT MAINTENANCE.

Energy Solutions logo, EverGreen Energy Services logo, and Entergy logo.

2.9 21216_EAL_Weatherization_Cobranded_Trifold_OnDemand_v09_RELEASE_print

Weatherize your home.

Keep your home comfortable year-round while saving energy.

How it works

1. You can visit energy@esolutions.com to find an approved trade ally and then schedule your weatherization appointment.
2. An approved trade ally will inspect your home for air leaks and problems with your insulation or duct system and then install insulation and seal all leaks, connections, drafts and holes.*
3. Once sealing and insulation installation is complete, the work performed may be subject to a quality assurance inspection.
4. Energy Arkansas will pay the incentive directly to the trade ally, which, in most cases, will eliminate your out-of-pocket costs.

Home comfort starts here. Improve the energy efficiency of your home now and for years to come. Schedule an appointment with an approved trade ally and start saving energy today!

Want more ways to save energy?

Our Energy Solutions programs also offer air conditioning tune-ups and installation of energy-saving products such as energy-efficient light bulbs, high-efficiency showerheads, both aerators and smart thermostats in your home at no additional cost! Plus, an energy efficiency consultant will survey your home to identify opportunities for future energy efficiency improvements and incentives.

*Measures installed vary by program.

Ready to get started?
 Visit: energy@esolutions.com
 Call: 866-623-9177
 Email: energy@esolutions.com

Energy Solutions logo, EverGreen Energy Services logo, and Entergy logo.

WE POWER LIFE™

Stand up to winter's chill and summer's heat.

Air that leaks from your home wastes a lot of energy. Weatherize your home to get the most out of your heating and cooling system in any season. A well-sealed home with the right insulation can help you save energy and improve comfort and durability.

Improve your home with sealing and insulation.

Duct sealing
 In a typical home, about 20% of the air that moves through the duct system is lost due to leaks, holes and poorly connected ducts. This loss can lead to:

- High summer and winter energy costs.
- Difficulty heating and cooling rooms in your home.
- Stuffy rooms that never feel comfortable.

Duct sealing reduces air escaping through leaky, poorly insulated or inefficient ducts.

Air sealing
 If air leaks are making your home drafty, you're probably wasting energy. Common air leak locations include:

- Behind walls.
- Recessed lights.
- Plumbing penetrations.
- Windows and doors.
- Wiring holes.

Sealing air leaks helps your heating and cooling system work efficiently, so your home stays comfortable and you may save on energy costs.

Sealing and insulation benefits

Energy efficiency. Sealing and insulating increases the efficiency of your home, which may help lower energy costs.

Home comfort. Sealing and insulating can help with common comfort problems, such as rooms that are too hot in the summer or too cold in the winter.

Air quality. A well-sealed and -insulated home keeps out more humidity, dust, pollen and pests.

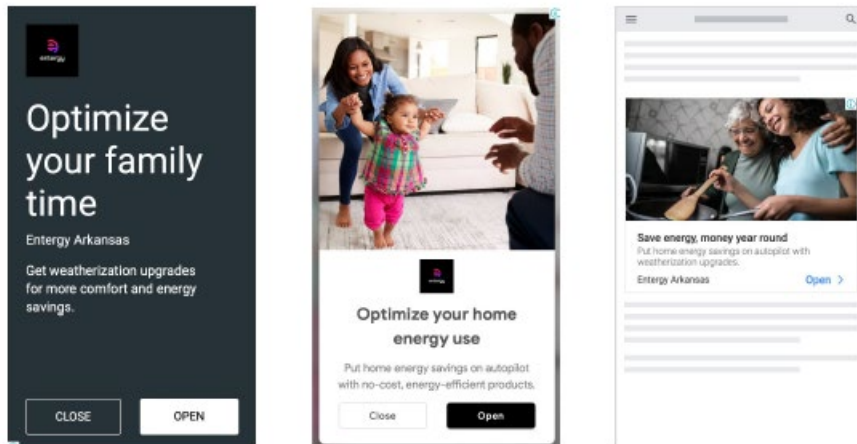
Safety. Leaky ducts can allow gases from furnaces, stoves and water heaters to enter rooms throughout your home. Sealing leaks reduces this risk.

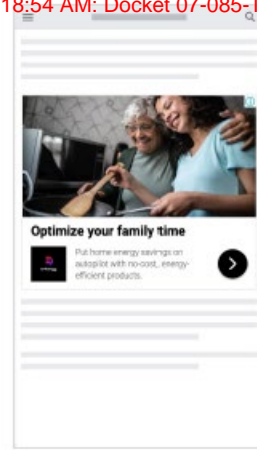
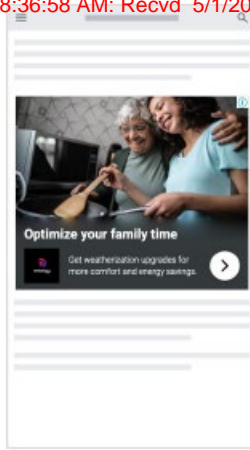
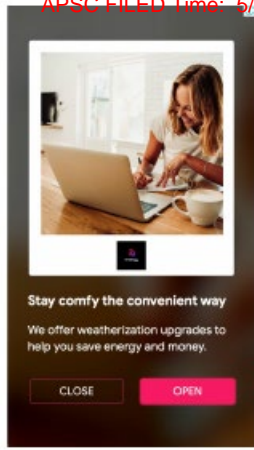
*Insulation is not applicable to manufactured homes.

Energy Solutions logo, EverGreen Energy Services logo, and Entergy logo.

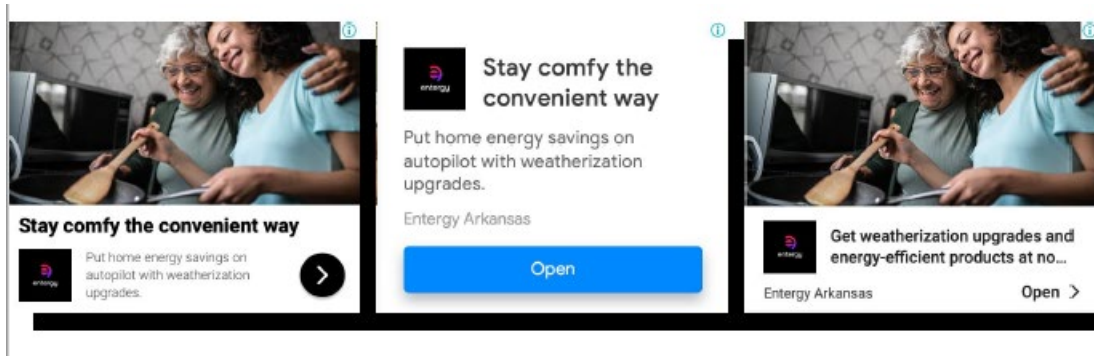


2.11 RES Online Display Ads 2022





2.12 RES Display Banner Ads 2022





Turn up your savings.

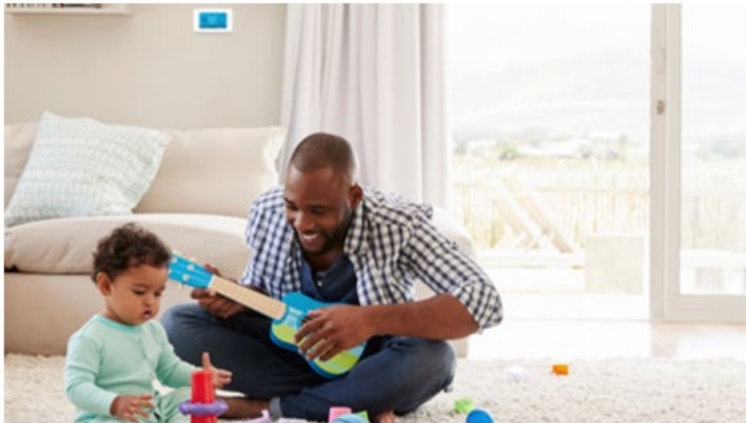
Get ready for summer with a free thermostat.

Get a smart thermostat at no additional cost when you join our Smart Direct Load Control Program.

[ENROLL NOW](#)

Link:

https://www.energy-arkansas.com/your_home/save_money/ee/thermostat/



Zero cost smart thermostat

Save energy and money

Get an award-winning smart thermostat, with professional installation, for no cost when you enroll in our Smart Direct Load Control Program.

[ENROLL NOW](#)

Link:

https://www.energy-arkansas.com/your_home/save_money/ee/thermostat/



Keep your home cool and comfortable

Making smart decisions about your heating and cooling system can have a big impact on your home's efficiency.

Get a high-performance air conditioning tune-up through our Entergy Solutions programs at no additional cost.

[SCHEDULE NOW](#)

Link:

https://www.entergy-arkansas.com/your_home/save_money/ee/home-energy-solutions/



Resolve to save energy in 2022.


Kick off the new year with weatherization measures offered through our residential Entergy Solutions programs to help increase your homes' comfort and improve energy efficiency.

[FIND A TRADE ALLY](#)

Link button to the Find a Trade Ally Tool at <https://entergytradeally.com/>

Entergy Arkansas
January 13 at 8:00 AM · 🌐

Resolve to save energy in 2022. Now that winter temps have moved in, it's the perfect time to improve the energy efficiency of your home. Weatherization measures through our Home Energy Solutions Program can help increase your comfort by sealing air leaks throughout your home and improve your home's energy efficiency. Find a participating trade ally at <http://enter.gy/6189K6eLR>.




10 3 Shares

This Facebook post from Entergy Arkansas, dated January 13, 2022, at 8:00 AM, features a graphic of silver and gold balloons forming the numbers '2022'. The text encourages energy-saving resolutions for the year and promotes the Home Energy Solutions Program, which focuses on weatherization and air leak sealing to improve home comfort and efficiency. A link is provided to find participating trade allies.

Entergy Arkansas
April 13 at 2:52 AM · 🌐

Get ready for warmer temperatures. Our Entergy Solutions programs offer high-performance A/C tune-ups at no additional cost. With a diagnostic check from one of our participating trade allies, your home's air conditioning system will run more efficiently to help you save all summer long. Visit <http://enter.gy/6185KxHRh> to find a trade ally near you.



1 Comment 1 Share

This Facebook post from Entergy Arkansas, dated April 13, 2022, at 2:52 AM, features a photograph of a smiling woman in a green tank top eating yogurt from a white bowl. The text promotes high-performance A/C tune-ups at no additional cost, highlighting a diagnostic check by trade allies to improve air conditioning efficiency for the summer. A link is provided to find a trade ally near the user.

Entergy Arkansas
December 27, 2022 at 12:00 PM · 🌐

As winter is approaching, keep your home cozy by sealing duct and air leaks and adding insulation. Our weatherization programs can help save energy while keeping your family comfortable. Visit entergysolutionsar.com to find a trade ally near you.



3

This Facebook post from Entergy Arkansas, dated December 27, 2022, at 12:00 PM, features a photograph of two women in a kitchen setting looking at a laptop. The text advises on winter home preparation, including sealing ducts and air leaks, and adding insulation to save energy and maintain comfort. A link to entergysolutionsar.com is provided to find a trade ally.

Entergy Arkansas July 11


Save on your energy bill all summer long. Check out our high-performance A/C tune-up through our Entergy Solutions programs. Visit entergysolutionsar.com for more information on how to get started.



2

Entergy Arkansas May 19 at 11:00 AM


Don't sacrifice your home's comfort this summer. Sign up for an air conditioning tune-up through our Entergy Solutions program to help keep you cool and comfortable all summer long. Visit entergysolutionsar.com to find a trade ally near you.



3

Entergy Arkansas September 20, 2022


#DYK cooling costs make up about 55% of an average electric bill? A free A/C tune-up through our Entergy Solutions programs can help your system run more efficiently and provide better comfort while lowering energy costs. Visit entergysolutionsar.com to get a certified technician to upgrade your home's comfort.



3

Entergy Arkansas June 13

Stay comfortable this summer with an A/C Tune-up through our Home Energy Solutions Program. A tune-up from one of our participating trade allies can help reduce cooling costs and extend the life of your equipment. Visit <http://entergy/61882kMxO> to find a trade ally near you.



Like Comment Share

Entergy Arkansas August 30 at 12:15 PM

Keep your air conditioner (and family) happy with a \$0 A/C tune-up through one of our Entergy Solutions programs. An A/C tune-up can increase the comfort-level in your home, reduce cooling costs and extend the life of your equipment. To find an authorized trade ally near you, visit entergysolutionsar.com.

A tuned-up A/C is a happy A/C


Stay comfortable and save energy with a tune-up at no additional cost



5 2 Comments 4 Shares

Entergy Arkansas September 27, 2022

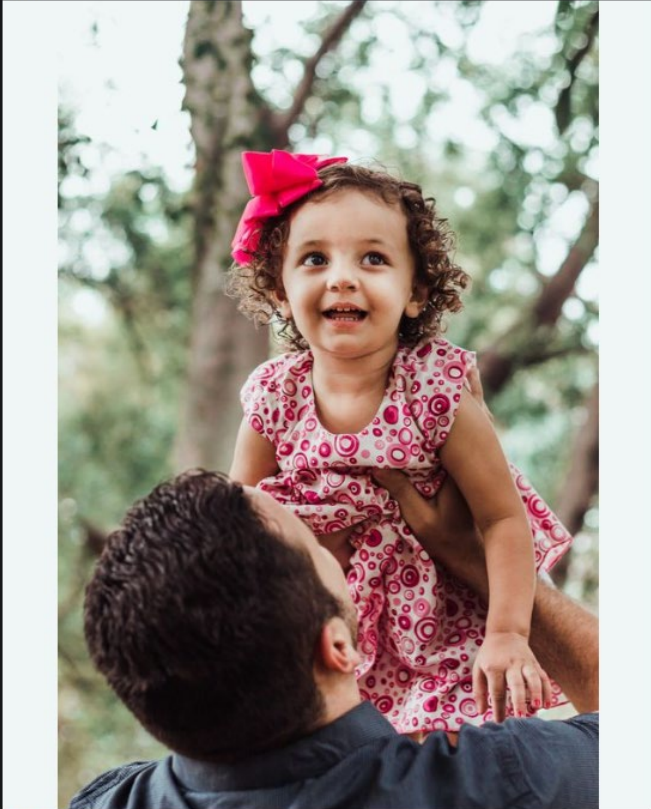
#DYK our Entergy Solutions programs provide a variety of simple ways to help you save energy and money? From power strips to air sealing and A/C tune-ups, we offer no-cost solutions to help you improve the energy efficiency of your home. Visit energysolutionsar.com to sign up.



5 2 shares

Entergy Arkansas June 18


Stay cool and comfortable this Father's Day with a high-performance A/C tune-up through our Entergy Solutions programs. Your home's air conditioning system will run more efficiently, helping you save on energy costs all summer long. Visit energysolutionsar.com to find a trade ally near you.



5

Entergy Arkansas ✓
November 8, 2022 · 🌐

Fall is the perfect time to prepare for winter with no-cost weatherization upgrades. 🍂
We offer a variety of simple ways to help our customers use energy more efficiently and increase the comfort of your home. Visit entergyolutionsar.com for details.



4

This social media post from Entergy Arkansas, dated November 8, 2022, promotes no-cost weatherization upgrades for winter. The text encourages customers to use energy more efficiently and increase home comfort, directing them to entergyolutionsar.com. The image shows a man and a young girl sitting on a bed, reading a book together, with a blue tufted headboard and a white spherical lamp in the background.

Entergy Arkansas ✓
February 7 · 🌐


Keep your home warm this winter by sealing duct and air leaks and adding insulation. Our Entergy Solutions programs can help keep your home comfortable while lowering energy costs. Visit <http://enter.gy/6189KOPol> to find a trade ally near you.





11 1 Share

This social media post from Entergy Arkansas, dated February 7, promotes winter home maintenance. The text suggests sealing ducts and air leaks, and adding insulation to keep homes warm and comfortable while lowering energy costs. It provides a link to <http://enter.gy/6189KOPol> to find a trade ally. The image shows a hand holding a white mug of coffee on a patterned blanket, with a stack of folded linens in the background.

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Residential Customers Business Customers Billing/Payment Safety Community Business Development

Trade Ally Search





Search for Contractor

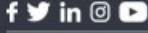
Filter by Equipment or Service

Contractor list



<p>13.4 miles Tempco Inc PO Box 8094 Hot Springs, AR 71910 (501) 321-9336 tempco.mechanical@gmail.com</p>	<p>16.14 miles Arkansas Lighting Solutions 138 McCain Ln Rogers, AR 71968 (501) 625-2795 arkansaslightingsolutions@yahoo.com</p>	<p>18.27 miles Zimmer Electrical Inc 3053 Albert Pike Rd Hot Springs, AR 71913 (501) 520-8047 zimmer17@gmail.com</p>
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3 Portfolio Programs

3.1 Home Energy Solutions

3.1.1 EAL_HES_Circuit Newsletter Article_Jan 2022.docx



Header: **Resolve to save energy in 2022.**

New Year's resolutions can be hard to keep – but they don't have to be. Let us help you set achievable goals to use less energy. By following these easy tips, you can use less energy all year long.

1. **Weatherize.** Stand up to winter's chill and improve the energy efficiency of your home, now and for years to come. Air that leaks from your home can waste a lot of energy. Weatherization upgrades, as part of our [Home Energy Solutions Program](#), can help ease your worry and ultimately improve your home's energy efficiency. A well-sealed home, with the proper insulation, can help you save energy and money and improve comfort and durability.
2. **Use less energy.** There are many ways you can use less energy. You can start by turning off the lights when you leave a room or turning off the tap when you brush your teeth. Every change you make will add up.
3. **Make one energy-efficient upgrade per month.** Switch to a smart thermostat to take advantage of convenient features and energy savings. A smart thermostat learns your personal preferences to automatically adjust temperatures when you come and go. You can also control the temperature from anywhere, using your tablet or smartphone. Enroll in our [Smart Direct Load Control Program](#) to receive an ENERGY STAR® certified, award-winning thermostat, plus professional installation at absolutely **NO COST**.
4. **Get your family on board.** It's important to get the whole family involved, but it will be more effective if you make it fun. Track your progress together and keep a chart of small changes every family member can make – whether it's unplugging chargers when not in use, turning off your computer or putting on a sweater instead of turning up the heat.
5. **Make it a habit.** Stick with your new energy-saving routine – and your other New Year's resolutions – and see how much energy you can save by Spring.

Resolve to improve the energy efficiency and comfort of your home now and for years to come. Visit entergyarkansas.com/efficiency to find a participating trade ally or to learn more about this and other energy efficiency programs we offer.



Home Energy Solutions Program

Save energy with home improvements.

Your home is one of the largest investments you make. Protect that investment by uncovering energy-saving opportunities with a Home Energy Assessment. Entergy Arkansas offers its residential customers this comprehensive evaluation at no additional cost to you. A trained consultant will identify the best energy-saving improvements for your home and create a plan that fits your needs.

The benefits
A Home Energy Assessment may help:

- Save energy.
- Make your home safer and more efficient.
- Increase the comfort of your home.
- Increase the value of your home.

Incentives to improve your home
The Home Energy Solutions Program offers incentives to cover the cost of installing energy efficiency improvements, such as:

- Tuning up your air conditioner.
- Sealing leaks in your ductwork.
- Sealing leaks in your home.
- Adding ceiling insulation.
- Installing a smart thermostat.




21209_EAL_HESProgramOverview_Flyer_v08.indd 1 5/20/23 3:07 PM

Home Energy Solutions Program


Are you eligible?
Take your highest summer energy bill and divide it by the actual conditioned square footage of your home. If your energy costs are 10 cents or more per square foot or your home is at least 10 years old, your home qualifies for a Home Energy Assessment.

How to participate

1. Call us at **866-627-9177**. We will schedule an appointment at your convenience.
2. During the assessment, the trade ally will identify ways to improve the energy efficiency of your home. Your trade ally will also install energy-efficient LEDs, a smart power strip and potentially more products, all at no additional cost to you.

More ways to save
Other Entergy Arkansas residential programs that can help you save energy include:


- Smart Direct Load Control Pilot Program.
- Point of Purchase Program.



You may benefit from a Home Energy Assessment if you have:

- Rooms that are too hot or too cold.
- Drafty windows and doors.

Get started today
For more information or to explore other Entergy Solutions programs you may be eligible for, call **866-627-9177**, visit entergyarkansas.com/efficiency or email us at homeenergysolutionsesa@ef.com.



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WE POWER LIFE™

21209_EAL_HESProgramOverview_Flyer_v08.indd 2 5/20/23 3:07 PM



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- Make your home safer and more efficient.
- Increase the comfort of your home.
- Increase the value of your home.

Incentives to improve your home
The Home Energy Solutions Program offers incentives to cover the cost of installing energy efficiency improvements, such as:

- Tuning up your air conditioner.
- Sealing leaks in your ductwork.
- Sealing leaks in your home.
- Adding ceiling insulation.
- Installing a smart thermostat.




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Home Energy Solutions Program

Are you eligible?
Take your highest summer energy bill and divide it by the actual conditioned square footage of your home. If your energy costs are 10 cents or more per square foot or your home is at least 10 years old, your home qualifies for a Home Energy Assessment.

How to participate

1. Call us at 866-627-9177. We will schedule an appointment at your convenience.
2. During the assessment, the trade ally will identify ways to improve the energy efficiency of your home. Your trade ally will also install energy-efficient LEDs, a smart power strip and potentially more products, all at no additional cost to you.

More ways to save
Other Entergy Arkansas residential programs that can help you save energy include:

- Smart Direct Load Control Pilot Program.
- Point of Purchase Program.

Get started today
For more information or to explore other Entergy Solutions programs you may be eligible for, call 866-627-9177, visit entergyarkansas.com/efficiency or email us at homeenergysolutions@ef.com.




123-456-7890
fakeemail@fakehost.com
1234 Fake Street
Fake City, USA



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Your Home Energy Checkup Report Jun 26, 2019

Home Energy Solutions Program
Sponsored By: **Entergy Arkansas**

Prepared for:
Nancy Tester
90 Main St
Little Rock, AR 72205

Prepared by:
John Tech, JT LLC
Phone: 123-555-1233
Email: john@tech.com



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Nancy Tester
90 Main St
Little Rock, AR 72205

Entergy Arkansas
Your Home Energy Checkup Report

Dear Nancy Tester,

Thank you for participating in our Home Energy Solutions Program. An Entergy Solutions trade ally performed energy efficiency upgrades in your home. We hope you have found the products and services helpful and the information shared with you useful. This report provides information to help you understand your energy usage as well as recommendations to show you how to best take advantage of the Home Energy Solutions Program. Please do not hesitate to contact us with any questions.

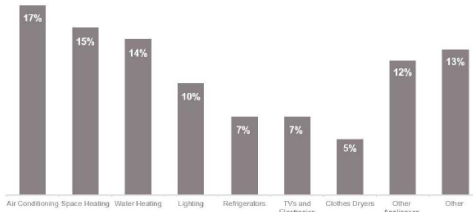
Home Attributes

Size: 760 square feet
Year Built: 1977 to 1997
Type: Manufactured
Heating: Heat Pump
Cooling: Window AC
Hot Water: Electric

Prepared by:
John Tech, approved trade ally for Entergy Arkansas, LLC
Phone: 555-678-6788
Email: john@tech.com

We invite you to provide feedback on your experience. Please go to surveyurl.tbd.com to complete a quick survey.

Residential Energy Consumption by End Use*



*U.S. Energy Information Administration, 2015 Residential Energy Consumption Survey

energyarkansas.com/efficiency | HomeEnergySolutionsEAL@icf.com | 866-627-3177


WE POWER LIFE™

Nancy Tester
90 Main St
Little Rock, AR 72205


Entergy Arkansas
Your Home Energy Checkup Report

No-Cost and Low-Cost Solutions for You

Simply applying the solutions below can lower your energy use and costs while protecting the environment.



- Use an advanced smart thermostat to automatically adjust the temperature when you are not at home. The U.S. Department of Energy suggests temperature settings of 68° in winter and 78° in summer.
- Wash clothes in cold water and let them air dry.
- Clean your refrigerator's coils every six months.
- Use the light wash settings on your dishwasher and turn off heated drying.
- Turn off your lights when not in use.
- According to ENERGY STAR®, LEDs use about 70-90% less energy than traditional incandescent bulbs, last at least 15 times longer and save about \$55 in electricity costs over their lifetime.
- Remember to adjust your thermostat when using ceiling fans – additional energy and dollar savings could be realized with this simple step.
- Replace HVAC filters every month.
- Plug air leaks around doors and windows with caulking and weatherstripping.
- Old electric water heaters in unconditioned spaces may benefit from adding blanket insulation.



Your Customized No-Cost Energy Efficiency Tips

Your Customized Low-Cost Energy Efficiency Tips

Additional Recommended Energy Efficiency Measures

Resources: For more information and other do-it-yourself solutions, visit circulr.energy.com/save-money/room-by-room-savings.

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Nancy Tester
90 Main St
Little Rock, AR 72205

Entergy Arkansas
Your Home Energy Checkup Report

Advanced Power Strips—Average household standby consumption can account for 6-10% of total electricity use. Advanced power strips automatically turn off the flow of electricity to products that go into standby mode and shut down other peripheral devices (like printers or speakers) that use not in use.

Product Name	No. Installed	Est. Savings (Annual)	Est. Savings (Lifetime)
Advanced Power Strip - Home Office	2	\$13.20	\$102

Faucet Aerator—The faucet aerators just installed will use at least 31% less water than standard models.

Product Name	No. Installed	Est. Savings (Annual)	Est. Savings (Lifetime)
Elec - Low-Flow Faucet Aerator - Bath	1	\$2.50	\$26.00

Light-Emitting Diode (LED) Bulbs—The new LEDs that were installed can last at least 15 times longer than standard bulbs and save you over \$50 in electricity costs over each bulb's lifetime.

Product Name	No. Installed	Est. Savings (Annual)	Est. Savings (Lifetime)
Elec - Low-Flow Showerheads - Handheld Showerhead	1	\$24	\$240

Efficient-Flow Showerheads—Your new efficient-flow showerhead uses up to 40% less water than a standard 2.5 gallons-per-minute (GPM) showerhead; you'll also use less energy to heat water every shower.

Smart Thermostats—Your new smart thermostat can be used with home automation and control your home's heating and air conditioning. You can also remotely control the temperature of your home throughout the day.

Product Name	No. Installed	Est. Savings (Annual)	Est. Savings (Lifetime)

*Savings based on average electric rate \$0.10/kWh and Average Natural Gas Rate \$0.84/therm. The estimated savings are based on the Arkansas Technical Reference Manual (ATRM).

Entergy Arkansas offers a variety of programs and services designed to help you improve energy efficiency and save money, including:

- Air Conditioning Tune-Ups:** The air conditioning tune-up helps each home's system to run more efficiently and provides better comfort to residents while lowering energy costs.
- Draft Stopping:** A draft system that is well-designed and properly sealed can make your home more comfortable, energy efficient and safer.
- Air Sealing:** Reducing the amount of air that leaks in and out of your home is a cost-effective way to cut heating and cooling costs, improve durability, increase comfort and create a healthier indoor environment!
- Ceiling Insulation:** Insulation can increase your home's comfort and lower your energy usage year-round, lowering the demand on your A/C unit.
- Smart Direct Load Control Pilot Program:** By enrolling in the Smart Direct Load Control Pilot Program, you can earn even more incentives from Entergy Arkansas. To sign up or learn more, please visit energyarkansas.com/smartdirectload or call 833-867-7862.
- Point of Purchase Program:** Energy-efficient lighting and appliances can help you reduce energy costs. For a limited time, you can save up to \$3 per bulb when you purchase LEDs at participating retailers. Visit energyarkansas.com to learn more. You can also receive a discount on a qualifying advanced smart thermostat when you apply online using the Entergy Arkansas instant rebate website, energyarkansas.com.

Other potential energy efficiency programs that may benefit your property can be found online at:

- Entergy Arkansas, LLC - www.entropyarkansas.com
- CenterPoint Energy - www.centerpointenergy.com
- Black Hills Energy - www.blackhillsenergy.com

energyarkansas.com/efficiency | HomeEnergySolutionsEAL@icf.com | 866-627-3177

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Terms and Conditions

These terms and conditions are only valid for service completed on or after Jan. 1, 2020. Only EERC sites may submit applications for incentive consideration.

ENERGY AUDIT REPORT: The Energy Audit Report provides the customer with a complete picture of energy usage measures needed throughout the premises, as well as recommendations related to energy efficiency programs available. Energy Arkansas is not responsible for lost or misinterpreted information.

ELIGIBILITY: Participants must be Energy Arkansas electric utility customers. The incentive must be used within 18 months of the date of completion of the audit or the conditional rebate budget on the highest summer cooling day. Funds are limited and services are subject to availability. Limited to one audit per household. In order for participants to qualify for Air Sealing, Duct Sealing and Air Conditioning (Tonal) incentives, they must be performed by an Energy Arkansas Trade Ally. For other Energy Arkansas programs, please visit energyarkansas.com.

APPROVAL AND VERIFICATION: Energy Arkansas reserves the right to verify the delivery of services and to have reasonable access to the participant's premises to verify the performance of energy efficiency direct install measures and/or energy efficiency work. Prior to any project of installation, Energy Arkansas reserves the right to verify site preparation. The customer thereby will verify that the installed energy measures meet all applicable building codes, zoning laws, local, state and federal requirements, and other relevant requirements. The customer's Trade Ally is responsible for any applicable permits as required by law. Customer's Trade Ally and other applicable conditions may affect the verification process. The home may also be subject to a quality control post-installation verification by Energy Arkansas. No warranty is provided or implied by this verification.

PAYMENT: Each measure may only receive one incentive payment from Energy Arkansas.

TAX LIABILITY: The customer is responsible for declaring and paying any and all applicable federal, state and local taxes that may be used on any incentive. Energy Arkansas will not be responsible for any tax liability that may be imposed on the customer as a result of the delivery of the Energy Efficiency Measures (EEMs). Please consult your professional for more information.

REMOVAL OF EQUIPMENT: The customer agrees, as a condition of participation in the program, to allow removal and disposal of the equipment being installed by EERC in accordance with all laws, rules and regulations. The customer agrees not to install any other similar equipment available to Arkansas or transfer to any other party for installation in Arkansas.

ENFORCEMENT: Energy Arkansas does not endorse any particular manufacturer, model, system design, claim, trade ally or service promoting this program.

INFORMATION RELEASE: Participant agrees that Energy Arkansas may include participant's name, address, phone number, Energy Arkansas account number, Energy Arkansas services and resulting energy savings in reports or other documentation submitted to the program and/or Energy Arkansas and/or other Arkansas Public Service Commission. Energy Arkansas may use all other information generated in evaluations as confidential, and the information in the reports shall be in the recipient's sole possession.

LIMITATION OF LIABILITY: ENERGY ARKANSAS LIABILITY IS LIMITED TO PAYING THE INCENTIVE SPECIFIED. IN NO EVENT WILL ENERGY ARKANSAS BE LIABLE WHETHER IN CONTRACT, TORT (INCLUDING NEGLIGENCE), STRICT LIABILITY, WARRANTY OR OTHERWISE FOR SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES CONNECTED WITH OR RESULTING FROM PARTICIPATION IN THE PROGRAM. ENERGY ARKANSAS RESERVES THE RIGHT TO NOT PAY THIS INCENTIVE IF THE APPLICATION FORM AND ALL REQUIRED ADDITIONAL INFORMATION ARE NOT COMPLETE OR ACCURATE.

WARRANTY: Energy Arkansas does not warrant the proper completion of work or performance of installed or serviced equipment, expressly or implicitly. Energy Arkansas does not endorse, guarantee or warrant any particular manufacturer or product, and Energy Arkansas provides no warranties, express or implied, for any products or services. Energy Arkansas makes no warranty of any kind, whether statutory, contractual or common law, including without limitation, warranties of merchantability or fitness for particular purpose regarding such. Energy Arkansas makes no guarantee of energy-saving results to receiving measure installation. The customer acknowledges that neither Energy Arkansas nor any of its consultants are responsible for ensuring the design, engineering or installation of the measures is proper or consistent with any particular state (including patent laws), codes or industry standards. Customers should contact their independent contractors for details regarding equipment performance and warranties.

PROPERTY RIGHTS: Participant represents that he/she has the right to complete and install the equipment on the premises on which the equipment is contained and/or installed and that any necessary permits or consent, as the case may be, has been obtained.

RENTER'S CERTIFICATION: Renter certifies that he/she has received consent from the landlord or homeowner to receive the energy audit and associated direct installation of equipment.

CUSTOMER'S CERTIFICATION: Property manager/owner certifies that he/she has confirmed for the received services based on the application at the address location. Property manager/owner agrees that all information is true and that he/she has confirmed to all program and equipment requirements listed.

RIGHT TO REFUSE: The Energy Arkansas Trade Ally has the right to refuse service or stop the delivery when confronted with a customer acting irresponsibly or when being in unsafe situation. "Unsafe situation" includes but is not limited to the following: unreasonable demands for services, potentially threatening or abusive language, threatening or erratic behavior and personal contact. Authorized Trade Ally reserves the right to include any premises, or vicinity, homes, deemed potentially unsafe or harmful.

TERMINATION OF SERVICE: Either party may terminate this agreement upon 30 days advance written notice. The Trade Ally will be responsible for all services properly performed and approved up to the date of termination.

USE OF EMAIL ADDRESS: Energy Arkansas or Energy Arkansas program implementer may contact participants via email in connection with the program.

AUTHORIZATION, PROGRAM CHANGES, SUSPENSION OR CANCELLATION: Energy Arkansas may change the program requirements, incentives, or terms and conditions, including suspending acceptance of applications or terminating the program, at any time without notice.

MISCELLANEOUS: These terms and conditions constitute the agreement between the parties and supersede all other communications and representations. By accepting an incentive form, the customer agrees to be bound by these terms and conditions.

PRIVACY POLICY: You may view Energy's privacy policy at energy.com/privacy-policy/.

SIGNATURES:

Please be sure you have read the terms and conditions of this application. I HAVE READ AND UNDERSTAND THE TERMS AND CONDITIONS ABOVE. I CERTIFY THAT THE INFORMATION I HAVE PROVIDED IS TRUE AND CORRECT.

CUSTOMER DIRECT INSTALL VERIFICATION
One of our energy efficiency Trade Ally installers will be with the contractor for you to install. The install will be left to install as a trade ally.
Customer Name: _____

3.1.5 Beacon Report_EAL_2_25_2020

Home Energy Assessment Report

A message from Entergy Arkansas, LLC ©2020 Entergy Services, LLC. All Rights Reserved. The Energy Solutions program is an energy efficiency program not affiliated with Entergy Solutions, LLC.

Your Home's Energy Consumption

Based on our assessment of your home, we have estimated your home's energy usage and broken it down by major end use category. The energy consumption estimate is based on how much your home would consume in an average year. The estimated costs are based on our estimate of current energy costs.

Estimated Annual Utility Bill Break Down

Electricity Usage - \$2,514 or 100% of cost

Your electric retail energy provider is Entergy Arkansas and the rate used in this analysis is 0.10000 per kWh. The total energy cost and consumption has been normalized to reflect a typical year.

Your Home's Airtightness

Balancing your home's airtightness is important for energy efficiency, comfort level and possibly health and safety. Air leakage, when hot or cold air escapes through walls, doors or windows, is often a major source of energy loss in homes. Homes that are too airtight can have problems with indoor air quality, or other health and safety issues, especially if you have one or more combustion appliances, such as a fireplace or gas oven.

Using state-of-the-art equipment, we have measured your home and compared it to industry standards for airtightness, which is an indication of an optimal balance between energy efficiency, indoor air quality and health and safety.

Your Home's Air Leakage Rate

Your home's air leakage rate is 1.80 times the minimum level recommended for healthy ventilation. Like most homes, yours has a leakage rate that is substantially higher than the optimal rate. For such homes, air sealing measures to bring the home closer to the optimal level are usually very cost-effective.

Prepared For	
Customer Name	Inspection Date: 02/11/20
Customer Address	Trade Ally, Trade Ally Name
City, State ZIP Code	Trade Ally Phone Number: XXX-XXX-XXXX
Customer Phone Number: XXX-XXX-XXXX	Trade Ally Email: email@email.com

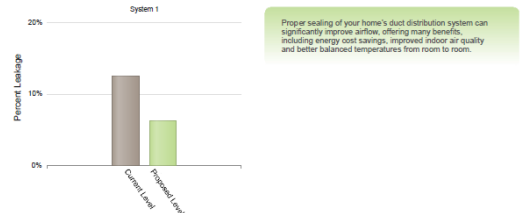
Description of Home	
House Type	Single-Family Detached
Conditioned Floor Area	1800 Sq. Ft.
Number of Bedrooms	3
Number of Occupants	3
Year Home Was Built	1996-2000
Stories Above Grade	1
Primary Foundation Type	Open Crawlspace

Existing Systems	
Heating Systems:	6.50 HSPF Electricity Air Source Heat Pump
Cooling Systems:	10 EER Air Source Heat Pump
Water Heating Systems:	50-Gallon Electricity Storage (Tank)

Scenario ID: XXXXXX Report Print Date: 2/25/2020

Your Home's Duct Leakage

Addressing duct system leaks, holes and poorly connected ducts prevents conditioned air from escaping into unconditioned space. By reducing this leakage, home owners should expect to use less energy and experience a more comfortable home.



Proper sealing of your home's duct distribution system can significantly improve airflow, offering many benefits, including energy cost savings, improved indoor air quality and better balanced temperatures from room to room.

Home Improvement Recommendations

As a result of the Home Energy Assessment, we recommend the following improvements for your home:

Measure Category	Existing Condition	Improved Condition	Estimated Annual Savings
Air Sealing			
Air Sealing Level	Air leakage rate of 2000 cubic feet per minute at 50 Pascals.	Reduce leakage from living space to 1560 CFM50	\$84.60
Seal/insulate Recessed Lights - Attic Area 1		Seal/insulate 12 Recessed Lights	
Seal/insulate Attic Access Hatches - Attic Area 1		Seal/insulate 1 Attic Access Hatch(es)	
Insulation			
Attic Insulation - Attic Area 1	Current insulation level is 5" and condition is poorly insulated	Insulate 1600 square feet w/ Fibreglass (open blow) 6 inches	\$245.68
Kneewalls/Vertical Attic Walls - Group 1	Current insulation level is 4" and condition is poorly insulated	Add 72 R2 of Foam (high density) & 1" Polyurethane - Rigid Board	\$11.14
Rim Joist - Group 1	Area is not currently insulated	Insulate 160 linear feet with Fibreglass Batt	\$13.64
Windows & Glass Doors			
Windows & Glass Doors - Metal dbl pane no break	Current windows are double-pane clear without storm windows	Install 10 Uni(t)s with U-Value 0.3 & SHGC 0.32	\$30.37
Doors			
Doors - Wood	Current door is solid core wood (no storm)	Install 2 Add Storm Door	\$6.47
HVAC Systems			
Heating System - System 1	25-24 year old Air Source Heat Pump with an efficiency of 0.5 HSPF	Replace w/ 7.8 HSPF Install and Program Set-	\$173.01

Measure Category	Existing Condition	Improved Condition	Annual Savings
Heating System Thermostat - System 1		Back Thermostat: 1 For Both Heating and Cooling Systems	\$51.78
Central Air Conditioner - System 1	25-28 year old Central AC with an efficiency of 10 SEER	System Service/Tune-up	\$171.27
Cooling System Thermostat - System 1		Install and Program Set-Back Thermostat	\$9.71
Ducts			
Duct System 1 - Sealing	Current duct system leakage is 150 CFM50 to outdoors	Seal Ducts w/ Approved Materials	\$36.16
Smart Thermostat 1 - heat pump	Standard Thermostat	Smart Thermostat - heat pump	\$30.72
Domestic Hot Water System			
Water Heater - System 1	Current DHW system is 1992-1995 Storage (Tank) with energy factor (EF) of 0.68	Performance Tune-Up or Repair	\$1.55
Lighting, Appliances & Smart Strips			
Replacement Lighting		Install 15 Energy Efficient Lamps *	\$85.41
Smart Strips		Install Smart Strips	
Water Saving Measures			
Low-Flow Showerheads		Replace 2 of 2 showerheads with low-flow showerheads	\$17.05
Building Performance Measures			
Address House Drainage Concerns		Divert Drainage from Foundation	

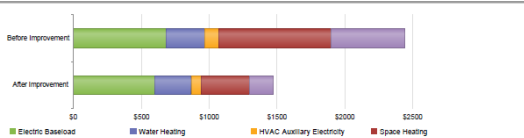
* The lighting energy usage indicated for your home exceeds the national average. A cap has been applied to the lighting energy usage based on the modeling of your home.

Your Estimated Annual Energy Savings

The following table shows estimated energy savings from the proposed measures, broken into the same major categories of use in your home as shown in the analysis of current energy usage on Page 2. For each category, the table provides an estimated annual dollar savings, a breakdown of the savings by fuel type and the percentage of energy saved relative to your existing usage.

End Use Category	Electricity kWh	Cost Savings	Percent Energy Savings
Space Heating Savings	4,730	\$473	57.0%
Air Conditioning Savings	3,668	\$367	67.9%
Water Heating Savings	186	\$19	6.5%
Electric Baseload Savings	854	\$85	12.5%
HVAC Auxiliary Electricity Savings	273	\$27	26.2%
Total Project Savings	9,712	\$971	NA
Total Percent Savings	39.7%	39.7%	39.7%

Projected Reduction in Annual Utility Costs
If you install all of the measures recommended above, your projected annual energy cost savings would be \$971 and would potentially change as follows by end use category.



Financial Analysis

The projected energy savings from your home performance projects will help pay for the projects. The following financial analysis lets you to look at energy savings in financial terms.

Simple Payback, Annual After-Tax Rate of Return and SIR	
Energy Saving Measures	\$0.00
Total Package Price	\$0.00
Arkansas Energy Rebate (subject to approval)	\$0.00
Other Incentives	\$0.00
Net Package Price	\$0.00
Annual Projected Savings	\$971.15
Simple Payback (years)	0.0
Annual Rate of Return	0.00%
Lifetime Savings-to-Investment Ratio	9999.0

Glossary

AFUE	Annual Fuel Utilization Efficiency. The rating standard for the energy efficiency of furnaces and boilers. The higher the AFUE, the more energy efficient the system is.
Annual Rate of Return	The rate of return on your investment after 1 year, expressed as a percentage of the total amount invested. This is a standard method for comparing the performance of investments.
BAS	Building Airflow Standard. The minimum amount of ventilation through a house. For air leakage amounts less than the BAS, mechanical ventilation must be installed in order to maintain proper indoor air quality. Approximately equivalent to one full changeout of air in a home in 3 hours.
CCF	Hundred Cubic Feet. Measurement unit for natural gas.
CFM25	The standard measurement for determining air leakage in duct systems. Specifically, it is the amount of air, measured in cubic feet per minute (CFM), escaping from the duct system when pressurized to 25 pascals.
CFM50	The standard measurement for determining air leakage in homes. Specifically, it is the amount of air, measured in cubic feet per minute (CFM), escaping from your home when depressurized to 50 pascals.
Combustion Appliances	Appliances that burn fossil fuels for heating, cooking and other purposes. They can include furnaces, water heaters, ranges, ovens, stoves, fireplaces and clothes dryers.
COP	Coefficient of Performance. Used to measure the efficiency of ground source heat pumps. The higher the COP, the more energy efficient the system is.
EER	Energy Efficiency Ratio. A secondary rating standard for the energy efficiency of air conditioners and primary rating standard for ground source heat pumps. The higher the EER, the more energy efficient the system is.
Electric Baseload	The portion of your electric bill that includes lighting, appliances, and electronics, yet excludes heating and air conditioning, which are considered seasonal use.
HSPF	Heating Seasonal Performance Factor. Used to measure the efficiency of air source heat pumps. The higher the HSPF, the more energy efficient the system is.
HVAC	Heating, Ventilation and Air Conditioning. The technologies and equipment that make up the systems that heat and cool your house.
HVAC Auxiliary Electricity	The portion of your electric bill due to the electric fan used to move heated and/or cooled air through your duct system.
kWh	Kilowatt. Energy unit for measuring electric demand. Can be viewed as a snapshot of electricity usage at a single moment in time. 1 kWh is equal to the amount of power consumed by ten 100-Watt lightbulbs running simultaneously.
kWh	Kilowatt-hour. Energy unit for measuring electricity consumption. 1 kWh is equal to the amount of energy consumed by ten 100-Watt light bulbs left running for 1 hour.
Lifetime Savings-to-Investment Ratio (SIR)	Financial performance metric that expresses the ratio of savings achieved over the lifetime of a package of energy-saving measures compared to the cost of the initial investment. If the SIR is 1 or greater, then the energy savings from the item will pay for itself before it needs to be replaced again.
R-Value	The resistance of a material to conducting heat. The higher the R-value, the better the insulation.
SEER	Seasonal Energy Efficiency Ratio. The rating standard for the energy efficiency of air conditioners. The higher the SEER, the more energy efficient the system is.
Simple Payback (Years)	The amount of time in years required to recoup the money you spent on an investment, such as an energy efficiency improvement. Simple payback is equal to the cost of the energy efficiency package divided by annual energy savings.

Entergy Solutions Home Energy Solutions Program Customer Satisfaction Survey

Please enter the information indicated below (optional):

First Name:
 Last Name:
 Email Address:
 Street Address:

Please describe your overall satisfaction with the Entergy Solutions Home Energy Solutions Program:

- Very Satisfied
- Satisfied
- Neutral
- Somewhat Dissatisfied
- Very Dissatisfied

Identify the first business need of the Entergy Solutions program:

- Energy Efficiency
- Renewable Energy
- Energy Storage
- Peak Shaving
- Demand Response
- Smart Meters
- Other (please specify):

Why did you participate in this program based on that need?

- To save money on my energy bill
- To help the environment
- To improve the efficiency of my home
- To reduce my carbon footprint
- To help smart meters
- To improve the overall quality of my life
- Other (please specify):

Identify what you like to recommend the Entergy Solutions program to others:

- Save time
- Lower
- Not sure
- Somewhat unlikely
- Unlikely

Did the benefits you received from the Entergy Solutions program:

- Yes
- No

If yes, please specify which program:

Based on your overall experience, please rate your level of satisfaction with the overall program:

	Very Dissatisfied	Dissatisfied	Neutral	Satisfied	Very Satisfied
Speed of getting appointments	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
On-time arrival for the appointment	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Following you about the home to get things to be working right	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Overall experience	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Help to identify and understand solutions	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Clearly explain the energy measurement process, including the meter and what the meter does for me	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Response to questions and questions	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Being on-site with me	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Clearly identified the energy solutions program I needed	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Not being required to do the work myself	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Do you have any suggestions for improving the Entergy Solutions program?

If you have any other comments or suggestions, please let us know. If anything you find or identify about the Entergy Solutions program:

Identify how you would recommend the program to others (if you would recommend the program to others, please indicate how):



- Very likely
- Likely
- Not sure
- Somewhat unlikely
- Unlikely

Next



Entergy Solutions
The Power of Possibility

3.1.7 HES Survey Letter

test test
123 test drive
apt 123
Russellville, AR 71937


Dear test test

Thank you for participating in the Entergy Arkansas Home Energy Solutions Program.

An Entergy Solutions trade ally performed energy efficiency upgrades in your home. These improvements can help your home be more energy efficient and may also help you see an increase in comfort and energy savings.

We invite you to provide feedback about your experience through our brief customer survey. The survey will only take a few minutes to complete, and your valuable response will help us improve our service to customers just like you.

Please go to tinyurl.com/HomeEnergySolutionsEAL or use your smartphone to scan the QR code below to begin the survey.




Interested in other ways Entergy Arkansas can help with energy-efficient upgrades to your home? Please visit energysolutionsar.com for more information.

If you need additional assistance or have any questions, feel free to call 866-627-9177 or email HomeEnergySolutionsEAL@icf.com.

Sincerely,
Heather Hendrickson
Project Manager
Entergy Arkansas

Thank you for participating in an Entergy Solutions program.

 donotreply@programprocessing.com
Thu 10/15/2020 2:33 PM
To: Goryachev, Igor

Dear Igor Test,

Thank you for participating in the Entergy Arkansas Home Energy Solutions Program.

An Entergy Solutions trade ally performed energy efficiency upgrades in your home. These improvements can help your home be more energy efficient and may also help you see an increase in comfort and energy savings.

We invite you to provide feedback about your experience through our brief customer survey. The survey will only take a few minutes to complete, and your valuable response will help us improve our service to customers just like you.

Click [here](#) to begin the survey.

Interested in other ways Entergy Arkansas can help with energy-efficient upgrades to your home? Please visit our [website](#) for more information.

If you need additional assistance or have any questions, feel free to call **866-627-9177** or email HomeEnergySolutionsEAL@icf.com.

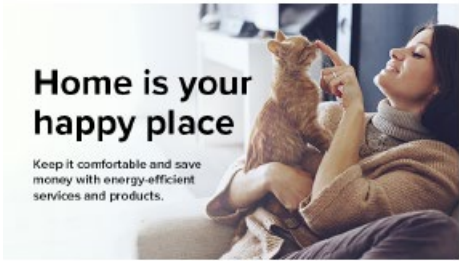
Sincerely,

Heather Hendrickson
Project Manager
Entergy Arkansas



[Privacy Policy](#)

ENERGY SOLUTIONS



Home is your happy place

Keep it comfortable and save money with energy-efficient services and products.

Our Energy Solutions programs offer incentives on upgrades like duct sealing, ceiling insulation, and more to help lower your energy costs.

[Learn more >](#)



Duct sealing

Limit the air leaking through poorly insulated, inefficient ducts.

Ceiling insulation

Maintain a consistent temperature in your home all year long.

Ceiling insulation offer is not available for all home types.



Energy-saving products installed at no additional cost*

Start saving immediately with LED bulbs, efficient showerheads and faucet aerators, advanced power strips, and more.

Smart thermostats learn your preferences

Looking for temperature control tailored for you? Sign up for our **Smart Direct Load Control Program** and we'll give you an energy-saving smart thermostat with professional installation at no additional cost* – a \$225 value.



Ready to get started? Visit us [online](#) or call 866-627-9177 for details.

* Digital Energy Arkansas customers receive no-additional-cost offers when they participate in a residential Energy Solutions program.

We power life.



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#energylife

ENERGY SOLUTIONS

A tuned-up A/C is a happy A/C

Stay comfortable and save energy with a tune-up at no additional cost*



Our Energy Solutions programs offer incentives on energy-saving upgrades like A/C tune-ups, duct sealing, ceiling insulation, and more. Click the button below and select your home type to see the ways you can save.

[Learn more >](#)



A/C tune-ups
Reduce cooling costs and extend the life of your equipment.

Duct and air sealing
Sealing air leaks throughout your home and duct system helps your heating and cooling system work efficiently.



Energy-saving products installed at no additional cost*
Start saving immediately with LED bulbs, efficient showerheads and faucet aerators, advanced power strips, and more.

More convenient features, less energy use
Looking for temperature control tailored for you? Sign up for our Smart Direct Load Control Program and we'll give you an energy-saving smart thermostat with professional installation at no additional cost* – a \$225 value.



Ready to get started? Visit us [online](#) or call 866-627-9177 for details.

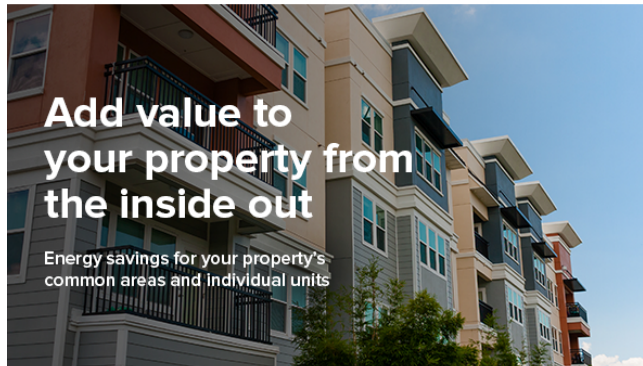
* Digital Energy Alliance: Customers receive no additional cost offers when they participate in a residential Energy Solutions Program. A/C tuneups are provided at no cost to the customer and include up to one hour of additional cost if required. The customer must cover the cost of any cost over the one-hour limit.

We power life.™



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ENERGY SOLUTIONS



Entergy Arkansas is committed to helping multifamily property owners and their residents save energy and money. We offer incentives to help offset the upfront costs of energy efficiency upgrades, and the remainder is often quickly recouped in energy savings.

[Learn more ▶](#)

Benefits of upgrading

An energy-efficient property increases property value and marketability through lower energy use and operating costs. Entergy Arkansas offers a variety of discounted and low-/no-cost solutions to help you save.

Ways to Save Energy	In-Unit	Common Areas and Amenities
Heating and Cooling Systems	Air Conditioner Tune-up,* HVAC Equipment Replacement, Duct Sealing	Air Conditioner Tune-up,* HVAC Equipment Replacement, Duct Sealing
LED Lighting	Interior	Interior and Exterior, Exit Signs
Efficient-Flow Water Products	Energy-Efficient Showerheads, Kitchen and Bathroom Faucet Aerators	Energy-Efficient Showerheads, Kitchen and Bathroom Faucet Aerators
Power Savers	Advanced Power Strips	Motion Detectors, Pool Pumps
Weatherization	Air Sealing, Ceiling Insulation	Ceiling Insulation
Miscellaneous	Property Energy Assessment	Property Energy Assessment

*eligible every 5 years

Ready to get started? Visit us [online](#) or call 866-627-9177 for details.

Eligible Entergy Arkansas customers receive offers when they participate in the Multifamily Homes Program.

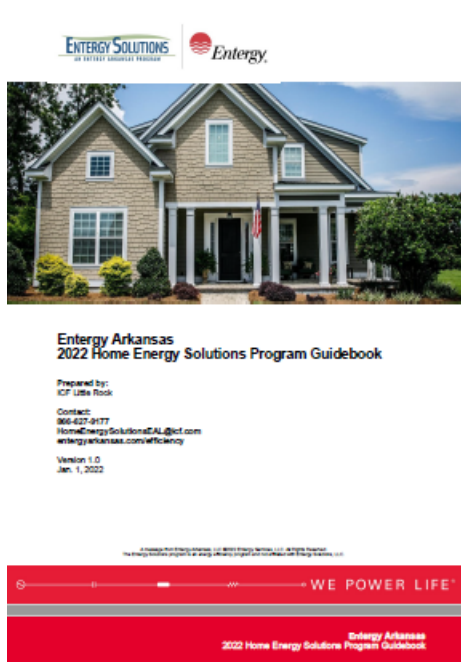
We power life.™



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Entergy Arkansas
2022 Home Energy Solutions Program Guidebook

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Entergy Arkansas
2022 Home Energy Solutions Program Guidebook

Program Overview

Program Description

The Energy Solutions Home Energy Solutions Program provides cost-effective energy efficiency measures to single-family homes throughout the Entergy Arkansas ("Entergy Arkansas") electric service territory. Through the program, participating trade allies will perform energy surveys and energy efficient upgrades at eligible participating single-family homes. Energy-efficient upgrades consist of measures as air conditioner tune-up, duct sealing, air sealing and ceiling insulation. Additionally, direct install technicians will install energy efficiency measures to the home. Trade allies will also suggest other areas for improvements and opportunities for participation in other Entergy Arkansas energy efficiency programs.

Program Objectives

The primary objective of the Home Energy Solutions Program will be to help Entergy homeowners and/or renters reduce their energy usage and possibly save money on their utility bill through installation of no-cost energy efficiency measures and offer incentives for more in-depth energy efficiency measures in both common areas and individual homes. In addition, this program is designed to help Entergy Arkansas homeowners understand their energy consumption and how to use energy wisely.

Program Contact Information

Phone: 966-427-9177
Email: HomeEnergySolutionsEAL@icf.com
Web: entergyarkansas.com/efficiency

Program Eligibility

Owners or renters (with required consent) of single-family homes located within the Entergy Arkansas electric service territory are eligible for the Entergy Arkansas Home Energy Solutions Program. Customers with homes that have an energy use of 50-100 per square foot in the summer or are 10 years or older may qualify for the core weatherization measures. Homes for certain measures must have a ducted central heating and air conditioning unit installed prior to participation of the Home Energy Solutions Program.

Funds are limited, and services are available to all Entergy Arkansas service territories on a first-come, first-served basis. For more information about other Entergy Arkansas programs, please visit entergyarkansas.com.

Program Participation

STEP 1: Enroll in the program by calling a participating trade ally or by emailing us at

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Entergy Arkansas
2022 Home Energy Solutions Program Guidebook

HomeEnergySolutionsEAL@icf.com. For a list of participating trade allies, please use our Find a Provider Tool at EntergyARTradeAlly.com.

STEP 2: Schedule an appointment to have a trade ally visit your residential home to install the program measures and conduct your energy survey. The technician will determine if the home is a candidate for incentivized measures. An adult representative should plan to be present for the duration of the energy survey and product installation, which will take up to two hours. For weatherization services, a more in-depth energy audit can take up to four hours.

STEP 3: Sign the completed participation document, and please provide any comments or suggestions about the program.

SLM and Beacon Audits

Depending on your home's energy usage and size, you may be eligible for either a home energy survey or a more detailed energy-efficient assessment. If either identifies ways to save energy in your home, and you will be eligible to receive qualifying core measures installed at no direct cost by a trade ally.

SLM Audit

During the SLM Audit walk-through survey, trade allies will install energy-saving measures including LED light bulbs, advanced power strips, showerheads and kitchen/bath sensors. These measures can instantly save energy and money when properly installed and used. These measures will be installed at no additional cost to the customer. A survey will provide insights into other ways to use energy wisely.

Beacon Audit

The Beacon Audit is a comprehensive evaluation on your home's energy use. This audit will provide recommendations on ways to save energy. During the Beacon Audit, customers eligible for weatherization installation will start with a home inspection before work. The energy auditor will complete an interior "walk-through" inspection of the air-conditioned space. A pre-closure door test must be performed to confirm the need for air sealing, and a pre-duct blower test must be performed to confirm the need for duct sealing. If the pre-testing confirms the need for either air sealing and/or duct sealing, the air sealing and duct sealing may be authorized. Post testing must be performed in the structure and/or the duct to confirm the air-leakage reduction.

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Customer Journey



Program Benefits

Direct Install Measures

In this program, energy-efficient products are furnished and installed at no additional cost to Energy Arkansas Home Energy Solutions Program customers. The measures available for direct installation in eligible properties and locations include:

- ENERGY STAR® LEDs in fixtures that replace incandescent lamps.
- 1.5 gallons-per-minute shower heads and faucet aerators (when existing fixtures have flow rate of 2.0 gallons per minute or greater and where the water heater is powered by electricity).
- Advanced power strips for qualifying home entertainment systems.



Incentivized Measures

For all weatherization measures, electricity must be the primary source of heating or cooling. There must be a working central heat pump, working central electric air conditioning system or working central electric resistance furnace in use at the residence.

Air Conditioner Tune-up

Any Energy Home Energy Solutions Program customer that has central air conditioning or heat pump systems on-site may qualify for an air conditioning tune-up. Customers who have participated in the previous five years will not be eligible.

The Energy Arkansas air conditioner tune-up involves a special diagnostic and service procedure that not only assures the system is operating at peak efficiency (and lowest operational cost) but also identifies shortcomings that are leaving the system from doing so. After the tune-up is complete, it may be subject to a post-installation quality-assurance verification.

Duct Sealing

Customers of Energy who use a central duct system for heating and cooling their home may qualify for duct sealing based on the total system leakage and opportunity for improvement. Duct sealing will consist of air leaks in the ductwork being reduced with the application of long-lasting materials. After the duct sealing is complete, the home may be subject to a post-installation quality-assurance verification.

Air Sealing

Customers of Energy who have substantial air leakage qualify for air sealing. Sealing may include weatherstripping or caulking around doors or windows. Air sealing may also include using spray foam in plumbing penetrations and large holes in sheetrock and anywhere air can escape to the exterior. Industry standard materials and methods are used to reduce air infiltration and exfiltration. After the air sealing is complete, it may be subject to a post-installation quality-assurance verification.

Ceiling Insulation

Customers with existing insulation of R-14.0 or less may qualify for insulation to bring their home up to the DOE recommendation of R-38. Improvement measures incentive eligibility is based upon existing R-value and square feet of ceiling insulation. Density and gaps in the existing insulation will be considered as well.

Smart Thermostat

Energy customers with qualified air conditioning systems and Wi-Fi may sign up for the Smart Direct Load Control offering. Participating trade allies will assist customers to complete the application during the Home Energy Solutions visit. Smart thermostat eligibility is based upon presence of continuous Wi-Fi internet. Customers can also choose to participate in summer demand response events.

Program Quality Management

Post-Verification

Completed projects are subject to a post-installation verification, selected on a random basis. Typically, 10% of all homes that participated in the program will be selected for the verification. If it is determined that an on-site post-verification is going to be performed, a program representative will contact the customer to schedule the property site verification.

By receiving a program service, the customer agrees to allow an on-site post-verification after work is completed.

Terms and Conditions

ENERGY AUDIT REPORT: The energy audit report provides the customer with a compiled review of energy-saving measures installed throughout the property, as well as recommendations related to energy efficiency measures available. Energy Arkansas is not responsible for local documentation.

ELIGIBILITY: Participants must be Energy Arkansas electric utility customers with a working central air conditioner or heat pump. For homes without working central air conditioning, the home must have central electric heating. The residence must be at least 10 years old or have energy costs of 10 cents or more of the conditioned square footage on the highest summer cooling day. Funds are limited, and services are available in select geographic areas on a first-come, first-served basis. In order for participants to qualify for measures such as Air Sealing, Duct Sealing and Air Conditioning Tune-up incentives, the service must be performed by an Energy Arkansas trade ally. For other Energy Arkansas programs, please visit energyarkansas.com.

APPROVAL AND VERIFICATION: Energy Arkansas reserves the right to verify the delivery of services and to have reasonable access to the participant's residence to verify the performance of energy efficiency direct install measures and/or energy efficiency work. Prior to any payment of incentives, Energy Arkansas reserves the right to verify sales transactions. The customer's trade ally will verify that the installed energy-saving measures meet all applicable building codes; zoning laws, local, state and federal requirements; and other relevant requirements. The customer's trade ally is responsible for any applicable permits as required by law. Outdoor temperature and other weather conditions may affect this verification process. The participant acknowledges and agrees to participate if their home is selected for a quality-control post-installation verification by Energy Arkansas or its program implementer ICF. No warranty is expressed or implied by this verification.

PAYMENT: Each measure may only receive one full incentive payment from Energy Solutions within the life of the measure.

TAX LIABILITY: The customer is responsible for declaring and paying any and all applicable federal, state and local taxes that may be owed on any incentive. Energy Arkansas will not be responsible for any tax liability that may be imposed on the customer as a result of the delivery of the energy efficiency measures. Please contact your tax professional for more information.

REMOVAL OF EQUIPMENT: The customer agrees, as a condition of participation in the program, to allow removal and disposal of the equipment being replaced by energy efficiency measures in accordance with all laws, rules and regulations. The customer agrees not to reinstall any newly installed equipment anywhere in Arkansas or transfer it to any other party for installation in Arkansas.

ENDORSEMENT: Energy Arkansas does not endorse any particular manufacturer, product, system design, claim, trade ally or service in promoting this program.

INFORMATION RELEASE: The participant agrees that Energy Arkansas may include participant's name, address, Energy Arkansas account number, Energy Arkansas services and resulting energy savings in reports or other documentation submitted to the program implementer on Energy Arkansas' behalf and/or the Arkansas Public Service Commission. Energy Arkansas will treat all other information gathered in evaluations as confidential, and the information in the reports shall be in the aggregate, where practicable.

LIMITATION OF LIABILITY: ENERGY ARKANSAS' AND PROGRAM IMPLEMENTER (ICF)'S LIABILITY IS LIMITED TO PAYING THE INCENTIVE SPECIFIED. IN NO EVENT WILL ENERGY ARKANSAS OR ICF BE LIABLE (WHETHER IN CONTRACT, TORT (INCLUDING NEGLIGENCE), STRICT LIABILITY, WARRANTY OR OTHERWISE) FOR SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES CONNECTED WITH OR RESULTING FROM PARTICIPATION IN THE PROGRAM. ENERGY ARKANSAS RESERVES THE RIGHT TO NOT PAY THIS INCENTIVE IF THE APPLICATION FORM AND ALL REQUIRED ADDITIONAL INFORMATION ARE NOT COMPLETE OR ACCURATE.

LIABILITY WAIVER: By executing an Enrollment Form, the customer voluntarily agrees not to hold Energy Arkansas, ICF, its trade ally or any of their affiliates, directors, officers, employees, agents, or contractors liable for any losses or injury. Customer further agrees not to engage in any inappropriate actions or otherwise endanger the safety or health of others.

WARRANTIES: Energy Arkansas and ICF do not warrant the proper completion of work or performance of installed or serviced equipment, expressly or implicitly. Energy Arkansas and ICF do not endorse, guarantee or warrant any particular manufacturer or product, and Energy Arkansas and ICF provide no warranties, expressed or implied, for any products or services. Energy Arkansas and ICF make no warranties of any kind, whether statutory, expressed or implied, including without limitation, warranties of merchantability or fitness for a particular purpose regarding energy efficiency measures. Energy Arkansas and ICF make no guarantee of energy-saving results by receiving measure installation. The customer acknowledges that neither Energy Arkansas nor ICF nor any of its consultants are responsible for ensuring the design, engineering or installation of the measures is proper or complies with any particular laws (including patent laws), codes or industry standards. Customers should contact their independent contractors for details regarding equipment performance and warranties.

PROPERTY RIGHTS: The participant represents that he/she has the right to complete and/or install the energy-saving equipment on the property on which the equipment is completed and/or installed and that any necessary landlord's or tenant's consent, all the cases may be, has been obtained.

RENTER'S CERTIFICATION: Renter certifies that he/she has received consent from the landlord or homeowner for receipt of the energy audit and associated direct installation of energy efficient measures.

CUSTOMER'S CERTIFICATION: Property manager/owner certifies that he/she has contacted for the received service(s) listed on the application at the defined location. Property manager/owner agrees that all information is true and that he/she has confirmed to all program and equipment

requirements listed.

RIGHT TO REFUSE: The Energy Arkansas trade ally has the right to refuse service or end the delivery when confronted by a customer acting inappropriately or when facing an unsafe situation. "Inappropriate" includes but is not limited to the following: unreasonable demands for service, personally threatening or offensive language, threatening or erratic behavior or failure to comply with Arkansas Department of Health and/or any applicable health and safety recommendations. Authorized trade ally reserves the right to exclude any premises, or vicinity therein, deemed potentially unsafe or harmful.

TERMINATION OF SERVICE: Either party may terminate this agreement upon 30 days advance written notice. The trade ally shall be reimbursed for all services properly performed and approved up to the date of termination.

CUSTOMER COMMUNICATION: Participant agrees that Energy Arkansas or Energy Arkansas' program implementer may contact participant via mail, phone, text message or email in connection with the program, including quality assurance communication.

AUTHORIZATION, PROGRAM CHANGES, SUSPENSION OR CANCELLATION: Energy Arkansas may change the program requirements, boundaries, or terms and conditions, including suspending acceptance of applications or terminating the program, at any time without notice.

MISCELLANEOUS: These terms and conditions constitute the agreement between the parties and supersede all other communications and representations. By executing an Enrollment Form, the customer agrees to be bound by these terms and conditions.

PRIVACY POLICY: You may view Energy's privacy policy at energy.com/privacy-policy/.


Disclaimer

Neither Energy Arkansas nor ICF make any guarantee or any other representation or warranty, expressed or implied, as to the quality or effectiveness of any product(s) provided or work(s) performed through this program.

Energy efficiency gains are subject to a number of variable conditions and circumstances. While it is the intent of the program to achieve energy efficiencies, neither Energy Arkansas nor ICF guarantees or warrants that any specific energy efficiency gains will be achieved for a particular customer participating in the program.

Entergy Arkansas ✓
April 25 at 11:53 AM · 🌐

Spring into savings with our Home Energy Solutions Program. From light bulbs to showerheads, you can get energy-saving products installed at no additional cost. Visit <http://enter.gy/6184KxHp2> to find a trade ally near you.

A photograph of two young girls in a play tent. One girl is wearing a light-colored dress and the other is wearing a green dress. They are standing on a rug and looking at something together. The tent is decorated with colorful streamers and has a wooden frame.

Entergy Arkansas ✓
May 31 at 12:15 PM · 🌐

Rack up savings with our Home Energy Solutions Program. From A/C tune-ups to weatherization upgrades and LED bulbs, we offer many ways to help you save year-round. Visit entergyarkansas.com/efficiency to find a trade ally near you.


A photograph of a woman's torso wearing a blue and white striped dress with a black bow at the waist. She is holding a large pink piggy bank in her hands.

 **Entergy Arkansas** ✓
March 29 · 🌐


Adding ceiling insulation and sealing air leaks are two great ways to save energy and make your home more comfortable. Our Home Energy Solutions program provides weatherization upgrades, at no additional cost. Visit entergyarkansas.com/efficiency to find a trade ally near you.





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 **Entergy Arkansas** ✓
November 22, 2022 · 🌐

Fall into savings with our Home Energy Solutions program. From efficient products to duct sealing, insulation and more, we can help you save energy and improve your home's comfort no matter the season. Visit entergyarkansas.com/efficiency to find a trade ally near you.



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3.2 Entergy Solutions for Multi-family

3.2.1 28316_EAL_MF_Commercial_Flyer_v05_Release_Web.pdf



Entergy Arkansas Multifamily Homes Program

Incentives for common area and exterior upgrades

Entergy Arkansas is committed to helping multifamily property owners and their residents save energy and money. We offer incentives to help offset the upfront costs of energy efficiency upgrades, and the remainder is often quickly recouped in energy savings.

Benefits of upgrading

- An energy-efficient property has:
- Lower energy use.
 - Lower operating costs.
 - Increased property asset values.
 - Increased marketability. Sets your property apart as an environmentally responsible community.
 - Improved employee and resident safety.
 - Enhanced security.*

Lighting upgrades

Energy-efficient lighting provides the same brightness as traditional bulbs but uses 90% less energy and lasts 15 times longer, which means financial savings on operations and maintenance.*

The following upgrades are eligible for an incentive of \$0.17 per kilowatt hour saved:¹

- LED Exit Signs
- LED Screw-in PAR/R/BR/B and MR Replacement Lamps
- "Corn Cob" Replacement Lamps
- LED Screw-in A19, A21, and Candelabra
- TLED Lamp Replacement
- Interior LED Retrofits
- New Interior LED Fixtures
- LED High-Bay Fixtures
- LED Parking Garage (New or Retrofit)
- Exterior LED²
- Lighting Controls
- Permanent Delamping

* Source: energystar.gov
¹ Incentives are capped at 75% of the total project cost.
² Includes LED parking lot, gas canopy, area, flood, wall pack or retrofit kit.



Entergy Arkansas Multifamily Homes Program

Commercial air conditioner tune-ups

Keep your property's commercial air conditioning systems running efficiently with high-performance tune-ups. Air conditioning tune-ups can increase comfort while decreasing energy use and equipment maintenance.

Upgrade	Incentive	Detail
Commercial Air Conditioner Tune-up	No additional cost to Entergy Arkansas customer	<ul style="list-style-type: none"> • A qualified technician will measure and collect all required test data. • Pending customer approval, typical improvement measures include: <ul style="list-style-type: none"> ➢ Airflow correction. ➢ Cleaning of indoor blower, evaporator coils and condenser coils. ➢ Correction of refrigerant charge using required tools and procedures.

Pool pump upgrade

ENERGY STAR[®] certified in-ground pool pumps use up to 65% less energy than standard pool pumps and can save up to \$450 a year in energy costs.*

Upgrade	Incentive	Detail
ENERGY STAR Certified Variable Frequency Drive or Multispeed Pool Pump 0.5-3 Horsepower	\$350 per pump	<ul style="list-style-type: none"> • ENERGY STAR certified pool pumps run at different speeds. • You can program them to match the pool operation with an appropriate speed. • Reducing pump speed by one-half allows the pump to use just one-eighth as much energy. • An ENERGY STAR certified pool pump: <ul style="list-style-type: none"> ➢ Runs quietly. ➢ Prolongs the life of your pool's filtering system. ➢ Can help you save money and energy.

Get started today

For more information, call 866-627-9177, visit enteryarkansas.com/multifamily or email us at MultifamilyEAL@icf.com.

* Source: energystar.gov



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WE POWER LIFE[®]

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Air Sealing

Customers of Entergy who have substantial air leakage qualify for air sealing. Sealing may include weatherstripping or caulking around doors or windows. Air sealing may also include using spray

foam in plumbing penetrations and large holes in sheetrock and anywhere air can escape to the exterior. Industry standard materials and methods are used to reduce air infiltration and exfiltration. After the air sealing is complete, it may be subject to a post-installation quality-assurance verification.

Ceiling Insulation

Customers with existing insulation of R-14.9 or less may qualify for insulation to bring their home up to the DOE recommendation of R-38. Improvement measure incentive eligibility is based upon existing R-value and square feet of ceiling insulated. Density and gaps in the existing insulation will be considered as well.

Smart Thermostat

Entergy customers with qualified air conditioning systems and Wi-Fi may sign up for the Smart Direct Load Control offering. Participating trade allies will assist customers to complete the application during the Home Energy Solutions visit. Smart thermostat eligibility is based upon presence of continuous Wi-Fi internet. Customers can also choose to participate in summer demand response events.

Program Quality Management

Post-Verification

Completed projects are subject to a post-installation verification, selected on a random basis. Typically, 10% of all homes that participated in the program will be selected for the verification.

If it is determined that an on-site post-verification is going to be performed, a program representative will contact the customer to schedule the property site verification.

By receiving a program service, the customer agrees to allow an on-site post-verification after work is completed.

Entergy Arkansas 2021 Home Energy Solutions Program Guidebook

Terms and Conditions

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ELIGIBILITY: Participants must be Entergy Arkansas electric utility customers with a working central air conditioner or heat pump. For homes without working central air conditioning, the home must have central electric heating. The residence must be at least 10 years old or have energy costs of 10 cents or more of the conditioned square footage on the highest summer cooling bill. Funds are limited, and services are available in select geographic areas on a first-come, first-served basis. In order for participants to qualify for measures such as Air Sealing, Duct Sealing and Air Conditioning Tune-up incentives, the service must be performed by an Entergy Arkansas trade ally. For other Entergy Arkansas programs, please visit enteryarkansas.com.

APPROVAL AND VERIFICATION: Entergy Arkansas reserves the right to verify the delivery of services and to have reasonable access to the participant's residence to verify the performance of energy efficiency direct install measures and/or energy efficiency work. Prior to any payment of Incentives, Entergy Arkansas reserves the right to verify sales transactions. The customer's trade ally will verify that the installed energy-saving measures meet all applicable building codes; zoning laws; local, state and federal requirements; and other relevant requirements. The customer's trade ally is responsible for any applicable permits as required by law. Outdoor temperatures and other weather conditions may affect this verification process. The participant acknowledges and agrees to participate if their home is selected for a quality-control post-installation verification by Entergy Arkansas or its program implementer ICF. No warranty is expressed or implied by this verification.

PAYMENT: Each measure may only receive one full Incentive payment from Entergy Solutions within the life of the measure.

TAX LIABILITY: The customer is responsible for declaring and paying any and all applicable federal, state and local taxes that may be owed on any incentive. Entergy Arkansas will not be responsible for any tax liability that may be imposed on the customer as a result of the delivery of the energy efficiency measures. Please contact your tax professional for more information.

REMOVAL OF EQUIPMENT: The customer agrees, as a condition of participation in the program, to allow removal and disposal of the equipment being replaced by energy efficiency measures in accordance with all laws, rules and regulations. The customer agrees not to reinstall any newly installed equipment anywhere in Arkansas or transfer it to any other party for installation in Arkansas.

ENDORSEMENT: Entergy Arkansas does not endorse any particular manufacturer, product, system design, claim, trade ally or service in promoting this program.

<p style="text-align: center;">Entergy Arkansas 2021 Home Energy Solutions Program Guidebook</p>	<p style="text-align: center;">Entergy Arkansas 2021 Home Energy Solutions Program Guidebook</p>
<p>INFORMATION RELEASE: The participant agrees that Entergy Arkansas may include participant's name, address, Entergy Arkansas account number, Entergy Arkansas services and resulting energy savings in reports or other documentation submitted to the program implementer on Entergy Arkansas' behalf and/or the Arkansas Public Service Commission. Entergy Arkansas will treat all other information gathered in evaluations as confidential, and the information in the reports shall be in the aggregate, where practicable.</p> <p>LIMITATION OF LIABILITY: ENTERGY ARKANSAS' AND PROGRAM IMPLEMENTER ICF'S LIABILITY IS LIMITED TO PAYING THE INCENTIVE SPECIFIED. IN NO EVENT WILL ENTERGY ARKANSAS OR ICF BE LIABLE WHETHER IN CONTRACT, TORT (INCLUDING NEGLIGENCE), STRICT LIABILITY, WARRANTY OR OTHERWISE FOR SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES CONNECTED WITH OR RESULTING FROM PARTICIPATION IN THE PROGRAM. ENTERGY ARKANSAS RESERVES THE RIGHT TO NOT PAY THIS INCENTIVE IF THE APPLICATION FORM AND ALL REQUIRED ADDITIONAL INFORMATION ARE NOT COMPLETE OR ACCURATE.</p> <p>LIABILITY WAIVER: By executing an Enrollment Form, the customer voluntarily agrees not to hold Entergy Arkansas, ICF, its trade allies or any of their affiliates, directors, officers, employees, agents, or contractors liable for any illness or injury. Customer further agrees not to engage in any inappropriate actions or otherwise endanger the safety or health of same.</p> <p>WARRANTIES: Entergy Arkansas and ICF do not warrant the proper completion of work or performance of installed or serviced equipment, expressly or implicitly. Entergy Arkansas and ICF do not endorse, guarantee or warrant any particular manufacturer or product, and Entergy Arkansas and ICF provide no warranties, expressed or implied, for any products or services. Entergy Arkansas and ICF make no warranties of any kind, whether statutory, expressed or implied, including without limitations, warranties of merchantability or fitness for a particular purpose regarding energy efficiency measures. Entergy Arkansas and ICF make no guarantee of energy-saving results by receiving measure installation. The customer acknowledges that neither Entergy Arkansas nor ICF nor any of its consultants are responsible for ensuring the design, engineering or installation of the measures is proper or complies with any particular laws (including patent laws), codes or industry standards. Customers should contact their independent contractors for details regarding equipment performance and warranties.</p> <p>PROPERTY RIGHTS: The participant represents that he/she has the right to complete and/or install the energy-saving equipment on the property on which the equipment is completed and/or installed and that any necessary landlord's or tenant's consent, as the case may be, has been obtained.</p> <p>RENTER'S CERTIFICATION: Renter certifies that he/she has received consent from the landlord or homeowner for receipt of the energy audit and associated direct installation of energy efficient measures.</p> <p>CUSTOMER'S CERTIFICATION: Property manager/owner certifies that he/she has contracted for the received service(s) listed on the application at the defined location. Property manager/owner agrees that all information is true and that he/she has conformed to all program and equipment</p> <p style="text-align: right;">9</p>	<p>requirements listed.</p> <p>RIGHT TO REFUSE: The Entergy Arkansas trade ally has the right to refuse service or end the delivery when confronted by a customer acting inappropriately or when facing an unsafe situation. "Inappropriate" includes but is not limited to the following: unreasonable demands for service, personally threatening or offensive language, threatening or erratic behavior or failure to comply with Arkansas Department of Health and/or any applicable health and safety recommendations. Authorized trade ally reserves the right to exclude any premises, or vicinity therein, deemed potentially unsafe or harmful.</p> <p>TERMINATION OF SERVICE: Either party may terminate this agreement upon 30 days' advance written notice. The trade ally shall be reimbursed for all services properly performed and approved up to the date of termination.</p> <p>CUSTOMER COMMUNICATION: Participant agrees that Entergy Arkansas or Entergy Arkansas' program implementer may contact participant via mail, phone, text message or email in connection with the program, including quality assurance communication.</p> <p>AUTHORIZATION, PROGRAM CHANGES, SUSPENSION OR CANCELLATION: Entergy Arkansas may change the program requirements, incentives, or terms and conditions, including suspending acceptance of applications or terminating the program, at any time without notice.</p> <p>MISCELLANEOUS: These terms and conditions constitute the agreement between the parties and supersede all other communications and representations. By executing an Enrollment Form, the customer agrees to be bound by these terms and conditions.</p> <p>PRIVACY POLICY: You may view Entergy's privacy policy at entergy.com/privacy-policy.</p> <p>Disclaimer</p> <p>Neither Entergy Arkansas nor ICF makes any guarantee or any other representation or warranty, expressed or implied, as to the quality or effectiveness of any product(s) provided or work(s) performed through this program.</p> <p>Energy efficiency gains are subject to a number of variable conditions and circumstances. While it is the intent of the program to achieve energy efficiencies, neither Entergy Arkansas nor ICF guarantees or warrants that any specific energy efficiency gains will be achieved for a particular customer participating in the program.</p> <p style="text-align: right;">10</p>

3.2.2 21217_EAL_MF_ProgramOverview_Flyer_v08_RELEASE_print



Entergy Arkansas Multifamily Homes Program

Program overview

Save energy

The Entergy Arkansas Multifamily Homes Program can benefit both multifamily property owners and their tenants. Our energy efficiency upgrades may add value to your property and help lower your water and sewer costs.

A team of Entergy Arkansas field technicians will install free energy-saving products in each unit of your eligible multifamily property.*

Discounted measures

HVAC replacement

Improve energy efficiency with a new heating and cooling system. Replace inefficient equipment with eligible ENERGY STAR® certified units, including small split system and single-package air conditioners and heat pumps.

Air sealing

Sealing the outer walls and other openings of a home can make a real difference in saving energy. It can also reduce outside noise, air pollutants, pests and humidity.

Air conditioning tune-ups

High efficiency air conditioning tune-ups for multifamily units help each unit run more efficiently and provide more comfort to residents.

Window film

Window film helps to control temperature for more comfortable multifamily units.

No-additional-cost direct install products

Energy-efficient light bulbs

A technician will install energy-efficient bulbs in fixtures in each unit. On average, energy-efficient bulbs have at least 10 times the life span of incandescent bulbs.

Energy-efficient showerheads

A technician will replace eligible showerheads with new, energy-efficient models.

- The showerheads are corrosion-resistant and maintenance-free.
- The 1.5-gallons-per-minute showerhead uses 40% less water compared to a standard showerhead, meaning less energy use.†

Entergy Arkansas Multifamily Homes Program

Kitchen and bathroom faucet aerators

A technician will install energy-efficient faucet aerators that use 1.5 gallons per minute in the kitchen and bathroom.

- The aerators are made of durable materials.
- They use 31% less water compared to a standard aerator, which means less energy use for water heating.†

Advanced power strips

Advanced power strips reduce electricity wasted by secondary devices in home entertainment systems. These power strips:

- Use less than one watt of power each when fully energized.
- Save energy by electronically unplugging secondary devices to reduce standby waste.

Energy survey

The Entergy Arkansas field technicians also will perform an energy survey of your property's common areas at no cost. This survey will identify opportunities for future energy efficiency improvements to the building systems, such as heating, cooling and lighting. You will then receive a summary report listing recommendations.

Common area measures

In addition to all the other measures listed, common areas may be eligible for:

- Pool pumps.
- Interior LED lighting.
- Exterior LED lighting.
- LED exit signs.
- Occupancy sensors.
- Vending machine controls.

* Water efficiency products are available only to those customers who have an electric water heater.
† Savings are approximate and will vary due to the efficiency of the heating and water heating system, the temperature of incoming and outgoing water, and the number of occupants in the home.

Get started today

For more information, call 866-627-9177, visit entergyarkansas.com/multifamily or email us at multifamily@ent.com.



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The Entergy Solutions program is an Entergy Arkansas program administered by Entergy Arkansas, LLC.

MF 2310

WE POWER LIFE®

Energy
efficiency
installations
underway



Thank you for participating
in the Entergy Arkansas
Multifamily Homes Program.




We just helped
increase the comfort
of your home.

Energy efficiency improvements were recently completed by the **Entergy Arkansas Multifamily Homes Program**. Energy-saving upgrades included:

- Air conditioner tune-up.
- Air sealing.
- Direct install energy efficiency measures.
- Duct sealing.
- Window film.

As a result, you may use less energy and start saving money.

If you have any questions about these energy-saving measures, please call us toll-free at 866-627-9177 or visit entergyarkansas.com/multifamily.

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WE POWER LIFE®

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3/13/20 11:29 AM
16_EAL_MF_Homes_Installation_Doorhanger_v04.indd 2
3/13/20 11:29 AM

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Cody Allen

Energy Efficiency Trade Ally

425 West Capitol Ave., Suite 3180 • Little Rock, AR 72201
501-733-7771 • Cody.Allen@icfi.com

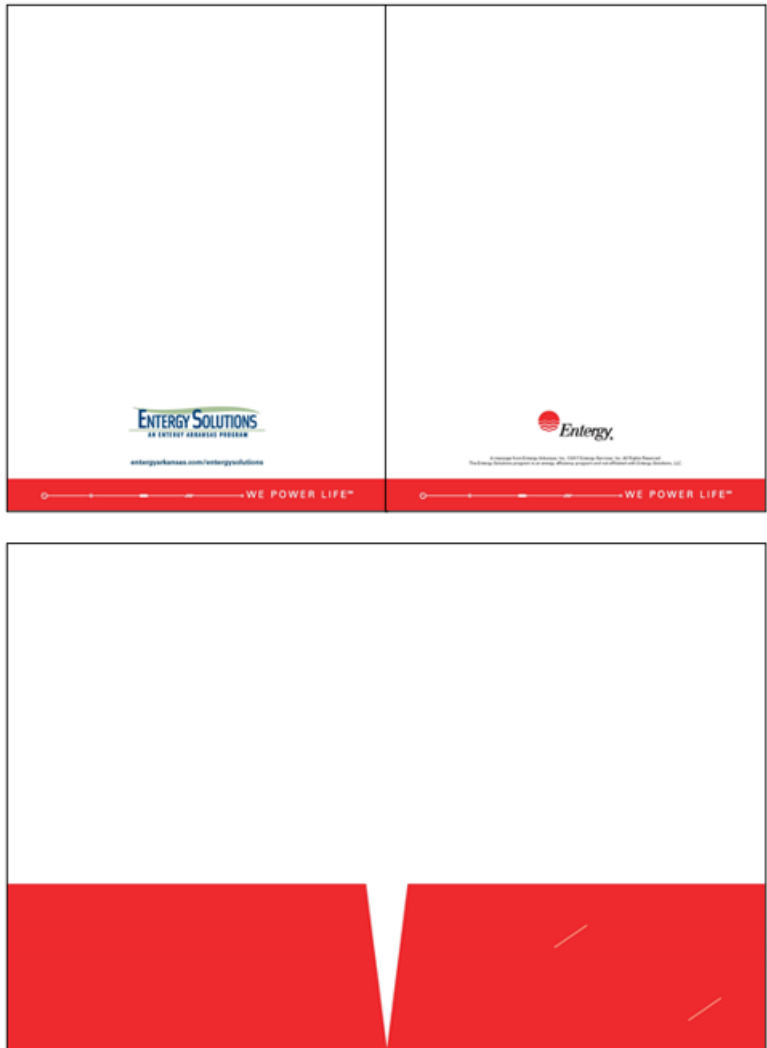


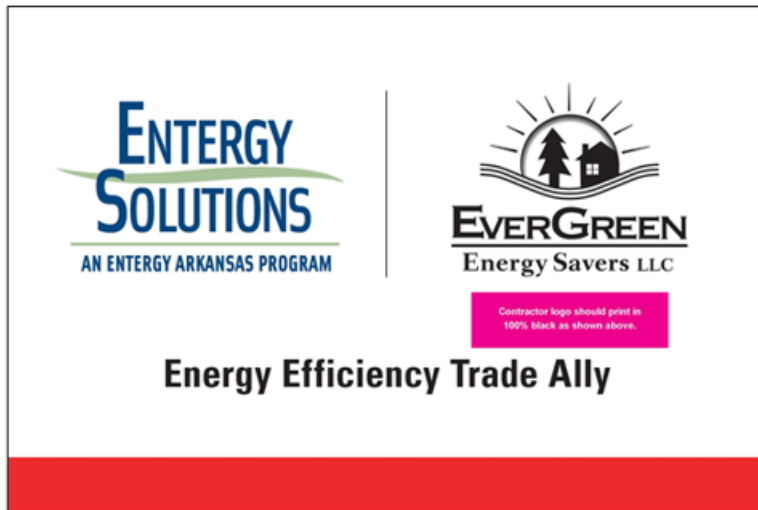

Cody Allen

Energy Efficiency Trade Ally

425 West Capitol Ave., Suite 3180 • Little Rock, AR 72201
501-733-7771 • Cody.Allen@icfi.com

Contractor logo should print in 100% black.
Contractor name is Univers Black, C=0 M=95 Y=91 K=0 at 14pt.
Job Title is Univers Condensed at 9pt, and should print in 100% black.
Contact info. is Univers Condensed at 9pt, with 12pt. leading. Tracking set to 30 and should print in 100% black.





Contractor Name:

.....

Technician Name:

.....

Date Performed:

.....

Unit ID#:

.....

3.2.8 MF Survey Letter

test test
123 test drive
apt 123
Russellville, AR 71937

Dear test test

Thank you for participating in the Entergy Arkansas Multifamily Homes Program.

An Entergy Solutions trade ally performed energy efficiency upgrades at your property. These improvements can help your property be more energy efficient and may also help your residents see an increase in comfort and energy savings.

We invite you to provide feedback about your experience through our brief customer survey. The survey will only take a few minutes to complete, and your valuable response will help us improve our service to customers just like you.

Please go to tinyurl.com/MultifamilyHomesProgram or use your smartphone to scan the QR code below to begin the survey.

Interested in other ways Entergy Arkansas can help with energy-efficient upgrades to your property? Please visit energysolutionsar.com for more information.

If you need additional assistance or have any questions, feel free to call 866-627-9177 or email MultifamilyEAL@icf.com.

Sincerely,
Heather Hendrickson
Project Manager
Entergy Arkansas

Entergy Solutions Multifamily Homes Program Customer Satisfaction Survey

1. Please enter the information indicated below (required)

First Name
 Last Name
 Home Phone
 Email Address

2. How satisfied are you overall with the Multifamily Homes Program?

Very satisfied Somewhat satisfied
 Satisfied Not very satisfied
 Neutral

3. How did you first become aware of this Energy Solutions program?

Entergy.com
 Facebook
 Email newsletter
 Home energy audit
 Home energy advisor
 Home energy advisor (in-person)
 Other (please specify):

4. What were the main reasons you participated in this program? (Select all that apply)

To help reduce my energy bills Because it was free
 To help reduce my energy usage To help the environment
 To help my family save money To help my family save money
 Other (please specify):

5. How likely would you be to recommend this Energy Solutions program to a friend?

Very likely Somewhat likely
 Likely Unlikely
 Not likely

6. Do you participate in any other Energy Solutions programs?

Yes
 No

7. Please indicate the comments or suggestions about the Energy Solutions program or the energy advisor you received (optional)

Yes
 No

Comments:

8. Based on your recent experience, please rate your level of satisfaction with the utility and your energy advisor.

	Very satisfied	Satisfied	Neutral	Somewhat dissatisfied	Dissatisfied	Very dissatisfied
Overall satisfaction with the utility	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Overall satisfaction with the energy advisor	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

	Very satisfied	Satisfied	Neutral	Somewhat dissatisfied	Dissatisfied	Very dissatisfied
Overall experience	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Energy advisor's knowledge of energy solutions	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Energy advisor's communication and customer service skills	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Response to questions and concerns	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Knowledge of other Energy Solutions programs	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Energy advisor's availability	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Quality of the energy solutions	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Quality of the energy solutions	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

9. How likely is it that you would recommend this Energy Solutions program to a friend?

Very likely Somewhat likely
 Likely Unlikely
 Not likely

10. Do you have any suggestions for improving the Energy Solutions program?

11. In your own words, please tell us what, if anything, you liked most about this Energy Solutions program.

12. Assuming you could choose one company, what is the likelihood you would recommend Energy Advisor to a friend?


Very likely Somewhat likely
 Likely Unlikely
 Not likely

Next



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Thank you for participating in an Entergy Solutions program.

 donotreply@programprocessing.com
Thu, 10/15/2020 2:40 PM
To: Goryachev, Igor

Dear Test test,

Thank you for participating in the Entergy Arkansas Multifamily Homes Program.

An Entergy Solutions trade ally performed energy efficiency upgrades at your property. These improvements can help your property be more energy efficient and may also help your residents see an increase in comfort and energy savings.

We invite you to provide feedback about your experience through our brief customer survey. The survey will only take a few minutes to complete, and your valuable response will help us improve our service to customers just like you.



Click [here](#) to begin the survey.

Interested in other ways Entergy Arkansas can help with energy-efficient upgrades to your property? Please visit our [website](#) for more information.


If you need additional assistance or have any questions, feel free to call **866-627-9177** or email MultifamilyEAI@cf.com.

Sincerely,

Heather Hendrickson
Project Manager
Entergy Arkansas

[Privacy Policy](#)



Nancy Tester
90 Main St
Little Rock, AR12345

Entergy Arkansas
Your Home Energy Checkup Report

Dear Nancy Tester,

Home Attributes

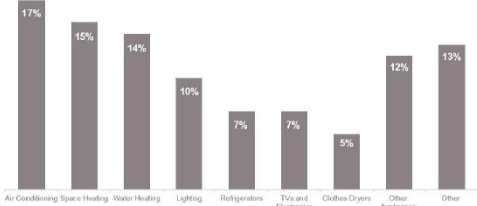
Size: 760 square feet
Year Built: 1977 to 1997
Type: Manufactured
Heating: Heat Pump
Cooling: Window AC
Hot Water: Electric

Thank you for participating in our Multifamily Homes Program. An Entergy Solutions trade ally performed energy efficiency upgrades in your home. We hope you have found the products and services helpful and the information shared with you useful. This report provides information to help you understand your energy usage as well as recommendations to show you how to best take advantage of the Multifamily Homes Program. Please do not hesitate to contact us with any questions.

Prepared by:
John Tech, approved trade ally for Entergy Arkansas, LLC
Phone: 555-678-6788
Email: john@tech.com

We invite you to provide feedback on your experience. Please go to survey.urbtd.com to complete a quick survey.

Residential Energy Consumption by End Use*



*U.S. Energy Information Administration, 2015 Residential Energy Consumption Survey

entergyarkansas.com/multifamily | MultifamilyEAL@icf.com | 866-627-9177


WE POWER LIFE

Nancy Tester
90 Main St
Little Rock, AR12345

Entergy Arkansas
Your Home Energy Checkup Report

No-Cost and Low-Cost Solutions for You

Simply applying the solutions below can lower your energy use and costs while protecting the environment.



- Use an advanced smart thermostat to automatically adjust the temperature when you are not at home. The U.S. Department of Energy suggests temperature settings of 68° in winter and 78° in summer.
- Wash clothes in cold water and let them air dry.
- Clean your refrigerator's coils every six months.
- Use the light wash settings on your dishwasher and turn off heated drying.
- Turn off your lights when not in use.
- According to ENERGY STAR® LEDs use about 70-90% less energy than traditional incandescent bulbs, last at least 15 times longer and save about \$55 in electricity costs over their lifetime.
- Remember to adjust your thermostat when using ceiling fans – additional energy and dollar savings could be realized with this simple step.
- Replace HVAC filters every month.
- Plug air leaks around doors and windows with caulking and weather-stripping.
- Old electric water heaters in unconditioned spaces may benefit from adding blanket insulation.

Your Customized No-Cost Energy Efficiency Tips

Your Customized Low-Cost Energy Efficiency Tips

Additional Recommended Energy Efficiency Measures

Resources: For more information and other do-it-yourself solutions, visit circuit.entergy.com/save-money/room-by-room-savings.

entergyarkansas.com/multifamily | MultifamilyEAL@icf.com | 866-627-9177

WE POWER LIFE

Nancy Tester
90 Main St
Little Rock, AR12345

Entergy Arkansas
Your Home Energy Checkup Report

Advanced Power Strips—Average household standby consumption can account for 5-10% of total electricity use. Advanced power strips automatically turn off the flow of electricity to products that go into standby mode and shut down other peripheral devices (like printers or speakers) that are not in use.

Product Name	No. Installed	Est. Savings (Annual)	Est. Savings (Lifetime)
Advanced Power Strip – Home Office	2	\$13.20	\$132

Faucet Aerator—The faucet aerators just installed will use at least 31% less water than standard models.

Product Name	No. Installed	Est. Savings (Annual)	Est. Savings (Lifetime)
Exc. Low-Flow Faucet Aerator – Bath	1	\$2.50	\$25.00

Light-Emitting Diode (LED) Bulbs—The new LEDs that were installed can last at least 15 times longer than standard bulbs and save you over \$55 in electricity costs over each bulb's lifetime.

Product Name	No. Installed	Est. Savings (Annual)	Est. Savings (Lifetime)
Exc. Low-Flow Showers – Handheld Showerhead	1	\$24	\$240

Efficient-Flow Showerheads—Your new efficient-flow showerhead uses up to 40% less water than a standard 2.5 gallons-per-minute (GPM) showerhead, you'll also use less energy to heat water every shower.

*Energy savings based on average electric rate \$0.10/kWh and Average Natural Gas Rate \$0.84/therm. The estimated savings are based on the Arkansas Technical Reference Manual (TRM).

Entergy Arkansas offers a variety of programs and services designed to help you improve energy efficiency and save money, including:

- Air Conditioning Tune-Ups**—The air conditioning tune-up helps each home's system to run more efficiently and provides better comfort to residents while lowering energy costs.
- Duct Sealing**—A duct system that is well-designed and properly sealed can make your home more comfortable, energy efficient and safer.
- Air Sealing**—Reducing the amount of air that leaks in and out of your home is a cost-effective way to cut heating and cooling costs, improve durability, increase comfort and create a healthier indoor environment.
- Insulation**—Insulation will improve your home's energy usage year-round, lowering the demand on your A/C unit.
- Advanced Smart Thermostats**—Advanced smart thermostats are devices that can be used with home automation and control your home's heating and/or air conditioning. Smart Thermostats will allow the user to remotely control the temperature of their home throughout the day.
- Point of Purchase Program**—Energy-efficient lighting and appliances can help you reduce energy costs. For a limited time, you can save up to \$3 per bulb when you purchase LEDs at participating retailers. Visit entergy.energysmart.com to learn more. You can also receive a discount on a qualifying advanced smart thermostat when you apply online using the Entergy Arkansas instant rebate website, entergyinstantrebate.com.

Other potential energy efficiency programs that may benefit your property can be found online at:

- Entergy Arkansas, LLC - www.entergyoutthere.com
- CenterPoint Energy - www.centerpointenergy.com
- Black Hills Energy - www.blackhillsenergy.com

entergyarkansas.com/multifamily | MultifamilyEAL@icf.com | 866-627-9177

WE POWER LIFE

Your Home Energy Checkup Report

Terms and Conditions

These terms and conditions are only valid for service completion on or after Jan. 1, 2020. Only these files may contain specifications for equipment installation.

ENERGY AUDIT REPORT: The Energy Audit report provides the customer with a complete profile of energy-saving measures available throughout the property, as well as recommendations related to energy efficiency programs available. Energy Arkansas is not responsible for lost information.

ELIGIBILITY: Participants must be Energy Arkansas electric utility customers. Funds are limited, and services are available on a first-come, first-served basis. In order for participants to qualify for Air Sealing, Outlets Sealing, and Air Conditioning Tune-ups, they must be performed by an Energy Arkansas trade ally. For other Energy Arkansas programs, please visit energyarkansas.com.

APPROVAL AND VERIFICATION: Energy Arkansas reserves the right to verify the quality of service and to take reasonable steps to the participant's installer to verify the performance of energy efficiency direct install measures and/or energy efficiency work. Prior to any payment of incentives, Energy Arkansas reserves the right to verify sales transactions. The customer's trade ally will verify that the installed energy-saving measures meet all applicable building codes, zoning laws, local, state and federal requirements, and other relevant requirements. The customer's trade ally is responsible for any applicable permits as required by law. Customer representatives and their installers' conduct may affect the participant's income. The home may also be selected for a quality-control post-installation verification by Energy Arkansas. No warranty is extended or implied by this verification.

PAYMENT: Each measure may only receive an incentive payment from Energy Solutions.

TAX LIABILITY: The customer is responsible for declaring and paying any and all applicable federal, state and local taxes that may be owed on any incentive. Energy Arkansas will not be responsible for any tax liability that may be imposed on the customer as a result of the delivery of the Energy Efficiency Measures (EEMs). Please consult your tax professional for more information.

REMOVAL OF EQUIPMENT: The customer agrees, as a condition of participation in the program, to make removal and disposal of the equipment being installed by EEMs in accordance with all laws, rules and regulations. The customer agrees not to transfer any newly installed equipment purchased in Arkansas or transfer it to any other party for installation in Arkansas.

INDEMNIFICATION: Energy Arkansas does not endorse any particular manufacturer, product, system design, claim, trade ally or service in promoting this program.

INFORMATION RELEASE: Participant agrees that Energy Arkansas may include participant's name, address, Energy Arkansas account number, Energy Arkansas services and resulting energy savings in reports or other documentation submitted to the program implementer or Energy Arkansas and/or the Arkansas Public Service Commission. Energy Arkansas will treat all other information gathered in relation to any newly installed equipment purchased in Arkansas or transfer it to any other party for installation in Arkansas.

LIMITATION OF LIABILITY: ENERGY ARKANSAS' LIABILITY IS LIMITED TO PAYING THE INCENTIVE SPECIFIED. IN NO EVENT WILL ENERGY ARKANSAS BE LIABLE IN ANY CONTRACT, TORT (INCLUDING NEGLIGENCE), STRICT LIABILITY, WARRANTY OR OTHERWISE FOR SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES CONNECTED WITH OR ARISING FROM THIS PROGRAM. PARTICIPATION IN THE PROGRAM ENTITLES ENERGY ARKANSAS TO RESERVE THE RIGHT TO NOT PAY THIS INCENTIVE IF THE APPLICATION IS INCOMPLETE AND ALL REQUIRED ADDITIONAL INFORMATION HAS NOT BEEN PROVIDED OR ACCURATE.

WARRANTIES: Energy Arkansas does not warrant the proper completion of work or performance of installed or serviced equipment, expressly or implicitly. Energy Arkansas does not endorse, guarantee or warrant any particular manufacturer or product, and Energy Arkansas provides no warranties or repairs for any products or services. Energy Arkansas makes no warranty of any kind, whether written, oral, or implied, including without limitation, any implied warranty of merchantability or fitness for a particular purpose. Energy Arkansas makes no guarantee of energy-saving results by receiving measure installation. The customer acknowledges that neither Energy Arkansas nor any of its consultants are responsible for ensuring the design, engineering or installation of the measures is proper or compliant with any particular state (including public laws), code or industry standards. Customers should consult their independent contractors for details regarding equipment performance and warranties.

PROPERTY RIGHTS: Participant represents that he/she has the right to complete and install the energy-saving equipment on the property on which the equipment is intended and/or installed and that any necessary landlord's or tenant's consent, as the case may be, has been obtained.

OWNER'S CERTIFICATION: Owner certifies that he/she has received consent from the landlord or homeowner for receipt of the energy audit and associated direct installation of equipment.

CUSTOMER'S CERTIFICATION: Property manager/owner certifies that he/she has consented to the required services listed on the application at the address location. Property manager/owner agrees that all information is true and that he/she has confirmed to all program and equipment requirements listed.

RIGHT TO REFUSE: The Energy Arkansas trade ally has the right to refuse service or end the delivery when contacted by a customer entity independently or when facing an unsafe situation. "Unsafe situation" includes but is not limited to the following: unavailability of service, potentially hazardous or otherwise dangerous installation or other service and/or general conduct. Authorized trade ally reserves the right to exclude any premises, or vicinity thereof, deemed potentially unsafe or harmful.

TERMINATION OF SERVICE: Either party may terminate this agreement upon 30 days advance notice. The trade ally will be responsible for all services properly performed and approved up to the date of termination.

USE OF EMAIL ADDRESSES: Energy Arkansas or Energy Arkansas program implementer may contact participants via email in connection with the program.

AUTHORIZATION, PROGRAM CHANGES, SUSPENSION OR CANCELLATION: Energy Arkansas may change the program requirements, incentives, or terms and conditions, including suspending acceptance of applications or terminating the program, at any time without notice.

MISCELLANEOUS: These terms and conditions constitute the agreement between the parties, and supersede all other communications and representations. By accepting an Incentive Form, the customer agrees to be bound by these terms and conditions, as any time without notice.

PRIVACY POLICY: You may view Energy's privacy policy at www.energyarkansas.com.

AGREEMENT: I have read and understand the Terms and Conditions above. I CERTIFY THAT THE INFORMATION I HAVE PROVIDED IS TRUE AND CORRECT.

SIGNATURES:

☐

☐

CUSTOMER DIRECT INSTALL VERIFICATION:

One or more energy-saving items was left by the contractor for you to install. The Customer agrees to install as a result of:

☐

3.2.12 Beacon Report_EAL_2_25_2020

Home Energy Assessment Report

Your Home's Energy Consumption

Based on our assessment of your home, we have estimated your home's energy usage and broken it down by major end use category. The energy consumption estimate is based on how much your home would consume in an average year. The estimated costs are based on our estimate of current energy costs.

Estimated Annual Utility Bill Break Down

Electricity Usage - \$2,514 or 100% of cost

Your electric retail energy provider is Entergy Arkansas and the rate used in this analysis is 0.10000 per kWh. The total energy cost and consumption has been normalized to reflect a typical year.

Your Home's Airtightness

Balancing your home's airtightness is important for energy efficiency, comfort level and possibly health and safety. Air leakage, when hot or cold air escapes through walls, doors or windows, is often a major source of energy loss in homes. Homes that are too airtight can have problems with indoor air quality, or other health and safety issues, especially if you have one or more combustion appliances, such as a fireplace or gas oven.

Using state-of-the-art equipment, we have measured your home and compared it to industry standards for airtightness, which is an indication of an optimal balance between energy efficiency, indoor air quality and health and safety.

Your Home's Air Leakage Rate

Your home's air leakage rate is 1.80 times the minimum level recommended for healthy ventilation. Like most homes, yours has a leakage rate that is substantially higher than the optimal rate. For such homes, air sealing measures to bring the home closer to the optimal level are usually very cost-effective.

Prepared For

Customer Name: Inspection Date: 02/11/20
 Customer Address: Trade Ally: Trade Ally Name
 City, State ZIP Code: Trade Ally Phone Number: XXX-XXX-XXXX
 Customer Phone Number: XXX-XXX-XXXX Trade Ally Email: email@email.com

Description of Home

House Type: Single-Family Detached
 Conditioned Floor Area: 1500 Sq.Ft.
 Number of Bedrooms: 3
 Number of Occupants: 3
 Year Home Was Built: 1968-2000
 Stories Above Grade: 1
 Primary Foundation Type: Open Crawlspace

Existing Systems

Heating Systems: 6.00 HSPFF Electricity Air Source Heat Pump
 Cooling Systems: 10 EER Air Source Heat Pump
 Water Heating Systems: 50-Gallon Electricity Storage (Tank)

Scenario Id: XXXXXX Report Print Date: 2/25/2020

WE POWER LIFE

Your Home's Duct Leakage

Addressing duct system leaks, holes and poorly connected ducts prevents conditioned air from escaping into unconditioned space. By reducing this leakage, home owners should expect to use less energy and experience a more comfortable home.

Proper sealing of your home's duct distribution system can significantly improve airflow, offering many benefits, including energy cost savings, improved indoor air quality and better balanced temperatures from room to room.

Home Improvement Recommendations

As a result of the Home Energy Assessment, we recommend the following improvements for your home:

Measure Category	Existing Condition	Improved Condition	Estimated Annual Savings
Air Sealing			
Air Sealing Level	Air leakage rate of 2000 cubic feet per minute at 50 Pascals.	Reduce leakage from living spaces to 1850 CFM50	\$84.60
Seal/Insulate Recessed Lights - Attic Area 1		Seal/Insulate 12 Recessed Light(s)	
Seal/Insulate Attic Access Hatch(es) - Attic Area 1		Seal/Insulate 1 Attic Access Hatch(es)	
Insulation			
Attic Insulation - Attic Area 1	Current insulation level is 5" and condition is poorly insulated	Insulate 1000 square feet w/ Fiberglass (open blow), 3 inches	\$245.68
Kneewall/Vertical Attic Walls - Group 1	Current insulation level is 4" and condition is poorly insulated	Add 72.82 of Foam (high density) & 1" Polyurethane - Rigid Board	\$11.14
Rim Joist - Group 1	Area is not currently insulated	Insulate 100 linear feet with Fiberglass Batt	\$13.64
Windows & Glass Doors			
Windows & Glass Doors - Metal dbl pane no break	Current windows are double-pane clear without storm windows	Install 10 Unit(s) with U-Value 0.3 & SHGC 0.32	\$30.37
Doors			
Doors - Wood	Current door is solid core wood (no storm)	Install 2 Add Storm Door	\$8.47
HVAC Systems			
Heating System - System 1	20-24 year old Air Source Heat Pump with an efficiency of 6.5 HSPF	Replace w/ 7.6 HSPF Install and Program Set-	\$173.61

Measure Category	Existing Condition	Improved Condition	Annual Savings
Heating System Thermostat - System 1		Back Thermostat - 1 For Both Heating and Cooling Systems	\$51.78
Central Air Conditioner - System 1	25-28 year old Central AC with an efficiency of 10 SEER	System Service/Tune-up	\$171.27
Cooling System Thermostat - System 1		Install and Program Set-Back Thermostat	\$9.71
Ducts			
Duct System 1 - Sealing	Current duct system leakage is 150 CFM25 to outdoors	Seal Ducts w/ Approved Materials	\$38.16
Smart Thermostat 1 - heat pump	Standard Thermostat	Smart Thermostat - heat pump	\$30.72
Domestic Hot Water System			
Water Heater - System 1	Current CHW system is 1992-1995 Storage (Tank) with energy factor (EF) of 0.86	Performance Tune-Up or Repair	\$1.65
Lighting, Appliances & Smart Strips			
Replacement Lighting		Install 15 Energy Efficient Lamps *	\$85.41
Smart Strips		Install Smart Strips	
Water Saving Measures			
Low-Flow Showerheads		Replace 2 of 2 showerheads with low-flow showerheads	\$17.05
Building Performance Measures			
Address House Drainage Concerns		Divert Drainage from Foundation	

* The lighting energy usage indicated for your home exceeds the national average. A cap has been applied to the lighting energy usage based on the modeling of your home.

Your Estimated Annual Energy Savings

The following table shows estimated energy savings from the proposed measures, broken into the same major categories of use in your home as shown in the analysis of current energy usage on Page 2. For each category, the table provides an estimated annual dollar savings, a breakdown of the savings by fuel type and the percentage of energy saved relative to your existing usage.

End Use Category	Electricity kWh	Cost Savings	Percent Energy Savings
Space Heating Savings	4,730	\$473	57.0%
Air Conditioning Savings	3,668	\$367	67.6%
Water Heating Savings	186	\$19	6.5%
Electric Baseload Savings	854	\$85	12.5%
HVAC Auxiliary Electricity Savings	273	\$27	26.2%
Total Project Savings	9,712	\$971	NA
Total Percent Savings	39.7%	39.7%	39.7%

Projected Reduction in Annual Utility Costs
If you install all of the measures recommended above, your projected annual energy cost savings would be \$971 and would potentially change as follows by end use category:

Financial Analysis

The projected energy savings from your home performance projects will help pay for the projects. The following financial analysis lets you to look at energy savings in financial terms.

Energy Saving Measures	\$
Energy Saving Measures	\$0.00
Total Package Price	\$0.00
Arkansas Energy Rebate (subject to approval)	\$0.00
Other Incentives	\$0.00
Net Package Price	\$0.00
Annual Projected Savings	\$971.15
Simple Payback (years)	0.0
Annual Rate of Return	0.00%
Lifetime Savings-to-Investment Ratio	9999.00

Glossary

AFUE	Annual Fuel Utilization Efficiency. The rating standard for the energy efficiency of furnaces and boilers. The higher the AFUE, the more energy efficient the system is.
Annual Rate of Return	The rate of return on your investment after 1 year, expressed as a percentage of the total amount invested. This is a standard method for comparing the performance of investments.
BAS	Building Airflow Standard. The minimum amount of ventilation through a house. For air leakage amounts less than the BAS, mechanical ventilation must be installed in order to maintain proper indoor air quality. Approximately equivalent to one full changeout of air in a home in 3 hours.
CCF	Hundred Cubic Feet. Measurement unit for natural gas.
CFM25	The standard measurement for determining air leakage in duct systems. Specifically, it is the amount of air, measured in cubic feet per minute (CFM), escaping from the duct system when pressurized to 25 pascals.
CFM50	The standard measurement for determining air leakage in homes. Specifically, it is the amount of air, measured in cubic feet per minute (CFM), escaping from your home when depressurized to 50 pascals.
Combustion Appliances	Appliances that burn fossil fuels for heating, cooking and other purposes. They can include furnaces, water heaters, ranges, ovens, stoves, fireplaces and clothes dryers.
COP	Coefficient of Performance. Used to measure the efficiency of ground source heat pumps. The higher the COP, the more energy efficient the system is.
EER	Energy Efficiency Ratio. A secondary rating standard for the energy efficiency of air conditioners and primary rating standard for ground source heat pumps. The higher the EER, the more energy efficient the system is.
Electric Baseload	The portion of your electric bill that includes lighting, appliances, and electronics, yet excludes heating and air conditioning, which are considered seasonal use.
HSPF	Heating Seasonal Performance Factor. Used to measure the efficiency of air source heat pumps. The higher the HSPF, the more energy efficient the system is.
HVAC	Heating, Ventilation and Air Conditioning. The technologies and equipment that make up the systems that heat and cool your house.
HVAC Auxiliary Electricity	The portion of your electric bill due to the electric fan used to move heated and/or cooled air through your duct system.
kW	Kilowatt. Energy unit for measuring electric demand. Can be viewed as a snapshot of electricity usage at a single moment in time. 1 kW is equal to the amount of power consumed by ten 100-Watt lightbulbs running simultaneously.
kWh	Kilowatt-hour. Energy unit for measuring electricity consumption. 1 kWh is equal to the amount of energy consumed by ten 100-Watt light bulbs left running for 1 hour.
Lifetime Savings-to-Investment Ratio (SIR)	Financial performance metric that expresses the ratio of savings achieved over the lifetime of a package of energy-saving measures compared to the cost of the initial investment. If the SIR is 1 or greater, then the energy savings from the item will pay for itself before it needs to be replaced again.
R-Value	The resistance of a material to conducting heat. The higher the R-value, the better the insulation.
SEER	Seasonal Energy Efficiency Ratio. The rating standard for the energy efficiency of air conditioners. The higher the SEER, the more energy efficient the system is.
Simple Payback (Years)	The amount of time in years required to recoup the money you spent on an investment, such as an energy efficiency improvement. Simple payback is equal to the cost of the energy efficiency package divided by annual energy savings.



**Entergy Arkansas
2022 Multifamily Homes Program Guidebook**

Prepared by:
ICF Life Rock

Contact:
866-627-6177
MultifamilyEAL@icf.com
entergyarkansas.com/multifamily

Version 1.0
Jan. 1, 2022



**Entergy Arkansas
2022 Multifamily Homes Program Guidebook**

Program Overview

Program Description

The Entergy Arkansas Multifamily Homes Program provides cost-effective energy efficiency measures to the multifamily residential and commercial market throughout the Entergy Arkansas electric service territory. Through the program, participating trade allies will perform energy-efficient upgrades in dwelling units and common areas of participating customers. Additionally, multifamily properties can receive energy efficient direct install measures and an energy survey outlining other opportunities for energy-saving upgrades and improvements across the property.

Program Objectives

The program's objective are to help multifamily property owners, managers and tenants reduce energy usage at the property level and the dwelling units, as well as learn more about their energy consumption.

Program Participation

STEP 1: Enroll in the program by calling an account manager at 866-627-6177 or by emailing an enrollment form* to MultifamilyEAL@icf.com.

*The enrollment form is a one-page document that all participants must complete. This form collects information required to confirm eligibility for the program, and also helps determine which energy efficiency measures are appropriate for the property.

STEP 2: Schedule an appointment to have the ICF technician or trade ally assess the property to determine the energy-efficient measures for which the customer may qualify for.

STEP 3: Send notices to all tenants about the upcoming installations.

STEP 4: Schedule a property management representative to accompany the team while they are on the property for access to the units.

STEP 5: Schedule an appointment for the ICF team leader to perform an energy survey of the common areas on the property. A property management representative should plan to be present for the duration of the energy survey.

STEP 6: A quality-control verification may be performed on a sample of the work being completed or upon completion of the work.

SLM and Season Audits (Duplex and Triplex Properties Only)

Depending on your home's energy usage and size, you may be eligible for either a home energy survey or a more detailed energy efficient assessment. If either identifies ways to save energy in your home, you will be eligible to receive qualifying core measures installed at no direct cost by a trade ally.

SLM Audit

During the SLM Audit walk-through survey, trade allies will install energy-saving measures including LED light bulbs, advanced power strips, showerheads and kitchen/bath sensors. These measures

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**Entergy Arkansas
2022 Multifamily Homes Program Guidebook**

Program Overview

can begin saving energy and money when properly installed and used. These measures will be installed at no additional cost to the customer. A survey will provide insights into other ways to save energy safely.

Season Audit

The Season Audit is a comprehensive evaluation on your home's energy use. This audit will provide recommendations on ways to save energy. During the Season Audit, customers eligible for weatherization installation will start with a home inspection before work. The energy auditor will complete an interior "walk-through" inspection of the conditioned space and note characteristics such as size and location of certain items including any air bypasses in the building's envelope. A pre-blower door test must be performed to confirm the need for air sealing and a pre-duct blower test must be performed to confirm the need for duct sealing. If the pre-testing confirms the need for either air sealing and/or duct sealing, the air sealing and duct sealing may be authorized. Post testing must be performed in the structure and/or the duct to confirm the air-leakage reduction. This measure only applies to properties not part of a large multifamily complex such as a duplex or triplex.

Program Eligibility

- Any residences classified as a multifamily dwelling taking electric service from Entergy Arkansas is eligible for the Entergy Arkansas Multifamily Homes Program. Properties under a residential or multifamily rate code all qualify for the program.
- There are no maximum limits on the size of a building or number of qualifying buildings in a single complex.
- Funds are limited, and services are available in all Entergy Arkansas service territories on a first-come, first-served basis.

Program Benefits

Direct Install Measures

In this program, energy-efficient products are furnished and installed at no additional cost to Entergy Arkansas multifamily customers. The installed measures help reduce energy usage, water consumption and sewer charges. The measures available for direct installation in eligible properties and locations include:

- ENERGY STAR® LEDs in fixtures that replace incandescent bulbs.
- 1.5 gallons per minute showerheads and faucet aerators (when existing fixtures have flow rates of 2.0 gallons per minute or greater and where the water heater is powered by electricity).
- Advanced Power Strips for qualifying home entertainment systems.

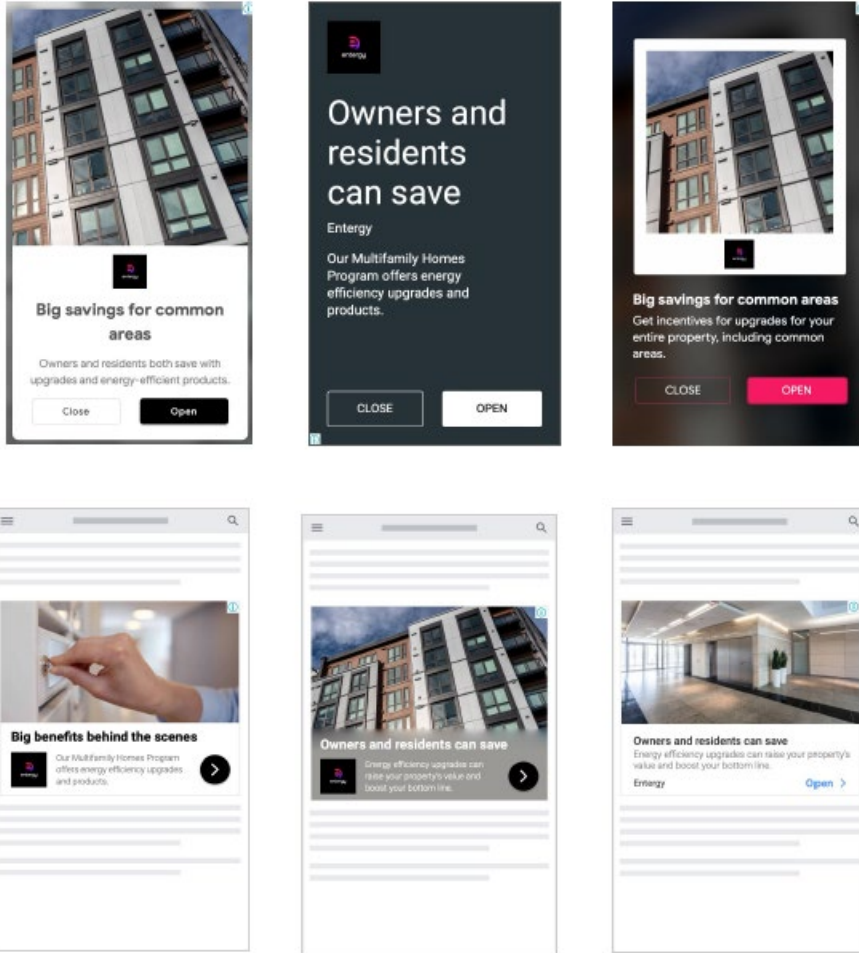


Energy Arkansas 2022 Multifamily Homes Program Guidebook	Energy Arkansas 2022 Multifamily Homes Program Guidebook
<p>Incentivized Measure</p> <p>Air Conditioning and Heat Pump Tune-up Measures</p> <p>Any Energy multifamily customers who have central air conditioning or heat pump systems on-site may qualify for an air conditioning tune-up. The tune-up involves a special diagnostic and service procedure that not only ensures the system is operating at peak efficiency (and lowest operational cost) but identifies any shortcomings that are keeping the system from doing so.</p> <p>After the tune-up is complete, it will be subject to a post-installation quality-assurance verification. Lastly, the trade ally may then send in the rebate forms for payment, which takes approximately six to eight weeks.</p> <p>HVAC Replacement Measures (Residential and Commercial)</p> <p>Residential Heat Pump/Central Air Conditioner</p> <p>Any Energy multifamily customers that have central air conditioning or heat pump systems on-site may qualify for HVAC replacement measures. Existing units must be replaced with 15 SEER or greater rating, and existing equipment must be at least five years old to qualify.</p> <p>Commercial Common Area Heat Pump/Central Air Conditioner</p> <p>Any Energy multifamily customers that have central air conditioning or heat pump systems on-site that serve commercial or common areas may qualify for HVAC replacement measures. Existing units must be replaced with 15 SEER or greater rating and existing equipment must be at least five years old to qualify.</p> <p>Duct Sealing</p> <p>Any Energy multifamily property that uses a central duct system for heating and cooling may qualify for duct sealing based on the system leakage. Duct sealing addresses air leaks in the duct work being reduced through the application of long-lasting materials. After the duct sealing is completed, a sample of projects will be subject to a post-installation quality assurance verification. After this is finished, the trade ally may then send in the rebate forms for payment.</p> <p>Air Sealing</p> <p>Any Energy multifamily property that has substantial air leakage qualifies for air sealing. The air sealing consists of using industry-standard materials and methods to reduce air infiltration and exfiltration. After the air sealing is complete, a sample of projects will be subject to a post-installation quality-assurance verification. After this is finished, the trade ally may then send in the rebate forms for payment.</p> <p>Ceiling Insulation</p> <p>Any Energy multifamily property that meets the criteria listed below qualifies for ceiling insulation. The insulation installation consists of using industry-standard materials and methods to add or replace existing ceiling insulation. After the insulation installation is complete, a sample of projects will be subject to a post-installation quality-assurance verification. After this is finished, the trade ally may then send in the rebate forms for payment.</p>	<p>Eligibility Criteria</p> <p>Residential: Any residence classified as a multifamily dwelling taking electric service from Energy Arkansas.</p> <p>Commercial: Common areas listed below in multifamily properties are eligible:</p> <ul style="list-style-type: none"> -Office -Lobby -Laundry room -Service room <p>Commercial Measures</p> <p>Any Energy multifamily property that serves commercial or common areas qualify for the commercial measures listed below. After the commercial measure installation is complete, a sample of projects will be subject to a post-installation quality-assurance verification. After this is finished, the trade ally may then send in the rebate forms for payment.</p> <p>Qualifying Lighting Measures</p> <p>Exterior LED Lighting: Floods, Parking, Wall Packs, Retrofit Nix and LED Exit Signs.</p> <p>Demapping: T12 or T8 system with HPTL, T5 or T8/HO lamp and ballast. Removing two lamps.</p> <p>Interior LED Lighting:</p> <ul style="list-style-type: none"> -Recessed, Surface, Track and Pendant Downlight Fixtures -Trophy, Panel Fixtures and Retrofit Nix -LED Linear Tube Replacement and Retrofit (One for One) -LED Screw-In Lamps, MR Lamps and Retrofit Trim Nix <p>Qualifying Misc. Measures Such As:</p> <ul style="list-style-type: none"> -Plug Control: Advanced Power Strips -Pool Pumps: VFD/energy Star Certified 0.5-1.0 HP -Heat Pump or Air Conditioner Replacement -Heat Pump or Air Conditioner Tune-up <p>Program Quality Management</p> <p>Post-Verification</p> <p>Completed projects will be subject to a quality assurance or post-installation verification, selected on a random basis. Typically, 10% of the properties that participated in the program will be selected for the verification. If it is determined that a post-verification is going to be performed, a program representative will contact the customer to see about the installation and visit the project site.</p>

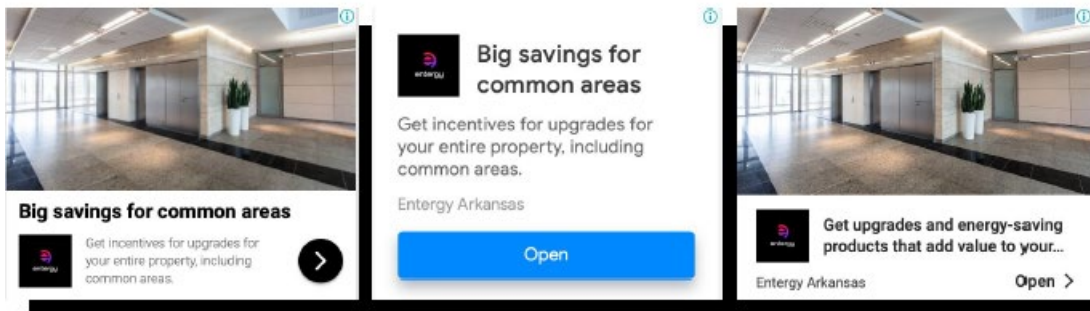
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<p>Terms and Conditions</p> <p>ENERGY AUDIT REPORT: The energy audit report provides the customer with a compiled review of energy-saving measures installed throughout the property, as well as recommendations related to energy efficiency programs available. Energy Arkansas is not responsible for lost documentation.</p> <p>ELIGIBILITY: Participants must be Energy Arkansas electric utility customers with a working central air conditioner or heat pump. For homes without working central air conditioning, the home must have central electric heating. Funds are limited, and services are available in select geographic areas on a first-come, first-served basis. In order for participants to qualify for measures such as Air Sealing, Duct Sealing and Air Conditioning Tune-up incentives, the service must be performed by an Energy Arkansas trade ally. For other Energy Arkansas programs, please visit energyarkansas.com.</p> <p>APPROVAL AND VERIFICATION: Energy Arkansas reserves the right to verify the delivery of services and to have reasonable access to the participant's residence to verify the performance of energy efficiency direct install measures and/or energy efficiency work. Prior to any payment of incentives, Energy Arkansas reserves the right to verify sales transactions. The customer's trade ally will verify that the installed energy-saving measures meet all applicable building codes, zoning laws, local, state and federal requirements, and other relevant requirements. The customer's trade ally is responsible for any applicable permits as required by law. Outdoor temperatures and other weather conditions may affect the verification process. The participant acknowledges and agrees to participate if their home is selected for a quality-controlled post-installation verification by Energy Arkansas or its program implementer ICF. No warranty is expressed or implied by the verification.</p> <p>PAYMENT: Each measure may only receive one full incentive payment from Energy Solutions within the life of the measure.</p> <p>TAX LIABILITY: The customer is responsible for deducting and paying any and all applicable federal, state and local taxes that may be used on any incentive. Energy Arkansas will not be responsible for any tax liability that may be imposed on the customer as a result of the delivery of the energy efficiency measure. Please contact your tax professional for more information.</p> <p>REMOVAL OF EQUIPMENT: The customer agrees, as a condition of participation in the program, to allow removal and disposal of the equipment being replaced by energy efficiency measures in accordance with all laws, rules and regulations. The customer agrees not to reinstall any newly installed equipment anywhere in Arkansas or transfer it to any other party for installation in Arkansas.</p> <p>ENDORSEMENT: Energy Arkansas does not endorse any particular manufacturer, product, system design, claim, trade ally or service in promoting this program.</p> <p>INFORMATION RELEASE: The participant agrees that Energy Arkansas may include participant's name, address, Energy Arkansas account number, Energy Arkansas service and resulting energy savings in reports or other documentation submitted to the program implementer on Energy Arkansas' behalf and/or the Arkansas Public Service Commission. Energy Arkansas will treat all other information gathered in evaluations as confidential, and the information in the reports shall be in the aggregate, where practicable.</p> <p>LIMITATION OF LIABILITY: ENTENERGY ARKANSAS' AND PROGRAM IMPLEMENTER ICF'S LIABILITY IS LIMITED TO PAYING THE INCENTIVE SPECIFIED. IN NO EVENT WILL ENTENERGY ARKANSAS OR ICF BE LIABLE WHETHER IN CONTRACT, TORT (INCLUDING NEGLIGENCE), STRICT LIABILITY, WARRANTY OR OTHERWISE FOR SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES CONNECTED WITH OR RESULTING FROM PARTICIPATION IN</p>	<p>THE PROGRAM ENTENERGY ARKANSAS RESERVES THE RIGHT TO NOT PAY THIS INCENTIVE IF THE APPLICATION FORM AND ALL REQUIRED ADDITIONAL INFORMATION ARE NOT COMPLETE OR ACCURATE.</p> <p>LIABILITY WAIVER: By executing an Enrollment Form, the customer voluntarily agrees not to hold Energy Arkansas, ICF, its trade ally or any of their affiliates, directors, officers, employees, agents, or contractors liable for any losses or injury. Customer further agrees not to engage in any inappropriate actions or omissions endangering the safety or health of teams.</p> <p>WARRANTIES: Energy Arkansas and ICF do not warrant the proper completion of work or performance of installed or serviced equipment, expressly or implicitly. Energy Arkansas and ICF do not endorse, guarantee or warrant any particular manufacturer or product, and Energy Arkansas and ICF provide no warranties, expressed or implied, for any products or services. Energy Arkansas and ICF make no warranties of any kind, whether express, implied or otherwise, including without limitation, warranties of merchantability or fitness for a particular purpose regarding energy efficiency measures. Energy Arkansas and ICF make no guarantee of energy-saving results by installing measures. The customer acknowledges that neither Energy Arkansas nor ICF nor any of its consultants are responsible for ensuring the design, engineering or installation of the measures is proper or complete with any particular laws (including patent laws), codes or industry standards. Customers should contact their independent contractor for details regarding equipment performance and warranties.</p> <p>PROPERTY RIGHTS: The participant represents that he/she has the right to complete and/or install the energy-saving equipment on the property on which the equipment is completed and/or installed and that any necessary landlord's or tenant's consent, as the case may be, has been obtained.</p> <p>RENTER'S CERTIFICATION: Renter certifies that he/she has received consent from the landlord or homeowner for receipt of the energy audit and associated direct installation of energy efficient measures.</p> <p>CUSTOMER'S CERTIFICATION: Property manager/owner certifies that he/she has contacted for the received service(s) listed on the application at the defined location. Property manager/owner agrees that all information is true and that he/she has confirmed to all program and equipment requirements listed.</p> <p>RIGHT TO REFUSE: The Energy Arkansas trade ally has the right to refuse service or end the delivery when confronted by a customer acting inappropriately or when facing an unsafe situation. "Inappropriate" includes but is not limited to the following: unreasonable demands for service, personally threatening or offensive language, threatening or erratic behavior or failure to comply with Arkansas Department of Health and/or any applicable health and safety recommendations. Authorized trade ally reserves the right to exclude any premises, or vicinity therein, deemed potentially unsafe or harmful.</p> <p>TERMINATION OF SERVICE: Either party may terminate this agreement upon 30 days' advance written notice. The trade ally shall be reimbursed for all services properly performed and approved up to the date of termination.</p> <p>CUSTOMER COMMUNICATION: Participant agrees that Energy Arkansas or Energy Arkansas' program implementer may contact participant via mail, phone, text message or email in connection with the program, including quality assurance communication.</p>

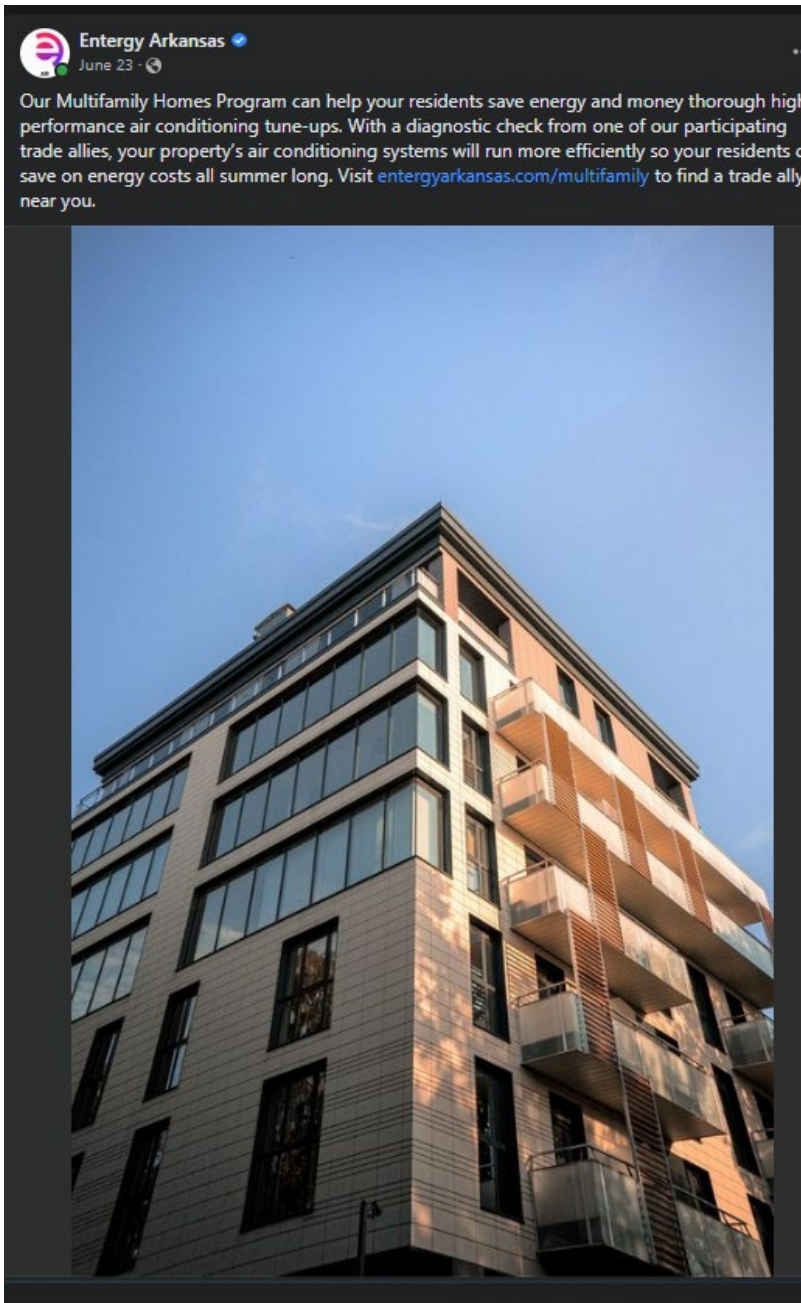
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<p>AUTHORIZATION, PROGRAM CHANGES, SUSPENSION OR CANCELLATION: Energy Arkansas may change the program requirements, incentives, or terms and conditions, including suspending acceptance of applications or terminating the program, at any time without notice.</p> <p>MISCELLANEOUS: These terms and conditions constitute the agreement between the parties and supersede all other communications and representations. By executing an Enrollment Form, the customer agrees to be bound by these terms and conditions.</p> <p>PRIVACY POLICY: You may view Energy's privacy policy at energy.com/privacy-policy/.</p> <p>Disclaimer</p> <p>Neither Energy Arkansas nor ICF makes any guarantee or any other representation or warranty, expressed or implied, as to the quality or effectiveness of any product(s) provided or work(s) performed through this program.</p> <p>Energy efficiency gains are subject to a number of variable conditions and circumstances. While it is the intent of the program to achieve energy efficiency, neither Energy Arkansas nor ICF guarantees or warrants that any specific energy efficiency gains will be achieved for a particular customer participating in the program.</p>

3.2.14 MF Online Display 2022



3.2.15 MF Display Banners 2022





 Entergy Arkansas
August 9 at 12:15 PM · 🌐

Save energy with easy, no-additional-cost solutions. From light bulbs to showerheads, the Entergy Arkansas Multifamily Homes Program will install energy-saving products at no additional cost to owners or tenants.

Visit entergyarkansas.com/multifamily to find a trade ally.



1 5 Comments

This social media post from Entergy Arkansas, dated August 9 at 12:15 PM, features a photograph of a man sitting on the edge of a bed, reading a book to a young child who is lying in bed. The room is dimly lit, suggesting a bedtime routine. The text of the post promotes the Multifamily Homes Program, highlighting that it provides energy-saving products at no additional cost to owners or tenants. A link is provided to visit entergyarkansas.com/multifamily to find a trade ally. The post shows 1 like and 5 comments.

 Entergy Arkansas
December 26, 2022 at 4:00 PM · 🌐

Our Multifamily Homes Program is designed to benefit both the property manager/owner and the tenants. The Multifamily Homes Program offers installation of cost-effective efficiency measures in tenants' units, as well as for common areas.

Learn more 🗨️ <http://enter.gy/61893Mz25>



6 4 shares

This social media post from Entergy Arkansas, dated December 26, 2022 at 4:00 PM, features a photograph of a man sitting at a table working on a laptop. A woman and a young child are sitting on the floor in front of him, looking at a book together. The setting is a bright, modern living room. The text of the post describes the Multifamily Homes Program, stating it is designed to benefit both property managers/owners and tenants by offering cost-effective efficiency measures. A link is provided to learn more: <http://enter.gy/61893Mz25>. The post shows 6 likes and 4 shares.

3.3 Entergy Solutions for Manufactured Homes

3.3.1 EAL_MA_Newsletter Article_Sept_2022.docx

Save energy with easy, no-additional-cost solutions.

From light bulbs to advanced power strips, the Entergy Arkansas Manufactured Homes Program will install energy-saving products at no additional cost to owners or residents.

This program provides cost-effective energy efficiency solutions through direct installation of no additional cost products in manufactured homes. When you enroll in the Manufactured Homes Program, you may be eligible to take advantage of energy-saving measures such as air sealing, duct sealing and more. These upgrades can help keep you comfortable and save energy in the long run. Plus, energy-saving products like LED bulbs, high-efficiency showerheads and high-efficiency kitchen and bath aerators may be installed in your home at no additional cost as a part of this program.

Weatherization upgrades to your home help with:

- **Energy efficiency.** Sealing air that is leaking from your home increases the efficiency of your home, which may help save energy.
- **Home comfort.** Sealing air leaks can help with common comfort problems, such as rooms that are too cold in the winter or too hot in the summer.
- **Air quality.** A well-sealed home keeps out more humidity, dust, pollen and pests.
- **Safety.** Leaky ducts can allow gases from furnaces, stoves and water heaters to enter rooms throughout your home. Sealing leaks reduces this risk.

Don't wait to start saving. Improve the energy efficiency of your home now and for years to come. Visit entergyarkansas.com/manufactured to find a participating trade ally or to learn more.



3.3.2 1217_EAL_MA_ProgramOverview_Flyer_v07_RELEASE_print



Energy Arkansas Manufactured Homes Program

Program overview

Save energy
Community managers and residents of eligible manufactured homes can save energy through the Energy Arkansas Manufactured Homes Program, which provides:

- A free energy audit.
- Installation of select energy efficiency measures at no additional cost and recommendations of other energy-saving improvements for your home.

Discounted measures

Duct sealing
A technician will seal leaky ducts using durable materials. A properly sealed duct system can make your home more comfortable, energy efficient and safe.

Air sealing
Sealing any gaps where air can pass through, such as behind walls and other openings of a home, can make a real difference in lowering your energy costs. It can also reduce outside noise, air pollutants, pests and humidity.

Air conditioning tune-ups
A high efficiency tune-up helps each home's system to run more efficiently and provides more comfort to residents.

Smart thermostat
Controlling your home's temperature settings with a smart thermostat will help you save energy and stay comfortable.




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Energy Arkansas Manufactured Homes Program

No-additional-cost direct install products

Energy-efficient light bulbs
A technician will install energy-efficient bulbs in fixtures in each home. On average, energy-efficient bulbs have at least 10 times the life span of incandescent bulbs.

Energy-efficient showerheads
A technician will replace eligible showerheads with new, energy-efficient models.

- The showerheads are corrosion-resistant and maintenance-free.
- The 1.5-gallons-per-minute showerhead uses 40% less water compared to a standard showerhead, meaning less energy use.¹

Kitchen and bathroom faucet aerators
A technician will install energy-efficient faucet aerators that use 1.5 gallons per minute in the kitchen and bathroom.

- The aerators are made of durable materials.
- They use 31% less water compared to a standard aerator, which means less energy use for water heating.²

Advanced power strips
Advanced power strips reduce electricity wasted by secondary devices in home entertainment systems. These power strips:

- Use less than one watt of power each when fully energized.
- Save energy by electronically unplugging secondary devices to reduce standby waste.

¹Water efficiency products are available only to those customers who have an electric water heater.
² Savings are approximate and will vary due to the efficiency of the heating and water heating system, the temperature of incoming and outgoing water, and the number of occupants in the home.

Get started today
For more information, call 866-627-9177, visit energyarkansas.com/manufactured or email us at manufactured@iej.com.




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El programa de Energía Arkansas es un programa de energía eficiente de Energy Services, LLC.

WE POWER LIFE™

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Programa de Casas Prefabricadas de Energy Arkansas

Resumen del programa

Ahorre energía
Administradores y residentes de comunidades de casas prefabricadas pueden ahorrar energía a través del Programa de Casas Prefabricadas de Energy Arkansas, el cual proporciona:

- Una auditoría de energía sin costo adicional.
- Instalación de medidas de conservación energética sin costo adicional y recomendaciones de otras medidas para el ahorro de energía en su hogar.

Medidas de descuento

Sellado de conductos de aire
Un técnico sellará fugas en los conductos de aire usando materiales duraderos. Un sistema de conducto de aire que está sellado apropiadamente puede hacer que su hogar sea más cómodo y conserve energía.

Sellado contra escapes de aire
Al sellar cualquier espacio o abertura por donde pueda pasar el aire, se puede lograr una gran diferencia en la reducción de costos de energía. El mismo puede disminuir ruidos externos, contaminantes aéreos, plagas y humedad.

Mantenimiento del aire acondicionado
Un mantenimiento de alta eficiencia del aire acondicionado ayuda al sistema de cada hogar a funcionar más eficientemente y ofrece mayor comodidad a los residentes.

Termostato Inteligente
Controlar la configuración de temperatura de su hogar con un termostato inteligente le ayudará a ahorrar energía y mantenerse cómodo.

Programa de Casas Prefabricadas de Energy Arkansas

Productos de instalación directa sin costo adicional

Focos de luz energéticamente eficientes
Un técnico instalará focos de luz energéticamente eficientes en cada hogar. En promedio, los focos de luz energéticamente eficientes tienen por lo menos 10 veces la vida útil que los focos incandescentes.

Cabezales de ducha energéticamente eficientes
Un técnico reemplazará los cabezales de ducha elegibles con nuevos modelos energéticamente eficientes.

- Los cabezales de ducha son resistentes a la corrosión y no requieren mantenimiento.
- El cabezal de ducha de 1.5 galones por minuto usa un 40% menos de agua en comparación con un cabezal de ducha estándar, lo que significa menos uso de energía.¹

Aleradores de grifo de cocinas y baños
Un técnico instalará aleradores de grifo energéticamente eficientes que usan 1.5 galones por minuto en la cocina y en el baño.



- Los aleradores están hechos de materiales duraderos.
- Usan 31% menos agua en comparación con un alerador estándar, lo que significa que usan menor energía para calentar agua.²

Enchufes múltiples avanzados
Los enchufes múltiples avanzados reducen la pérdida de electricidad causada por dispositivos secundarios en los sistemas de entretenimiento doméstico. Estos enchufes múltiples:

- Usan menos de 1 vatio de potencia cuando están completamente cargados.
- Ahorran energía al desconectar electrónicamente los dispositivos secundarios para reducir el consumo cuando no están siendo utilizados.

¹ Los productos de eficiencia de agua están disponibles solo para clientes que tienen un calentador de agua eléctrico.
² Los ahorros son aproximados y varían de acuerdo a la eficiencia del sistema de calefacción, calentador de agua, temperatura del agua entrante y saliente, y el número de habitantes en la casa.

Empiece hoy
Para más información, llame al 866-627-9177, visite energyarkansas.com/manufactured o envíenos un correo electrónico a manufactured@iej.com.

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WE POWER LIFE™

25291_EAL_MA_Spanish_ProgramOverview_Flyer_OnDemand_v04.indd 1 10:50 11:29 AM

Programa de Casas Prefabricadas de Energy Arkansas

Productos de instalación directa sin costo adicional

Focos de luz energéticamente eficientes
Un técnico instalará focos de luz energéticamente eficientes en cada hogar. En promedio, los focos de luz energéticamente eficientes tienen por lo menos 10 veces la vida útil que los focos incandescentes.

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² Los ahorros son aproximados y varían de acuerdo a la eficiencia del sistema de calefacción, calentador de agua, temperatura del agua entrante y saliente, y el número de habitantes en la casa.

Empiece hoy
Para más información, llame al 866-627-9177, visite energyarkansas.com/manufactured o envíenos un correo electrónico a manufactured@iej.com.



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English Side:

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ENERGY SOLUTIONS
AN ENTERGY ARKANSAS PROGRAM

Entergy

**Save energy.
Save money.**

Entergy Solutions Programs
Entergy Arkansas offers some energy-saving home upgrades at no additional cost. Contact us to see if you qualify for:

- An air conditioning tune-up.
- Air sealing.
- Duct sealing.
- Insulation.*
- A smart thermostat.

* Insulation is not applicable to manufactured homes.

Plus, get energy-saving products installed in your home at no additional cost to you:

- Energy-efficient light bulbs.
- Energy-efficient showerheads.
- Kitchen and bathroom faucet aerators.
- Advanced power strips.

Ready to get started?
Visit: entergysolutionsar.com
Call: 866-627-9177
Email: entergysolutions@icf.com

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fakeemailaddress@fakehost.com
1234 Fake Street
Fake City, USA

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WE POWER LIFE®

Spanish Side:

this black circle and white type do not print

**Ahorre energía.
Ahorre dinero.**

Programas de Entergy Solutions
Entergy Arkansas le ofrece mejores alternativas para el ahorro de energía en su hogar **sin costo adicional**. Comuníquese con nosotros para saber si califica para lo siguiente:

- Mantenimiento del aire acondicionado.
- Sellado contra escapes de aire.
- Sellado de conductos de aire.
- Aislamiento.*
- Un termostato inteligente.

* El aislamiento no es aplicable para las casas prefabricadas.

Además, obtenga productos que ahorran energía instalados en su hogar **sin costo adicional**:

- Focos de luz de energía eficiente.
- Cabezales eficientes de la ducha.
- Aireadores de grifo para cocinas y baños.
- Enchufes múltiples avanzados.

¿Listo para comenzar?
Visite: entergysolutionsar.com
Llame al: 866-627-9177
Correo electrónico: entergysolutions@icf.com

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Fake City, USA

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WE POWER LIFE®

3.3.5 EAI_CoBrand_Business_Card_Template_v03_FPO

Front of Card:

ENERGY SOLUTIONS
AN ENTERGY ARKANSAS PROGRAM

EVERGREEN
Energy Savers LLC

Cody Allen
Energy Efficiency Trade Ally

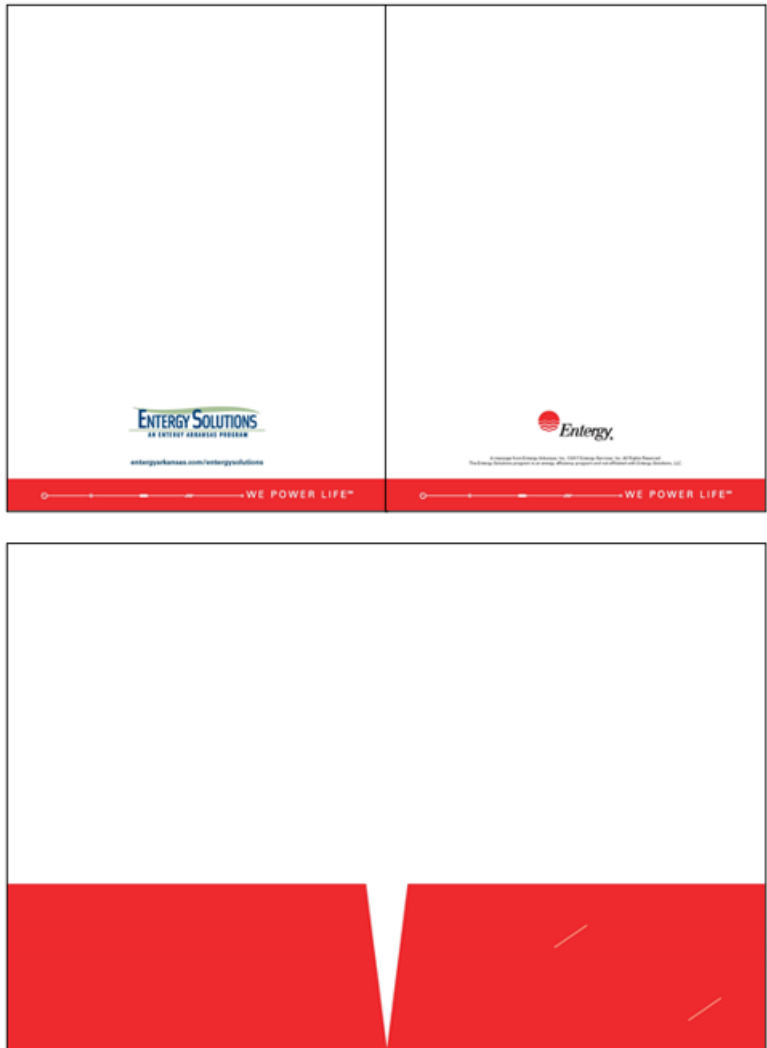
425 West Capitol Ave., Suite 3180 • Little Rock, AR 72201
501-733-7771 • Cody.Allen@icf.com

Back of Card:

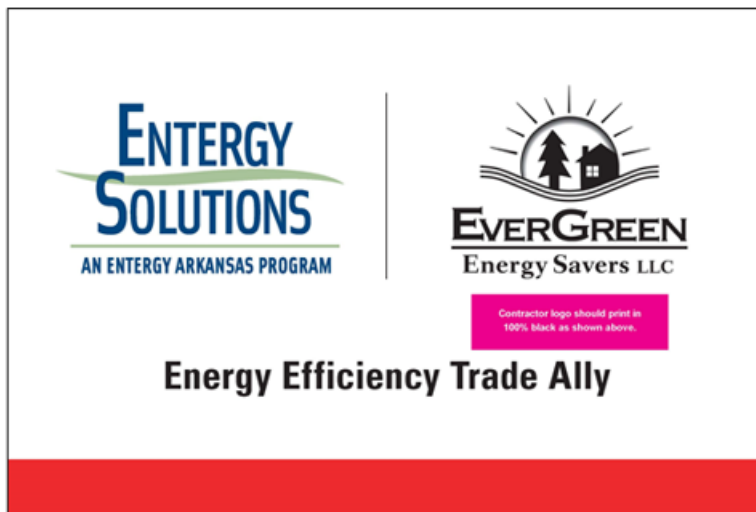
Cody Allen
Energy Efficiency Trade Ally

425 West Capitol Ave., Suite 3180 • Little Rock, AR 72201
501-733-7771 • Cody.Allen@icf.com

**Contractor logo should print in 100% black.
Contractor name is Unifers Black,
C=0 M=96 Y=91 K=0 at 14pt.
Job Title is Unifers Condensed at 9pt.
and should print in 100% black.
Contact info. is Unifers Condensed at
9pt, with 12pt. leading. Tracking set to
30 and should print in 100% black.**




3.3.7 Entergy_Co-Branded_TruckMagnet_NewBrand_v02_FPO



3.3.8 Entergy_MF-MA_Tune-Up_label_2x3_14180_RELEASE

The image shows a rectangular form with a grey border. At the top is the Energy Solutions logo, consisting of "ENERGY SOLUTIONS" in bold black font with a grey swoosh, and "AN ENTERGY ARKANSAS PROGRAM" in smaller black font below. Below the logo are four text input fields, each with a label and a dotted line for the input area: "Contractor Name:", "Technician Name:", "Date Performed:", and "Unit ID#:". The form is enclosed in a double-line grey border.




Save energy.
Save money.

Entergy Solutions Programs
Entergy Arkansas offers some energy-saving home upgrades at no additional cost. Contact us to see if you qualify for:

- An air conditioning tune-up.
- Air sealing.
- Duct sealing.
- Ceiling insulation.*
- A smart thermostat.

* Installation is not applicable to manufactured homes.

Plus, get energy-saving products installed in your home at no additional cost to you:

- Energy-efficient light bulbs.
- Efficient-flow showerheads.
- Kitchen and bathroom faucet aerators.
- Advanced power strips.

Ready to get started?
Visit: entergysolutionsar.com
Call: 866-627-9177
Email: entergysolutions@icf.com

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08_EAL_MA_Doorhanger_v02.indd 1 12/9/20 3:26 P

Ahorre energía.
Ahorre dinero.

Programas de Entergy Solutions
Entergy Arkansas le ofrece algunas mejoras para el ahorro de energía en su hogar **sin costo adicional**. Comuníquese con nosotros para saber si califica para lo siguiente:

- Mantenimiento del aire acondicionado.
- Sellado contra escapes de aire.
- Sellado de conductos de aire.
- Aislamiento de techo.*
- Un termostato inteligente.

* El aislamiento no es aplicable para las casas prefabricadas.

Además, obtenga productos que ahorran energía instalados en su hogar **sin costo adicional**:

- Focos de luz de energía eficiente.
- Cabezales de ducha de flujo eficiente.
- Aireadores de grifo para cocinas y baños.
- Enchufes múltiples avanzados.

¿Listo para comenzar?
Visite: entergysolutionsar.com
Llame al: 866-627-9177
Mande un correo electrónico a: entergysolutions@icf.com


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Your Home Energy Checkup Report

Jun 26, 2019

Manufactured Homes Program
Sponsored By: **Entergy Arkansas**

Prepared for:
Nancy Tester
90 Main St
Little Rock, AR 12345

Prepared by:
John Tech, JT LLC
Phone: 123-555-1233
Email: john@tech.com

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WE POWER LIFE

Nancy Tester
90 Main St
Little Rock, AR 12345

Entergy Arkansas
Your Home Energy Checkup Report

Dear Nancy Tester,

Thank you for participating in our Manufactured Homes Program. An Entergy Solutions trade ally performed energy efficiency upgrades in your home. We hope you have found the products and services helpful and the information shared with you useful. This report provides information to help you understand your energy usage as well as recommendations to show you how to best take advantage of the Manufactured Homes Program. Please do not hesitate to contact us with any questions.

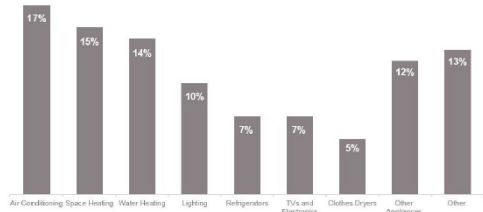
Home Attributes

Size: 760 square feet
Year Built: 1977 to 1997
Type: Manufactured
Heating: Heat Pump
Cooling: Window AC
Hot Water: Electric

Prepared by:
John Tech, approved trade ally for Entergy Arkansas, LLC
Phone: 555-678-6788
Email: john@tech.com

We invite you to provide feedback on your experience. Please go to surveyurlfd.com to complete a quick survey.

Residential Energy Consumption by End Use*



*U.S. Energy Information Administration, 2010 Residential Energy Consumption Survey

entergyarkansas.com/manufactured | ManufacturedEAL@jcf.com | 866-627-9177


WE POWER LIFE

Nancy Tester
90 Main St
Little Rock, AR 12345

Entergy Arkansas
Your Home Energy Checkup Report

No-Cost and Low-Cost Solutions for You

Simply applying the solutions below can lower your energy use and costs while protecting the environment.



- Use an advanced smart thermostat to automatically adjust the temperature when you are not at home. The U.S. Department of Energy suggests temperature settings of 65° in winter and 78° in summer.
- Wash clothes in cold water and let them air dry.
- Clean your refrigerator's coils every six months.
- Use the light wash settings on your dishwasher and turn off heated drying.
- Turn off your lights when not in use.
- According to ENERGY STAR®, LEDs use about 70-90% less energy than traditional incandescent bulbs, last at least 15 times longer and save about \$55 in electricity costs over their lifetime.
- Remember to adjust your thermostat when using ceiling fans – additional energy and dollar savings could be realized with this simple step.
- Replace HVAC filters every month.
- Plug air leaks around doors and windows with caulking and weather-stripping.
- Old electric water heaters in unconditioned spaces may benefit from adding blanket insulation.

Your Customized No-Cost Energy Efficiency Tips

Your Customized Low-Cost Energy Efficiency Tips

Additional Recommended Energy Efficiency Measures

Resources: For more information and other do-it-yourself solutions, visit circuits.entropy.com/save-money/rooms-by-room-savings.

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WE POWER LIFE

Nancy Tester
90 Main St
Little Rock, AR 12345

Entergy Arkansas
Your Home Energy Checkup Report

Advanced Power Strips—Average household standby consumption can account for 5-10% of total electricity use. Advanced power strips automatically turn off the flow of electricity to products that go into standby mode and shut down other peripheral devices (like printers or speakers) that are not in use.

Faucet Aerator—The faucet aerators just installed will use at least 31% less water than standard models.

Product Name	No. Installed	Est. Savings (Annual)	Est. Savings (Lifetime)	Product Name	No. Installed	Est. Savings (Annual)	Est. Savings (Lifetime)
Advanced Power Strip—Home Office	2	\$13.20	\$132	Elec.—Low-Flow Faucet Aerator—Bath	1	\$2.56	\$25.60

Light-Emitting Diode (LED) Bulbs—The new LEDs that were installed can last at least 15 times longer than standard bulbs and save you over \$55 in electricity costs over each bulb's lifetime.

Efficient-Flow Showerheads—Your new efficient-flow showerhead uses up to 40% less water than a standard 2.5 gallons-per-minute (GPM) showerhead; you'll also use less energy to heat water every shower.

Product Name	No. Installed	Est. Savings (Annual)	Est. Savings (Lifetime)	Product Name	No. Installed	Est. Savings (Annual)	Est. Savings (Lifetime)
Light-Emitting Diode (LED) Bulbs	1	\$5.50	\$55.00	Elec.—Low-Flow Showerheads—Bathroom	1	\$24	\$240

Smart Thermostats—Your new smart thermostat can be used with home automation and control your home's heating and air conditioning. You can also remotely control the temperature of your home throughout the day.

Product Name	No. Installed	Est. Savings (Annual)	Est. Savings (Lifetime)
Smart Thermostat	1	\$100	\$1000

*Energy savings based on average electric rate \$0.10/kWh and Average Natural Gas Rate \$0.84/therm. The estimated savings are based on the Arkansas Technical Reference Manual (TRM).

Entergy Arkansas offers a variety of programs and services designed to help you improve energy efficiency and save money, including:

- Air Conditioning Tune-Ups:** The air conditioning tune-ups help each home's system to run more efficiently and provides better comfort to residents while lowering energy costs.
- Duct Sealing:** A duct system that is well-designed and properly sealed can make your home more comfortable, energy efficient and safer.
- Air Sealing:** Reducing the amount of air that leaks in and out of your home is a cost-effective way to cut heating and cooling costs, improve durability, increase comfort and create a healthier indoor environment.
- Smart Direct Load Control Pilot Program:** By enrolling in the Smart Direct Load Control Pilot Program, you can earn even more incentives from Entergy Arkansas. To sign up or learn more, please visit entergyarkansas.com/thermostat or call 823-667-7682.
- Point of Purchase Program:** Energy-efficient lighting and appliances can help you reduce energy costs. For a limited time, you can save up to \$3 per bulb when you purchase LEDs at participating retailers. Visit energy.solutions.ar.com to learn more. You can also receive a discount on a qualifying advanced smart thermostat when you apply online using the Entergy Arkansas instant rebate website, entergyinstantrebate.com.

Other potential energy efficiency programs that may benefit your property can be found online at:

- Entergy Arkansas, LLC – www.entropyarkansas.com
- CircuitBreak Energy – www.entropyarkansas.com
- Black Hills Energy – www.blackhillsenergy.com

entergyarkansas.com/manufactured | ManufacturedEAL@jcf.com | 866-627-9177

WE POWER LIFE

Terms and Conditions

These terms and conditions are only valid for service completed on or after Jan. 1, 2020. Only these terms may supersede specifications for respective organization.

ENERGY AUDIT REPORT: The Energy Audit Report provides the customer with a limited review of energy saving measures installed throughout the premises, as well as recommendations related to energy efficiency programs available. Energy Arkansas is not responsible for lost documentation.

ELIGIBILITY: Participants must be Energy Arkansas electric utility customers. Funds are limited, and services are available in select geographic areas on a first-come, first-served basis. In order for services to qualify for APSCO funding, the customer must be a resident of the state of Arkansas. For other Energy Arkansas programs, please visit energyarkansas.com.

APPROVAL AND VERIFICATION: Energy Arkansas reserves the right to verify the quality of services and to have reasonable access to the participant's premises to verify the performance of energy efficiency measures and/or energy efficiency equipment. The customer agrees to allow Energy Arkansas personnel the right to verify service transactions. The customer's trade ally will verify that the installed energy-saving measures meet all applicable building codes, zoning laws, local, state and federal requirements, and other relevant requirements. The customer's trade ally is responsible for any applicable permits as per the applicable codes, ordinances, regulations and other vendor conditions that apply to this particular service. The home may also be assessed for a quality-control post-installation certification by Energy Arkansas. No warranty is provided or implied by this certification.

PAIDMENT: Each measure may only receive one incentive payment from Energy Solutions.

TAX LIABILITY: The customer is responsible for disclosing and paying any and all applicable federal, state and local taxes that may be owed on any incentive. Energy Arkansas will not be responsible for any and all taxes that may be owed on any incentive. Customer is a resident of the state of Arkansas. Energy Arkansas reserves the right to request the customer's tax information for verification purposes for cost information.

REMOVAL OF EQUIPMENT: The customer agrees, as a condition of participation in the program, to allow removal and disposal of the equipment being installed by Energy Arkansas at any time, with or without notice. The customer agrees not to remove any Energy Arkansas equipment from the premises or transfer it to any other party for installation in Arkansas.

INDUCEMENT: Energy Arkansas does not endorse any particular manufacturer, product, system, design, claim, trade ally or service in promoting this program.

INFORMATION RELEASE: Participant agrees that Energy Arkansas may include participant's name, address, Energy Arkansas account number, Energy Arkansas services and resulting energy savings in reports or other documentation submitted to the program implementer or Energy Arkansas (operator) and/or the Arkansas Public Service Commission. Energy Arkansas will treat all other information gathered in relation to this program as confidential, and the information in the reports will be the property of Energy Arkansas.

LIMITATION OF LIABILITY: ENERGY ARKANSAS LIABILITY IS LIMITED TO PAYING THE INCENTIVE SPECIFIED. IN NO EVENT WILL ENERGY ARKANSAS BE LIABLE IN THE EVENT OF CONTRACT TORT INCLUDING NEGLIGENCE, STRICT LIABILITY, WARRANTY OR OTHERWISE FOR SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES CONNECTED WITH THIS PROGRAM. THE PROGRAM PARTICIPANT'S AGREEMENT WITH ENERGY ARKANSAS RESERVES THE RIGHT TO NOT PAY THIS INCENTIVE IF THE APPLICATION FORM AND ALL REQUIRED ADDITIONAL INFORMATION ARE NOT COMPLETE OR ACCURATE.

WARRANTIES: Energy Arkansas does not warrant the proper completion of work or performance of installed or serviced equipment, expressly or impliedly. Energy Arkansas does not endorse, guarantee or warrant any particular manufacturer or product, and Energy Arkansas provides no warranties, expressed or implied, for any products or services. Energy Arkansas makes no warranty of any kind, whether express, implied or otherwise, including without limitation, any warranty of fitness for a particular purpose. Energy Arkansas makes no guarantee of energy-saving results or receiving measure installation. The customer acknowledges that neither Energy Arkansas nor any of its consultants are responsible for ensuring the design, engineering or installation of the measures is proper or compliant with any applicable laws (including building codes, codes or industry standards). Customers should contact their independent contractor for details regarding equipment performance and warranties.

PROPERTY RIGHTS: Participant represents that he/she has the right to complete and install the energy-saving equipment on the property on which the equipment is completed and/or installed and that any necessary landlord's or tenant's consent, as the case may be, has been obtained.

OWNER'S CERTIFICATION: Owner certifies that he/she has received consent from the landlord or homeowner for receipt of the energy audit and associated direct installation of equipment.

CUSTOMER'S CERTIFICATION: Property manager/owner certifies that he/she has consented to the proposed services listed on the application at the address location. Property manager/owner agrees that all information is true and that he/she has consented to all program and equipment requirements listed.

RIGHT TO REFUSE: The Energy Arkansas trade ally has the right to refuse service or not to deliver services contracted to a customer's existing installation or when facing an unsafe situation. "Unsafe" includes but is not limited to the following: unreasonable demands for service, personality differences or offensive language, harassment or abusive behavior and personal contact. Authorized trade ally reserves the right to refuse any premises, or vicinity, deemed potentially unsafe or harmful.

TERMINATION OF SERVICE: Either party may terminate this agreement upon 30 days advance written notice. The trade ally shall be responsible for all services properly performed and approved as to the date of termination.

USE OF EMAIL ADDRESSES: Energy Arkansas or Energy Arkansas program implementer may contact participants via email in connection with the program.

AUTHORIZATION, PROGRAM CHANGES, SUSPENSION OR CANCELLATION: Energy Arkansas may change the program requirements, incentives, or terms and conditions, including suspending acceptance of applications or terminating the program, at any time without notice.

MISCELLANEOUS: These terms and conditions constitute the agreement between the parties and supersede all other communications and representations. By accepting an Enrollment Form, the customer agrees to be bound by these terms and conditions.

PRIVACY POLICY: You may view Energy's privacy policy at energy.com/privacy-policy/.

SIGNATURES:
 Please be sure you have read the terms and conditions of this application.
 I HAVE READ AND UNDERSTAND THE TERMS AND CONDITIONS HEREIN. I CERTIFY THAT THE INFORMATION I HAVE PROVIDED IS TRUE AND CORRECT.

CUSTOMER DIRECT INSTALL VERIFICATION:
 One of our energy-saving team will call by the contractor for you to install. The service will be free to make as a result of your participation.



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WE POWER LIFE

3.3.11 Beacon Report_EAL_2_25_2020

Home Energy Assessment Report

Prepared For

Customer Name	Inspection Date: 02/11/20
Customer Address	Trade Ally: Trade Ally Name
City, State, ZIP Code	Trade Ally Phone Number: XXX-XXX-XXXX
Customer Phone Number: XXX-XXX-XXXX	Trade Ally Email: email@email.com

Description of Home

House Type:	Single-Family Detached
Conditioned Floor Area:	1000 Sq.Ft.
Number of Bedrooms:	3
Number of Occupants:	3
Year Home Was Built:	1998-2000
Stories Above Grade:	1
Primary Foundation Type:	Open Crawlspace

Existing Systems

Heating Systems:	6.50 HSPFF Electricity Air Source Heat Pump
Cooling Systems:	10 EER Air Source Heat Pump
Water Heating Systems:	50-Gallon Electricity Storage (Tank)

Scenario ID: XXXXXXX

Report Print Date: 2/25/2020

Your Home's Energy Consumption

Based on our assessment of your home, we have estimated your home's energy usage and broken it down by major end use category. The energy consumption estimate is based on how much your home would consume in an average year. The estimated costs are based on our estimate of current energy costs.

Estimated Annual Utility Bill Break Down

Electricity Usage - \$2,514 or 100% of cost

Your electric retail energy provider is Entergy Arkansas and the rate used in this analysis is 0.10000 per kWh. The total energy cost and consumption has been normalized to reflect a typical year.

Your Home's Airtightness

Balancing your home's airtightness is important for energy efficiency, comfort level and possibly health and safety. Air leakage, when hot or cold air escapes through walls, doors or windows, is often a major source of energy loss in homes. Homes that are too airtight can have problems with indoor air quality, or other health and safety issues, especially if you have one or more combustion appliances, such as a fireplace or gas oven.

Using state-of-the-art equipment, we have measured your home and compared it to industry standards for airtightness, which is an indication of an optimal balance between energy efficiency, indoor air quality and health and safety.

Your Home's Air Leakage Rate

Your home's air leakage rate is 1.80 times the minimum level recommended for healthy ventilation. Like most homes, yours has an air leakage rate that is substantially higher than the optimal rate. For such homes, air sealing measures to bring the home closer to the optimal level are usually very cost-effective.

Your Home's Duct Leakage

Addressing duct system leaks, holes and poorly connected ducts prevents conditioned air from escaping into unconditioned space. By reducing this leakage, home owners should expect to use less energy and experience a more comfortable home.

System 1

Proper sealing of your home's duct distribution system can significantly improve airflow, offering many benefits, including energy cost savings, improved indoor air quality and better balanced temperatures from room to room.

Home Improvement Recommendations

As a result of the Home Energy Assessment, we recommend the following improvements for your home:

Measure Category	Existing Condition	Improved Condition	Estimated Annual Savings
Air Sealing			
Air Sealing Level	Air leakage rate of 2000 cubic feet per minute at 50 Pascals.	Reduce leakage from living spaces to 1850 CFM50	\$84.60
Seal/Insulate Recessed Lights - Attic Area 1		Seal/Insulate 12 Recessed Lights ¹	
Seal/Insulate Attic Access Hatch/ies - Attic Area 1		Seal/Insulate 1 Attic Access Hatch/ies	
Insulation			
Attic Insulation - Attic Area 1	Current insulation level is 5" and condition is poorly insulated	Insulate 1000 square feet w/ Fiberglass (open blow) 8 inches	\$245.68
Kneewall/Vertical Attic Walls - Group 1	Current insulation level is 4" and condition is poorly insulated	Add 72.82 of Foam (high density) & 1" Polyurethane - Rigid Board	\$11.14
Rim Joist - Group 1	Area is not currently insulated	Insulate 100 linear feet with Fiberglass Batt	\$13.64
Windows & Glass Doors			
Windows & Glass Doors - Metal dbl pane no break	Current windows are double-pane clear without storm windows	Install 10 Units with U-Value 0.3 & SHGC 0.32	\$30.37
Doors			
Doors - Wood	Current door is solid core wood (no storm)	Install 2 Add Storm Door	\$8.47
HVAC Systems			
Heating System - System 1	20-24 year old Air Source Heat Pump with an efficiency of 6.5 HSPF	Replace w/ 7.6 HSPF Install and Program Set-	\$173.61

Measure Category	Existing Condition	Improved Condition	Annual Savings
Heating System Thermostat - System 1		Back Thermostat - 1 For Both Heating and Cooling Systems	\$51.78
Central Air Conditioner - System 1	25-28 year old Central AC with an efficiency of 10 SEER	System Service/Tune-up	\$171.27
Cooling System Thermostat - System 1		Install and Program Set-Back Thermostat	\$9.71
Ducts			
Duct System 1 - Sealing	Current duct system leakage is 150 CFM25 to outdoors	Seal Ducts w/ Approved Materials	\$38.16
Smart Thermostat 1 - heat pump	Standard Thermostat	Smart Thermostat - heat pump	\$30.72
Domestic Hot Water System			
Water Heater - System 1	Current CHW system is 1992-1995 Storage (Tank) with energy factor (EF) of 0.86	Performance Tune-Up or Repair	\$1.55
Lighting, Appliances & Smart Strips			
Replacement Lighting		Install 15 Energy Efficient Lamps *	\$85.41
Smart Strips		Install Smart Strips	
Water Saving Measures			
Low-Flow Showerheads		Replace 2 of 2 showerheads with low-flow showerheads	\$17.05
Building Performance Measures			
Address House Drainage Concerns		Divert Drainage from Foundation	

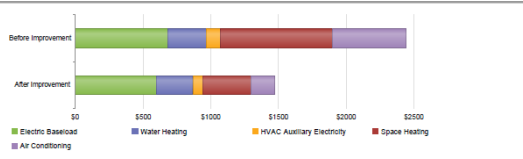
¹ The lighting energy usage indicated for your home exceeds the national average. A cap has been applied to the lighting energy usage based on the modeling of your home.

Your Estimated Annual Energy Savings

The following table shows estimated energy savings from the proposed measures, broken into the same major categories of use in your home as shown in the analysis of current energy usage on Page 2. For each category, the table provides an estimated annual dollar savings, a breakdown of the savings by fuel type and the percentage of energy saved relative to your existing usage.

End Use Category	Electricity kWh	Cost Savings	Percent Energy Savings
Space Heating Savings	4,730	\$473	57.0%
Air Conditioning Savings	3,688	\$367	67.9%
Water Heating Savings	186	\$19	6.5%
Electric Baseload Savings	854	\$85	12.5%
HVAC Auxiliary Electricity Savings	273	\$27	26.2%
Total Project Savings	9,712	\$971	NA
Total Percent Savings	39.7%	39.7%	39.7%

Projected Reduction in Annual Utility Costs
If you install all of the measures recommended above, your projected annual energy cost savings would be \$971 and would potentially change as follows by end use category:





Financial Analysis

The projected energy savings from your home performance projects will help pay for the projects. The following financial analysis lets you to look at energy savings in financial terms.

Simple Payback, Annual After-Tax Rate of Return and SIR	
Energy Saving Measures	\$0.00
Total Package Price	\$0.00
Arkansas Energy Rebate (subject to approval)	\$0.00
Other Incentives	\$0.00
Net Package Price	\$0.00
Annual Projected Savings	\$971.15
Simple Payback (years)	0.0
Annual Rate of Return	0.00%
Lifetime Savings-to-Investment Ratio	9999.00

Glossary

- AFUE** Annual Fuel Utilization Efficiency. The rating standard for the energy efficiency of furnaces and boilers. The higher the AFUE, the more energy efficient the system is.
- Annual Rate of Return** The rate of return on your investment after 1 year, expressed as a percentage of the total amount invested. This is a standard method for comparing the performance of investments.
- BAS** Building Airflow Standard. The minimum amount of ventilation through a house. For air leakage amounts less than the BAS, mechanical ventilation must be installed in order to maintain proper indoor air quality. Approximately equivalent to one full changeout of air in a home in 3 hours.
- CCF** Hundred Cubic Feet. Measurement unit for natural gas.
- CFM25** The standard measurement for determining air leakage in duct systems. Specifically, it is the amount of air, measured in cubic feet per minute (CFM), escaping from the duct system when pressurized to 25 pascals.
- CFM50** The standard measurement for determining air leakage in homes. Specifically, it is the amount of air, measured in cubic feet per minute (CFM), escaping from your home when depressurized to 50 pascals.
- Combustion Appliances** Appliances that burn fossil fuels for heating, cooking and other purposes. They can include furnaces, water heaters, ranges, ovens, stoves, fireplaces and clothes dryers.
- COP** Coefficient of Performance. Used to measure the efficiency of ground source heat pumps. The higher the COP, the more energy efficient the system is.
- EER** Energy Efficiency Ratio. A secondary rating standard for the energy efficiency of air conditioners and primary rating standard for ground source heat pumps. The higher the EER, the more energy efficient the system is.
- Electric Baseload** The portion of your electric bill that includes lighting, appliances, and electronics, yet excludes heating and air conditioning, which are considered seasonal use.
- HSPF** Heating Seasonal Performance Factor. Used to measure the efficiency of air source heat pumps. The higher the HSPF, the more energy efficient the system is.
- HVAC** Heating, Ventilation and Air Conditioning. The technologies and equipment that make up the systems that heat and cool your house.
- HVAC Auxiliary Electricity** The portion of your electric bill due to the electric fan used to move heated and/or cooled air through your duct system.
- kW** Kilowatt. Energy unit for measuring electric demand. Can be viewed as a snapshot of electricity usage at a single moment in time. 1 kW is equal to the amount of power consumed by ten 100-Watt lightbulbs running simultaneously.
- kWh** Kilowatt-hour. Energy unit for measuring electricity consumption. 1 kWh is equal to the amount of energy consumed by ten 100-Watt light bulbs left running for 1 hour.
- Lifetime Savings-to-Investment Ratio (SIR)** Financial performance metric that expresses the ratio of savings achieved over the lifetime of a package of energy-saving measures compared to the cost of the initial investment. If the SIR is 1 or greater, then the energy savings from the item will pay for itself before it needs to be replaced again.
- R-Value** The resistance of a material to conducting heat. The higher the R-value, the better the insulation.
- SEER** Seasonal Energy Efficiency Ratio. The rating standard for the energy efficiency of air conditioners. The higher the SEER, the more energy efficient the system is.
- Simple Payback (Years)** The amount of time in years required to recoup the money you spent on an investment, such as an energy efficiency improvements. Simple payback is equal to the cost of the energy efficiency package divided by annual energy savings.

test test
123 test drive
apt 123
Russellville, AR 71937


Dear test test

Thank you for participating in the Entergy Arkansas Manufactured Homes Program.

An Entergy Solutions trade ally performed energy efficiency upgrades in your home. These improvements can help your home be more energy efficient and may also help you see an increase in comfort and energy savings.

We invite you to provide feedback about your experience through our brief customer survey. The survey will only take a few minutes to complete, and your valuable response will help us improve our service to customers just like you.

Please go to tinyurl.com/ManufacturedHomesProgram or use your smartphone to scan the QR code below to begin the survey.



Interested in other ways Entergy Arkansas can help with energy-efficient upgrades to your home? Please visit energysolutionsar.com for more information.

If you need additional assistance or have any questions, feel free to call 866-627-9177 or email ManufacturedEAL@cf.com.

Sincerely,
Heather Hendrickson
Project Manager
Entergy Arkansas

Entergy Solutions Manufactured Home Program Customer Satisfaction Survey

Please enter the information indicated below (required):

First Name:

Last Name:

Phone/Email:

Email Address:

*2. Please describe your overall satisfaction with the Entergy Solutions Manufactured Home Program.

Very satisfied Somewhat satisfied

Satisfied Not satisfied

Neutral

*3. How did you find yourself aware of this Entergy Solution program?

Through a news item Energy information site

Social media website Energy information website

Through a sign Advertisement

Through a friend or family member

Other (please specify):

*4. Why did you participate in this program? (Select all that apply)

To save money on my energy bill Because I love the

High quality of the program To help the environment

To improve the efficiency of my home To improve the comfort of my home

Other (please specify):

*5. How likely would you be to recommend this Entergy Solution program to others?

Very likely Somewhat likely

Likely Not likely

Not sure

*6. Did the retailer who sold you your home make you aware of any other Entergy Solution programs?

Yes

No

If yes, please specify which program:

*7. Based on your recent experience, please rate your level of satisfaction with the trades who installed the program.

Level of Satisfaction	Very Dissatisfied	Dissatisfied	Neutral	Satisfied	Very Satisfied	Not Applicable
Quality of workmanship	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Timeliness of the appointment	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Knowledge and skill of the tradesperson	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Communication and customer service	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Overall satisfaction	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Response to concerns	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Professionalism	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Value for money	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Overall Satisfaction	Very Dissatisfied	Dissatisfied	Neutral	Satisfied	Very Satisfied	Not Applicable
Knowledge of other Entergy Solution programs	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Quality of service	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Value for money	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Response to concerns	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

*8. Do you have suggestions for improving this Entergy Solution program?

*9. Would you be interested in other, if anything, you heard or read about this Entergy Solution program?

*10. How likely would you be to recommend this Entergy Solution program to others?

Very likely Somewhat likely

Likely Not likely

Not sure




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3.3.14 Survey Email

APSC FILED Time: 5/1/2023 8:36:58 AM: Recvd 5/1/2023 8:18:54 AM: Docket 07-085-TF-Doc. 793

Thank you for participating in an Entergy Solutions program.

 donotreply@programprocessing.com
Thu 10/15/2020 2:38 PM
To: Goryachev, Igor

Dear Anisha Test,

Thank you for participating in the Entergy Arkansas Manufactured Homes Program.

An Entergy Solutions trade ally performed energy efficiency upgrades in your home. These improvements can help your home be more energy efficient and may also help you see an increase in comfort and energy savings.

We invite you to provide feedback about your experience through our brief customer survey. The survey will only take a few minutes to complete, and your valuable response will help us improve our service to customers just like you.



Click [here](#) to begin the survey.

Interested in other ways Entergy Arkansas can help with energy-efficient upgrades to your home? Please visit our [website](#) for more information.

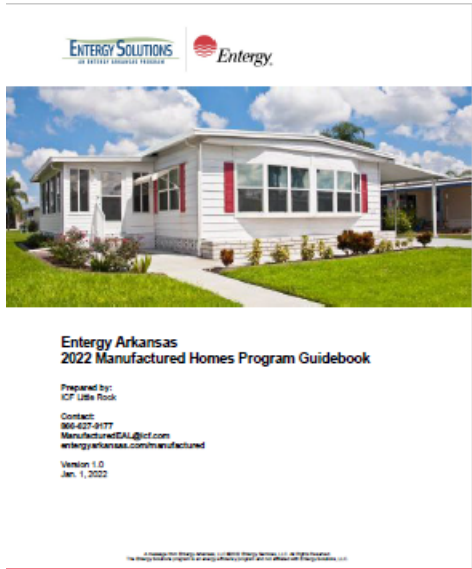
If you need additional assistance or have any questions, feel free to call **866-627-9177** or email ManufacturedEAL@icf.com.

Sincerely,

Heather Hendrickson
Project Manager
Entergy Arkansas

[Privacy Policy](#)



WE POWER LIFE

**Entergy Arkansas
2022 Manufactured Homes Program Guidebook**

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- Program Quality Management 5
- Post-Verification 5
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**Entergy Arkansas
2022 Manufactured Homes Program Guidebook**

Program Overview

Program Description

The Entergy Arkansas Manufactured Homes Program provides cost-effective energy efficiency measures to Entergy Arkansas customers in the manufactured homes market throughout the Entergy Arkansas electric service territory. Through the program, participating trade allies will perform energy-efficient upgrades at eligible manufactured homes. The upgrades include air conditioning tune-ups, duct sealing and air sealing improvements. The trade ally may also provide LED bulbs, low-flow showerheads and aerators, and advanced power strips for homes that qualify. Program staff and trade allies will work to identify and suggest other areas for improvements and opportunities for participation in additional Entergy Arkansas energy efficiency programs.

Program Objectives

The primary objectives of the program are to install no-additional-cost energy efficiency measures and offer incentives for more in-depth energy efficiency measures in manufactured homes receiving electric service from Entergy Arkansas, and to help community owners and residents reduce energy usage. In addition, the program will provide information to owners and residents about energy consumption and how to use energy wisely.

Program Participation

STEP 1: Find authorized trade allies that work in your area by visiting EntergyARTtradeally.com. If you have any questions, please call us at 866-627-9177 or email us at ManufacturedCAL@icf.com.

STEP 2: Schedule an appointment to have a trade ally visit your manufactured home to install the program measures and conduct your energy survey. An adult representative should plan to be present for the duration of the energy survey and product installation, which will take roughly two hours.

STEP 3: Sign the completed survey document and provide any comments or suggestions about the program.

SLM and Season Audits

The home must have a working central heat and air system in order to qualify for the duct sealing, air sealing and AC tune-up measures. If the home does not have a working central heat and air system, they are still eligible to receive SLM Audit with the direct installation of LED bulbs, low-flow showerheads and aerators and advanced power strips. A home may only receive these direct installation measures once every 10 years.

3

**Entergy Arkansas
2022 Manufactured Homes Program Guidebook**

SLM Audit

During the SLM Audit walk-through survey, trade allies will install energy-saving measures including LED light bulbs, advanced power strips, showerheads and kitchen/bath aerators. These measures can instantly save energy and money when properly installed and used. These measures will be installed at no additional cost to the customer. A survey will provide insights into other ways to use energy wisely.

Season Audit

The Season Audit is a comprehensive evaluation of your home's energy use. This audit will provide recommendations on ways to save energy. During the Season Audit, customers eligible for weatherization installation will start with a home inspection before work. A pre-blower door test must be performed to confirm the need for air sealing and a pre-duct blaster test must be performed to confirm the need for duct sealing. If the pre-auditing confirms the need for either air sealing and/or duct sealing, the air sealing and duct sealing may be authorized. Post testing must be performed in the structure and/or the duct to confirm the air leakage reduction.

Program Eligibility

Owners or renters (verifying required consent of the owner has been obtained) of manufactured homes located within the Entergy Arkansas electric service territory are eligible for the Entergy Arkansas Manufactured Homes Program.

There are no maximum or minimum limits to the size of a park or complex.

Funds are limited, and services are available to all Entergy Arkansas service territories on a first-come, first-served basis. For more information about other Entergy Arkansas programs, please visit energy.arkansas.com.

Program Benefits

Direct Install Measure

In this program, energy-efficient products are furnished and installed at no additional cost to Entergy Arkansas Manufactured Home Program customers. The measures available for direct installation in eligible properties and locations are as follows:

- ENERGY STAR® LEDs in fixtures and lamps that replace incandescent bulbs.
- 1.5 gallon-per-minute shower heads and faucet aerators (when existing fixtures have flow rates of 2.0 gallons per minute or greater and when the water heater is powered by electricity).
- Advanced Power Strips for qualifying home entertainment systems.

4



Incentivized Measures

A/C Tune-up

Any Energy Manufactured Homes Program customer who has central air conditioning or heat pump systems on-site may qualify for an air conditioning tune-up.

The Energy Arkansas A/C Tune-up Program involves a special diagnostic and service procedure that not only ensures the system is operating at peak efficiency (and lowest operational cost) but also identifies any shortcomings that are keeping the system from doing so. After the tune-up is complete, it may be subject to a post-installation quality-assurance verification.

Duct Sealing

Any Energy Manufactured Homes Program customer who uses a central duct system for heating and cooling the home may qualify for duct sealing based on the total system leakage. Duct sealing will consist of air leaks in the ductwork being reduced with the application of long-lasting materials. After the duct sealing is complete, it may be subject to a post-installation quality-assurance verification.

Air Sealing

Any Energy Manufactured Homes Program customer who has substantial air leakage qualifies for air sealing. The air sealing consists of using industry-standard materials and methods to reduce air infiltration and exfiltration. After the air sealing is complete, it may be subject to a post-installation quality-assurance verification.

Program Quality Management

Post-Verification

Completed projects are subject to a post-installation verification, selected on a random basis. At least, 10% of homes that participated in the program will be selected for the verification.

If a home has been selected for on-site post-verification, a program representative will contact the customer to ask about the installation and schedule a time to visit the property site.

Terms and Conditions

ENERGY AUDIT REPORT: The energy audit report provides the customer with a compiled review of energy-saving measures installed throughout the property, as well as recommendations related to energy efficiency programs available. Energy Arkansas is not responsible for lost documentation.

ELIGIBILITY: Participants must be Energy Arkansas electric utility customers with a working central air conditioner or heat pump. For homes without working central air conditioning, the home must have central electric heating. Funds are limited, and services are available in select geographic areas on a first-come, first-served basis. In order for participants to qualify for measures such as Air Sealing, Duct Sealing and Air Conditioning Tune-up Incentives, the service must be performed by an Energy Arkansas trade ally. For other Energy Arkansas programs, please visit energyarkansas.com.

APPROVAL AND VERIFICATION: Energy Arkansas reserves the right to verify the delivery of services and to have reasonable access to the participant's residence to verify the performance of energy efficiency direct install measures and/or energy efficiency work. Prior to any payment of incentives, Energy Arkansas reserves the right to verify sales transactions. The customer's trade ally will verify that the installed energy-saving measures meet all applicable building codes; zoning laws; local, state and federal requirements; and other relevant requirements. The customer's trade ally is responsible for any applicable permits as required by law. Outdoor temperatures and other weather conditions may affect the verification process. The participant acknowledges and agrees to participate if their home is selected for a quality-control post-installation verification by Energy Arkansas or its program implementer ICF. No warranty is expressed or implied by this verification.

PAYMENT: Each measure may only receive one full incentive payment from Energy Solutions within the life of the measure.

TAX LIABILITY: The customer is responsible for declaring and paying any and all applicable federal, state and local taxes that may be owed on any incentive. Energy Arkansas will not be responsible for any tax liability that may be imposed on the customer as a result of the delivery of the energy efficiency measures. Please contact your tax professional for more information.

REMOVAL OF EQUIPMENT: The customer agrees, as a condition of participation in the program, to allow removal and disposal of the equipment being replaced by energy efficiency measures in accordance with all laws, rules and regulations. The customer agrees not to reinstall any newly installed equipment anywhere in Arkansas or transfer it to any other party for installation in Arkansas.

ENDORSEMENT: Energy Arkansas does not endorse any particular manufacturer, product, system design, claim, trade ally or service in promoting the program.

INFORMATION RELEASE: The participant agrees that Energy Arkansas may include participant's name, address, Energy Arkansas account number, Energy Arkansas services and resulting energy savings in reports or other documentation submitted to the program implementer on Energy Arkansas' behalf and/or the Arkansas Public Service Commission. Energy Arkansas will treat all other information gathered in evaluations as confidential, and the information in the reports shall be in the aggregate, where practicable.

LIMITATION OF LIABILITY: ENERGY ARKANSAS' AND PROGRAM IMPLEMENTER ICF'S LIABILITY IS LIMITED TO PAYING THE INCENTIVE SPECIFIED. IN NO EVENT WILL ENERGY

ARKANSAS OR ICF IS LIABLE WHETHER IN CONTRACT, TORT (INCLUDING NEGLIGENCE), STRICT LIABILITY, WARRANTY OR OTHERWISE FOR SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES CONNECTED WITH OR RESULTING FROM PARTICIPATION IN THE PROGRAM. ENERGY ARKANSAS RESERVES THE RIGHT TO NOT PAY THIS INCENTIVE IF THE APPLICATION FORM AND ALL REQUIRED ADDITIONAL INFORMATION ARE NOT COMPLETE OR ACCURATE.

LIABILITY WAIVER: By executing an Enrollment Form, the customer voluntarily agrees not to hold Energy Arkansas, ICF, its trade allies or any other affiliates, directors, officers, employees, agents, or contractors liable for any losses or injury. Customer further agrees not to engage in any inappropriate actions or otherwise endanger the safety or health of same.

WARRANTIES: Energy Arkansas and ICF do not warrant the proper completion of work or performance of installed or serviced equipment, expressly or implicitly. Energy Arkansas and ICF do not endorse, guarantee or warrant any particular manufacturer or product, and Energy Arkansas and ICF provide no warranties, expressed or implied, for any products or services. Energy Arkansas and ICF make no warranties of any kind, whether statutory, expressed or implied, including without limitation, warranties of merchantability or fitness for a particular purpose regarding energy efficiency measures. Energy Arkansas and ICF make no guarantee of energy-saving results by receiving measure installation. The customer acknowledges that neither Energy Arkansas nor ICF nor any of its consultants are responsible for ensuring the design, engineering or installation of the measure is proper or complies with any particular laws (including patent laws), codes or industry standards. Customers should contact their independent contractors for details regarding equipment performance and warranties.

PROPERTY RIGHTS: The participant represents that he/she has the right to complete and/or install the energy-saving equipment on the property on which the equipment is completed and/or installed and that any necessary landlord's or tenant's consent, as the case may be, has been obtained.

RENTER'S CERTIFICATION: Renter certifies that he/she has received consent from the landlord or homeowner for receipt of the energy audit and associated direct installation of energy efficient measures.

CUSTOMER'S CERTIFICATION: Property manager/owner certifies that he/she has contacted for the resolved service(s) listed on the application at the defined location. Property manager/owner agrees that all information is true and that he/she has conformed to all program and equipment requirements listed.

RIGHT TO REFUSE: The Energy Arkansas trade ally has the right to refuse service or end the delivery when confronted by a customer acting inappropriately or when being in unsafe situation. "Inappropriate" includes but is not limited to the following: unreasonable demands for service, personally threatening or offensive language, threatening or erratic behavior or failure to comply with Arkansas Department of Health and/or any applicable health and safety recommendations. Authorized trade ally reserves the right to exclude any premises, or vicinity thereof, deemed potentially unsafe or harmful.

TERMINATION OF SERVICE: Either party may terminate this agreement upon 30 days' advance written notice. The trade ally shall be reimbursed for all service properly performed and approved up to the date of termination.

CUSTOMER COMMUNICATION: Participant agrees that Energy Arkansas or Energy Arkansas'

program implementer may contact participant via mail, phone, text message or email in connection with the program, including quality assurance communication.

AUTHORIZATION, PROGRAM CHANGES, SUSPENSION OR CANCELLATION: Energy Arkansas may change the program requirements, incentives, or terms and conditions, including suspending acceptance of applications or terminating the program, at any time without notice.

MISCELLANEOUS: These terms and conditions constitute the agreement between the parties and supersede all other communications and representations. By executing an Enrollment Form, the customer agrees to be bound by these terms and conditions.

PRIVACY POLICY: You may view Energy's privacy policy at energy.com/privacy-policy/.

Disclaimer
Neither Energy Arkansas nor ICF make any guarantee or any other representation or warranty, expressed or implied, as to the quality or effectiveness of any product(s) provided or work(s) performed through the program.

Energy efficiency gains are subject to a number of variable conditions and circumstances. While it is the intent of the program to achieve energy efficiencies, neither Energy Arkansas nor ICF guarantee or warrants that any specific energy efficiency gains will be achieved for a particular customer participating in the program.




 Entergy Arkansas
July 15 · 🌐

Our Manufactured Homes program can help your family save energy this summer. This program provides energy efficient solutions at no additional cost. Find a participating trade ally at entergyarkansas.com/manufactured.



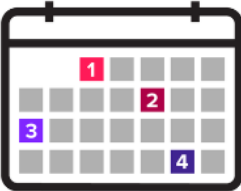
👍 3

 Entergy Arkansas
October 24, 2022 · 🌐


October is Energy Awareness Month, making it the perfect time to get your manufactured home ready for winter weather. Sealing leaks in your duct system and throughout your home is a great way to save energy and improve comfort. Here are some other easy tips to make your home more efficient this time of year.

Visit entergyarkansas.com/manufactured to learn about energy-saving upgrades available at no additional cost.

October is Energy Awareness Month



- Tip 1:** Turn lights off leaving the room
- Tip 2:** Reverse the ceiling fans to push warm air down
- Tip 3:** Set your thermostat to 68°
- Tip 4:** Contact Entergy Solutions for energy-saving upgrades

 entergy

👍 4 1 comment

3.4 Low-Income Solutions

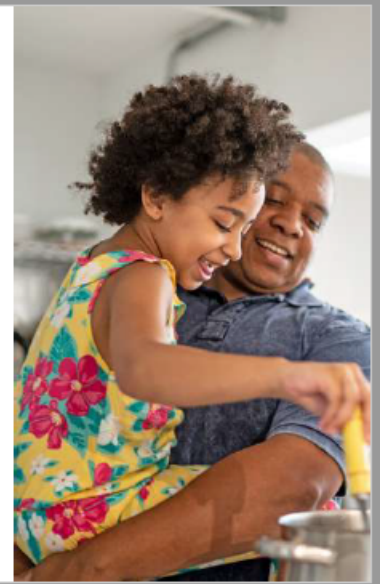
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ENERGY SOLUTIONS

Make sure comfort is always in season

At no additional cost, you can save energy and improve home comfort all year long with the Low-Income Solutions Program.

Start with scheduling a home energy assessment by emailing **lowincomesolutionseal@icf.com** or calling **866-627-9177**.



Save every season with energy upgrades at no additional cost

The Low-Income Solutions Program offers qualifying customers a suite of home upgrades, services and products, including:

- Home energy assessment
- Duct sealing
- Air sealing
- Ceiling insulation
- A/C tune-up
- Energy-saving products:
 - LED bulbs (up to 15)
 - Advanced power strip
 - Low-flow showerhead and aerators

Start with scheduling a home energy assessment by emailing **lowincomesolutionseal@icf.com** or calling **866-627-9177**. Visit **entergyarkansas.com/lowincome** or scan the QR Code to learn more.



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The Entergy Solutions program is an energy efficiency program and not affiliated with Entergy Solutions, LLC.
E-072213





Entergy Arkansas Low-Income Solutions Program

Program overview

A more comfortable home and energy savings

The Low-Income Solutions Program is designed to help make your home more energy efficient and comfortable year round, while saving energy.

Program incentives and savings

As part of the Low-Income Solutions Program, Entergy Arkansas offers a suite of efficiency-improving measures at no additional cost to qualifying customers, including but not limited to:

- Performing a home energy assessment.
- Sealing leaks in your ductwork.
- Sealing leaks in your home.
- Adding ceiling insulation.

- Providing a high-performance air conditioning tune-up.
- Installing energy-saving items at the time of the assessment:
 - LED bulbs (up to 15).
 - Advanced power strip.
 - Low-flow showerhead and aerators (for customers with electric water heaters).

How does it work?

The Low-Income Solutions Program begins with an assessment to determine your home's energy efficiency. If the assessment identifies ways to save energy in your home, you will be eligible to receive qualifying energy-improving measures installed at no additional cost by a trade ally.

Entergy Arkansas Low-Income Solutions Program

Who is eligible?

To be eligible for the energy assessment, you must be a current Entergy Arkansas residential customer (renter or owner) who:

- Is eligible for the Low-Income Home Energy Assistance Program, regardless of age.
- Is 65 years of age or older.
- Lives in a single-family, multifamily or manufactured home.

Save more with a smart thermostat

Entergy Arkansas is helping our eligible residential customers save energy by offering a smart thermostat and professional installation – a \$225 value. If you also enroll in the Smart Direct Load Control Pilot Program, you will receive an annual incentive of up to \$40 for your participation during conservation periods.

A smart thermostat uses your personal preferences to automatically adjust temperatures when you come and go. And, by connecting it to your home's Wi-Fi, you can control the temperature from anywhere, using your computer, tablet or smartphone.

This offer is available to Entergy Arkansas customers who:

- Live in a single-family or manufactured home with central heating and air.
- Have in-home Wi-Fi service.

Get started today

Contact the Energy Efficiency Solutions Center by calling 866-627-9177 or emailing lowincomesolutionseal@icf.com.

A representative can help you decide whether an assessment is best for you. Visit entergyarkansas.com/lowincome to learn more.



A message from Entergy Arkansas, LLC ©2020 Entergy Services, LLC. All Rights Reserved. The Entergy Solutions program is an energy efficiency program and not affiliated with Entergy Solutions, LLC.





Programa de Soluciones para Hogares de Bajos Recursos de Entergy Arkansas

Resumen del programa

Un hogar más cómodo ahorrando energía

El Programa de Soluciones para Hogares de Bajos Recursos está diseñado para que su hogar sea más energéticamente eficiente y cómodo durante todo el año, mientras ahorra energía.

Incentivos y ahorros del programa

Como parte del Programa de Soluciones para Hogares de Bajos Recursos, Entergy Arkansas ofrece un conjunto de medidas para mejorar la eficiencia sin un costo adicional para clientes que califican, incluyendo:

- Realizar una evaluación de energía del hogar.
- Sellar fugas en los conductos de aire.
- Sellar fugas de aire en su hogar.
- Añadir aislamiento de techo.

- Proveer un mantenimiento para el alto rendimiento del aire acondicionado.
- Instalar productos que ahorran energía durante la evaluación:
 - Focos de luz LED (hasta 15).
 - Enchufes múltiples avanzados.
 - Cabezales de ducha y aireadores de bajo flujo (para clientes con calentadores de agua eléctricos).

¿Cómo funciona?

El Programa de Soluciones para Hogares de Bajos Recursos realiza una evaluación para determinar la eficiencia energética de su hogar. Si durante la evaluación se identifican formas de reducir el consumo de energía, será elegible para recibir medidas calificadas de eficiencia energética y serán instaladas sin costo adicional por un representante comercial aprobado.

¿Quién es elegible?

Para ser elegible para una evaluación de energía, tiene que ser cliente residencial actual (inquilino o propietario) de Entergy Arkansas que:

- Sea elegible para el Programa de Asistencia de Energía para Hogares de Bajos Recursos, independientemente de su edad.
- Tenga 65 años de edad o más.
- Viva en un hogar unifamiliar, multifamiliar o prefabricada.

Ahorre más con un termostato inteligente

Entergy Arkansas ayuda a nuestros clientes residenciales a ahorrar energía ofreciendo un termostato inteligente e instalación profesional sin costo adicional (un ahorro de \$225). Si también se inscribe en el Programa Piloto de Control de Carga Directa Inteligente, recibirá un incentivo anual de hasta \$40 por su participación durante los periodos de conservación.

Un termostato inteligente utiliza sus preferencias personales para ajustar la temperatura de su hogar automáticamente. Al conectarlo a la señal de Wi-Fi de su hogar, usted puede controlar la temperatura desde cualquier lugar usando una computadora, tableta o teléfono inteligente.

Esta oferta está disponible para clientes de Entergy Arkansas que:

- Vivan en un hogar unifamiliar o prefabricada con calefacción y aire acondicionado central.
- Tengan servicio de Wi-Fi en el hogar.

Empiece hoy

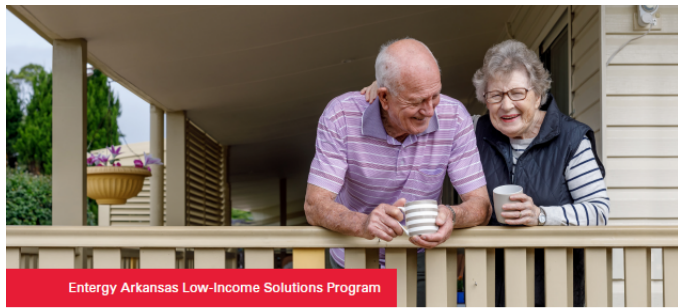
Póngase en contacto con el Centro de Soluciones de Eficiencia de Energía llamando al 866-627-9177 o enviando un correo electrónico a lowincomesolutionseal@icf.com. Un representante puede ayudarle a decidir si una evaluación es lo mejor para usted. Para más información, visite entergyarkansas.com/lowincome.



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Entergy Arkansas Low-Income Solutions Program

Program overview

A more comfortable home and energy savings

The Low-Income Solutions Program is designed to help make your home more energy efficient and comfortable year-round, while saving energy.

Program incentives and savings

As part of the Low-Income Solutions Program, Entergy Arkansas offers a suite of efficiency-improving measures at no additional cost to qualifying customers, including but not limited to:

- Performing a home energy assessment.
- Sealing leaks in your ductwork.
- Sealing leaks in your home.
- Adding ceiling insulation.

- Providing a high-performance air conditioning tune-up.
- Installing energy-saving items at the time of the assessment:
 - LED bulbs (up to 15).
 - Advanced power strip.
 - Low-flow showerhead and aerators (for customers with electric water heaters).

How does it work?

The Low-Income Solutions Program begins with an assessment to determine your home's energy efficiency. If the assessment identifies ways to save energy in your home, you will be eligible to receive qualifying energy-improving measures installed at no additional cost by a trade ally.

Entergy Arkansas Low-Income Solutions Program

Who is eligible?

To be eligible for the energy assessment, you must be a current Entergy Arkansas residential customer (renter or owner) who:

- Is eligible for the Low-Income Home Energy Assistance Program, regardless of age.
- Is 65 years of age or older.
- Lives in a single-family, multifamily or manufactured home.

Get started today

Contact the Energy Efficiency Solutions Center by calling 866-627-9177 or emailing lowincomesolutions@icfi.com. A representative can help you decide whether an assessment is best for you. Visit entergyarkansas.com/lowincome to learn more.

Save more with a smart thermostat

Entergy Arkansas is helping our eligible residential customers save energy by offering a smart thermostat and professional installation – a \$225 value. If you also enroll in the Smart Direct Load Control Pilot Program, you will receive an annual incentive of up to \$40 for your participation during conservation periods.

A smart thermostat uses your personal preferences to automatically adjust temperatures when you come and go. And, by connecting it to your home's Wi-Fi, you can control the temperature from anywhere, using your computer, tablet or smartphone.

This offer is available to Entergy Arkansas customers who:

- Live in a single-family or manufactured home with central heating and air.
- Have in-home Wi-Fi service.



123-456-7890
fakeemailaddress@fakehost.com
 1234 Fake Street
 Fake City, USA

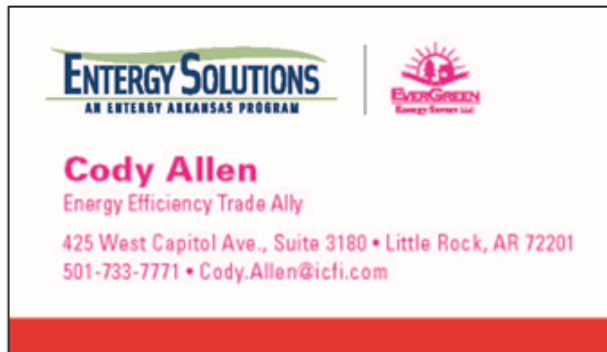


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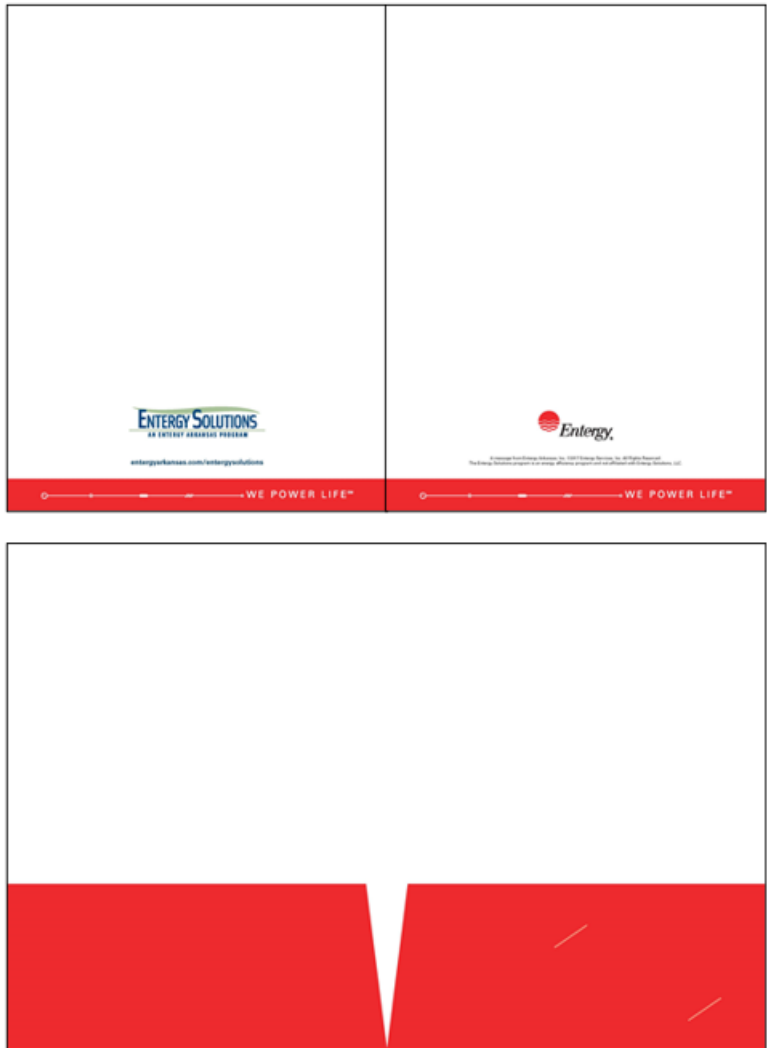
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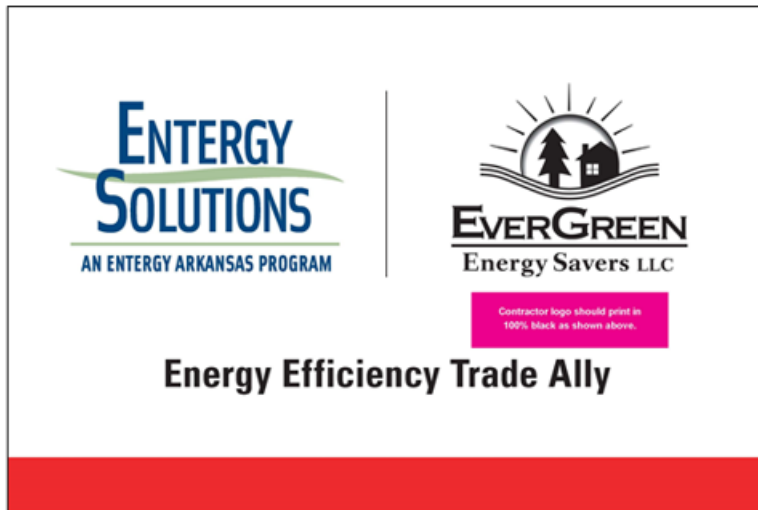
WE POWER LIFE®


3.4.6 EAI_CoBrand_Business_Card_Template_v03_FPO




Contractor logo should print in 100% black.
 Contractor name is Univers Black, C=0 M=96 Y=91 K=0 at 14pt.
 Job Title is Univers Condensed at 9pt. and should print in 100% black.
 Contact info. is Univers Condensed at 9pt. with 12pt. leading. Tracking set to 30 and should print in 100% black.






test test
123 test drive
apt 123
Russellville, AR 71937




Dear test test

Thank you for participating in the Entergy Arkansas Low-Income Solutions Program.

An Entergy Solutions trade ally performed energy efficiency upgrades in your home. These improvements can help your home be more energy efficient and may also help you see an increase in comfort and energy savings.

We invite you to provide feedback about your experience through our brief customer survey. The survey will only take a few minutes to complete, and your valuable response will help us improve our service to customers just like you.

Please go to tinyurl.com/LowIncomeSolutions or use your smartphone to scan the QR code below to begin the survey.



Interested in other ways Entergy Arkansas can help with energy-efficient upgrades to your home? Please visit our energysolutionsar.com for more information.

If you need additional assistance or have any questions, feel free to call 866-627-9177 or email LowIncomeSolutionsEAL@cf.com.

Sincerely,
Heather Hendrickson
Project Manager
Entergy Arkansas

3.4.9 Survey Email

Thank you for participating in an Entergy Solutions program.

D

dnotreply@programprocessing.com
Thu 10/15/2020 2:36 PM
To: Geyachey, Igor

Dear Test Test

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[Click here to begin the survey.](#)

Interested in other ways Entergy Arkansas can help with energy-efficient upgrades to your home? Please visit our [website](#) for more information.

If you need additional assistance or have any questions, feel free to call 866-627-9177 or email LowIncomeSolutionsEAL@cf.com.

Sincerely,
Heather Hendrickson
Project Manager
Entergy Arkansas


[Privacy Policy](#)



Entergy Solutions Low-Income Solutions Program Customer Satisfaction Survey

1. Please enter the information indicated below (optional).

First Name: _____
 Last Name: _____
 Home Phone: _____
 Email Address: _____
 Zip Code: _____

2. Please describe your initial satisfaction with the Entergy Advanced Low-Income Solution program.

- Very satisfied
- Satisfied
- Neutral
- Somewhat dissatisfied
- Very dissatisfied

3. How did you first become aware of the Entergy Solutions program?

- Online advertisement
- News item or report
- Radio or television
- Trade or industry publication
- Energy industry event
- Energy industry conference
- Social media
- Other (please specify): _____

4. Why did you participate in this program? Select all that apply.

- To save money on my energy bill
- To help the environment
- To help the economy
- To help the community
- To help the environment
- To help the economy
- Other (please specify): _____

5. How likely are you to recommend the Entergy Solutions program to others?

- Very likely
- Likely
- Not likely
- Somewhat unlikely
- Unlikely

6. Did the trade show make you aware of any other Entergy Solutions programs?

- Yes
- No

If yes, please specify which program:

7. Based on your recent experience, please rate your level of satisfaction with the trade show that you attended.

8. Why?


	Not at all	Slightly	Neutral	Slightly	Very	Not at all	Very
Level of training opportunities	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
On time arrival for the event	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Staffing to assist attendees that they are going to be doing with	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Clear signage to help attendees find the program	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Clear signage to help attendees find the program	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
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Clear signage to help attendees find the program	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

9. In your own words, please tell us what, if anything, you liked or disliked about the Entergy Solutions program.

10. Assuming we were to offer a trade show program, what is the likelihood you would recommend Entergy Advances to a friend or colleague?

- Very likely
- Likely
- Not likely
- Somewhat unlikely
- Unlikely





Entergy Arkansas Low-Income Solutions Program

Program overview

A more comfortable home and energy savings

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Entergy Arkansas Low-Income Solutions Program

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123-456-7890
fakeemailaddress@fakehost.com
1234 Fake Street
Fake City, USA



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Home Energy Assessment Report



Prepared For

Customer Name: Inspection Date: 02/11/20
 Customer Address: Trade Ally: Trade Ally Name
 City, State ZIP Code: Trade Ally Phone Number: XXX-XXX-XXXX
 Customer Phone Number: XXX-XXX-XXXX Trade Ally Email: email@gmail.com

Description of Home

House Type: Single-Family Detached
 Conditioned Floor Area: 1600 Sq Ft
 Number of Bedrooms: 3
 Number of Bathrooms: 3
 Year Home Was Built: 1996-2000
 Stories Above Grade: 1
 Primary Foundation Type: Open Crawlspace

Existing Systems

Heating Systems: 6.50 HSPFF Electricity Air Source Heat Pump
 Cooling Systems: 10 EER Air Source Heat Pump
 Water Heating Systems: 50-Gallon Electricity Storage (Tank)

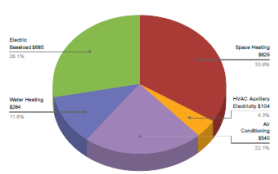
Scenario Id: XXXXXX

Report Print Date: 2/25/2020

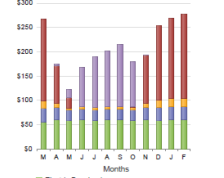
Your Home's Energy Consumption

Based on our assessment of your home, we have estimated your home's energy usage and broken it down by major end use category. The energy consumption estimate is based on how much your home would consume in an average year. The estimated costs are based on our estimate of current energy costs.

Estimated Annual Utility Bill Break Down



Electricity Usage - \$2,514 or 100% of cost



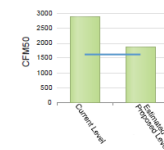
Your electric retail energy provider is Entergy Arkansas and the rate used in this analysis is 0.10000 per kWh. The total energy cost and consumption has been normalized to reflect a typical year.

Your Home's Airtightness

Balancing your home's airtightness is important for energy efficiency, comfort level and possibly health and safety. Air leakage, when hot or cold air escapes through walls, doors or windows, is often a major source of energy loss in homes. Homes that are too airtight can have problems with indoor air quality, or other health and safety issues, especially if you have one or more combustion appliances, such as a fireplace or gas oven.

Using state-of-the-art equipment, we have measured your home and compared it to industry standards for airtightness, which is an indication of an optimal balance between energy efficiency, indoor air quality and health and safety.

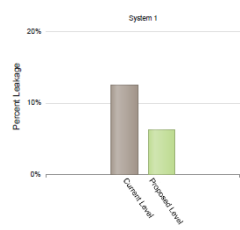
Your Home's Air Leakage Rate



Your home's air leakage rate is 1.60 times the minimum level recommended for healthy ventilation. Like most homes, yours has a leakage rate that is substantially higher than the optimal rate. For such homes, air sealing measures to bring the home closer to the optimal level are usually very cost-effective.

Your Home's Duct Leakage

Addressing duct system leaks, holes and poorly connected ducts prevents conditioned air from escaping into unconditioned space. By reducing this leakage, home owners should expect to use less energy and experience a more comfortable home.



Proper sealing of your home's duct distribution system can significantly improve airflow, offering many benefits, including energy cost savings, improved indoor air quality and better balanced temperatures from room to room.

Home Improvement Recommendations

As a result of the Home Energy Assessment, we recommend the following improvements for your home:

Measure Category	Existing Condition	Improved Condition	Estimated Annual Savings
Air Sealing			
Air Sealing Level	Air leakage rate of 2000 cubic feet per minute at 50 Pascals.	Reduce leakage from living space to 1500 CFM50	\$84.60
Seal/Insulate Recessed Lights - Attic Area 1		Seal/Insulate 12 Recessed Light(s)	
Seal/Insulate Attic Access Hatches - Attic Area 1		Seal/Insulate 1 Attic Access Hatch(es)	
Insulation			
Attic Insulation - Attic Area 1	Current insulation level is 6" and condition is poorly insulated	Insulate 1000 square feet w/ Fiberglass (open blow); 8 inches	\$245.68
Kneewalls/Vertical Attic Walls - Group 1	Current insulation level is 4" and condition is poorly insulated	Add 72 sq ft of Foam (high density) & 1" Polyurethane - Rigid Board	\$11.14
Rm Joist - Group 1	Area is not currently insulated	Insulate 160 linear feet with Fiberglass Batt	\$13.04
Windows & Glass Doors			
Windows & Glass Doors - Metal dbl pane no break	Current windows are double-pane clear without storm windows	Install 10 Unit(s) with U-Value 0.3 & SHGC 0.32	\$30.37
Doors			
Doors - Wood	Current door is solid core wood (no storm)	Install 2 Add Storm Door	\$6.47
HVAC Systems			
Heating System - System 1	20-24 year old Air Source Heat Pump with an efficiency of 6.5 HSPFF	Replace w/ 7.6 HSPFF Install and Program Set-	\$173.61

Measure Category	Existing Condition	Improved Condition	Estimated Annual Savings
Heating System Thermostat - System 1		Back Thermostat 1 For Both Heating and Cooling Systems	\$51.78
Central Air Conditioner - System 1	25-30 year old Central AC with an efficiency of 10 SEER	System Service/Tune-up	\$171.27
Cooling System Thermostat - System 1		Install and Program Set-Back Thermostat	\$9.71
Ducts			
Duct System 1 - Sealing	Current duct system leakage is 150 CFM25 to outdoors	Seal Ducts w/ Approved Materials	\$38.16
Smart Thermostat 1 - heat pump	Standard Thermostat	Smart Thermostat - heat pump	\$30.72
Domestic Hot Water System			
Water Heater - System 1	Current DHW system is 1992-1995 Storage (Tank) with energy factor (EF) of 0.69	Performance Tune-Up or Repair	\$1.55
Lighting, Appliances & Smart Strips			
Replacement Lighting		Install 15 Energy Efficient Lamps *	\$85.41
Smart Strips		Install Smart Strips	
Water Saving Measures			
Low-Flow Showerheads		Replace 2 of 2 showerheads with low-flow showerheads	\$17.05
Building Performance Measures			
Address House Drainage Concerns		Divert Drainage from Foundation	

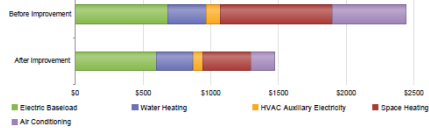
* The lighting energy usage indicated for your home exceeds the national average. A cap has been applied to the lighting energy usage based on the modeling of your home.

Your Estimated Annual Energy Savings

The following table shows estimated energy savings from the proposed measures, broken into the same major categories of use in your home as shown in the analysis of current energy usage on Page 2. For each category, the table provides an estimated annual dollar savings, a breakdown of the savings by fuel type and the percentage of energy saved relative to your existing usage.

End Use Category	Electricity kWh	Cost Savings	Percent Energy Savings
Space Heating Savings	4,730	\$473	57.0%
Air Conditioning Savings	3,068	\$367	67.6%
Water Heating Savings	188	\$19	6.5%
Electric BaseLoad Savings	854	\$85	12.5%
HVAC Auxiliary Electricity Savings	273	\$27	26.2%
Total Project Savings	9,712	\$971	N/A
Total Percent Savings			39.7%

Projected Reduction in Annual Utility Costs
 If you install all of the measures recommended above, your projected annual energy cost savings would be \$971 and would potentially change as follows by end use category:



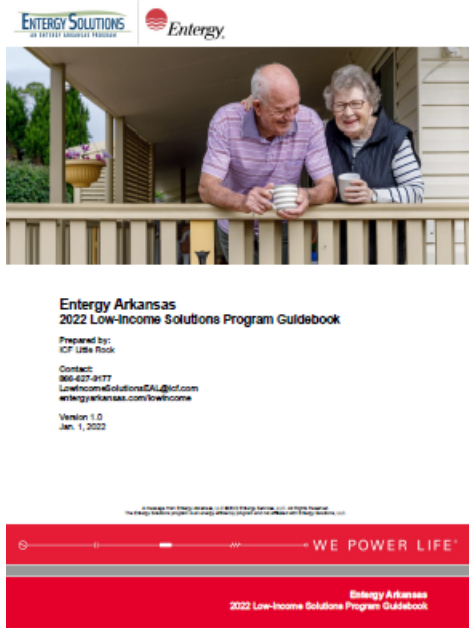
Financial Analysis

The projected energy savings from your home performance projects will help pay for the projects. The following financial analysis lets you look at energy savings in financial terms.

Simple Payback, Annual After-Tax Rate of Return and SIR	
Energy Saving Measures	\$0.00
Total Package Price	\$0.00
Arkansas Energy Rebate (subject to approval)	\$0.00
Other Incentives	\$0.00
Net Package Price	\$0.00
Annual Projected Savings	\$971.15
Simple Payback (years)	0.0
Annual Rate of Return	0.00%
Lifetime Savings-to-Investment Ratio	9999.00

Glossary

- AFUE** Annual Fuel Utilization Efficiency. The rating standard for the energy efficiency of furnaces and boilers. The higher the AFUE, the more energy efficient the system is.
- Annual Rate of Return** The rate of return on your investment after 1 year, expressed as a percentage of the total amount invested. This is a standard method for comparing the performance of investments.
- BAS** Building Airflow Standard. The minimum amount of ventilation through a house. For air leakage amounts less than the BAS, mechanical ventilation must be installed in order to maintain proper indoor air quality. Approximately equivalent to one full changeout of air in a home in 3 hours.
- CCF** Hundred Cubic Feet. Measurement unit for natural gas.
- CFM25** The standard measurement for determining air leakage in duct systems. Specifically, it is the amount of air, measured in cubic feet per minute (CFM), escaping from the duct system when pressurized to 25 pascals.
- CFM50** The standard measurement for determining air leakage in homes. Specifically, it is the amount of air, measured in cubic feet per minute (CFM), escaping from your home when depressurized to 50 pascals.
- Combustion Appliances** Appliances that burn fossil fuels for heating, cooking and other purposes. They can include furnaces, water heaters, ranges, ovens, stoves, fireplaces and clothes dryers.
- COP** Coefficient of Performance. Used to measure the efficiency of ground source heat pumps. The higher the COP, the more energy efficient the system is.
- EER** Energy Efficiency Ratio. A secondary rating standard for the energy efficiency of air conditioners and primary rating standard for ground source heat pumps. The higher the EER, the more energy efficient the system is.
- Electric Baseload** The portion of your electric bill that includes lighting, appliances, and electronics, yet excludes heating and air conditioning, which are considered seasonal use.
- HSPF** Heating Seasonal Performance Factor. Used to measure the efficiency of air source heat pumps. The higher the HSPF, the more energy efficient the system is.
- HVAC** Heating, Ventilation and Air Conditioning. The technologies and equipment that make up the systems that heat and cool your house.
- HVAC Auxiliary Electricity** The portion of your electric bill due to the electric fan used to move heated and/or cooled air through your duct system.
- kW** Kilowatt. Energy unit for measuring electric demand. Can be viewed as a snapshot of electricity usage at a single moment in time. 1 kW is equal to the amount of power consumed by ten 100-Watt lightbulbs running simultaneously.
- kWh** Kilowatt-hour. Energy unit for measuring electricity consumption. 1 kWh is equal to the amount of energy consumed by ten 100-Watt light bulbs left running for 1 hour.
- Lifetime Savings-to-Investment Ratio (SIR)** Financial performance metric that expresses the ratio of savings achieved over the lifetime of a package of energy-saving measures compared to the cost of the initial investment. If the SIR is 1 or greater, then the energy savings from the item will pay for itself before it needs to be replaced again.
- R-Value** The resistance of a material to conducting heat. The higher the R-value, the better the insulation.
- SEER** Seasonal Energy Efficiency Ratio. The rating standard for the energy efficiency of air conditioners. The higher the SEER, the more energy efficient the system is.
- Simple Payback (Years)** The amount of time in years required to recoup the money you spent on an investment, such as an energy efficiency improvements. Simple payback is equal to the cost of the energy efficiency package divided by annual energy savings.



Entergy Arkansas
2022 Low-Income Solutions Program Guidebook

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2

Entergy Arkansas
2022 Low-Income Solutions Program Guidebook

Program Overview

Program Description

The Entergy Arkansas Low-Income Solutions Program provides cost-effective energy-efficient measures to single-family, manufactured and multifamily homes throughout the Entergy Arkansas service territory. Through the program, participating trade allies perform energy audits and install energy-efficient upgrades as well as health and safety improvements at eligible homes. Energy-efficient upgrades may consist of measures such as air conditioner tune-ups, duct sealing, air sealing, and ceiling insulation. Health and safety improvements may include smoke detectors, carbon monoxide detectors and ventilation modifications, such as bathroom exhaust fans or other types of ventilation system repairs. Additionally, the trade ally technicians install energy-saving equipment such as LED light bulbs, low-flow aerators/showersheads, smart thermostats and smart power strips in the home.

Program Objectives

The primary objective of the Low-Income Solutions Program is to help homeowners and/or renters reduce their energy usage, possibly save money on their utility bill and improve the comfort of their home. The program will install energy-saving products and upgrades at no additional cost to the customer. In addition to the energy-saving products, qualified participants can apply to receive additional health and safety home improvements necessary in order to proceed with the energy efficiency upgrades to the home.

Program Contact Information

Phone: 906-627-9177
 Email: LowIncomeSolutionsEAL@icf.com
 Web: entergyarkansas.com/lowincome

Program Eligibility

Owners or renters (certifying required consent) of single-family, manufactured and multifamily homes are eligible for the Entergy Low-Income Solutions Program if:

- Entergy Arkansas provides retail electric service to the residence;
- The occupants meet the statewide Low-Income Home Energy Assistance Program income criteria.

Income criteria is updated annually and is located at: benefits.gov/benefits/1542.

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Entergy Arkansas
2022 Low-Income Solutions Program Guidebook

Funds are limited and services are available to all Entergy Arkansas service territories on a first-come, first-served basis. For more information about other Entergy Arkansas programs, please visit enterysolutionssar.com.

How to Qualify

There are two ways to verify, qualify and enroll in the program.

- 1) Trade Ally Self-Certification – Participating trade allies that offer the Low-Income Solutions Program services will be able to provide an enrollment form that allows you to mutually verify eligibility in the program. A listing of participating trade allies in your area can be found here: EntergyARTradeAlly.com.
- 2) Direct Program Engagement – Low-Income Solutions Program representatives may contact you directly or engage you through your Community Action Agency (CAA) if it is determined that your specific geography is considered broadly to meet the eligibility requirements.

Program Participation

STEP 1: Enroll in the Low-Income Solutions Program by contacting your CAA, a participating trade ally, or by emailing us at LowIncomeSolutionsEAL@icf.com. For a list of participating trade allies, please visit entergyarkansas.com/lowincome.

STEP 2: Schedule an appointment to have a trade ally visit your home to conduct an energy assessment and provide applicable direct install measures. The technician will determine if your home is a candidate for additional measures and connect you with trade allies who could perform them. An adult representative should plan to be present for the duration of the energy assessment and direct measure installation, which will take up to two hours. For weatherization and equipment services, a more in-depth energy assessment can take up to four hours.

STEP 3: Sign the completed participation document, and please provide any comments or suggestions about the program.

SLM and Beacon Audits

Depending on your home's energy usage and size, you may be eligible for either an SLM energy audit or a more detailed Beacon energy audit. Both identify ways to save energy in your home, and you will be eligible to receive qualifying energy-saving products at no additional cost to you from a trade ally.

SLM Audit

During the SLM energy audit, trade allies install products such as LED light bulbs, advanced power

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energy savings in reports or other documentation submitted to the program implementer on Energy Arkansas behalf and/or the Arkansas Public Service Commission. Energy Arkansas will treat all other information gathered in evaluations as confidential, and the information in the reports shall be in the aggregate, where practicable.

LIMITATION OF LIABILITY: ENERGY ARKANSAS AND PROGRAM IMPLEMENTER ICF'S LIABILITY IS LIMITED TO PAYING THE INCENTIVE SPECIFIED. IN NO EVENT WILL ENERGY ARKANSAS OR ICF BE LIABLE WHETHER IN CONTRACT, TORT (INCLUDING NEGLIGENCE), STRICT LIABILITY, WARRANTY OR OTHERWISE FOR SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES CONNECTED WITH OR RESULTING FROM PARTICIPATION IN THIS PROGRAM. ENERGY ARKANSAS RESERVES THE RIGHT TO NOT PAY THE INCENTIVE IF THE APPLICATION FORM AND ALL REQUIRED ADDITIONAL INFORMATION ARE NOT COMPLETE OR ACCURATE.

LIABILITY WAIVER: By executing an Enrollment Form, the customer voluntarily agrees not to hold Energy Arkansas, ICF, its trade allies or any of their affiliates, directors, officers, employees, agents, or contractors liable for any losses or injury. Customer further agrees not to engage in any inappropriate actions or otherwise endanger the safety or health of same.

WARRANTIES: Energy Arkansas and ICF do not warrant the proper completion of work or performance of installed or serviced equipment, expressly or implicitly. Energy Arkansas and ICF do not endorse, guarantee or warrant any particular manufacturer or product, and Energy Arkansas and ICF provide no warranties, expressed or implied, for any products or services. Energy Arkansas and ICF make no warranties of any kind, whether statutory, expressed or implied, including without limitation, warranties of merchantability or fitness for a particular purpose regarding energy efficiency measures. Energy Arkansas and ICF make no guarantee of energy-saving results by receiving measure installation. The customer acknowledges that neither Energy Arkansas nor ICF nor any of its consultants are responsible for ensuring the design, engineering or installation of the measure is proper or complies with any particular laws (including patent laws), codes or industry standards. Customers should contact their independent contractors for details regarding equipment performance and warranties.

PROPERTY RIGHTS: The participant represents that he/she has the right to complete and/or install the energy-saving equipment on the property on which the equipment is completed and/or installed and that any necessary landlord's or tenant's consent, in the case may be, has been obtained.

RENTER'S CERTIFICATION: Renter certifies that he/she has received consent from the landlord or homeowner for receipt of the energy audit and associated direct installation of energy efficient measures.

CUSTOMER'S CERTIFICATION: Property manager/owner certifies that he/she has consented for the received services listed on the application at the defined location. Property manager/owner agrees that all information is true and that he/she has consented to all program and equipment requirements listed.

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RIGHT TO REFUSE: The Energy Arkansas trade ally has the right to refuse service or end the delivery when confronted by a customer acting inappropriately or when facing an unsafe situation. "Inappropriate" includes but is not limited to the following: unreasonable demands for service, generally threatening or offensive language, threatening or erratic behavior or failure to comply with Arkansas Department of Health and/or any applicable health and safety recommendations. Authorized trade ally reserves the right to exclude any premises, or vicinity thereof, deemed potentially unsafe or harmful.

TERMINATION OF SERVICE: Either party may terminate this agreement upon 30 days' advance written notice. The trade ally shall be reimbursed for all services properly performed and approved up to the date of termination.

CUSTOMER COMMUNICATION: Participant agrees that Energy Arkansas or Energy Arkansas program implementer may contact participant via mail, phone, text message or email in connection with the program, including quality assurance communication.

AUTHORIZATION, PROGRAM CHANGES, SUSPENSION OR CANCELLATION: Energy Arkansas may change the program requirements, incentives, or terms and conditions, including suspending acceptance of applications or terminating the program, at any time without notice.

MISCELLANEOUS: These terms and conditions constitute the agreement between the parties and supersedes all other communications and representations. By executing an Enrollment Form, the customer agrees to be bound by these terms and conditions.

PRIVACY POLICY: You may view Energy's privacy policy at energy.com/privacy-policy/.

Disclaimer

Neither Energy Arkansas nor ICF makes any guarantee or any other representation or warranty, expressed or implied, as to the quality or effectiveness of any product(s) provided or work(s) performed through this program.

Energy efficiency gains are subject to a number of variable conditions and circumstances. While it is the intent of the program to achieve energy efficiencies, neither Energy Arkansas nor ICF guarantees or warrants that any specific energy efficiency gains will be achieved for a particular customer participating in the program.

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Energy Arkansas
2022 Low-Income Solutions Program Guidebook

staps, showerheads and kitchen/bath sensors. These measures will instantly save energy and money when properly installed and used. These measures will be installed at no additional cost to the customer. The audit also will provide insights into other ways to use energy wisely and opportunities to reduce your energy spend.

Bacon Audit

The Bacon Audit is a comprehensive evaluation of your home's energy use. This audit provides recommendations on ways to save energy and will enable eligible customers to start the process toward weatherization improvements. Trade allies evaluate the interior and exterior of the home (i.e. the building envelope) and record specific information about the existing conditions and proposed improvement opportunities. The Bacon Audit also includes diagnostic testing to determine air infiltration and/or duct leakage. For any insulation improvements, a pre- and post-installation blower door test must be performed to confirm air leakage reduction. For any duct sealing improvements, a pre- and post-duct blower test to confirm duct leakage reduction also must be performed. Upon completion of the pre-weatherization test results, and any necessary health and safety improvements, trade allies can then begin weatherization work for the participating home.

Participation Journey

All Participants

Select Participants

Program Benefits

To receive certain measures, homes must have a ducted central heating and air conditioning unit(s) installed prior to participation in the Low-Income Solutions Program. The benefits available through participation in the program are described below, and any additional energy-consumption related health and safety opportunities for the home will be evaluated and communicated to you by the trade ally during the audit process.

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Energy Arkansas
2022 Low-Income Solutions Program Guidebook

Direct Install Measures

In the Low-Income Solutions Program, energy-efficient products are furnished and installed at no additional cost to Energy Arkansas customers. The measures available for direct installation in eligible properties and locations include:

- ENERGY STAR® LEDs in fixtures and lamps that replace incandescent bulbs.
- 1.5 gallons-per-minute shower heads and faucet aerators (when existing fixtures have flow rates of 2.0 gallons-per-minute or greater and where the water heater is powered by electricity).
- Advanced power strips for qualifying home entertainment systems.
- Energy customers with qualified air conditioning systems and Wi-Fi may sign up for the Smart Direct Load Control Pilot Program. Smart Thermostat eligibility is based upon the presence of continuous Wi-Fi internet and agreement to participate in summer demand response events. Additionally, the residence cannot be a current participant in the Summer Advantage Program.

Air Conditioner Tune-up

Any Energy Low-Income Solutions Program customers who have central air conditioning or heat pump systems on site may qualify for an air conditioning tune-up. Customers who have participated in the previous five years will not be eligible.

The Energy Arkansas Air Conditioner Tune-up Program involves a diagnostic and service procedure that not only ensures the system is operating at peak efficiency (and lowest operational cost) but also identifies any shortcomings that are keeping the customer's system from doing so. After the tune-up is complete, it may be subject to a post-installation quality-assurance verification. After the tune-up is finished, the trade ally may then send in the incentive form for payment.

Duct Sealing

Any Energy Low-Income Solutions Program customer that uses a central duct system for heating and cooling the home may qualify for duct sealing based on the total system leakage and opportunity for improvement. Duct sealing involves addressing air leaks in the home's ductwork.

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Energy Arkansas
2022 Low-Income Solutions Program Guidebook

being reduced through the application of long-lasting materials. Only homes with a functioning central heat and air system are eligible for this service.

Air Sealing

Any Energy Low-Income Solutions Program customer who has substantial air leakage qualifies for air sealing. Sealing may include weatherstripping or caulking around doors or windows. Air sealing may also include using spray foam in plumbing penetrations and large holes in sheetrock and anywhere air can escape to the exterior. The air sealing consists of using industry standard materials and methods to reduce air infiltration and exfiltration. After the air sealing is complete, it may be subject to a post-installation quality-assurance verification. Only homes with a functioning central heat and air system are eligible for this service.

Celling Insulation

Customers with existing insulation of R-14.0 or less will qualify for insulation to bring their home up to code of R-38. Upgrade eligibility is based upon existing R-values and square feet of ceiling insulated. Gaps and gaps in the existing insulation will be considered as well. Only homes with a functioning central heat and air system are eligible for this service.

Program Quality Management

Post-Verification

Completed projects are subject to a post-installation verification, selected on a random basis. Typically, 10% of all homes that participated in the program will be selected for verification.

If it is determined that an on-site post-verification is going to be performed, a program representative will contact the customer to schedule the property site verification.

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Energy Arkansas
2022 Low-Income Solutions Program Guidebook

Terms and Conditions

ENERGY AUDIT REPORT: The energy audit report provides the customer with a compiled review of energy-saving measures installed throughout the property, as well as recommendations related to energy efficiency programs available. Energy Arkansas is not responsible for lost documentation.

ELIGIBILITY: Participants must be Energy Arkansas electric utility customers with a working central air conditioner or heat pump. For homes without working central air conditioning, the home must have central electric heating. The participant represents that he/she meets the LISCAP criteria to participate. Funds are limited, and services are available in select geographic areas on a first-come, first-served basis. In order for participants to qualify for measures such as Air Sealing, Duct Sealing, and Air Conditioning Tune-up Incentives, the service must be performed by an Energy Arkansas trade ally. For other Energy Arkansas programs, please visit energyarkansas.com.

APPROVAL AND VERIFICATION: Energy Arkansas reserves the right to verify the delivery of services and to have reasonable access to the participant's residence to verify the performance of energy efficiency direct install measures and/or energy efficiency work. Prior to any payment of incentives, Energy Arkansas reserves the right to verify sales transactions. The customer's trade ally will verify that the installed energy-saving measures meet all applicable building codes, zoning laws, local, state and federal requirements, and other relevant requirements. The customer's trade ally is responsible for any applicable permits as required by law. Outdoor temperatures and other weather conditions may affect the verification process. The participant acknowledges and agrees to participate if their home is selected for a quality-control post-installation verification by Energy Arkansas or its program implementer ICF. No warranty is expressed or implied by this verification.

PAYMENT: Each measure may only receive one full incentive payment from Energy Solutions within the life of the measure.

TAX LIABILITY: The customer is responsible for declaring and paying any and all applicable federal, state and local taxes that may be owed on any incentives. Energy Arkansas will not be responsible for any tax liability that may be imposed on the customer as a result of the delivery of the energy efficiency measure. Please contact your tax professional for more information.

REMOVAL OF EQUIPMENT: The customer agrees, as a condition of participation in the program, to allow removal and disposal of the equipment being replaced by energy efficiency measures in accordance with all laws, rules and regulations. The customer agrees not to reinstall any newly installed equipment anywhere in Arkansas or transfer it to any other party for installation in Arkansas.

ENDORSEMENT: Energy Arkansas does not endorse any particular manufacturer, product, system design, claim, trade ally or service in promoting this program.

INFORMATION RELEASE: The participant agrees that Energy Arkansas may include participant's name, address, Energy Arkansas account number, Energy Arkansas services and resulting

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2022 Low-Income Solutions Program Guidebook

energy savings in reports or other documentation submitted to the program implementer on Energy Arkansas' behalf and/or the Arkansas Public Service Commission. Energy Arkansas will treat all other information gathered in evaluations as confidential, and the information in the reports shall be in the aggregate, where practicable.

LIMITATION OF LIABILITY: ENERGY ARKANSAS' AND PROGRAM IMPLEMENTER ICF'S LIABILITY IS LIMITED TO PAYING THE INCENTIVE SPECIFIED. IN NO EVENT WILL ENERGY ARKANSAS OR ICF BE LIABLE WHETHER IN CONTRACT, TORT (INCLUDING NEGLIGENCE), STRICT LIABILITY, WARRANTY OR OTHERWISE FOR SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES CONNECTED WITH OR RESULTING FROM PARTICIPATION IN THIS PROGRAM. ENERGY ARKANSAS RESERVES THE RIGHT TO NOT PAY THIS INCENTIVE IF THE APPLICATION FORM AND ALL REQUIRED ADDITIONAL INFORMATION ARE NOT COMPLETE OR ACCURATE.

LIABILITY WAIVER: By executing an Enrollment Form, the customer voluntarily agrees not to hold Energy Arkansas, ICF, its trade allies or any of their affiliates, directors, officers, employees, agents, or contractors liable for any losses or injury. Customer further agrees not to engage in any inappropriate actions or otherwise endanger the safety or health of same.

WARRANTIES: Energy Arkansas and ICF do not warrant the proper completion of work or performance of installed or serviced equipment, expressly or implicitly. Energy Arkansas and ICF do not endorse, guarantee or warrant any particular manufacturer or product, and Energy Arkansas and ICF provide no warranties, expressed or implied, for any products or services. Energy Arkansas and ICF make no warranties of any kind, whether statutory, expressed or implied, including without limitation, warranties of merchantability or fitness for a particular purpose regarding energy efficiency measures. Energy Arkansas and ICF make no guarantee of energy-saving results by receiving measure installation. The customer acknowledges that neither Energy Arkansas nor ICF nor any of its consultants are responsible for ensuring the design, engineering or installation of the measure is proper or complies with any particular laws (including patent laws), codes or industry standards. Customers should contact their independent contractors for details regarding equipment performance and warranties.

PROPERTY RIGHTS: The participant represents that he/she has the right to complete and/or install the energy-saving equipment on the property on which the equipment is completed and/or installed and that any necessary landlord's or tenant's consent, as the case may be, has been obtained.

RENTER'S CERTIFICATION: Renter certifies that he/she has received consent from the landlord or homeowner for receipt of the energy audit and associated direct installation of energy efficient measure.

CUSTOMER'S CERTIFICATION: Property manager/owner certifies that he/she has contacted for the received services/audit on the application at the defined location. Property manager/owner agrees that all information is true and that he/she has conformed to all program and equipment requirements listed.

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RIGHT TO REFUSE: The Energy Arkansas trade ally has the right to refuse service or end the delivery when confronted by a customer acting inappropriately or when facing an unsafe situation. "Inappropriate" includes but is not limited to the following: unreasonable demands for service, personally threatening or offensive language, threatening or erratic behavior or failure to comply with Arkansas Department of Health and/or any applicable health and safety recommendations. Authorized trade ally reserves the right to exclude any premises, or vicinity therein, deemed potentially unsafe or harmful.

TERMINATION OF SERVICE: Either party may terminate this agreement upon 30 days' advance written notice. The trade ally shall be reimbursed for all services properly performed and approved up to the date of termination.

CUSTOMER COMMUNICATION: Participant agrees that Energy Arkansas or Energy Arkansas' program implementer may contact participant via mail, phone, text message or email in connection with the program, including quality assurance communication.

AUTHORIZATION, PROGRAM CHANGES, SUSPENSION OR CANCELLATION: Energy Arkansas may change the program requirements, incentives, or terms and conditions, including suspending acceptance of applications or terminating the program, at any time without notice.

MISCELLANEOUS: These terms and conditions constitute the agreement between the parties and supersede all other communications and representations. By executing an Enrollment Form, the customer agrees to be bound by these terms and conditions.

PRIVACY POLICY: You may view Energy's privacy policy at [energy.com/privacy-policy/](#).


Disclaimer

Neither Energy Arkansas nor ICF make any guarantee or any other representation or warranty, expressed or implied, as to the quality or effectiveness of any product(s) provided or work(s) performed through this program.



Energy efficiency gains are subject to a number of variable conditions and circumstances. While it is the intent of the program to achieve energy efficiencies, neither Energy Arkansas nor ICF guarantees or warrants that any specific energy efficiency gains will be achieved for a particular customer participating in the program.

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3.4.14 LIS_Case Study_Better Community Development_RELEASE.pdf



Low-Income Solutions Program Spotlight
Better Community Development, Inc.

Working Together to Make a Difference

Better Community Development, Inc. is a nonprofit community-based organization in Little Rock. Since 1981, Better Community Development has been dedicated to its mission to improve the quality of life for low-income, underserved, disadvantaged and at-risk people. Today, one of the ways they serve is by providing energy efficiency and health and safety improvements to income-qualified residents in Arkansas using funding from the federal Weatherization Assistance Program administered by the Arkansas Energy Office.

Community Partnerships and Shared Goals

The Entergy Arkansas Low-Income Solutions Program helps income-qualified households become more comfortable, safe and energy efficient through home weatherization upgrades. When the Low-Income Solutions Program recognized its objectives were aligned with Better Community Development's goals, they worked together to create a framework and process for completing jointly funded projects. Contributions vary by home, but a typical project breakout is shown below.

Typical Contribution	Low-Income Solutions Program	Weatherization Assistance Program	Total
Single-family Home	\$2,050	\$7,810	\$9,860
Multifamily Apartment	\$1,175	\$8,038	\$9,213

Through this collaboration more services are provided than either program can give independently. Since the joint projects began in 2020, the two programs have shared the costs of improvements for over 20 homes and apartments and plan to continue to work together to make a difference for Entergy Arkansas customers.

"We are able to do more for lower income households from working with the Entergy Solutions Program. Having another resource to use makes a difference for the people we're trying to help."

James Whitaker, Better Community Development, Inc.

For More Information

Visit: entergyarkansas.com/lowincome

Email: LowIncomeSolutionsEAL@icf.com

Call: 866-627-9177

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The Energy Solutions program is an energy efficiency program and not affiliated with Energy Solutions, LLC.

WE POWER LIFE®



Low-Income Solutions Program Spotlight

Exceptional health and safety project

Health and safety background
 Since 2020, the Entergy Arkansas Low-Income Solutions Program has been helping income-qualified households become more comfortable, safe and energy efficient through home weatherization upgrades. The program also helps with home repairs to correct minor problems that may otherwise prevent the building from receiving weatherization upgrades or pose a health or safety risk.

Helping an elderly customer in need
 In early 2022, Entergy customer Paulette Washington-McDonald heard about the Low-Income Solutions offering from a family member who participated in the program. Ms. Washington-McDonald called the same authorized trade ally to find out if her elderly father's home qualified for weatherization upgrades, too.

Bryan's Conservation Services provided an audit of the home and discovered that the 34-year-old HVAC unit no longer worked. The trade ally spent three months searching for an affordable, used HVAC unit as a replacement. They were eventually able to use the Health & Safety incentive funding available through the program to purchase and install a working unit for the home. Replacing the broken HVAC allowed the home to become eligible for duct and air sealing, which was also performed. Bryan's Conservation Services provided exceptional service and made a positive impact to a family in need through the Low-Income Solutions Program.

For more information
 Visit: entergyarkansas.com/lowincome
 Email: LowIncomeSolutionsEAL@icf.com
 Call: 866-627-9777

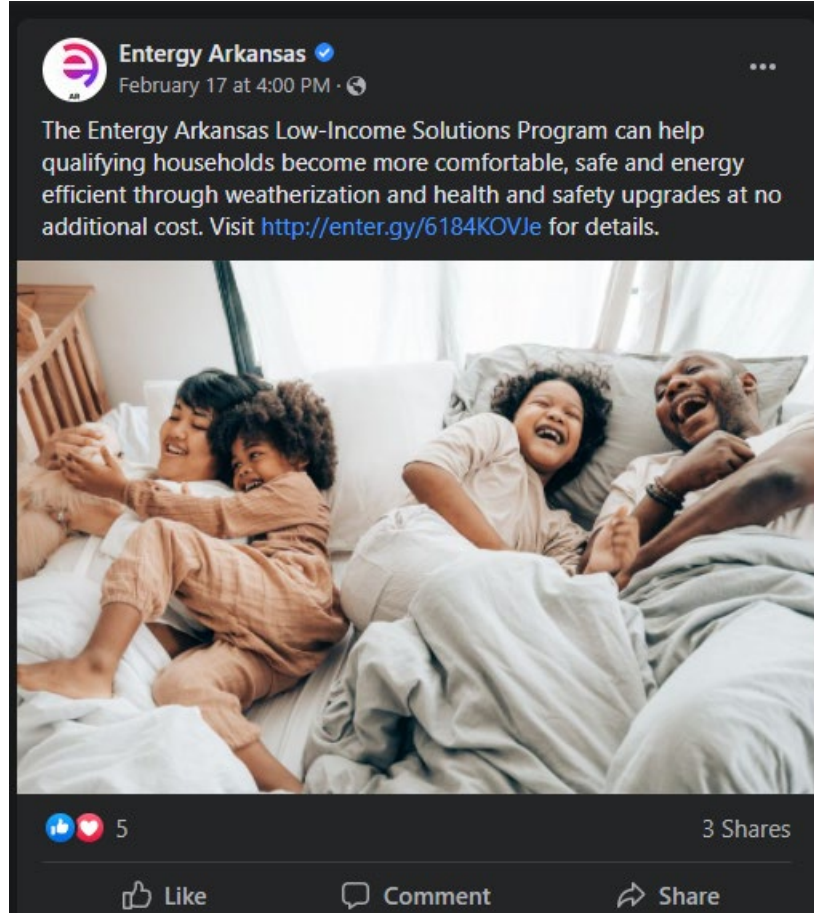
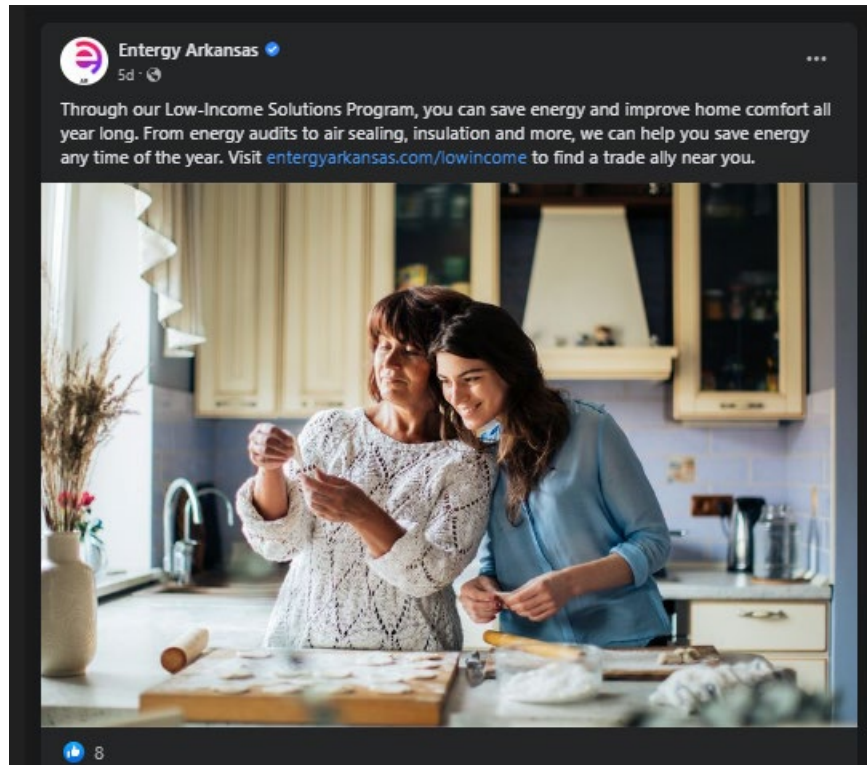
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ENTERGY SOLUTIONS

BB Working with the program was a good experience. My father's air conditioner had gone out and we'd been trying to find a unit to replace it. Bryan found a used one to replace it and installed it free of charge. It's working and now that it's going to get hot again soon it will really help. I'm glad Bryan was there. God placed him in our lives at the right time. Thank you for the program to help get the home efficient. It's really hard to find this kind of help and is important for our older folks. 57

Paulette Washington-McDonald
 2022 Program Participant
 Pine Bluff, AR







Entergy Arkansas   May 17 at 10:00 AM · 

Home comfort and savings are always in season. Our Low-Income Solutions Program offers A/C tune-ups and weatherization measures at no additional cost. Find a participating trade ally at entergyarkansas.com/lowincome.



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Entergy Arkansas   November 30, 2022 · 


Now is the perfect time to improve the energy efficiency of your home. No-cost weatherization measures through our Low-Income Solutions program can help increase your home's comfort by sealing air leaks and more. Find a participating trade ally  <http://enter.gy/6189M4uLX>.



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3.5 Point of Purchase Solutions

3.5.1 EAI_Air_Purifier_Rebate_Form.pdf



\$35 REBATE

on a new qualifying air purifier.


Step 1:
Purchase a new ENERGY STAR® certified air purifier.

Step 2:
Within 60 days, complete and mail in the back of this form along with a dated receipt.

Step 3:
If all requirements are met, we'll issue your rebate. See the back side of the form for detailed requirements.

Claim your Entergy Arkansas rebate now and you could expect more than \$200 over the lifetime of the unit in energy savings, or \$25 annually. This offer is exclusive to Entergy Arkansas residential customers.

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WE POWER LIFE®

Air Purifier Rebate Application

Please fill out completely. All information is required unless noted otherwise.

Account Information
Entergy Arkansas Account Number (of installation address):

Installation Address:

City: State: ZIP Code:

Purchaser's Name:

Daytime Phone:

Product and Home Information
Air Purifier Model #:

Water in your home is supplied by (check one):
 Municipal water source Well Other:

Does your home tie into a municipal sewer system? (check one):
 Yes No


Please send this application along with a copy of your dated sales receipt to:

Entergy Arkansas Rebate Program
 3100 West Rd., Bldg. 3, Ste. 200
 East Lansing, MI 48823
 Email: entergyappliances@clearresult.com
 Fax: 888-688-2907
 Apply online at entergyappliances.clearresult.com


By signing below, the purchaser authorizes Entergy Arkansas to perform a phone survey or physical inspection to confirm installation. Rebate checks will be paid to purchaser listed on this form.

SIGNATURE:

This offer is available through Dec. 31, 2022, or while funds last, and it only applies to ENERGY STAR certified air purifiers. We can only issue two rebates per household. All rebate forms must be received within 60 days of purchase and purchases must have been made between Jan. 1, 2022 and Dec. 31, 2022. Please allow four to six weeks for processing. For more information about other energy efficiency incentives from Entergy Arkansas, visit entergyarkansas.com/energy_efficiency or call 877-212-2426.





3.5.2 EAI_Dehumidifier_Rebate_Form.pdf



\$25 REBATE

on a new qualifying dehumidifier.


Step 1:
Purchase a new ENERGY STAR® certified dehumidifier.

Step 2:
Within 60 days, complete and mail the back of this form along with a dated receipt.

Step 3:
If all requirements are met, we'll issue your rebate. See the back of the form for detailed requirements.

Claim your Entergy Arkansas rebate now and you could expect more than \$200 over the lifetime of the unit in energy savings, or \$25 annually. This offer is exclusive to Entergy Arkansas residential customers.

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WE POWER LIFE®

Dehumidifier Rebate Application

Please fill out completely. All information is required unless noted otherwise.

Account Information
Entergy Arkansas Account Number (of installation address):

Installation Address:

City: State: ZIP Code:

Purchaser's Name:

Daytime Phone:

Product and Home Information
Dehumidifier Model #:

Water in your home is supplied by (check one):
 Municipal water source Well Other:

Does your home tie into a municipal sewer system? (check one):
 Yes No


Please send this application along with a copy of your dated sales receipt to:

Entergy Arkansas Rebate Program
 3100 West Rd., Bldg. 3, Ste. 200
 East Lansing, MI 48823
 Email: entergyappliances@clearresult.com
 Fax: 888-688-2907
 Apply online at entergyappliances.clearresult.com

By signing below, the purchaser authorizes Entergy Arkansas to perform a phone survey or physical inspection to confirm installation. Rebate checks will be paid to purchaser listed on this form.

SIGNATURE:

This offer is available through Dec. 31, 2022, or while funds last, and it only applies to ENERGY STAR certified dehumidifiers. We can only issue two rebates per household. All rebate forms must be received within 60 days of purchase and purchases must have been made between Jan. 1, 2022 and Dec. 31, 2022. Please allow four to six weeks for processing. For more information about other energy efficiency incentives from Entergy Arkansas, visit entergyarkansas.com/energy_efficiency or call 877-212-2426.





UP TO \$300 REBATE

on a new qualifying pool pump.




Step 1:
Purchase a new ENERGY STAR® certified pool pump and install it in your pool.

Step 2:
Within 60 days, complete and mail the back of this form along with a dated receipt.

Step 3:
If all requirements are met, we will issue a \$300 rebate for a variable-speed pump.

Claim your Entergy Arkansas rebate now and you could save \$300 a year on your Entergy bill. This offer is exclusive to Entergy Arkansas residential customers with single-family homes.

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Pool Pump Rebate Application

Account Information
Entergy Arkansas Account Number (of installation address):

Installation Address: _____
 City: _____ State: _____ ZIP Code: _____

Purchaser's Name: _____
 Daytime Phone: _____

Product and Home Information
 Pool Pump Size (in horsepower): _____
 Pool Pump Model #: _____

If your pool is heated, please indicate water heating fuel type (check one):
 Electric Natural gas Solar Other: _____

Type of Pool (check one): In-ground Above-ground

Water in your home is supplied by (check one):
 Municipal water source Well Other: _____

Does your home tie into a municipal sewer system? (check one): Yes No

By signing below, the purchaser authorizes Entergy Arkansas to perform a phone survey or physical inspection to confirm installation. Rebate checks will be paid to purchaser listed on this form.

SIGNATURE: (PRINT)

This offer is available through Dec. 31, 2022, at while funds last. We can only issue one rebate per household. All rebate forms must be received within 60 days of purchase and purchases must have been made between Jan. 1, 2022 and Dec. 31, 2022. Please allow 4-6 weeks for processing. For more information about other energy efficiency opportunities from Entergy Arkansas, visit entergy.com/energy_efficiency or call 479-232-3626.


Entergy Arkansas Rebate Program
 3100 West Rd., Bldg. 3, Ste. 200
 East Lansing, MI 48823

Email: entergyarappliance@clearemail.com
 Fax: 888-686-2867

Apply online at entergyarappliance.clearemail.com





3.35.4 POP-Freezer-Rebate-Application.pdf



UP TO \$50 REBATE

on a new qualifying ENERGY STAR® certified freezer


Step 1:
Purchase a new ENERGY STAR certified compact, chest or upright freezer.

Step 2:
Within 60 days, complete and sign the form on the back of this card. Mail, email or fax the form and a dated receipt to the address provided.

Step 3:
If all requirements are met, we will issue a \$50 rebate for a freezer up to 175 cubic feet in capacity or a \$20 rebate for a freezer above 175 cubic feet in capacity.

Claim your Entergy Arkansas rebate now and save \$195 over the next five years on your Entergy bill. This offer is exclusive to Entergy Arkansas residential customers.

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Freezer Rebate Application

Account Information
Entergy Arkansas Account Number (of installation address):

Installation Address: _____
 City: _____ State: _____ ZIP Code: _____

Purchaser's Name: _____
 Daytime Phone: _____

Product and Home Information
 Freezer Capacity (in cubic feet): _____
 Freezer Model #: _____

Type of Freezer (check one): Compact Chest Upright

Water in your home is supplied by (check one):
 Municipal water source Well Other: _____

Does your home tie into a municipal sewer system? (check one): Yes No

By signing below, the purchaser authorizes Entergy Arkansas to perform a phone survey or physical inspection to confirm installation. Rebate checks will be paid to purchaser listed on this form.


SIGNATURE: (PRINT)


This offer is available through Dec. 31, 2022, at while funds last. We can only issue one rebate per household. All rebate forms must be received within 60 days of purchase, and purchases must have been made between Jan. 1, 2022, and Dec. 31, 2022. Please allow 4-6 weeks for processing. For more information about other energy efficiency opportunities from Entergy Arkansas, visit entergy.com/energy_efficiency or call 479-232-3626.

Entergy Arkansas Rebate Program
 3100 West Rd., Bldg. 3, Ste. 200
 East Lansing, MI 48823

Email: entergyarappliance@clearemail.com
 Fax: 888-686-2867



Apply online at entergyarappliance.clearemail.com





\$60 REBATE

on new qualifying smart thermostats


Step 1:
Purchase and install a new ENERGY STAR® certified smart thermostat.


Step 2:
Complete and mail the back of this form, along with a dated receipt, within 60 days.

Step 3:
If all requirements noted on the reverse side are met, we'll send you a \$60 rebate.

Smart thermostats make it easy to stay comfortable and save energy all year long. Get the savings started with an Entergy Arkansas rebate.

A message from Entergy Arkansas, LLC ©2023 Entergy Services, LLC. All Rights Reserved. The Entergy Solutions program is an energy efficiency program and not affiliated with Entergy Solutions, LLC.





Smart Thermostat Rebate Application

Account Information

Entergy Arkansas Account Number (of installation address):

Installation Address:

City: State: ZIP Code:

Purchaser's Name:

Daytime Phone:

Product and Home Information

Does your home have central A/C and Wi-Fi? (required) Yes No

Thermostat Make and Model #:

How do you primarily heat your home? (check one)

Electric Natural gas Propane Other:

What type of home do you live in? Single family Duplex/Triplex Multifamily

What is the square footage of your home?

0-1,500 1,501-2,500 2,500+

What kind of thermostat are you replacing?

Manual Programmable Unknown

By signing below, the purchaser authorizes Entergy Arkansas to perform a phone survey or physical inspection to confirm installation. Rebate checks will be paid to purchaser listed on this form.

SIGNATURE:

This offer is available to Entergy Arkansas residential customers through Dec. 31, 2022, and only applies to ENERGY STAR certified smart thermostats installed in homes with central A/C and Wi-Fi. Limit one rebate per household. Cannot be used in combination with any other Entergy offer. All rebate forms must be received within 60 days of purchase, and purchases must have been made between Jan. 1, 2022, and Dec. 31, 2022. Please allow 4 to 6 weeks for processing. For more information about other energy efficiency incentives from Entergy Arkansas, visit entergyarkansas.com/energy_efficiency or call 877-210-2402.

Entergy Arkansas Rebate Program
 2100 West Rd., Bldg. 3, Ste. 200
 East Lansing, MI 48823

Email: entergyappliances@clearsult.com
 Fax: 888-688-2907

Or apply online at entergyappliances.clearsult.com



COMMERCIAL POINT OF PURCHASE SOLUTIONS ENERGY EFFICIENCY PROGRAM PARTICIPATION AGREEMENT



Save real money with high efficiency equipment.

The Entergy Arkansas Commercial Point of Purchase Solutions Energy Efficiency Program offers incentives at the time of purchase for specific high efficiency equipment. Entergy Arkansas commercial customers can obtain the products through their standard purchasing methods, and incentives are processed through the equipment supplier.

How will I benefit?

- Savings, now and later. Equipment upgrades typically pay for themselves in energy savings alone within a few years, and you can also save immediately through incentives for purchasing select high efficiency products.
- Simplified process. The incentives are processed through your equipment supplier so you get immediate benefits and the supplier handles the paperwork.
- Entergy Arkansas commercial customers can obtain discounted high efficiency products through standard purchasing methods.

Frequently Asked Questions

1. Are there any commercial customers that aren't eligible for participation in the program?

Any nonresidential Entergy Arkansas customer is eligible to receive discounts through the program, even if you've completed a commercial project for which you received Entergy Arkansas incentives, though incentives cannot be claimed for the same socket or fixture twice.

2. Do all efficient products qualify for discounts through the program?

No, only certain categories of lighting, hand dryers, small air compressors and variable-frequency drives of a certain size are eligible for discounts through the program.

3. Install your product within 30 days of the purchase date. One of our program representatives may contact you to verify installation.
4. Enjoy the benefits of your completed project.

How to Participate:

1. Sign the back of this form and submit it to your product supplier. This enrolls you in the program and authorizes us to process the incentives for your purchase.
2. Purchase qualified products from your supplier. The incentive amount will be automatically deducted from the purchase price.

COMMERCIAL POINT OF PURCHASE SOLUTIONS ENERGY EFFICIENCY PROGRAM CUSTOMER PARTICIPATION AGREEMENT

Entergy Arkansas has contracted with CLEARResult to implement, promote and administer the Commercial Point of Purchase Solutions Energy Efficiency Program (herein referred to as "program"). _____ (herein referred to as "participant") recognizes it is a willing participant of this program and is an Entergy Arkansas commercial customer. This participation agreement reflects the voluntary collaboration between your organization and the Entergy Arkansas-sponsored Commercial Point of Purchase Solutions Energy Efficiency Program. The terms below list the general commitments of the participant in order to improve the energy efficiency of your organization.

To participate in this program, you will need to understand and agree to these terms:

1. The program will provide incentive funds in the form of a direct discount from the participating supplier for eligible energy-saving products to be installed by the participant within facilities served by Entergy Arkansas. Installation address must be provided.
2. Participant will promptly install all energy-saving products purchased for their facilities within 30 days of the purchase date of the energy-saving products. Repayment of incentives received may be requested for any products found not installed upon inspection 30 days following purchase. Please initial.
3. Participant will allow necessary post-inspections to be administered by the program for verification of installation of the energy-saving products and arrange for any necessary inspection/participant surveys to be administered by the program evaluator of record.
4. Participant acknowledges that, as part of its participation in this program, it will maintain eligibility to receive program services and incentives for a period of two years from the date the participant receives the discount for the purchase of energy-saving products installed at its organization.
5. If the individual signing this form is NOT the account holder, the signer acknowledges that he/she is authorized to make purchasing decisions on the account holder's behalf. All terms and conditions in this agreement apply regardless of who signs the agreement.

Disclaimer

The purchasing of eligible energy-saving products from a participating supplier is the sole decision of the participant. The inclusion of a participating supplier for the program does not constitute an endorsement by Entergy Arkansas or CLEARResult of any product, individual or company. Eligible energy-saving products purchased by the participant from a participating supplier are not guaranteed or subject to any representation or warranty, either expressed or implied or otherwise, by either Entergy Arkansas or CLEARResult. Neither Entergy Arkansas nor CLEARResult makes any guarantee or any other representation or warranty, expressed or implied or otherwise, as to the quality, cost or effectiveness of any energy-saving product(s) provided by any participating supplier, by any such participating supplier's employees or subcontractors. Energy efficiency gains are subject to a number of variable conditions and circumstances. While it is the intent of the program to achieve energy efficiencies at the participant's organization, neither Entergy Arkansas nor CLEARResult guarantees or warrants that any specific energy efficiency gains will be achieved for a particular customer under the program.

CUSTOMER ACKNOWLEDGMENT

I acknowledge that by signing below I understand and agree to the terms listed above. I understand that I will be able to pay back the participating supplier some for all of the discounted amount received for the products purchased if I decide not to proceed with the installation of all purchased products. Incentives will not be paid for products that have also been incentivized through a different program, or if the socket or fixture being replaced was incentivized prior to proposed replacement. I agree to allow my account information and data to be used by the program staff for the purposes of verifying program eligibility and reporting program data to Entergy Arkansas. I acknowledge that I have read and understand the above disclaimer.

By endorsing below, your organization accepts this agreement with Entergy Arkansas. If your organization wishes to end its participation in the program, it may do so at any time by providing the program administrator written notice of its intentions, subject to product installation status and incentives received as outlined above.

Account Holder Point of Contact (First and Last Name): _____
 Check if you are NOT the account holder; end see #6 above.

Account Holder Company Name: _____

Installation Location Address, City, State, ZIP: _____

Telephone: _____ Email: _____

SIGNATURE: _____ DATE: _____

Please fill in completely, sign and hand this form to your product supplier.

Questions? Contact the Energy Efficiency Solutions Center at 877-212-2420 or visit enteryarcommercialdiscounts.com.

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Energy Solutions
2022 Commercial POP Program Manual

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Energy Solutions
2022 Commercial POP Program Manual

PROGRAM DESCRIPTION

Entergy Arkansas offers the Commercial Point of Purchase Solutions Program to commercial customers in the Energy Arkansas territory. The program is designed to encourage these customers to save money and energy by:

- Purchasing and installing qualified ENERGY STAR® or Energy Lights Certified (ELC) products
 - LED Bulbs
 - LED Fixtures
- Purchasing and installing qualified variable frequency drives, small air compressors, and heat pumps

During the program year, additional measures will be evaluated for cost effectiveness. Measures that are considered appropriate will be added into the program. To encourage adoption of program measures, eligible customers will receive:

- Discounts at the point of sale
- Promotional materials that describe the benefits of purchasing qualified energy-efficient items at participating distributor locations and other locations.

Additionally, this program will incorporate other activities designed to educate eligible customers about the energy efficiency technologies and incentives that are available. The two main program activities are:

- **Trade ally recruiting, outreach and training** — CLEARcut, the implementer of this program, will work to recruit the trade ally network for the program. CLEARcut will also strive to increase the number of products that are available in area distributor locations.
- **Administration of the incentive process (including program tracking)** — The program strives to make participation in programs as convenient and streamlined as possible. To that end, CLEARcut works directly with trade allies to discount products at participating distributor locations and on-line.

The long-term objective of this program is to transform the energy efficiency market over time by increasing the demand that drives Energy Arkansas commercial customers from adopting energy-efficient technologies and practices. Strategies for meeting these objectives include:

- Reducing the cost of energy-saving products.
- Improving access to energy-saving products.
- Providing commercial customers with information about the quality of efficient products.

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Energy Solutions
2022 Commercial POP Program Manual

PROGRAM MANAGEMENT & CONTACTS

- Effie Weaver
 - Email: effie.weaver@clearcut.com
- Energy Efficiency Center
 - Phone: 877-212-0428

PROGRAM ROLES & RESPONSIBILITIES

Program Participant (Qualified Energy Arkansas Commercial Customer)

- Purchase qualified energy-efficient products from participating trade allies including
 - LED linear lights, LED fixtures, VFCs, hand dryers, or small air compressors.
- Sign Program Participation Agreement.
- Install all purchased products within 30 days of purchase.
- Make facilities available for inspection if requested.

Participating Trade Ally

- Participating trade allies are responsible for complying with the program processes set forth in their program agreement with CLEARcut. This can include educating customers about energy efficiency, providing CLEARcut with monthly reports and invoices for each measure and displaying signage.

PROGRAM ELIGIBILITY

Customer Eligibility

The 2022 Commercial Point of Purchase Program is being offered to all commercial customers of Energy Arkansas who have not opted out of energy efficiency programs. Customers may be required to verify eligibility with their Energy Arkansas account number for participation in the program. Please see the Program Participation Process section of this document for information about how to participate.

Trade Ally Eligibility

CLEARcut is responsible for recruiting eligible trade allies to participate in this program. Eligibility is determined by the trade ally's ability to track and report data as well as their willingness to agree to the responsibilities set out in their program agreement with CLEARcut. Participating distributors must have service territory or locations within the Energy Arkansas service territory, must have a minimum amount of program inventory available for inspection, and must be in good standing if participating in other Energy Arkansas energy efficiency programs.

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DISCLAIMERS

Energy Arkansas and/or CLEARresult

The selection of a participating trade ally or manufacturer's product is the sole decision of the customer. Installation of a trade ally or product in the program does not constitute endorsement by Energy Arkansas or CLEARresult of any product, a trade ally or company. Neither Energy Arkansas nor CLEARresult makes any guarantee or any other representation or warranty, expressed or implied or otherwise, as to the quality, cost or effectiveness of any products provided by any such participating trade ally's employees, subcontractors, or suppliers.

Energy efficiency gains are subject to a number of various conditions and circumstances. With the intent of the program to achieve energy efficiencies, neither Energy Arkansas nor CLEARresult guarantees or warrants that any specific energy efficiency gains will be achieved for a particular customer under the program.

QUALITY MANAGEMENT SYSTEM

QA/QC Protocol

CLEARresult's Quality Management Process (QMP) includes both quality assurance (QA) and quality control (QC) components with a feedback loop to ensure continuous program improvement. It is a formal and preventative approach to quality assurance. QC inspections are used to verify quality of the results, and QA activities such as trade ally and product qualification and training help to ensure quality issues do not appear downstream in the process. QMP prevents quality issues from coming up in the first place and improves the entire system, including participating contractors.

CUSTOMER COMPLAINTS

In the course of administering any program, there may be instances where a participant is not satisfied with the program and files a complaint or dispute. The below steps outline the process for CLEARresult staff and/or bearing partners to resolve customer complaints in a timely manner.

Calls that come into the program contact center will be documented in CLEARresult's tracking database by creating a case and associating it with the specific account, contact or project record (whichever is most specific to the complaint). An email is sent to the program team for follow-up with the customer.

All complaints should be followed-up on within ten business days of the receipt of the complaint.

If the initial discussion with the participant does not result in a resolution, the program implementer will inform the participant that additional efforts are required to resolve the account, and that we will follow-up within one business day to discuss additional information gathered, next steps in the resolution process and the expected timeline for dispute resolution.

During all interactions, the person handling the complaint will record the discussion, the actions taken to resolve the complaint and the date the actions were taken. We will update the participant regarding the status of their issue resolution no less than weekly.

CLEARresult will provide monthly updates to Energy on the status of any outstanding participant complaints.

CLEARresult will contact the utility immediately upon receipt of any complaint or issue that may pose a safety or public relations risk.

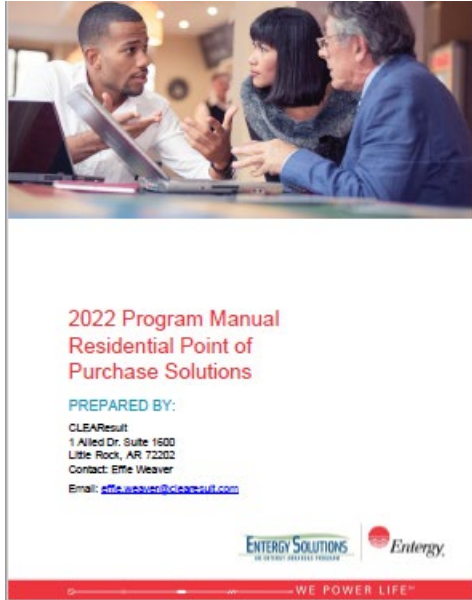
DISTRIBUTOR PERFORMANCE STANDARDS

Requirements for Participation

Distributors are required to sign program agreements to enroll in the program. The agreement defines participant roles and requirements for program participation.

Causes for Non-Payment or Termination of Agreement

If a participating distributor does not maintain their duties as agreed upon, they will receive a written warning. If they take no corrective action and continue to fail to uphold their duties after receiving several warnings, CLEARresult may need to withhold payment for reimbursement or to terminate the agreement with the distributor.



Energy Arkansas
2022 Residential POPS Program Manual

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Energy Arkansas
2022 Residential POPS Program Manual

PROGRAM DESCRIPTION

Energy Arkansas offers the Residential Point of Purchase Solutions Program to residential and small commercial customers in the Energy Arkansas territory. The program is designed to encourage these customers to save money and energy by taking the following measures:

- 1) Purchasing and/or installing qualified ENERGY STAR:
 - a. Light emitting diode bulbs and fixtures
 - b. Dehumidifiers
 - c. Pool Pumps
 - d. Room Air Purifiers
 - e. Smart Thermostats (qualifying models only)
 - f. Freezers
 - g. Heat Pump Water Heaters (qualifying models only)
 - h. Room Air Conditioners
- 2) Purchasing and using Advanced power strips.

During the program year, additional measures may be evaluated for cost-effectiveness; measures that are considered appropriate will be added into the program. To encourage adoption of program measures, eligible customers will receive:

- 1) Discounts and rebates.
- 2) Promotional materials that describe the benefits of purchasing qualified energy-efficient items at outdoor events and participating retail locations.

Additionally, this program will incorporate other activities designed to educate eligible customers about the energy efficiency technologies and incentives that are available. The three main program activities are:

- 1) **Retailer and manufacturer recruiting, outreach and training** – CLEAResult, the implementer of the Program, will work to expand the retail network for the Program. CLEAResult also will strive to increase the number of products that are available in area establishments.
- 2) **Advertisement of the incentive program (including program tracking)** – The program strives to make customer participation as convenient and streamlined as possible. To that end, CLEAResult works directly with manufacturers and retailers to discount lighting, thermostat and heat source products at retail and online, and offers Energy Arkansas customers both paper and electronic options for applying for rebates on qualifying products.
- 3) **Site-based outreach events** – These events will be used as an opportunity to distribute energy efficient materials to customers through a home services program.

The long-term objective of this program is to stimulate the energy efficiency market over time by instilling the benefits that currently underlie Energy Arkansas customers from adopting energy-efficient technologies and practices.

Strategies for lowering these barriers include:

- 1) Reducing the cost of energy-efficient lighting, thermostat & plug load control products, pool pumps, heat pump water heaters and central air systems.
- 2) Improving access to ENERGY STAR qualified products.

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20. Providing consumers with information about the quality of efficient products.

PROGRAM MANAGEMENT & CONTACTS

Office Manager
Email: energyadvances@borealis.com
Energy Efficiency Solutions Center: 877-913-8328

PROGRAM ROLES & RESPONSIBILITIES

Program Participant (Qualified Energy Advances Customer)

- Participate in the Energy STAR qualified program from participating retailers, distributors, or installers (LED bulbs and fixtures, smart thermostats, and pumps, room air purifiers, dehumidifiers, heat pump water heaters, room air conditioners, OR receive the ENERGY STAR qualified LED bulb from program representatives at outreach events).
- Purchase advanced power strips from participating retailers.
- Submit a rebate application and proof of purchase for each qualifying product. (No rebate application is necessary for lighting, water heating and plug load control products, and for thermostats purchased with a discount; the discount has already been applied to the price of the product in the case of lighting and lead control products, and discount codes are used at the point of sale in the case of thermostats.)

Participating Retailer, Distributor and Manufacturer

- Participating retailers and distributors are responsible for complying with the program processes set forth in their program agreement with CLEARheat. This can include educating customers about energy efficiency, providing CLEARheat with monthly reports and sales figures for each measure and displaying signage.
- Participating manufacturers are responsible for complying with program processes set forth in their program agreement with CLEARheat. This can include educating customers about energy efficiency, providing CLEARheat with monthly reports and sales figures for each measure and ensuring that all products sold to retailers for purposes of the promotion comply with the qualifications set forth in the agreement and/or will be listed on the ENERGY STAR website.

PROGRAM CHANGES

The Energy Advances Residential Point of Purchase Solutions Program has been implemented in its current form since 2011. In 2023, the following changes were made:

- Added ENERGY STAR qualified freezers, to the program. These products were not previously included through the program.
- Added ENERGY STAR qualified room air conditioners to the program. These products were not previously included through the program.

PROGRAM ELIGIBILITY

Customer Eligibility

The 2023 Residential Point of Purchase Program is being offered to all residential customers of Energy Advances. Customers may be required to verify eligibility with their Energy Advances account number for participation. In case of the measure, please see the "Program Participation Process" section of this document for information about how to participate.

Retailer, Distributor and Manufacturer Eligibility

CLEARheat is responsible for recruiting eligible retailers, distributors and manufacturers to participate in the program. Eligibility is determined by the retailer, distributor or manufacturer's ability to track and report data as well as their willingness to agree to the responsibilities set out in their program agreement with CLEARheat. Participating retailers and distributors must have locations well within the Energy Advances service territory.

PROGRAM INCENTIVES

Measures & Incentive Levels

Eligible measures include ENERGY STAR qualified, light emitting diode light bulbs & fixtures, smart thermostats, room air purifiers, dehumidifiers, and pumps, heat pump water heaters and freezers. Carbon Smart Smart power strips are also eligible for incentives under this program.

Measure Type	Incentive Level	Measure Description
LED Bulbs	Full cost of the bulb, L&L are given to qualifying customers at events.	This measure will replace incandescent and CFL bulbs with energy saving LED bulbs.
LED Fixtures	- \$1 per bulb - \$1.50 \$2 per bulb - \$2 \$2 per bulb, varies by type	This measure will replace incandescent bulbs with energy saving and long-lasting LED bulbs.
Advanced Power Strips (4 qualifying models)	Up to \$14 per unit	This measure will replace traditional power strips with surge protection with advanced power strips with smart sensing technology that makes it possible to shut off the flow of electricity to accessories or peripherals automatically when not in use.
Pool Pumps (variable speed)	\$20	This measure will replace single speed pool pumps with energy saving pool pumps which have motor speed settings for filtration and heating.
Room Air Purifier	\$25	This measure will replace traditional room air purifiers with energy saving room air purifiers.
Dehumidifiers	\$25	This measure will replace traditional dehumidifiers with energy saving dehumidifiers.
Freezers	\$25 < 7.75 cubic feet \$50 > 7.75 cubic feet	This measure will replace traditional compact, chest, and upright freezers with energy-saving freezers.

Measure Type	Incentive Level	Measure Description
Heat Pump Water Heaters (4 qualifying models)	\$200 per unit	This measure will replace traditional electric tank storage water heaters with energy-saving hybrid heat pump water heaters.
Room Air Conditioners	\$20 per unit	This measure will replace traditional room air conditioners with energy-saving room air conditioners.

MEASUREMENT & VERIFICATION

For all bulbs, fixtures, air purifiers, advanced power strips, dehumidifiers, heat pump water heaters, room air conditioners, and pool pumps, the program will calculate savings based upon deemed savings per unit. Deemed savings are standardized savings values or ratios formulae for a range of measures to representative building types. This approach is suitable for a variety of projects where energy savings may be estimated to a reasonable degree of accuracy without additional measurement and verification. In these cases, variables such as operating hours and energy consumption of existing equipment are assumed using previously gathered field data.

For smart thermostats and freezers, the program will calculate savings based upon stipulated savings presented in a work order linked to CLEARheat and accepted by the installer.

NON-CASH BENEFITS

Communications & Public Relations Support

CLEARheat will market the program to consumers, distribute free L&Ls, appliances and/or advanced power strips, provide press releases and other communications support to inform the community about the steps their neighbors are taking to improve the energy performance of their homes, and may target outreach in order to reach more residential customers.

PROGRAM PARTICIPATION PROCESS

ENERGY STAR LEDs, Smart Thermostats, Heat Pump Water Heaters, Room Air Conditioners, and Advanced Power Strips

There is no application required to participate in this process. The instant discount is awarded at the time of purchase from a participating retailer and, in the case of lighting, heat pump water heaters and power strips, is included in the same price listed at the start of online (no additional discount is based on the region). See Figure 1 for a diagram of the process. In the case of Smart Thermostats, discount codes are emailed to qualifying participants, and are specific to each a discount at the retailer, or are purchased online. Discounts are subject to funding availability.

ENERGY STAR Air Purifiers, Dehumidifiers, Smart Thermostats, Pool Pumps, and Freezers

To receive each incentive from the program, customers must apply for incentives by completing and submitting a mail-in or online rebate application for each individual purchase and provide CLEARheat with supporting documentation, including:

- Full name
- Address
- ID# or account number
- Product and model number
- Retail address or phone number
- Date of purchase
- Proof of purchase
- Other information as necessary

The incentive amount may be adjusted during the program year according to changes in the estimated participation levels, provided that the budget is able to accommodate any additional incentives that need to be allocated. CLEARheat will update customers prior to purchase if any significant changes are made to the incentive amount available for their applicable purchases. Retailers will be processed in CLEARheat's Michigan-based processing center. Energy Advisors do not require any payment or incentive for any purchases over the maximum number of eligible purchases, for multiple purchases or for any rebate applications submitted after the first acceptance date specified on the application form. For more information, please see the "Limits on Participation" section below.

INCENTIVE PAYMENT PROCESS

Any cash incentives received through the program are paid directly to the customer via discounts on purchases or after the purchase as described above. Funds for cash purchase rebates are delivered in the form of a check once the purchase has been verified.

LIMITS ON PARTICIPATION

Both the cash and non-cash incentive budgets available through the program are limited and made available to customers on a first-come, first-served basis. If funding is depleted during the program year, notice will be given to customers on the Energy Solutions website at energysolutions.com/homeappliances. Please see below for additional detail.

ENERGY STAR LEDs, Heat Pump Water Heaters, Room Air Conditioners, and Advanced Power Strips

Each of these measures is being incentivized through a retail price markdown. Energy Advisors customers will be able to purchase these products from any of the participating retailers. The savings are passed on to the customer at the time of purchase in the form of a discount on their purchase. The discount has already been included in the sale price of these items, so no additional discount is given at the register. If funding is depleted during the program year, discounts will be discontinued at participating retail locations 2 weeks after notice is given as outlined above.

ENERGY STAR Smart Thermostats

This measure is being incentivized through an online marketplace, an instant discount, or, after purchase, upon verification of application. For those who select the instant discount option, purchases can only be made from a participating retailer who issues codes that are passed to qualifying customers after completing an online application. In both pay purchase scenarios, the savings are passed on to the customer at the time of purchase in the form of a discount on their purchase given at checkout. Customers selecting to participate in the instant discount must receive a discount code in advance of purchase at energystar.com/leds. This is not necessary for customers using the online

marketplace. All instant discount codes will expire at the end of the program year. In the case funding is depleted during the program year, discount codes that were received at the time notice was given will still be honored.

For those who select the post-purchase option, application can be made online at energysolutions.com/heatpumps or through the retail. For paper rebate applications, customers will either receive a rebate application at the retail location where purchase was made or download an application from the program website at energysolutions.com/homeappliances. For this method of participation, the customer will need to provide their completed application form and copy of proof of purchase within the timeframe for processing a cash incentive specified on the application form. The cash incentive comes in the form of a check and is mailed to the customer at the address provided on the application form. Customers must receive residential electric service from Energy Advisors. All qualifying applications that have been received at the time notice is given will be paid. Applications received after notice is given will be considered on a case-by-case basis.

ENERGY STAR Air Purifiers, Dehumidifiers, Freezers and Pool Pumps

To participate in the ENERGY STAR air purifier, dehumidifier, freezer or pool pump promotion, customers need to purchase qualifying ENERGY STAR air purifier, dehumidifier, freezer, or pool pump at the retailer of their choice. Customers can apply after purchase through the retail or online at energysolutions.com/homeappliances. For paper rebate applications, customers will either receive a rebate rebate application with their purchase (at participating retail locations only) or will download an application form from the program website at energysolutions.com/homeappliances. In all cases, the customer will need to provide their completed application and copy of proof of purchase within the timeframe for processing and redemption specified on the application form. The cash incentive comes in the form of a check and is mailed to the customer at the address provided on the application form. See Figure 2 for a diagram of this process. Customers must receive residential electric service from Energy Advisors. All qualifying applications that have been received at the time notice is given will be paid. Applications received after notice is given will be considered on a case-by-case basis.

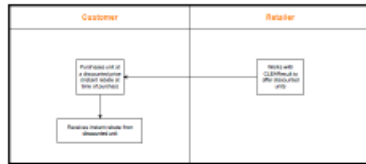
PARTICIPATING RETAILERS

ENERGY STAR LEDs, Heat Pump Water Heaters, Room Air Conditioners, and Advanced Power Strips

CLEARheat invites retail establishments to participate in the discounting of these measures. Customers will be able to access a list of participating retailers via the program website.

Figure 1

Project process for purchases of ENERGY STAR LEDs, heat pump water heaters and advanced power strips

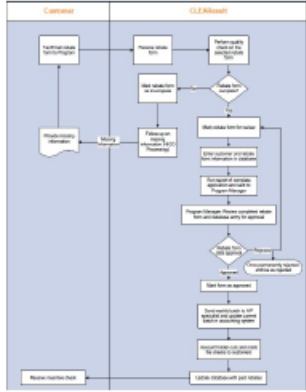


ENERGY STAR Air Purifiers, Dehumidifiers, Smart Thermostats, Freezers and Pool Pumps

CLEARheat invites retail establishments to participate in the program by issuing rebate applications available at select store locations.

Figure 2

ENERGY STAR product rebate project process



Energy Arkansas and/or CLEARresult

The selection of a participating retailer, distributor or manufacturer's product is the sole decision of the customer. Inclusion of a retailer or product in the program does not constitute an endorsement by Energy Arkansas or CLEARresult of any product, individual or company. Neither Energy Arkansas nor CLEARresult makes any guarantee or any other representation or warranty, expressed or implied or otherwise, as to the quality, cost or effectiveness of any products provided by any such participating retailer's or distributor's employees, subcontractors or suppliers.

Energy efficiency gains are subject to a number of variable conditions and circumstances. While it is the intent of the program to achieve energy efficiencies, neither Energy Arkansas nor CLEARresult guarantees or warrants that any specific energy efficiency gains will be achieved for a particular customer under the program.

QUALITY MANAGEMENT SYSTEM

QA/QC Protocol

CLEARresult's Quality Management Process (QMP) includes both quality assurance (QA) and quality control (QC) components with a feedback loop to ensure continuous program improvement. It is a holistic and preventative approach to quality assurance. QC inspections are used to verify quality of the results, and QA activities such as retailer, distributor and manufacturer qualification and training help to ensure quality issues do not happen downstream in the process. QMP prevents quality issues from coming up in the first place and improves the entire system, including participating retailers and distributors.

Retailer and distributor training and outreach are key components of the QMP for this program. Retailers participate with as trained subject matter experts who can influence decision-making at the time of purchase. CLEARresult will:

- Conduct periodic sales associate trainings to educate staff on programs.
- Work with retailers to secure in-store promotional events.
- Conduct periodic check-ins by phone and in person to assess program effectiveness, verify point of purchase signage and develop next steps with individual retailers.

Training products and reporting accomplishments will be completed through agreements reached with retailers, distributors, manufacturers and suppliers.

Quality Assurance

Program Process Trainings (QA)	Field representatives will organize sales and program trainings for retail staff departments. Trainings will cover each measure working in their store and the latest in energy efficiency.
Application Review (QA)	Retailer applications will be submitted to the incentive processing center for verification.
Data Review (QA)	At least once per month, the program team will review sales reports from manufacturers/retailers and signage/printing verification reports from field representatives.

Quality Control

Retailer & Distributor Inspections (QC)	Quality control inspections will be performed by field inspectors. They will visit sites and verify compliance with guidelines agreed to in the program agreement. Guidelines include proper signage, pricing and reporting.
Customer Satisfaction Surveys (QC)	Customers will be able to use a toll-free phone number to speak with a customer service representative. The phone line will be maintained by CustomerLink. Additionally, CLEARresult may conduct periodic surveys to gauge customer satisfaction levels with the program.

CUSTOMER COMPLAINTS

In the course of administering any program, there may be instances where a participant is not satisfied with the program and has a complaint or dispute. The steps below outline the process for CLEARresult staff and/or training partners to resolve customer complaints in a timely manner.

Calls that come into the contact center will be documented in CLEARresult's tracking database by creating a service request and associating it with the specific account, contact or project record (customer's most specific to the complaint). An email is sent to the Program Manager to follow up with the customer.

All complaints should be followed up on within two business days of the receipt of the complaint.

If a final discussion with the participant does not result in a resolution, the program implementer will inform the participant that additional efforts are required to resolve the concern, and that we will follow up within one business day to discuss additional information gathered, next steps in the resolution process and the expected timeline for dispute resolution.

During all interactions, the person handling the complaint will record the discussion, the actions taken to resolve the complaint and the date the actions were taken. We will update the participant regarding the status of their issue resolution as we see fit.

CLEARresult will provide monthly escrowed updates to Energy Arkansas on the status of any outstanding participant complaints. CLEARresult will contact the utility immediately upon receipt of any complaint or issue that may pose a safety or public welfare risk.

Energy Arkansas

TRADE ALLY PERFORMANCE STANDARDS

Requirements for Participation

Retailers, distributors and manufacturers are required to sign program agreements to enroll in the program. The agreement defines participant roles and requirements for program participation.

Causes for Non-Payment or Termination of Agreement

If a participating distributor, manufacturer or retailer does not maintain their duties as agreed upon, they will receive a warning. If they fail to corrective action and continue to fail to uphold their duties after receiving a warning, CLEARresult may need to withhold payment for reimbursement or to terminate the agreement with the retailer, distributor or manufacturer.

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DON'T LET \$300* FLOAT AWAY.

Get Entergy Arkansas rebates of up to \$300 on a new qualifying ENERGY STAR® certified pool pump.

ENERGY STAR | ENTERGY SOLUTIONS | Entergy

WE POWER LIFE®

1 Allied Drive
Little Rock, AR 72202

GET PUMPED FOR SUMMER.

Entergy Arkansas wants to help you start your summer off right with up to a **\$300 rebate** on a new ENERGY STAR certified pool pump. It may be time to take advantage of the savings if your pool pump is:

- Seven years old.
- Too noisy.
- Not as powerful as it used to be.

ENERGY STAR certified pool pumps can save up to \$2,800 in lifetime energy costs, run quieter than traditional single-stage pumps and help reduce wear and tear on your filtering system. Buy your qualifying pool pump from any retailer. **Submit your rebate application within 60 days of installation, and we'll send up to \$300 your way.**

Visit entergyarkansas.com/homeappliances to download a rebate application or apply online.

*Promotional period runs through Dec. 31, 2022, or while funds last. Rebate only applies to qualified, certified ENERGY STAR pumps. Download form for full list of qualifying products. Limit one rebate per household per household. Entergy Arkansas does not warrant or endorse any manufacturer.

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SPRING FOR A SMART DEAL.

Shop our online marketplace now through April 26 to get a new **Google Nest Thermostat** featuring voice-activated control, simple scheduling and smartphone connectivity for just \$40.

[Shop now ▶](#)

Spring for more marketplace deals on:

- **LEDs**—Enjoy free shipping on a 12-pack of LED bulbs, now through April 26.
- **Air purifiers**—Save \$35 instantly.
- **Advanced power strips**—Save \$15 instantly.
- **Dehumidifiers**—Save \$25 instantly.

More savings are in store for you.

We also offer in-store discounts and rebates on ENERGY STAR® certified pool pumps, freezers, room air conditioners, heat pump water heaters and more.

[Explore savings ▶](#)



Google and Google Nest Learning Thermostat are trademarks of Google LLC.

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ENERGY SOLUTIONS



The smartest Black Friday discounts

Shopping for Black Friday deals just got even smarter. Now through Dec. 1, shop our online marketplace to enjoy extra savings on new ENERGY STAR® certified smart thermostats. Combined with our everyday \$60 instant rebate, you could save up to \$130 instantly.

Available savings (Black Friday sale + \$60 instant rebate):


	
<p>Save \$130 Google Nest Learning Thermostat \$249 \$119</p>	<p>Save \$100 Google Nest Thermostat \$129 \$29</p>
	
<p>Save \$130 Honeywell Home Wi-Fi Smart Color Thermostat \$169 \$39</p>	<p>Save \$90 Emerson Sensi™ Thermostat \$125 \$35</p>
	
<p>Save \$90 Emerson Sensi Touch Thermostat \$169 \$79</p>	

[SHOP NOW](#)

More savings are in store for you
Get in-store discounts and rebates on ENERGY STAR certified freezers, heat pump water heaters and more.

[EXPLORE SAVINGS](#)

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ENERGY SOLUTIONS



Take control of your comfort and savings

Get an ENERGY STAR® certified smart thermostat for as little as \$40 when you couple Entergy Arkansas' everyday \$60 instant discount with limited-time manufacturer discounts, now through June 2.

SHOP NOW

Shop these deals before they're gone:

- **Air purifiers** — For as little as \$35, now through June 2.
- **Dehumidifiers** — Save \$25 instantly.
- **LEDs** — Save up to \$3 per bulb instantly.

More savings are in store for you.

Get in-store discounts and rebates on ENERGY STAR certified pool pumps, freezers, room air conditioners, heat pump water heaters and more.

EXPLORE SAVINGS

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ENERGY SOLUTIONS



Stay comfortable and cool all summer long

As temperatures soar, ENERGY STAR® certified smart thermostats can help keep your home healthy and comfortable while using far less energy than non-certified models. Visit our [online marketplace](#) to get a smart thermostat for as little as \$35*—offer ends July 6.

[LEARN MORE](#)

Let Entergy Arkansas help you beat the heat this Fourth of July with instant discounts on these cool products, too.

Room air conditioners help keep you cool and comfortable while preventing mold and other problems. Find one of our [participating retail locations](#) to save \$50 instantly at checkout.

Air purifiers help remove airborne allergens, dust and other fine particles inside your home. Opt for an ENERGY STAR certified model to save \$35 with an [Entergy Arkansas rebate](#) or an instant discount from our [online marketplace](#).

Dehumidifiers help your home feel less muggy while fending off dust mites, mold and mildew. Purchase an ENERGY STAR certified model to save \$25 with an [Entergy Arkansas rebate](#) or an instant discount from our [online marketplace](#).

More savings are in store for you

Get in-store discounts and rebates on ENERGY STAR certified pool pumps, freezers, heat pump water heaters, smart thermostats and more.

[EXPLORE SAVINGS](#)

*Prices reflect savings after instant incentive applied at checkout. Sales offer valid through July 6, 2022. Residential customers only. Must receive electric service from Entergy Arkansas. Purchased unit must be installed in residence served by Entergy Arkansas. Additional restrictions may apply.

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ENERGY SOLUTIONS



Smart. Simple. Affordable.

Feeling hot? Now is a great time to take control of your comfort with a smart thermostat. Shop our online marketplace now through Aug. 23 to get a new Google Nest Thermostat for as little as \$40.

 <p>Save \$90 Nest Thermostat \$130 \$40 Now-Aug. 23</p>	 <p>Save \$130 Nest Learning Thermostat \$249 \$119 Now-Aug. 23</p>
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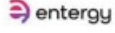
SHOP NOW

Whether you're at home or away, the Google Nest and Nest Learning Thermostat can be controlled from anywhere using the Google Home app. With safety notifications and ENERGY STAR® certified savings, these smart thermostats are a summer must-have. Get yours now with special pricing through the Energy Arkansas online marketplace.

More savings are in store for you
Get in-store discounts and rebates on ENERGY STAR certified variable speed pool pumps, freezers, room air conditioners, heat pump water heaters and more.


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The actual amount of Energy Arkansas, LLC. rebates varies. See www.arkentergy.com for details.
To arrange your purchase, please visit www.arkentergy.com or call 1-800-855-4444.

ENERGY SOLUTIONS



How smart is your thermostat?

Now is a great time to take control of your comfort and enhance your home with a smart thermostat. Shop our online marketplace now through Aug. 23 to get a new Google Nest Thermostat for as little as \$40.

 <p>Save \$80 Nest Thermostat \$130 \$40 Now-Aug 23</p>	 <p>Save \$130 Nest Learning Thermostat \$249 \$119 Now-Aug 23</p>
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SHOP NOW

Whether you're at home or away, the Nest Learning Thermostat and Nest Thermostat can be controlled from anywhere using the Google Home app. With safety notifications and ENERGY STAR® certified savings, these smart thermostats are a summer must-have. Get yours now with special pricing through the Energy Arkansas online marketplace.

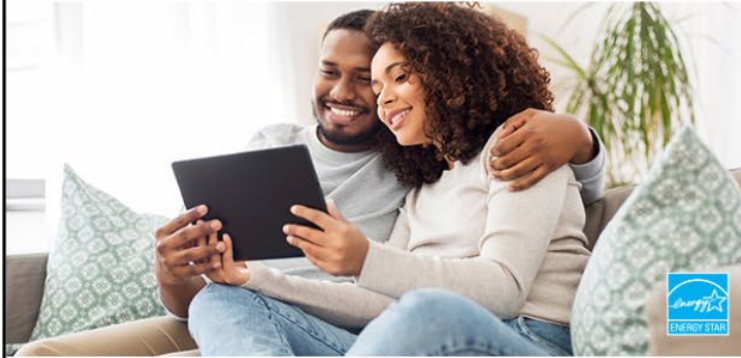
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Get in-store discounts and rebates on ENERGY STAR certified variable-speed pool pumps, freezers, room air conditioners, heat pump water heaters and more.

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Smart thermostats, happy holidays

Loaded with convenient features to keep you cozy and save energy every day, a new smart thermostat is the gift that keeps on giving. Shop our online marketplace now to save up to \$80 instantly.

Shop our online marketplace now through December 27 to get a new Google Nest Thermostat for as little as \$30.



[SAVE NOW](#)

Prefer to buy in-person? Go straight to the retailer, but before you do, get a [discount code](#) to use at checkout. Or you can [apply online](#) or [offline](#) after purchase.

More savings are in store for you

Get in-store discounts and rebates on ENERGY STAR® certified air purifiers, dehumidifiers, heat pump water heaters and more.

[EXPLORE SAVINGS](#)

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ENERGY SOLUTIONS



Stay comfortable and cool all summer long

As temperatures soar, ENERGY STAR® certified room air conditioners, dehumidifiers and air purifiers can help keep your home healthy and comfortable while using far less energy than non-certified models.

Let Entergy Arkansas help you beat the heat this Fourth of July with instant discounts on these cool products.

LEARN MORE

Room air conditioners help keep you cool and comfortable while preventing mold and other problems. Find one of our [participating retail locations](#) to save \$50 instantly at checkout.


Air purifiers help remove airborne allergens, dust and other fine particles inside your home. Opt for an ENERGY STAR certified model to save \$35 with an [Entergy Arkansas rebate](#) or an instant discount from our [online marketplace](#).

Dehumidifiers help your home feel less muggy while fending off dust mites, mold and mildew. Purchase an ENERGY STAR certified model to save \$25 with an [Entergy Arkansas rebate](#) or an instant discount from our [online marketplace](#).

More savings are in store for you
Get in-store discounts and rebates on ENERGY STAR certified pool pumps, freezers, heat pump water heaters, smart thermostats and more.

EXPLORE SAVINGS

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ENTERGY SOLUTIONS



Protect life's relax-and-unwind moments

According to the Consumer Electronics Association, there are 25 consumer electronics in the average household. Advanced power strips with surge protection are a simple way to safeguard those electronics while reducing energy and prolonging equipment life.

Save up to \$15 instantly on advanced power strips when you purchase through the Entergy Arkansas online marketplace.

[SHOP NOW](#)

Devices like TVs, monitors, computers, gaming consoles, phone chargers and coffee machines can all draw significant power when left plugged in—even when not in use. All this wasted energy adds up.


More savings are in store for you

Get in-store discounts and rebates on ENERGY STAR certified variable-speed pool pumps, freezers, room air conditioners, heat pump water heaters and more.

[EXPLORE SAVINGS](#)

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3.5.19 EAL Marketplace Email Black Friday/ Holiday Promos

ENTERGY SOLUTIONS



Thank goodness for Black Friday deals

Let us help you keep the energy savings going this fall. Shop our online marketplace to enjoy an extra helping of instant rebates on high-efficiency lighting, appliances and more.

Available instant rebates include:

 Save \$15 ENERGY STAR® certified air purifiers	 Save \$25 ENERGY STAR certified dehumidifiers
 Save \$25 Advanced power strips	 Save up to \$5 Weatherstripping
 Save up to \$3 per bulb LED bulbs	

[SHOP NOW](#)

More savings are in store for you
Get in-store discounts and rebates on ENERGY STAR certified freezers, heat pump water heaters and more.



[EXPLORE SAVINGS](#)

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Help yourself to a very merry discount

Holiday shopping? Our online marketplace has you covered. Shop now to help yourself to instant discounts on high-efficiency products designed to keep your home merry, efficient and bright all year long.

Available instant rebates include:

- **\$35 off** ENERGY STAR® certified air purifiers
- **\$25 off** ENERGY STAR certified dehumidifiers
- **Up to \$15 off** advanced power strips
- **Up to \$5 off** weatherstripping
- **Up to \$3 off** LED bulbs




[SHOP NOW](#)

More savings are in store for you
Get in-store discounts and rebates on ENERGY STAR certified freezers, LEDs, heat pump water heaters and more.

[EXPLORE SAVINGS](#)


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ENERGY SOLUTIONS



Breathe in the savings

A new ENERGY STAR® certified air purifier can help reduce allergens and boost your home's year-round indoor air quality. Shop our online marketplace now through June 2 to get one for under \$35.

[SHOP NOW](#)


Shop these deals before they're gone:

- **Smart thermostats** — Get a new ENERGY STAR certified smart thermostat for just \$40, now through June 2.
- **Dehumidifiers** — Save \$25 instantly.
- **LEDs** — Save up to \$3 per bulb instantly.

More savings are in store for you.
Get in-store discounts and rebates on ENERGY STAR certified pool pumps, freezers, room air conditioners, heat pump water heaters and more.

[EXPLORE SAVINGS](#)

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ENERGY SOLUTIONS



Some of life's best moments happen in the pool

Don't let an old, noisy, inefficient pool pump get in the way of your fun in the sun. If your current pool pump is over seven years old, loud or not as powerful as it used to be, it could be time to upgrade.

Entergy Arkansas offers \$300 rebates on new ENERGY STAR® certified variable-speed pool pumps.

SAVE UP TO \$300

ENERGY STAR certified pool pumps:

- Can save up to \$2,800 in lifetime energy costs
- Run more quietly than traditional single-speed pumps
- Help reduce wear and tear on your filtering system
- Qualify for a \$300 rebate from Entergy Arkansas

More savings are in store for you

Get in-store discounts and rebates on ENERGY STAR freezers, room air conditioners, heat pump water heaters and more. Shop our online marketplace for instant discounts on smart thermostats, LEDs, air purifiers and more.

EXPLORE SAVINGS

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SAVINGS ARE IN THE AIR.

Shop our online marketplace now through April 26 to enjoy **free shipping** on a 12-pack of LED bulbs.

[Shop now ▶](#)

Spring for more marketplace deals on:

- **Air purifiers**—Save \$35 instantly.
- **Smart thermostats**—Get a new Google Nest Thermostat for just \$40, now through April 26.
- **Advanced power strips**—Save \$15 instantly.
- **Dehumidifiers**—Save \$25 instantly.

More savings are in store for you.


We also offer in-store discounts and rebates on ENERGY STAR® certified pool pumps, freezers, room air conditioners, heat pump water heaters and more.

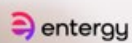
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Home Energy Kit – Email, Sticker, Insert

Request your one-time, no-cost home energy kit today









Our way of saying welcome

Welcome to the neighborhood. As our housewarming gift to you, we've put together a free Home Energy Kit full of easy-to-install, energy-saving products. * Request yours today using the link below.

GET YOUR KIT

Your Free Home Energy Kit includes:


- LED bulbs that save around 75% less energy and last up to 25 times longer than traditional incandescent bulbs.
- An advanced power strip to help protect your household electronics while reducing energy waste.


More ways to save

Want to make your new home even more efficient? See how much we can help you save on high efficiency upgrades like smart thermostats, air purifiers, heat pump water heaters and more.

EXPLORE SAVINGS


Learn more about our services and how we can help you save on high efficiency upgrades like smart thermostats, air purifiers, heat pump water heaters and more.






A housewarming gift that saves you energy

Your Home Energy Kit is a quick and easy way to save money and use less energy. It only takes a few minutes to install these simple savers that improve your efficiency every day.



Want more?

Energy Advocates offers convenient ways to save on all kinds of energy-efficient products for your home. For a full list of eligible products visit enteryarkansas.com/homeappliances.



What's in your kit?

LEDs

Did you know that LEDs save at least 75% less energy and last up to 25 times longer than incandescent lighting? Additionally, they are durable, reduce cooling costs and provide brighter illumination. Install the bulbs in high traffic areas to take advantage of their longevity.


Advanced power strip

Electronics make up about 5% of the total electricity used by the average U.S. household. By upgrading to an advanced power strip, you'll be able to save electricity only when you need it and reduce wasted energy from your devices in standby.

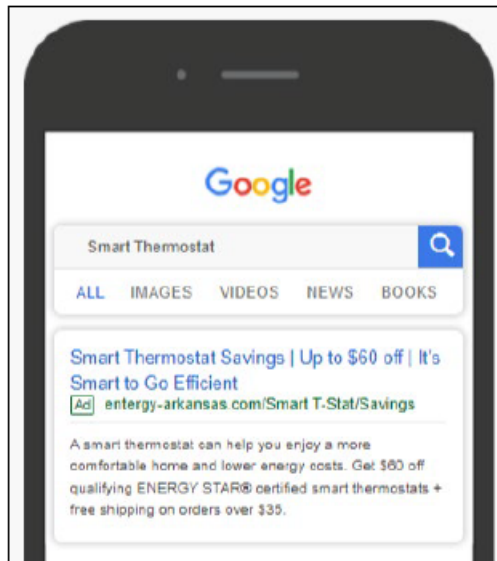
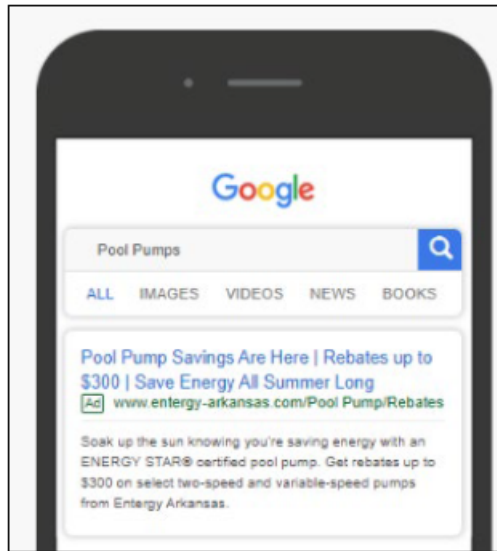
How to use your advanced power strip:

- 1 Plug your energy devices, including a TV or computer CPU, into the MASTER outlet.
- 2 Plug devices that need power at all times, such as a router or DVR, into the ALWAYS ON outlet.
- 3 Plug other devices into the MASTER CONTROLLED outlets, which are shut off when the MASTER outlet is turned off.

Learn about more ways to save by visiting enteryarkansas.com.



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July Home Page Banner Ad ENERGY STAR Air Conditioners




Cooler Discount

Save \$50 on qualifying window air conditioners

Window air conditioners on the ENERGY STAR® Most Efficient 2022 list deliver cutting-edge cooling and efficiency. Find a participating Home Depot store near you for special pricing.

[SHOP NOW](#)

October Home Page Banner Ad Vampire Power – Advanced Power Strips




Stop vampire power in its tracks

Save \$15 on an advanced power strip.

An advanced power strip helps prevent "vampire power" — the energy wasted by unused electronics. Get yours from our online marketplace to save \$15.

[SHOP NOW](#)

November Home Page Banner Ad ENERGY STAR Smart Thermostats – Black Friday




Save some green this Black Friday

Enjoy extra savings on Black Friday, Cyber Monday and every day.

Our everyday \$60 smart thermostat rebate stacks with limited-time Black Friday and Cyber Monday sales. Shop now to take your savings and comfort to new heights.

[SHOP NOW](#)

Marketplace Banner Ad – Q4 2022




Cozy up to instant discounts.

Take advantage of instant discounts on products that help make your home more comfortable and energy efficient.

[Shop now ▶](#)

June Home Page Banner Ad Various Marketplace ENERGY STAR Products



Click. Click. Save.

Get the best for less from our online marketplace.

Make your home brighter, more comfortable and energy efficient with instant discounts on the latest energy-saving products.

[SHOP NOW](#)



















Celebrate Earth Day all month.

Get the best for less from our online marketplace.

Get instant discounts on the latest ENERGY STAR® certified products.

[SHOP NOW](#)

 Shop now >	 Shop air purifier deals now through May 31. Shop now >	 Shop Memorial Day deals. Shop now >
 Shop now >	 Shop air purifier deals now through May 31. Shop now >	 Shop Memorial Day deals. Shop now >
 Shop now >	Additional savings on advanced power strips through May 31  Shop now >	 Shop Mother's Day deals. Shop now >
 Shop now >	Additional savings on advanced power strips through May 31  Shop now >	 Shop Mother's Day deals. Shop now >
 Shop hot deals. Shop now >	 Special pricing plus FREE shipping on 12 LEDs Shop now >	Amazing deals on smart thermostats through April 26 Shop now >
 Shop hot deals. Shop now >	 Special pricing plus FREE shipping on 12 LEDs Shop now >	Amazing deals on smart thermostats through April 26 Shop now >

Explore all the ways Entergy Arkansas can help you save. Learn more >	Explore all the ways Entergy Arkansas can help you save. Learn more >
Explore all the ways Entergy Arkansas can help you save. Learn more >	Explore all the ways Entergy Arkansas can help you save. Learn more >

**Get a Google Nest
Thermostat for as
little as \$40**

[Shop now ▶](#)

022-CA-PGR-276549-Marketplace Website Assets Enquiry (2022)-Thermostat-02-Red-Desktop.jpg

Label

**Get a
Google Nest
Thermostat
for as little
as \$40**

[Shop now ▶](#)

022-CA-PGR-276549-Marketplace Website Assets Enquiry (2022)-Thermostat-02-Red-Mobile.jpg

Label

**Get a Google Nest
Thermostat for as
little as \$40**

[Shop now ▶](#)

022-CA-PGR-276549-Marketplace Website Assets Enquiry (2022)-Thermostat-02-White-Desktop.jpg

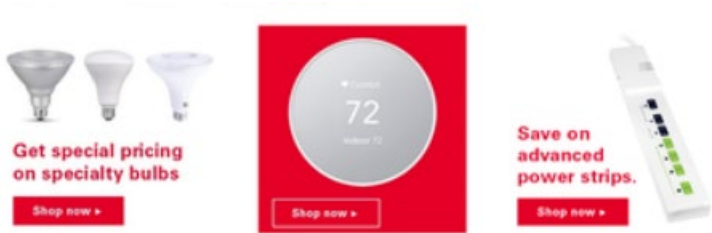
Label

**Get a
Google Nest
Thermostat
for as little
as \$40**

[Shop now ▶](#)

022-CA-PGR-276549-Marketplace Website Assets Enquiry (2022)-Thermostat-02-White-Mobile.jpg

Label



**Get special pricing
on specialty bulbs**

[Shop now ▶](#)

**Save on
advanced
power strips.**

[Shop now ▶](#)



A red square advertisement featuring a white circular graphic with the number "68" in the center. Above the number is a small upward-pointing arrow and the word "Savings". Below the number is the text "POWER UP". At the bottom of the square is a red button with the text "Shop now >".



Get special pricing
on specialty bulbs

Shop now >



A red square advertisement featuring a white snowflake icon with a sun-like center. Below the icon is the text "Savings to cozy up to". At the bottom of the square is a red button with the text "Shop now >".



Get special pricing
on specialty bulbs

Shop now >





A red square advertisement featuring a white snowflake icon with a sun-like center. Below the icon is the text "Savings to cozy up to". At the bottom of the square is a red button with the text "Shop now >".



Save on
advanced
power strips










Shop now >

Get an instant \$60 discount on an advanced thermostat.

1. Check which thermostats qualify.
2. Verify your Energy Arkansas residential service address.
3. Ensure your home has central A/C and Wi-Fi.
4. Receive an instant discount code and take it straight to checkout.
(Can be combined with eligible manufacturer offers.)

Choose your thermostat.

 Google Nest Learning Thermostat™ Suggested Retail - \$149.99 Your Price - \$189 Get discount+	 Google Nest Thermostat Suggested Retail - \$129.99 Your Price - \$69.99 Get discount+	 Honeywell Home Smart Color Suggested Retail - \$149.99 Your Price - \$109 Get discount+
 Honeywell Home T5 Suggested Retail - \$149.99 Your Price - \$109.99 Get discount+	 Honeywell Home T5/T5+ Suggested Retail - \$149.99 Your Price - \$89.99 Get discount+	 Emerson ST55 Suggested Retail - \$149.99 Your Price - \$69 Get discount+
 Emerson ST75 Suggested Retail - \$149.99 Your Price - \$109.99 Get discount+	 Emerson ST75W Suggested Retail - \$149.99 Your Price - \$109.99 Get discount+	 Kano Lux Suggested Retail - \$149.99 Your Price - \$59 Get discount+

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 The EnergyArkansas program is subject to change without notice.

Powered by CLEARresult

Instant Discount Portal



How many of the bulbs you received from the Entergy Solutions Program have you installed?

1.

2.

3.

4.

None yet.

Next

3.5.29 EA Pops Newsletter Articles 2022.pdf

February Newsletter – ENERGY STAR Air Purifiers

Goodbye Cabin Fever, Hello Fresh Air.

Spending more time at home could be a good thing, but it also means you're breathing in more indoor air and generating more energy bills. In fact, on average, Americans spend approximately 90 percent of their time indoors, so it's important to make sure the air you're breathing is clean and fresh. One way to do that is to invest in a high-quality room air purifier.

Invest in your health, comfort, efficiency and reduce air quality-related respiratory risk when you invest in a high-quality ENERGY STAR certified room air purifier. Here's what you need to know:

- ENERGY STAR certified room air purifiers:
- Use at least 200 sq ft of energy-efficient products.
- Save up to 20% on energy costs.**
- They're easy to use and maintain.
- Offer a 3-year warranty from Entergy. (Starting in 2023, we'll offer a 5-year warranty.)

Breathe Easy

As the year becomes longer, winter will be here. That's not a bad thing, but it's also a good reminder that you have control of your indoor air quality. With an ENERGY STAR certified room air purifier, you can breathe easy all year long.

P.S. Already purchased an ENERGY STAR certified room air purifier?



Learn more about the benefits of ENERGY STAR certified room air purifiers at www.energystar.gov/roomairpurifiers.

Photo: iStockphoto.com

March Newsletter: ENERGY STAR Pool Pumps

Send Now! March 2023 Energy Star Pool Pumps
 Energy Star Pool Pumps Newsletter
 Date and Time: 01/2023 10:00 AM EDT
 Web Version: 1

Looking for Energy Savings for Your Home? Click by Entergy March 2023

Listening for Energy Savings in Your Home

Techniques you hear about for the sound of energy and money going to waste.

[Read More](#)

It's time to get your pool 'summer ready.'
 The weather may not be there yet, but now is actually a great time to start thinking about getting your pool ready for the summer.

[Read More](#)

You Can Upgrade to a Smart Outdoor LED Light
 LED is a low-wattage option, you can plug into the many varieties of smart bulbs.

[Read More](#)

Spring Storms: Is Your Home Ready?
 Spring isn't the best weather and flooding, are you prepared to keep you, home and family safe?

[Read More](#)

PROFILES: Women in Energy History
 Women have long made important contributions in the development of energy technologies. These profiles explore their stories.

[Read More](#)

Be smart on your way
[Read More](#)

It's time to get your pool 'summer ready.'



The weather may not be there yet, but now is actually a great time to start thinking about getting your pool ready for the summer. Along with your regular maintenance, you may also consider upgrading to an ENERGY STAR pool pump. Replacing your current pump is a smart move.

You may need to upgrade your pool pump if it:

- Doesn't seem as powerful as it once was
- Has a noisy motor
- Takes too long to fill
- Makes a humming but not a whirring sound
- Wastes energy

Why go energy efficient?

ENERGY STAR certified pool pumps use 50% less electricity than standard pool pumps. That means you can save up to \$100 a year on energy costs.



The 'How' Behind the Savings

ENERGY STAR certified pool pumps use 50% less electricity than standard pool pumps. That means you can save up to \$100 a year on energy costs. Replacing your current pump is a smart move.

April Newsletter: ENERGY STAR Water Heaters

Send Now! April 2023 Energy Star Water Heaters
 Energy Star Water Heaters Newsletter
 Date and Time: 01/2023 10:00 AM EDT
 Web Version: 1

Looking for Energy Savings for Your Home? Click by Entergy April 2023

Weekend Energy Warrior: Spring Cleaning

It's an efficient way to get your home ready for the spring.


[Read More](#)

Is it time to replace your electric water heater?

It's a smart move to get your home ready for the spring. Replacing your current water heater is a smart move.

[Read More](#)

Is it time to replace your electric water heater?




If you've had your water heater 10 years or longer, it's probably time to think about replacing it. Replacing your current water heater is a smart move.

There are many choices when it comes to efficient water heaters. You may find yourself faced with questions like: electric or gas? Tank or tankless? Tankless or tankless? Tankless or tankless?

ENERGY STAR certified water heaters use 30% less energy than standard water heaters. That means you can save up to \$100 a year on energy costs.

enenergy



Stay Cool This Summer with an A/C Tune-up at No Additional Cost.

The average homeowner will be here soon to get their home to meet their needs and preferences.

[View More](#)

Energy Efficiency Adds Cash Award

Get a cash award for your energy efficiency improvements. Earn up to \$1,000 for energy efficiency improvements.

[View More](#)

Find or Fix Your Summer Leaks

Check for leaks in your home before they become a problem. Find and fix leaks before they become a problem.

[View More](#)

How to Keep Your System Cooler This Summer

Get tips on how to keep your system cooler this summer. Get tips on how to keep your system cooler this summer.

[View More](#)

Maximize Energy Savings on Building Your Home

Get tips on how to maximize energy savings on building your home. Get tips on how to maximize energy savings on building your home.

[View More](#)

[To get all the news, visit \[enenergy.com\]\(#\)](#)

Stay Cool This Summer with an A/C Tune-up at No Additional Cost.



The hot days of summer will be here soon, but you don't have to suffer your home's comfort. Be ready for rising temperatures with a high-performance air conditioning tune-up through our [Energy Efficiency program](#) to help keep you cool and comfortable all summer long.

Having smart decisions about your heating and cooling system can have a big impact on improving your home's efficiency and comfort while the heat is hot. It's energy-efficient to your home's heating and cooling, according to the Energy Star. This may qualify for an air conditioning tune-up at no additional cost through one of our energy efficiency programs. Before a tune-up service visit, your equipment will be inspected and necessary adjustments will be made to ensure your system is operating as efficiently as possible, saving you energy and money.

A/C Tune-up Benefits:


- **Get more from your tune-up.** A participating tune-up will evaluate your equipment's energy performance and make necessary adjustments to ensure that your system is operating as efficiently as possible. Tune-up equipment includes a comprehensive inspection and cleaning the outdoor condenser.
- **Save energy and money.** Get more from your air conditioning tune-up. Plus, your system will run more efficiently so you'll save on energy costs all summer long.
- **Stay cool.** A properly maintained air conditioner lasts longer, is more reliable and is safer for your family.
- **Stay cool in energy-efficient air conditioner.** Upgrade your air conditioning system during your tune-up service visit.

Ready to schedule your air conditioning tune-up? Contact one of our [participating tune-ups](#). For more information on how to explore other Energy Efficiency programs, visit [enenergy.com](#).

See restrictions and other details on [enenergy.com](#). For more information on participating energy efficiency programs, visit the [Home Performance Solutions Program](#) on our website to learn more.

August Newsletter – ENERGY STAR Room Air Conditioners, Air Purifiers and Dehumidifiers

enenergy



Keep cool and save this summer

With summer weather heating up, ENERGY STAR room air conditioners will help you stay cool and save money on energy bills all summer long.

[View More](#)

It Pays to Save With a Home Energy Audit

Get a cash award for your energy efficiency improvements. Earn up to \$1,000 for energy efficiency improvements.

[View More](#)

Going Electric: 3 Benefits for Your Home

Get tips on how to go electric in your home. Get tips on how to go electric in your home.

[View More](#)

DIY and Don't: Picking an Energy Consultant

Get tips on how to pick an energy consultant. Get tips on how to pick an energy consultant.

[View More](#)

How Do They Do That? Robobots

Get tips on how to use robobots in your home. Get tips on how to use robobots in your home.

[View More](#)

[To get all the news, visit \[enenergy.com\]\(#\)](#)

Keep cool and save this summer



With summer weather heating up, ENERGY STAR room air conditioners will help you stay cool and save money on energy bills all summer long.

Room air conditioners

Room air conditioners are designed to cool your home's rooms and bedrooms. They're also great for use in the kitchen and living areas. They're also great for use in the kitchen and living areas. They're also great for use in the kitchen and living areas.

Room air purifiers

Room air purifiers are designed to clean the air in your home. They're also great for use in the kitchen and living areas. They're also great for use in the kitchen and living areas.

Dehumidifiers

Dehumidifiers are designed to remove moisture from the air in your home. They're also great for use in the kitchen and living areas. They're also great for use in the kitchen and living areas.

More cool ways to save

Get tips on how to save more on energy bills. Get tips on how to save more on energy bills.

October Newsletter - Vampire Power Advanced Power Strips

energy

Is Your Home Ready for Winter?

Check your home's energy efficiency. Save money on bills. Stay safe.

BEWARE OF ENERGY VAMPIRES

BEWARE OF ENERGY VAMPIRES

BEWARE OF ENERGY VAMPIRES

BEWARE OF ENERGY VAMPIRES

Circuit

Beware of Energy Vampires

BEWARE OF ENERGY VAMPIRES

Advanced power strips

Always-on outlets

Control outlets

Switched outlets

Save up to \$10 instantly

energy



ENERGY INSIGHTS FOR YOU. POWERED BY US.

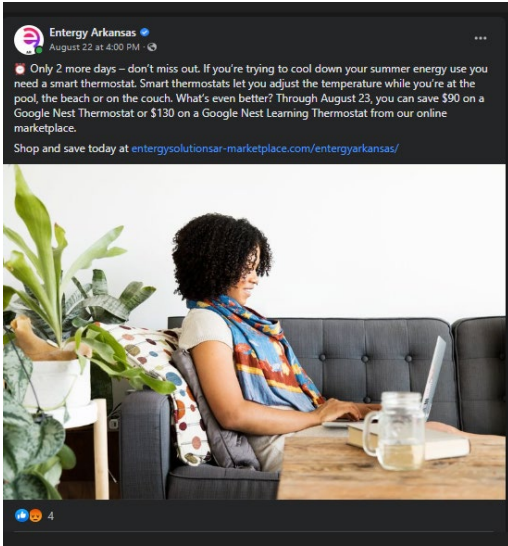
Energy-saving tips for the holidays

Published: 12/8/2022 8:08:29 PM



If you're making a list and checking it twice, you might want to include energy-efficient products and appliances. Not only do they help save energy, but they can also make your home brighter, safer and more comfortable.

3.5.30 POPS 2022 EAL Social Media Posts – Facebook and Twitter





Entergy Arkansas

April 22 · 🌐



Celebrate #EarthDay with a new, @ENERGYSTAR®, planet-friendly upgrade. Shop our online marketplace today to find instant discounts on LEDs, smart thermostats, air purifiers, dehumidifiers and more. Some offers end April 26. Don't miss out. <http://enter.gy/6185KxHtt>



Entergy Arkansas

August 22 · 🌐





🕒 Only 2 more days – don't miss out. If you're trying to cool down your summer energy use you need a smart thermostat. Smart thermostats let you adjust the temperature while you're at the pool, the beach or on the couch. What's even better? Through August 23, you can save \$90 on a Google Nest Thermostat or \$130 on a Google Nest Learning Thermostat from our online marketplace.

Shop and save today at entergysolutionsar-marketplace.com/entergyarkansas/





 Entergy Arkansas 
August 3 · 

Trying to cool down your summer energy use? Smart thermostats let you adjust the temperature while you're at the pool, the beach or on the couch. What's even better? Now – August 23, you can save \$90 on a Google Nest Thermostat or \$130 on a Google Nest Learning Thermostat from our online marketplace.

Shop and save today at <http://enter.gy/6183zNSfz>



Entergy Arkansas
22h · 🌐

Don't let anyone tell you vampires aren't real. Vampire power, also known as standby power or phantom load, is the energy wasted by electronics that have been shut off or put in standby mode. Plugging in your most-used electronics into an advanced power strip can help. Pick up one from our online marketplace today and save up to \$15! <http://entergy/6183MSV5h>
#HappyHalloween



Entergy Arkansas
June 21 · 🌐

Get ready for the coolest summer ever. ENERGY STAR® certified Most Efficient room air conditioners use at least 10 percent less energy than standard models, deliver quiet and consistent cooling—and now qualify for a \$50 instant discount from Entergy Arkansas. Visit <http://entergy/6182zkMCu> and find a participating store near you.





Entergy Arkansas

February 11 · 🌐



Take a deep breath and combat cabin fever with a germ-fighting, allergen-capturing, odor-reducing, ENERGY STAR® certified air purifier. Get an instant \$35 rebate plus an extra 10% manufacturer discount through Mar. 1 when you purchase from the Entergy Arkansas Marketplace.

<http://enter.gy/6181KOpdU>



Entergy Arkansas

April 8 · 🌐



Is it time for Spring cleaning? Add an ENERGY STAR® room air purifier to your shopping list. It helps keep your home healthy by removing dust, pollen and other allergens from indoor air—all while using up to 40% less energy than standard models. Shop now to save \$35. #SpringCleaning

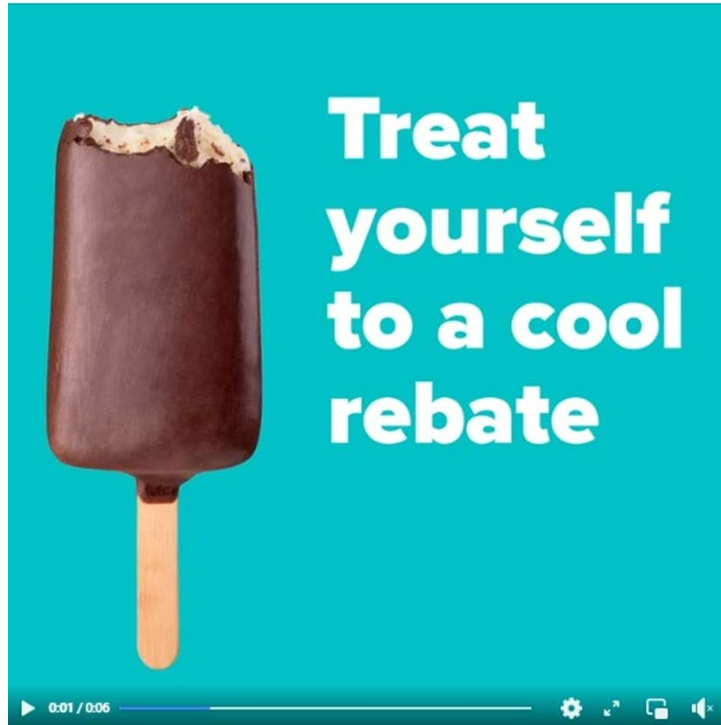
<http://enter.gy/6182KxHfA>





August 16 · 🌐

👉 Important summer bulletin: A new ENERGY STAR® certified freezer keeps your popsicles just as cold as a normal freezer—while using at least 10% less energy. Treat yourself to a \$50 rebate: <http://enter.gy/6185M6db3>



Entergy Arkansas
March 24 · 🌐

Get pumped for summer with rebates up to \$300 on select ENERGY STAR® certified pool pumps from Entergy Arkansas. <http://enter.gy/6183Kjzad>

Entergy Arkansas
March 22 · 🌐

Start fresh this spring with ENERGY STAR® certified LEDs, which use up to 90% less energy than standard bulbs. Now through the evening of March 22, get free shipping on select 12-packs when you shop online. #LightTheMoment <http://enter.gy/6184Gzpm>

Entergy Arkansas
July 26 · 🌐

Some of life's best moments happen in the pool. Don't let an old, noisy, inefficient pool pump get in the way of your fun in the sun. Entergy Arkansas offers \$300 rebates on new ENERGY STAR® certified variable-speed pool pumps. Learn more at <http://enter.gy/6186zohSp>

Entergy Arkansas
January 17 · 🌐





Get a bright start to the new year with ENERGY STAR® certified LEDs. Not only are LEDs the longest-lasting and most energy-efficient bulbs available, but they also come with instant discounts from Entergy Arkansas. Shop our online marketplace to get discounted bulbs today: <http://enter.gy/6188K65ql>



Residential Point of Purchase Solutions Program



Entergy Arkansas offers four convenient ways to save on energy-efficient upgrades for your home.

 <p>Online Marketplace</p>	<p>The online marketplace is the easiest way to save. Find instant rebates, special offers and more on a wide range of energy-saving products.</p> <p>Free shipping on orders over \$35 Available ENERGY STAR® certified products include smart thermostats, LED lighting, advanced power strips, dehumidifiers and air purifiers.</p> <p>Shop now at entergyarkansas.com/marketplace.</p>
 <p>Instant Discounts</p>	<p>Shop and save instantly at participating stores (list available online).</p> <p>LEDs: Up to \$3 per bulb Simply put, LEDs last longer, use less energy and emit less heat than any other bulbs.</p> <p>Advanced power strips: Up to \$15 Unused devices can still consume energy. Use an advanced power strip to prevent this costly "vampire power."</p> <p>Heat pump water heaters: \$350 off select models Replacing a traditional electric storage water heater with a hybrid unit provides more control and insight into usage, as well as big energy savings.</p>
 <p>Discount Codes</p>	<p>Get your instant discount code from our online portal, then redeem at checkout.</p> <p>Smart thermostats: \$60 Many smart thermostats can adapt to your schedule and preferences, track your energy use and be adjusted remotely through your smartphone.</p>
 <p>Rebates</p>	<p>Purchase a qualifying ENERGY STAR certified product, then apply for a rebate online or by mail. Rebates are also available for smart thermostats.</p> <p>Freezers: Up to \$50 Claim your Entergy Arkansas rebate now, and you could save \$195 over the next five years on your Entergy bill.</p> <p>Pool pumps: Up to \$300 ENERGY STAR certified pool pumps vary their energy use based on your pool's needs, which could save you hundreds each summer.</p> <p>Room air purifiers: \$35 Clear the air and save up to \$30 each year in energy costs by upgrading to a more energy-efficient air purifier.</p> <p>Dehumidifiers: \$25 ENERGY STAR certified dehumidifiers are about 30% more efficient than standard models.</p>

For a full list of eligible products and more ways to save, visit entergyarkansas.com/homeappliances.



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 <p>Discount Codes</p>	<p>Get your instant discount code from our online portal, then redeem at checkout.</p> <p>Smart thermostats: \$60 Many smart thermostats can adapt to your schedule and preferences, track your energy use and be adjusted remotely through your smartphone.</p>
 <p>Rebates</p>	<p>Purchase a qualifying ENERGY STAR certified product, then apply for a rebate online or by mail. Rebates are also available for smart thermostats.</p> <p>Freezers: Up to \$50 Claim your Entergy Arkansas rebate now, and you could save \$195 over the next five years on your Entergy bill.</p> <p>Pool pumps: Up to \$300 ENERGY STAR certified pool pumps vary their energy use based on your pool's needs, which could save you hundreds each summer.</p> <p>Room air purifiers: \$35 Clear the air and save up to \$30 each year in energy costs by upgrading to a more energy-efficient air purifier.</p> <p>Dehumidifiers: \$25 ENERGY STAR certified dehumidifiers are about 30% more efficient than standard models.</p>

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Residential Point of Purchase Solutions Program



Entergy Arkansas offers three convenient ways to save on energy-efficient upgrades for your home.

 Instant Discounts	Shop and save instantly at participating stores (list available online).
	LEDs: Up to \$3 per bulb Simply put, LEDs last longer, use less energy and emit less heat than any other bulbs.
	Advanced power strips: Up to \$15 Unused devices can still consume energy. Use an advanced power strip to prevent this costly "vampire power."
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	Get your instant discount code from our online portal, then redeem at checkout.
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Energy Efficiency Made Easy



Entergy Arkansas'
gift giveaway is here.





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SAVE \$60 INSTANTLY
on select advanced thermostats.

1. Visit entergyinstantrebate.com.
2. Download the instant discount code.
3. Show the code at checkout to save \$60.
4. If you've already made your purchase, go to entergyarkansas.com/homeappliances to apply for a rebate through the mail or online.

The discount cannot be combined with any other Entergy Arkansas incentive. It can be used during peak. Limit one per service address. The home must have a central air conditioning and HVAC, additional terms and conditions apply.

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GET YOUR DISCOUNTS.

Get a \$60 instant discount from Entergy on select advanced thermostats. Then combine the instant discount with manufacturer deals to save even more.

- 1 Visit entergyinstantrebate.com.
- 2 Download the instant discount code.
- 3 Show the code at checkout to save \$60 from Entergy and combine your savings with any other manufacturer promotion.
- 4 If you've already made your purchase, go to entergyarkansas.com/homeappliances to apply for an Entergy rebate through the mail or online.





ENTERGY SOLUTIONS
AN ENTERGY ARKANSAS PROGRAM



Entergy.

Google, Google Nest, Google Nest Learning Thermostat and Google Nest Thermostat E are trademarks of Google LLC.
 The discount can be combined with eligible manufacturer offers. Limit one per service address.
 The home must have central air conditioning and Wi-Fi. Funds are limited and available on a first-come, first-served basis. Additional terms and conditions apply.

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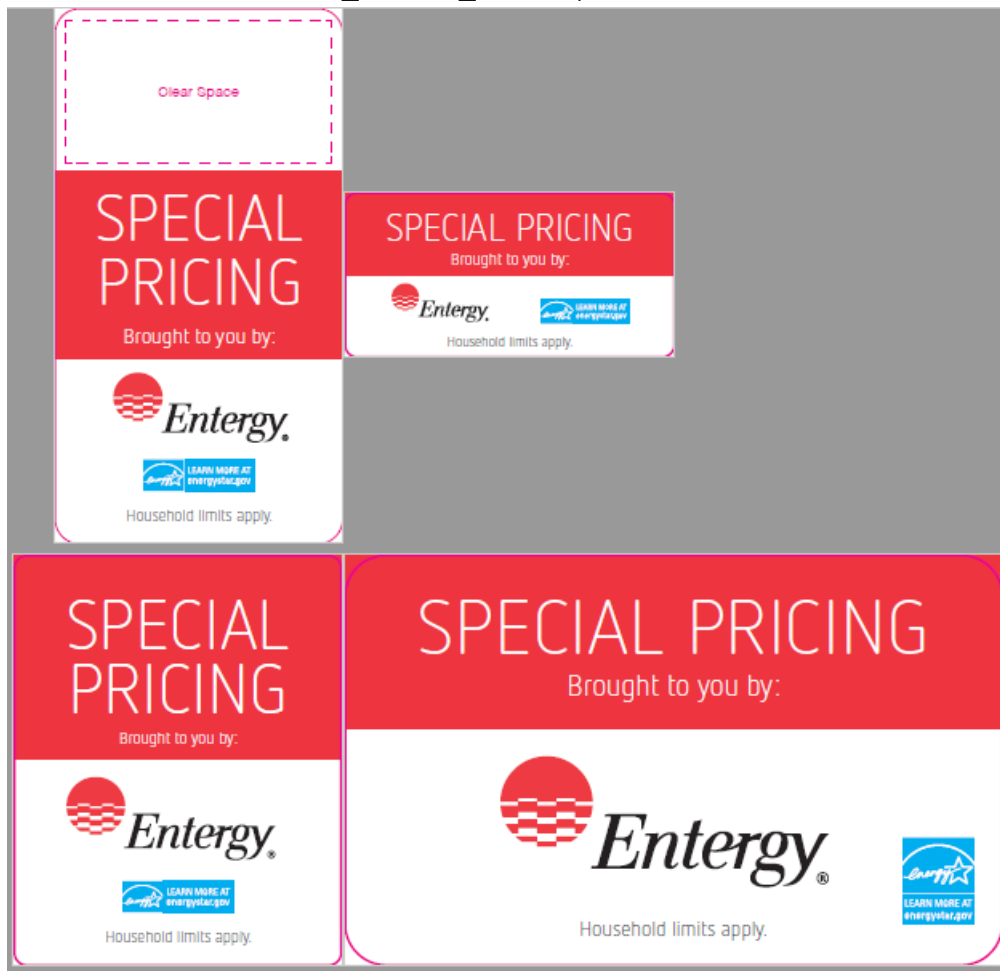








WE POWER LIFE®



SPECIAL PRICING on select ENERGY STAR® products
 PRECIOS ESPECIALES en productos selectos con certificación ENERGY STAR®

Brought to you by:

Look for this label.

Household limits apply.
 Price shown includes discount. Offer available to Entergy Arkansas residential electric customers. Find more information at entergy.com.
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SPECIAL PRICING on select ENERGY STAR® products
 PRECIOS ESPECIALES en productos selectos con certificación ENERGY STAR®

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 Price shown includes discount. Offer available to Entergy Arkansas residential electric customers. Find more information at entergy.com.
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REBATES ARE AVAILABLE

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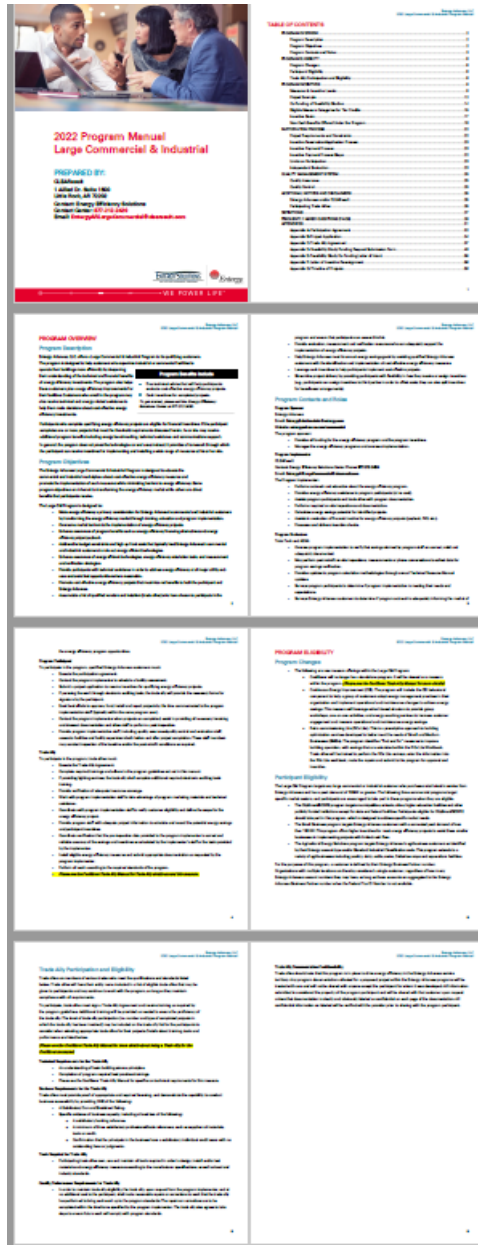


3.5.39 MegaLight Sticker.pdf



3.6 Large Commercial and Industrial Solutions

3.6.1 CI_Custom_Program_Manual.pdf



PROGRAM OBJECTIVES

The program is designed to provide a comprehensive overview of the project's goals and objectives. It includes a detailed description of the project's scope, a list of the project's key deliverables, and a timeline of the project's activities. The program is intended to provide a clear understanding of the project's objectives and to ensure that all stakeholders are aligned on the project's goals and objectives.

Project Schedule

Activity	Start	End	Duration
Project Kick-off	05/01/2023	05/05/2023	5 days
Phase 1: Planning	05/05/2023	05/20/2023	15 days
Phase 2: Execution	05/20/2023	06/10/2023	20 days
Phase 3: Monitoring & Control	06/10/2023	06/25/2023	15 days
Phase 4: Closing	06/25/2023	07/05/2023	10 days

- Key Deliverables**
- Project Charter
 - Project Management Plan
 - Work Breakdown Structure (WBS)
 - Project Schedule
 - Resource Management Plan
 - Risk Management Plan
 - Communication Management Plan
 - Stakeholder Management Plan
 - Quality Management Plan
 - Procurement Management Plan
 - Change Management Plan
 - Project Closure Report

Quality Management System

The project will implement a Quality Management System (QMS) to ensure that the project's deliverables meet the required quality standards. The QMS will include a set of quality standards, a quality management plan, and a quality control process. The project team will be responsible for implementing and maintaining the QMS throughout the project's lifecycle.



Quality Management System

Quality Standard	Quality Management Plan	Quality Control Process
ISO 9001	Quality Management Plan	Quality Control Process
ISO 14001	Quality Management Plan	Quality Control Process
ISO 27001	Quality Management Plan	Quality Control Process

Project Summary

The project is a multi-phase initiative aimed at improving the organization's operational efficiency. The project will be managed using a project management methodology that emphasizes communication, collaboration, and transparency. The project team will be responsible for implementing and maintaining the project's objectives throughout the project's lifecycle.

PRIME-LINE

Project Summary

Project Name: PRIME-LINE

Project Manager: [Name]

Project Start: [Date]

Project End: [Date]

Project Budget: [Amount]

Project Status: [Status]

Project Objectives

The project's primary objectives are to improve the organization's operational efficiency, reduce costs, and increase customer satisfaction. The project team will be responsible for implementing and maintaining these objectives throughout the project's lifecycle.

Project Risks

The project is subject to several risks, including budget overruns, schedule delays, and resource shortages. The project team will be responsible for identifying and mitigating these risks throughout the project's lifecycle.

Project Deliverables

The project will deliver a range of deliverables, including a project management plan, a work breakdown structure, a project schedule, and a project closure report. The project team will be responsible for implementing and maintaining these deliverables throughout the project's lifecycle.

Project Stakeholders

The project has a number of stakeholders, including the project sponsor, the project team, and the project's end users. The project team will be responsible for identifying and managing these stakeholders throughout the project's lifecycle.

USAN AUTOMOTIVE

Project Summary

Project Name: USAN AUTOMOTIVE

Project Manager: [Name]

Project Start: [Date]

Project End: [Date]

Project Budget: [Amount]

Project Status: [Status]

GEORGIA PACIFIC CORSETT

Project Summary

Project Name: GEORGIA PACIFIC CORSETT

Project Manager: [Name]

Project Start: [Date]

Project End: [Date]

Project Budget: [Amount]

Project Status: [Status]

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Go-Forward of Feasibility Studies

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Project Risks

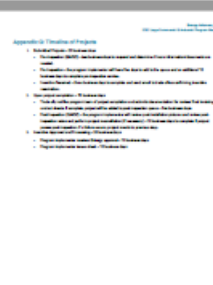
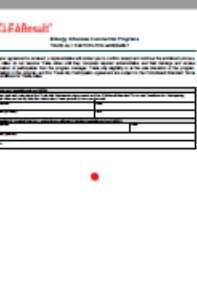
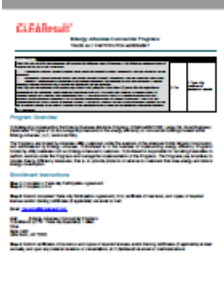
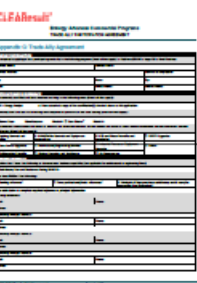
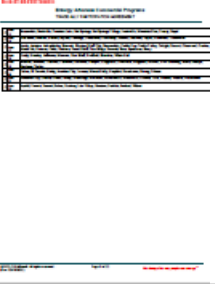
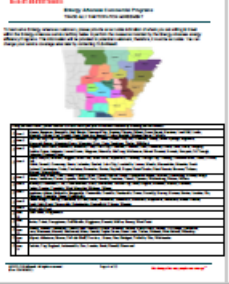
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2022 Trade Ally Manual
CoolSaver

PREPARED BY:
G. Edmond
1. Edited for 2022
Linda Ross, AE, ES&P
Cheryl Smith, ES&P
Email: linda@apsc.com

WE REAR LIFE

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- 1.0 PURPOSE AND SCOPE
- 2.0 TRADE ALLY PROGRAM
- 3.0 TRADE ALLY ELIGIBILITY
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- 5.0 TRADE ALLY ONBOARDING
- 6.0 TRADE ALLY PERFORMANCE
- 7.0 TRADE ALLY RENEWAL
- 8.0 TRADE ALLY TERMINATION
- 9.0 TRADE ALLY COMPLAINTS
- 10.0 TRADE ALLY CONTACT INFORMATION

MINIMUM CREDIT RISK

Minimum Credit Risk

The Energy Services of the Province of Alberta (ES&P) is a public utility. As such, it is subject to the same credit risk as any other public utility. The credit risk of ES&P is determined by the credit rating of the Province of Alberta. The credit rating of the Province of Alberta is currently 'AA-'. This rating is based on the Province's strong economic performance, its stable political environment, and its commitment to fiscal responsibility.

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MINIMUM LIABILITY

General Eligibility

All companies that are registered in the Province of Alberta and are engaged in the business of providing energy services to residential or commercial customers are eligible to participate in the Trade Ally Program. The Trade Ally Program is a voluntary program that allows eligible companies to receive a discount on their energy bills. The discount is based on the company's energy consumption and is applied to the company's energy bill. The Trade Ally Program is available to all eligible companies that are registered in the Province of Alberta and are engaged in the business of providing energy services to residential or commercial customers.

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Company Name	Energy Consumption (kWh)	Trade Ally Discount (%)
Company A	100,000	5%
Company B	200,000	10%
Company C	300,000	15%
Company D	400,000	20%
Company E	500,000	25%

Trade Ally Program

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SAVING ENERGY IS SMART BUSINESS.



Let us help you make a well-informed decision to participate in the Energy Solutions Program.

The Energy Solutions Program is designed to help customers improve the energy efficiency of their buildings or facilities. To help guide customers through the Energy Solutions Program participation decision-making process, the program team will provide the following services.

When you participate in the Energy Solutions Program, our program team will:

1. Schedule a meeting with company stakeholders to discuss possible energy efficiency upgrades that could be completed for the current year and subsequent four years. The team will discuss company priorities, savings potential, possible projects, estimated costs and incentives for five years in advance of any potential expansion, site growth or new construction.
2. Conduct site walk-throughs to discover opportunities for energy reduction. This will help you and the program team gain a better understanding of your energy usage and how to best assess your direct needs.
3. Use site walk-through information along with any applicable operations data available to create an energy usage baseline. This information will be used to help calculate a savings profile for the identified energy efficiency opportunities, as well as a financial analysis of potential energy efficiency projects.
4. Present the financial analysis findings to company stakeholders, outlining what energy efficiency projects make good financial sense and help you make an informed Energy Solutions Program participation decision.

Benefits:

- Understand the Energy Solutions Program offerings.
- Obtain a no-cost energy assessment.
- Receive a financial analysis of potential energy efficiency projects.
- Make a well-informed participation decision.

It's easier than ever to save energy and money. Ready to begin? Contact the Energy Efficiency Solutions Center at 877-212-2420 or visit entergyarkansas.com/commercial.



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Wade Harper
AUTHORIZED CONTRACTOR
Company Name



3.6.6 0521-EA-CoolSaver-2363682-Brochure Update_CLEAN.pdf

ENERGY SOLUTIONS



Entergy Arkansas Commercial CoolSaver A/C Tune-up

Overview
Cooling your HVAC system use a little TLC? With health and safety top of mind, now is a great time to schedule your CoolSaver Tune-up to ensure your system is operating at top-notch performance. Even better, Entergy Arkansas offers incentives to bring down the tune-up cost, and schools, churches, restaurants and small office customers may qualify for no-cost direct install updates including an Emerson Sensi™ touch smart thermostat.

Who is eligible?

- Entergy Arkansas commercial customers involved in the Entergy Solutions program who have a central air cond., cover or heat pump system of any size that is at least one year old are eligible.
- Systems above 25 tons may qualify on a case-by-case basis pending pre-approval by the program implementer.
- Systems that have been incentivized through the Entergy Solutions Tune-up Program in the past five years are not eligible.

Commercial CoolSaver Incentive Rates

Measure type	Potential services	Incentives
High performance air conditioning efficiency	<ul style="list-style-type: none"> Cleaning evaporator coil Cleaning or filter replacement Cleaning dryer Adjusting refrigerant charge to manufacturer's specification 	15-25 tons: \$225
		26-30 tons: \$275
		31-50 tons: \$1,400
		51-100 tons: \$2,000
		10-15 tons: \$450
		16-25 tons: \$800
		60+ tons: \$2,500


What are the benefits?

- Improved air quality
- Quieter system
- Greater comfort
- Reduced cooling costs
- Extended equipment life
- Better humidity control

How to participate

- Contact the Energy Efficiency Solutions Center at 877-212-2420 or visit entergyarkansas.com/commercial for more details and to find a list of trade allies in your area.
- Your trade ally will conduct an evaluation of your system to determine whether you would benefit from a high-performance tune-up, which could include services listed in the table below.
- Your trade ally will contact you with recommended tune-up measures.
- Our instant invoice is applied to your final invoice.

Questions?
Contact the Energy Efficiency Solutions Center at 877-212-2420 or visit entergyarkansas.com/commercial.



Example CoolSaver A/C Tune-up report

Facilities with multiple units will find our CoolSaver A/C Tune-up report particularly beneficial. The report includes the number of tune-ups performed, estimated savings in the next year and in the next five years, average cooling increase across units and average energy efficiency rating (EER) increase across units.

Summary of all activities

Tune-ups performed	30
--------------------	----

Performance breakdown


Estimated Savings	2659
Estimated Yearly Savings	4,203
Estimated 5 Year Savings	\$4,850
Estimated EER Increase	\$436,658
Average Capacity Increase (TRC)	5,296
Average EER Increase	148

Screening criteria

Green EER Threshold	91%
Average Percentage of Total Cooling Capacity	70%
\$ per kWh	30.00

Results

Recommended action	Quantity of units
Unit meets or exceeds minimum EER and capacity after adjustment. Continue operation to maximize savings.	27
Unit does not meet capacity or EER capacity criteria. Check for refrigerant levels, airflow, correct condenser coil charge for replacement.	3
Unit does not meet capacity or EER capacity criteria for replacement.	0



The CoolSaver A/C Tune-up report scores your units in terms of how closely they meet the recommended minimum criteria for SEER and cooling capacity. This allows you to accurately budget and units for replacement.

GREEN: Both criteria met
ORANGE: One of two criteria met
RED: Neither met


The CoolSaver A/C Tune-up report also provides specific information about each individual unit in your facility. The data generated for each unit includes the location, type, serial number, model, delivered SEER rating and an efficiency color score.

Account name	Service address	Project ID	Unit ID	Outdoor unit or compressor manufacturer	Outdoor unit or compressor model #	Outdoor unit or compressor serial #	Del. SEER	End cap vs. Rated	Score
302 K High	628 E Main St	Ent 2363682_001	08128	Carrier	58R05388	3108281	N/A	0.00%	0
302 K High	628 E Main St	Ent 2363682_002	08129	Carrier	58R05388	4036277	N/A	0.00%	0
307 K High	628 E Main St	Ent 2363682_003	08130	Carrier	58R05388	15026628	07	23.04%	1

The CoolSaver difference
CoolSaver's state-of-the-art diagnostic tools and procedures go far beyond a typical tune-up. In addition to lowering your facility's energy and maintenance costs, a CoolSaver A/C Tune-up is carefully designed to provide a cooler, more comfortable and more productive work environment.

Questions?
Contact the Energy Efficiency Solutions Center at 877-212-2420 or visit entergyarkansas.com/commercial.

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BUSINESS SOLUTIONS PROGRAMS PARTICIPATION AGREEMENT



Take control of your energy use.

Energy Arkansas is proud to offer our commercial customers a suite of programs designed to help your organization save energy and lower costs. From big projects to small, we'll provide financial incentives, resources and expertise to help you achieve meaningful, long-term savings. The Large Commercial & Industrial Program and the Small Business Program are for commercial customers, and the CitySmart™ + SCORE Program is designed to improve public sector educational and municipal facilities.

Steps to participate:

1. Sign and submit this participation agreement to enroll. Please also submit a Wi form as part of incentive payment requirements.
2. Work with the program administrator to determine which specific program your organization is eligible for, and to discuss energy efficiency project opportunities.
3. Schedule your pre-installation inspection in order to allow the program administrator to quantify prospective energy savings.
4. Sign and submit a project application to define projects to be completed and reserve incentive funds.
5. Complete projects defined in the project application, notify program administrator and schedule post inspection as required.
6. Receive incentive dollars from Energy Arkansas and benefit from energy savings.
7. After completing the project and receiving incentive, you may be contacted by an independent evaluator to verify information gathered by the program and/or to review on-site equipment installation.

Organization: _____ Title: _____
 First Name: _____ Last Name: _____
 Project Site Address, City, State, ZIP: _____
 Primary Contact's Address, City, State, ZIP: _____
 Telephone: _____ Email: _____
 Account Number: _____ Tax ID: _____

*Please enter accurate contact phone number in separate field of building, physical address and account number.

Questions? Contact the Energy Efficiency Solutions Center at 877-212-2420 or visit energyarkansas.com.



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WE POWER LIFE®

STANDARD TERMS AND CONDITIONS FOR PARTICIPATING CUSTOMERS



These Standard Terms and Conditions ("Standard Terms and Conditions") apply to the participation agreement ("Agreement") you make and submit to enroll in an Energy Efficiency Program ("Program") administered by Energy Arkansas, LLC ("Energy Arkansas"). The Program is administered by Energy Arkansas, LLC ("Energy Arkansas") and is subject to the terms and conditions of the Program. The Program is subject to the terms and conditions of the Program. The Program is subject to the terms and conditions of the Program. The Program is subject to the terms and conditions of the Program.

1. **ACCEPTANCE AND AGREEMENT:** Customer agrees to accept the Standard Terms and Conditions and agrees to participate in the Program. Customer understands that by signing this Agreement, Customer agrees to accept the Standard Terms and Conditions and agrees to participate in the Program. Customer understands that by signing this Agreement, Customer agrees to accept the Standard Terms and Conditions and agrees to participate in the Program. Customer understands that by signing this Agreement, Customer agrees to accept the Standard Terms and Conditions and agrees to participate in the Program.
2. **ELIGIBILITY:** Energy Arkansas reserves the right to determine the eligibility of customers to participate in the Program. Customer understands that by signing this Agreement, Customer agrees to accept the Standard Terms and Conditions and agrees to participate in the Program. Customer understands that by signing this Agreement, Customer agrees to accept the Standard Terms and Conditions and agrees to participate in the Program.
3. **INCENTIVE PAYMENT:** Customer understands that incentives will be paid to Customer only if all Standard Terms and Conditions are met. Customer understands that by signing this Agreement, Customer agrees to accept the Standard Terms and Conditions and agrees to participate in the Program. Customer understands that by signing this Agreement, Customer agrees to accept the Standard Terms and Conditions and agrees to participate in the Program.
4. **ENERGY MONITORING AND VERIFICATION:** Customer agrees to allow Energy Arkansas to install and use an energy monitoring device on the premises of the participating customer. Customer understands that by signing this Agreement, Customer agrees to accept the Standard Terms and Conditions and agrees to participate in the Program. Customer understands that by signing this Agreement, Customer agrees to accept the Standard Terms and Conditions and agrees to participate in the Program.
5. **COMPLETION:** Customer understands that the Program is subject to the terms and conditions of the Program. Customer understands that by signing this Agreement, Customer agrees to accept the Standard Terms and Conditions and agrees to participate in the Program. Customer understands that by signing this Agreement, Customer agrees to accept the Standard Terms and Conditions and agrees to participate in the Program.
6. **WARRANTY:** Energy Arkansas warrants that the Program is subject to the terms and conditions of the Program. Customer understands that by signing this Agreement, Customer agrees to accept the Standard Terms and Conditions and agrees to participate in the Program. Customer understands that by signing this Agreement, Customer agrees to accept the Standard Terms and Conditions and agrees to participate in the Program.

This agreement should be signed by your organization's authorized representative and will remain valid until providing the program implementation activities unless you or your organization's representative indicates otherwise.

SIGNATURE: _____ DATE: _____


Please sign and email to the appropriate contact below. If electronic submission is unavailable, please fax to 866-420-4400.


Contact: Trade Ally Specialist
 tsupport@energyark.com
 866-420-4400



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WE POWER LIFE®





A higher grade of energy savings

The opportunity

When you use a lot of energy, small changes can have a big impact. Our Continuous Energy Improvement initiative helps facilities like yours achieve lasting energy cost savings through simple, low- and no-cost behavioral and operational improvements. By providing personalized, step-by-step guidance, resources and yearly incentives, we can help embed energy efficiency into your organization's culture.

Recently, our CEI team helped the Bryant School District in Bryant, Arkansas, lower its overall electricity use by over 9.06%.

The initiative

During an initial engineering walk-through, the CEI team recommended several no-cost ways to improve energy efficiency during school breaks. These recommendations led to a daily shutdown checklist that included HVAC setbacks, turning off lights and unplugging unused equipment.

The team later recommended that the district perform some of the summer maintenance jobs, such as waxing the floors, earlier in the school year. By shifting the task to the cooler months, the district reduced the energy load on their air conditioning systems by around 20%.

The results

To date, Bryant School District has saved around \$38,200 in energy costs, qualifying the district for an estimated \$11,420 annual incentive from Entergy Arkansas. The positive results also opened the door to additional energy-saving projects, including lighting retrofits, CoolSaver Tune-ups and smart thermostat installations.

How can we help your organization?

Reach out to the CEI team at **501-265-0249** or cei.central@clearesult.com to find out.

For more ways to save, visit entergyarkansas.com/citysmart or call our Energy Efficiency Solutions Center at **877-212-2420**

We power life.™

Progress to date

9.06%

Reduction in overall electricity use

\$38,200


Estimated annual cost savings

571,006 kWh

Estimated annual energy savings

\$11,420

Estimated annual incentive



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Energy savings by the bucket-load

Polyethylene Containers, Inc.
El Dorado, AR

The opportunity

Entergy Arkansas' **Large Commercial & Industrial (C&I) program** provides ongoing guidance and financial incentives to help participating organizations save energy and reduce overhead costs.

For Polyethylene Containers, Inc., an El Dorado, Arkansas-based manufacturer of high-quality pail, drum and rigid container products, a long-term partnership with the program has resulted in a dozen successful projects that have collectively saved around 10 million kWh and counting.

The initiative

Over the last few years, our C&I team helped Polyethylene Containers complete several significant upgrades, including:

- **Lighting:** Upgrading to long-lasting, energy-efficient LEDs lowered energy and maintenance costs while improving safety, productivity and employee comfort.
- **Compressed air:** The C&I team helped find and fix air leaks and provided incentives for a new, energy-efficient compressor.
- **Injection molding:** Replacing injection molding machines brought more savings and improved production capacity to an essential component to the manufacturing process.
- **Chiller:** Optimized to work with the new injection molding machines, a new chiller system provided additional energy savings as well as a productivity boost.

The results

Thanks to the upgrades, Polyethylene Containers has reduced their annual electricity costs by an estimated \$93,259, qualifying the facility for over \$969,505 in incentives from Entergy Arkansas. The upgrades have also helped streamline the production process with increased reliability and efficiency.

With multiple future projects already in the pipeline, Polyethylene Containers is excited to keep the savings going.

How can we help your organization?

Reach out to the CEI team at **501-265-0249** or cei.central@clearresult.com to find out. For more ways to save, visit entergyarkansas.com/commercial or call our Energy Efficiency Solutions Center at **877-212-2420**.

We power life.™

Progress to date

 **12**
Projects completed

 **\$937,259**
Estimated annual energy cost savings

 **10 million kWh**
Total estimated energy savings

 **\$969,505**
Total incentives from Entergy Arkansas



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THE CITY OF BERRYVILLE



THE OPPORTUNITY

The City of Berryville—a historic Arkansas city with a population of just under 5,500—is a small but thriving community committed to preserving its history while adopting progressive solutions. To help identify cost-effective upgrades that would reduce its annual energy consumption, Berryville leaders partnered with the staff of Entergy Arkansas CitySmartSM - SCORESM Program.

PROJECT AT A GLANCE

41,536 Annual kWh savings

\$4,153 Incentives paid

\$3,322 Estimated annual savings

4.7 years Payback period

THE PROJECT

The program team worked with Berryville officials to identify opportunities to finance energy-saving projects using cash incentives from the CitySmart - SCORE Program. After an initial assessment, the program team recommended that Berryville upgrade the interior lighting in its municipal building, city shop, city museum, fire department and police department. Specifically, Berryville was recommended to replace its T12 fluorescent lamps with high-efficiency T8s and all incandescent bulbs with energy-saving CFLs.

THE RESULTS

Berryville officials implemented this lighting upgrade in full and, as a result, the city received a cash incentive of more than \$4,000, reduced its annual energy consumption by 41,536 kWh and cut its annual energy costs by \$3,322.

Questions? To learn more about the CitySmart - SCORE Program, contact the Energy Efficiency Solutions Center at **877-212-2420** or visit entergyarkansas.com/citysmart.

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GEORGIA-PACIFIC CROSSETT



The Opportunity

Georgia-Pacific Crossett is one of the world's leading makers of tissue, pulp, paper, packaging, building products and related chemicals and has been a vital part of the Arkansas community for over 100 years. In 2012, Entergy Arkansas began working with the Crossett facility to determine how energy efficiency could be improved on-site, with a focus on lighting, compressed air, pumps and other large motors used in the manufacturing process.

PROJECT AT A GLANCE

46,765,037 Annual kWh savings

5,343 Annual kW reduction

\$1,870,601 Estimated annual savings

1.2 years Payback period

The Project

Working with the Large Commercial & Industrial Program team, Georgia-Pacific was able to secure funding for improvements, engineering support for recommended upgrades and technical guidance to improve its overall energy efficiency. Measures undertaken included a retrofit of its exterior lighting system, various pump upgrades and improving different processes throughout the facility to reduce energy usage.

The Results

As a result of the upgrades, Georgia-Pacific improved the appearance, comfort and energy efficiency of its facility, resulting in annual savings of 46,765,037 kWh and \$1,870,601. Thanks to these energy cost savings and an incentive from Entergy Arkansas, the retrofit will pay for itself in just over one year. The energy savings are equivalent to the carbon sequestered by 13,824 acres of U.S. forests in one year.

Questions? To learn more about how the Large Commercial & Industrial Program could help your business, contact the Energy Efficiency Solutions Center at 877-212-2420 or visit entergyarkansas.com/commercial.

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HARDING UNIVERSITY



The Opportunity

In an effort to enhance energy efficiency, lower operating costs and improve indoor lighting quality, Harding University joined the Entergy Arkansas CitySmart™ - SCORE™ Program. With the help of the program team and a local lighting contractor, university officials decided campus-wide upgrades to the existing lighting system were necessary to achieve the anticipated energy savings.

The Project

Spanning 15 buildings, the massive lighting retrofit consisted of more than 4,200 fixture replacements. Existing interior fixtures were primarily substituted with high-efficiency Sylvania Octron T8 2-lamp 800 series lighting systems with reduced ballast factors. (In some cases, 3- and 4-lamp fixtures were still necessary.) In addition, outdated incandescent bulbs were replaced with CFLs where applicable, and both the exterior security lighting system and exit signs were replaced with LEDs.

The Results

While yielding a short ROI, the lighting retrofit saved more than 827,867 kWh of electricity a year, equivalent to eliminating the annual greenhouse gas emissions from 122 passenger vehicles, according to Environmental Protection Agency calculations.

Questions? To learn more about the CitySmart - SCORE Program, contact the Energy Efficiency Solutions Center at **877-212-2420** or visit entergyarkansas.com/citysmart.

PROJECT AT A GLANCE

827,867 Annual kWh savings

\$99,345 Total incentives paid

\$66,229 Estimated annual savings

220.85 kW Annual kW savings

4,232 Total fixtures replaced

1.5 years Payback period

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PRIME-LINE



The Opportunity

Prime-Line, a Malvern-based manufacturer of construction products, was looking to reduce heat, humidity and machinery emissions in its facility. With this in mind, the manufacturer decided to work with Entergy Arkansas to complete a ventilation upgrade project.

PROJECT AT A GLANCE

495,267 Annual kWh savings

\$88,590 Incentives paid

\$34,770 Estimated annual savings

0.85 years Payback period

The Project

Thermavent natural ventilation was installed to reduce internal building temperature without the use of a large HVAC system. Situated on the roof, the system allows excess heat from the product lines to flow naturally out of the facility through the open bay doors. That not only reduces interior heat and humidity, but also provides a manageable and comfortable working environment through all four seasons.

The Results

The project is estimated to save Prime-Line \$34,770 annually in energy costs. The manufacturer received a total of \$88,590 in incentives from Entergy Arkansas, greatly offsetting the project cost and putting the payback period at only 0.85 years (or just over 10 months).

It wasn't just financial savings that Prime-Line received. The manufacturer has saved 495,267 kWh annually, which is equivalent to the greenhouse gas emissions from 834,185 miles driven by an average passenger vehicle or the CO₂ emissions from 36.8 homes' energy use for one year, according to U.S. Environmental Protection Agency calculations.

The company is so pleased with these results it already has further projects planned, including new construction, a CoolSaverSM A/C Tune-up and a compressed air installation.

Questions? To learn more about the Large Commercial & Industrial Program, contact the Energy Efficiency Solutions Center at **877-212-2420** or visit entergyarkansas.com/commercial.



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CASE STUDY

SCHULZE & BURCH BISCUIT CO.



The Opportunity

While Schulze & Burch Biscuit Company has always been recognized as being a pioneer and innovator in baking technology, now it also will be known for its highly efficient facility and commitment to energy efficiency. When Director of Technical Services Alan Freeland was introduced to the Large Commercial & Industrial Program, he took a comprehensive approach to ensure every benefit of the program was realized.

The Project

Schulze & Burch began working with program staff in 2012 to identify energy efficiency opportunities and available incentives, and decided to take a comprehensive approach. Freeland moved forward with upgrades to the facility's lighting, air compressor, high pressure low volume fans and building envelope. The initial project proved so successful, Schulze & Burch was able to reinvest the savings into additional improvements to the facility's lighting controls, interior and exterior lighting, and HVAC equipment.

The Results

Thanks to the massive reduction in energy costs and generous incentives from Entergy Arkansas, the projects more than paid off — and will keep doing so for years to come. Not only are the upgrades saving the company an extra \$252,122 every year, they also helped the Schulze & Burch facility become a brighter, safer, more comfortable and more productive place to work.

PROJECT AT A GLANCE

254.1	Total peak kW reduction
3,601,740	Total kWh reduction
\$252,122	Estimated annual savings
\$652,082	Total project incentive
1.29 years	Payback period

Questions? To learn more about the Large Commercial & Industrial Program, contact the Energy Efficiency Solutions Center at 877-212-2420 or visit entergyarkansas.com/commercial.



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CRAIN AUTOMOTIVE



THE OPPORTUNITY

With 17 locations across Arkansas, the Crain Automotive Team has enormous potential for energy savings. Like in most dealerships, bright and inviting lighting is essential to attracting business from the road and maintaining a safe and welcoming atmosphere. So Crain partnered with the Entergy Arkansas Large Commercial & Industrial Program to identify and secure generous incentives for energy-efficient lighting upgrades.

THE PROJECT

Over four years, Entergy Arkansas has helped Crain plan, fund and complete interior and exterior LED lighting upgrades in seven of its dealership locations. They also teamed up to replace the HVAC system in their Little Rock office building. To help cover the cost of the projects, Entergy Arkansas provided Crain with nearly half a million dollars in incentives.

THE RESULTS

Altogether, the upgrades are expected to drive significant savings for years to come. Thanks to more than \$310,000 in estimated annual energy cost savings, Crain will see a return on their investment in just over three years. On top of the cost savings, the LED upgrades also have made the dealerships brighter, safer and more welcoming for customers and employees.

Questions? Contact the Energy Efficiency Solutions Center at **877-212-2420** or visit **entergyarkansas.com/commercial**.

PROJECT AT A GLANCE

3,108,781 Annual kWh reduction

\$310,908 Estimated annual savings

\$459,774 Total project incentive

3.25 years Payback period

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AMERICAN TAEKWONDO ASSOCIATION



The Opportunity

When Martial Arts, Inc. wanted to construct a new energy-efficient headquarters building in Little Rock, the organization reached out to Entergy Arkansas. After construction designs were reviewed, several energy-saving opportunities were identified. Martial Arts, Inc. partnered with the Large Commercial & Industrial Program to take advantage of the new construction incentives available to commercial customers.

PROJECT AT A GLANCE

366,199 Annual kWh savings

\$58,578 Incentives paid

\$31,529 Estimated annual savings

11.9 years Payback period

The Project

The project began with state-of-the-art energy modeling, which identified efficiency opportunities not typically captured in most projects. The use of energy modeling qualifies for feasibility co-funding in the Large Commercial & Industrial Program. The energy modeling data and the Entergy Arkansas team guided Martial Arts, Inc. to install high-efficiency interior and exterior LED lighting and HVAC equipment as well as building automation controls. Martial Arts, Inc. also made recommended improvements to the building envelope design, resulting in an additional 182,444 kWh of annual energy savings.

The Results

Martial Arts, Inc. received a total of \$58,578 in incentive funds from Entergy Arkansas for making the energy-efficient upgrades, greatly offsetting the cost of the initial project. Additionally, Martial Arts, Inc. is saving an estimated \$31,529 each year in energy costs.

Not only is Martial Arts, Inc. enjoying financial savings, the organization also boosted comfort in its facility and saves an impressive 366,199 kWh in energy use annually. That's equivalent to the greenhouse gas emissions from 616,793 miles driven by an average passenger vehicle or the CO₂ emissions from 27.2 homes' energy use for one year, according to U.S. Environmental Protection Agency calculations.

Questions? To learn more about the Large Commercial & Industrial Program, contact the Energy Efficiency Solutions Center at 877-212-2420 or visit entergyarkansas.com/commercial.



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CASE STUDY

3M LITTLE ROCK

THE OPPORTUNITY

Entergy Arkansas' Continuous Energy Improvement initiative helps select facilities achieve lasting energy cost savings through simple low- and no-cost improvements. Focusing on behavioral and operational changes, our CEI team offers personalized, step-by-step guidance, resources and yearly incentives to embed energy efficiency into your organization's culture.

For large commercial and industrial facilities like 3M Company's plant in Little Rock, those energy-saving enhancements can also lead to significant improvements in productivity, employee comfort and, ultimately, your bottom line.

THE INITIATIVE

The 3M Little Rock plant manufactures colored and specialty roofing granules for the asphalt shingle industry. After an initial walk-through with maintenance staff, the Entergy Arkansas CEI team helped identify, prioritize and implement a series of no-cost, energy-saving improvements.

Completed improvements included:

- **Production schedule changes** reduced the need for frequent cleanings, leading to dramatic improvements in energy efficiency and productivity.
- **Bag house timing adjustments** increased the intervals between bag cleanings, saving energy from the air compressor system while reducing wear and tear on equipment and filters.
- **Consolidating partially loaded equipment**, like refrigerators and air conditioners, reduced unnecessary energy waste.
- **Optimizing exterior lighting timing** saved energy during the day and extends the life of the lights.
- **Shutting down idling conveyors** during lunch and other periods of inactivity saved energy, extended the life of the conveyor motors and increased safety.
- **Sealing compressed air leaks** reduced energy waste and improved the efficiency of the air compressor system.

As items were completed throughout the year, new opportunities were identified and added to the list for an ongoing energy-saving strategy.

Questions?

Reach out to the CEI team at [501-265-0249](tel:501-265-0249) or cei.central@clearesult.com.

For all the ways we can help your business save, visit entergyarkansas.com/commercial or call our Energy Efficiency Solutions Center at [877-212-2420](tel:877-212-2420).

PROGRESS TO DATE

8.27%	Reduction in overall electricity use
\$119,334	Estimated annual cost savings
1,783,767 kWh	Estimated annual energy savings
\$35,675	Estimated annual incentive

"At 3M Little Rock, we are identifying the baseline of our process, putting behind old cultural ways and changing with today's standards."

-Richard Holmes
Elec. System Engineer, 3M

THE RESULTS

All told, the improvements have reduced the facility's overall electricity use by an incredible 8.27%—saving an estimated \$119,334 a year in energy costs. In addition to the cost savings, the facility is set to earn an estimated \$35,675 a year in Entergy Arkansas incentives.



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GEORG FISCHER HARVEL

THE OPPORTUNITY

Entergy Arkansas' Continuous Energy Improvement initiative helps select facilities achieve lasting energy cost savings through simple low- and no-cost improvements. Focusing on behavioral and operational changes, our CEI team offers personalized, step-by-step guidance, resources and processing of incentives paid by Entergy Arkansas to embed energy efficiency into your organization's culture.

For Georg Fischer Harvel, a global piping manufacturer with a large facility in Little Rock, the goals of CEI aligned perfectly with the company's long-term commitment to sustainability.

THE INITIATIVE

During an initial walk-through assessment of Georg Fischer Harvel's Little Rock facility, the Entergy Arkansas CEI team recommended several low- and no-cost energy efficiency improvements.

Completed improvements included:

- Using leaf blowers instead of compressed air to blow away dust and debris.
- Sealing compressed air leaks to reduce energy waste and improve efficiency.
- Optimizing new products for long-term reliability, limited waste and maximum throughput.
- Installing motion sensors for office lighting.
- Upgrading to LED fixtures to improve efficiency, light quality and safety.
- Turning off extrusion grinders at night to save energy and extend equipment life.
- Scheduling machines to run according to production needs and not idle excessively.

Questions?

Reach out to the CEI team at 501-265-0249 or cei.central@clearesult.com.

For all the ways we can help your business save, visit entergyarkansas.com/commercial or call our Energy Efficiency Solutions Center at 877-212-2420.

PROGRESS TO DATE

7.76%	Reduction in overall electricity use
\$62,686	Estimated annual cost savings
937,012 kWh	Estimated annual energy savings
\$18,740	Estimated annual incentive

"This has been an important catalyst to help Georg Fischer Harvel exceed our corporate sustainability targets. We look forward to our continued partnership with Entergy Arkansas."

-Marcus Waters, Energy Champion
 Georg Fischer Harvel

THE RESULTS


Thanks to their improvements, the facility has reduced its overall electricity use by 7.76%, resulting in around \$62,686 savings on annual utility costs and \$18,740 worth of incentives from Entergy Arkansas.



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ENTERGY SOLUTIONS



Get incentives for your facility — while funds last

Want to achieve more strategic control over your facility's energy costs? **Entergy Arkansas' Large Commercial & Industrial program** not only helps facility supervisors understand the technical and financial benefits of investing in energy efficiency upgrades, but it also provides financial incentives for a range of qualifying projects. Like:

- LED lighting
- HVAC replacement
- Lighting and HVAC controls
- Compressed air
- Chillers
- Smart thermostats
- And many other qualifying projects

REMINDER: Dec. 31 is XX days away
To obtain 2022 incentives, all qualifying energy-saving projects must be installed and post-inspected by Dec. 31, 2022.


[EMAIL US](#)

Or give us a call at **877-212-2420** to discuss current or future projects at your facility

The Entergy Solutions program connects a variety of commercial customers with the technical know-how and financial support to implement qualifying energy efficiency projects to improve the performance of facilities, including:

- Schools
- Government entities
- Commercial businesses
- Large industrial facilities
- And more

[LEARN MORE](#)


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1/20/2022

ENERGY SOLUTIONS



Too many priorities?

When it comes to facility improvements — let us help you. We have the expertise to identify and prioritize equipment tune-up, upgrade and replacement projects. Often tying back our recommendations to energy efficiency incentives that could cover up to 100% of project costs.

It all starts with a no-cost energy assessment.

[DISCOVER MORE](#)

During your no-cost assessment, we'll not only look for projects to complete in the future, but we'll also look for opportunities to install energy-efficient products such as showerheads, low-flow aerators, pre-rinse spray valves (electric water heater customers only), LEDs and weatherstripping at no cost to you.

[LET'S GET STARTED](#)


Email or give us a call at [877-212-2420](tel:877-212-2420).

Did you know?

Entergy Arkansas offers its eligible non-residential customers:


- **Instant discounts** on select interior and exterior lighting, variable frequency drives and more.
- **New construction project support** to help you invest in energy-efficient solutions that will provide long-term benefits.
- **Affordable CoolSaver Tune-ups** to get your HVAC system running at top performance.

[Learn more](#) or call [877-212-2420](tel:877-212-2420).

We power life. 

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ENERGY SOLUTIONS



Boost your organization with energy-saving upgrades

Entergy Arkansas' CitySmart™ program provides support and incentives to public and private schools and universities working to save on energy. Whether you are struggling with high energy bills or inefficient lighting and climate control, Entergy Arkansas offers incentives for implementing and installing a wide range of measures at your site, like:

- Improved building design (new construction only)
- Interior/exterior lighting retrofits
- Interior lighting controls
- HVAC controls and upgrade
- Commercial kitchen upgrades
- Wastewater treatment plant fan/blower/pump retrofits
- CoolSaver air conditioner tune-up
- Advanced Wi-Fi thermostats
- And more

REMINDER: Dec. 31 is XXX days away
To obtain 2022 incentives, all qualifying energy-saving projects must be installed and post-inspected by Dec. 31, 2022.


[EMAIL US](#)

Or give us a call at [877-212-2420](tel:877-212-2420) to discuss current or future projects at your facility.

The Entergy Solutions program connects a variety of commercial customers with the technical know-how and financial support to implement qualifying energy efficiency projects to improve the performance of facilities, including:

- Schools
- Government entities
- Commercial businesses
- Large industrial facilities
- And more

[LEARN MORE](#)

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3.6.22 EAL Large CI Email

ENERGY SOLUTIONS



Put our energy solutions to work

Last year, our Large Commercial & Industrial Program awarded over \$10.3 million in incentives—helping hundreds of local businesses save energy and money when they needed it the most.

Now, it's your turn. Take a look at our wide range of energy-saving solutions and see what we can do for your bottom line.

[Explore savings >](#)

Six reasons to invest in energy efficiency:

- 1. Savings** – The right upgrades can drastically lower your energy, maintenance and operational costs.
- 2. Value** – Energy-efficient buildings typically hold greater value in the market.
- 3. Productivity** – Modern, high efficiency equipment can help streamline operations and boost productivity.
- 4. ROI** – Many large commercial projects can quickly pay for themselves in cost savings alone.
- 5. Reinvestment** – The money you save on operating costs can be reinvested into your business.
- 6. Incentives** – Entergy Arkansas incentives may help cover the cost of your energy-saving upgrades.

[Let's get started >](#)


Email or give us a call at 877-212-2428.

Did you know?

Entergy Arkansas offers its eligible non-residential customers:

- **Instant discounts** on select interior and exterior lighting, variable frequency drives and more.
- **New construction project support** to help you invest in energy-efficient solutions that will provide long-term benefits.
- **Affordable CoolSaver Tune-ups** to get your HVAC system running at top performance.

[Learn more or call 877-212-2428](#)

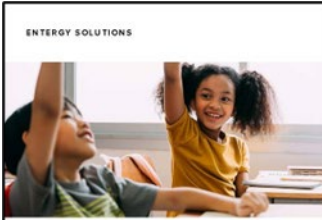
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The actual amount of energy savings, CO₂ offset and other benefits may vary. For more information, visit [entergy.com](#).

Entergy Arkansas is an Equal Opportunity Employer. Minorities and women are encouraged to apply.

3.6.23 EAL Large CI Email



ENERGY SOLUTIONS

Put our energy solutions to work

Last year, our CitySmart Program awarded over \$2 million in incentives—helping hundreds of organizations save energy and money when they needed it the most.

Now, it's your turn. Take a look at our wide range of energy-saving solutions and see what we can do for your bottom line.

[Explore savings >](#)

Six reasons to invest in energy efficiency:

- 1. Savings** – The right upgrades can dramatically lower your energy, maintenance and operational costs.
- 2. Value** – Energy-efficient buildings typically hold greater value in the market and, when you spread the word about your organization's commitment to energy efficiency, can have a positive impact in the community.
- 3. Comfort** – Modern, high efficiency equipment can improve occupant comfort, which often means a boost in productivity.
- 4. ROI** – Many projects can quickly pay for themselves in cost savings alone.
- 5. Disinvestment** – The money you save on operating costs can be reinvested into the organization.
- 6. Incentives** – Energy Arkansas incentives may help cover the cost of your energy-saving upgrades.

[Let's get started >](#)


Email or give us a call at 877-212-2420

Did you know?

Energy Arkansas offers its eligible non-residential customers:

- **Instant discounts** on select interior and exterior lighting, variable frequency drives and more
- **New construction project support** to help you invest in energy-efficient solutions that will provide long-term benefits
- **Affordable CostSaver Tune-ups** to get your HVAC systems running at top performance

[Learn more or call 877-212-2420](#)

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ENTERGY ARKANSAS CHILLER REPLACEMENTS



Replace Your Chiller for Cool Savings

Did you know that the annual energy cost of operating a chiller can be as much as one-third of its purchase price?*

Your business could use less. By joining one of the Entergy Arkansas energy efficiency programs, you can learn how much energy your chiller is wasting and how to improve its efficiency. We'll even provide cash incentives to help fund the project.

How Will I Benefit?

- Lower monthly energy costs and use
- Reduced upfront costs, thanks to Entergy Arkansas incentives that shorten the payback period on your investment
- Improved efficiency of your chiller plant
- Less chance of needing repairs in the future, which reduces interruptions and boosts productivity

How to Participate:

1. Visit entergyarkansas.com/commercial or contact us at 877-212-2420 to enroll in one of the Entergy Arkansas energy efficiency programs.
2. We'll perform an on-site inspection of your existing chillers — at no cost to you.
3. You'll receive customized project recommendations, tailored to your company's needs.
4. We will provide a list of qualified participating trade allies who are trained in the Entergy Arkansas energy efficiency programs.
5. The system upgrades will be installed.
6. You'll receive cash incentives for all qualifying completed projects.

Chiller Replacement Facts

- For every degree the temperature of chilled water is raised, energy usage is decreased by 1-1.5 percent.**
- Water-cooled water plants are approximately twice as efficient as air-cooled equipment.***
- Air-cooled chillers larger than 100 tons should be replaced with water-cooled chillers and cooling towers.***



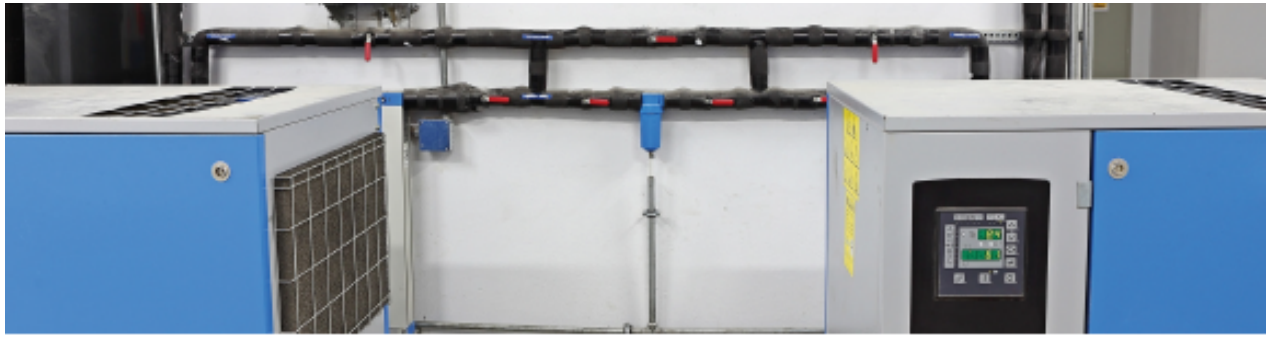
*Source: U.S. Environmental Protection Agency
 **Source: Energy Management Handbook: 8th Edition
 ***Source: U.S. Department of Energy

Ready to save? Contact the Energy Efficiency Solutions Center at 877-212-2420 or visit entergyarkansas.com/commercial.



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ENTERGY ARKANSAS COMPRESSED AIR SYSTEMS



Get Big Savings From Your System

Did you know that electric compressed air systems account for as much as 30 percent of an industrial facility's Entergy bill? We can help your business use less. By joining one of the Entergy Arkansas energy efficiency programs, you can find out how much energy your system is wasting and receive suggestions for effective repair and replacement options, such as repairing air leaks and installing variable speed drives or no-loss drain valves.

How Will I Benefit?

Newer variable speed drive compressors are highly efficient, quieter and more stable. This boosts reliability and reduces maintenance costs. Plus, the cash incentives you'll receive from Entergy Arkansas will reduce your up-front costs, shortening the payback period on your investment.

How to Participate:

1. Contact us at **877-212-2420** or visit entergyarkansas.com/commercial to enroll in one of the Entergy Arkansas energy efficiency programs.
2. We'll perform an on-site inspection of your existing systems — at no cost to you.
3. You'll receive a customized project recommendation, tailored to your company's needs.
4. We will provide a list of qualified participating trade allies who are trained in the Entergy Arkansas energy efficiency programs.
5. The system upgrades will be installed.
6. You'll receive cash incentives for all qualifying completed projects.

Air Leak Facts

- Leaks typically account for 20 to 30 percent of all air use in a compressor system.*
- Leaks are best detected by an ultrasonic acoustic detector that recognizes the high-frequency hissing sound that often accompanies an air leak.**
- You need 7-8 HP of electrical power to operate a 1 HP air motor.*



*Source: U.S. Department of Energy
**Source: ENERGY STAR®

Ready to save? Contact the Energy Efficiency Solutions Center at **877-212-2420** or visit entergyarkansas.com/commercial.



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ENTERGY ARKANSAS SMALL AIR COMPRESSORS



Upgrade Your Small System to Save Big

Compressed air, though very useful, is one of the most expensive sources of energy. We can help you use less. By joining one of the Entergy Arkansas energy efficiency programs, you can find out how much energy your compressed air system is wasting and how to improve its overall efficiency. We'll even provide cash incentives to help make it all possible.

How Will I Benefit?

- A quieter system that's more efficient, stable and reliable.
- Reduced upfront costs, thanks to Entergy Arkansas incentives.
- Shortened payback period on your investment.

Who Is Eligible?

Small single-compressor systems up to 75 HP qualify.

How to Participate:

1. Contact us at **877-212-2420** or visit entergyarkansas.com/commercial to enroll in one of the Entergy Arkansas energy efficiency programs.
2. We'll perform an on-site inspection of your existing systems — at no cost to you.
3. You'll receive customized project recommendations, tailored to your company's needs.
4. We will provide a list of qualified participating trade allies who are trained in the Entergy Arkansas energy efficiency programs.
5. The system upgrades will be installed.
6. You'll receive cash incentives for all qualifying completed projects.

Compressor Facts

- Only 25 percent of all compressors sold are 50–100 HP (and 65 percent are less than 50 HP).*
- A variable speed drive compressor saves approximately 26 percent more than a modulating compressor.**

*Source: Consortium for Energy Efficiency, Inc

**Source: Compressed Air & Gas Institute

Ready to save? Contact the Energy Efficiency Solutions Center at **877-212-2420** or visit entergyarkansas.com/commercial.



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ENERGY MASTER PLANNING WORKSHOP



Learn How a Master Plan Can Bring Long-Term Energy Savings.

Planning and Your Organization

An energy master planning workshop with the Entergy Arkansas CitySmartSM - SCORESM Program is a facilitated session that will help you identify long-term strategies for controlling energy use and costs. These workshops bring together members of your organization from executive management to facility operations, serving as a starting point for gaining cross-functional consensus on energy-saving strategies. They then help you work as a team to evolve those strategies as needs change within your organization.

How Will You Benefit?

- After the workshop, you'll receive an energy master plan that will include short- and long-term goals as well as strategies that will help your organization take advantage of every opportunity to reduce energy use and save money.
- Due to the collaborative, cross-functional nature of the session, your team will be equipped to adjust your energy master plan to account for budget fluctuations, changing facility operations, new construction projects and other variables that may occur after the workshop.

*Source: energystar.gov

How to Participate:

1. Our no-cost energy master planning workshop is available to anyone who has received an energy benchmarking report from the CitySmart - SCORE Program. To request a customized benchmarking report, call us at **877-212-2420** or visit entergyarkansas.com/citysmart.
2. To schedule a workshop, speak to the program representative who delivered your report.
3. During the workshop, we'll work with you and your team to identify your organization's energy management strengths, weaknesses and opportunities for improvement.
4. Using insights gained during the workshop, we'll develop a customized energy master plan that you can use as a road map for managing your energy use.

Energy Efficiency and Management Facts

- By adopting better energy management practices, most organizations can reduce their annual energy costs by 2-10 percent.*
- New technologies and renewable energy sources have advanced and grown in popularity in recent years, but energy efficiency remains the easiest and most cost-effective way to reduce energy consumption.*
- Thirty percent of the energy consumed in commercial and industrial facilities is used inefficiently or unnecessarily.*

Questions? Contact the Energy Efficiency Solutions Center at **877-212-2420** or visit entergyarkansas.com/citysmart.



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A LESSON IN ENERGY EFFICIENCY



The CoolSaverSM A/C Tune-up empowers you to reduce energy use, increase cost savings and improve the comfort of your classrooms, offices and facilities. Not to mention, Entergy Arkansas offers you incentive dollars to help offset the initial cost of the service. The benefits speak for themselves, as demonstrated by the examples below of schools across the state. Will you take advantage of CoolSaver A/C Tune-ups for your school?

- 60+ schools and colleges have participated.
- 5,750,000+ kWh saved.
- \$500,000+ in first-year savings.
- \$2,000,000+ in five-year savings.
- \$900,000 in Entergy Arkansas incentives paid.

Check out some of the schools that saved big with CoolSaver A/C Tune-ups:

Schools	Number of Tune-ups Performed	Estimated Annual kWh Savings	Estimated First-year Energy Savings	Estimated Five-year Lifetime Savings
Pottsville	80	98,643	\$9,864	\$39,457
Beebe	84	58,141	\$5,814	\$23,256
Poyen	138	105,232	\$10,523	\$42,093
Emerson-Taylor-Bradley	107	146,789	\$14,679	\$58,716
Gurdon	93	193,734	\$19,373	\$77,494
Greenbrier	75	133,680	\$3,368	\$53,472
Williams Baptist College	68	107,105	\$10,711	\$42,842
UACCM	80	41,709	\$4,170	\$16,680
SEARK	29	27,166	\$2,716	\$10,864

Questions? Contact the Energy Efficiency Solutions Center at **877-212-2420**.



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BOOK YOUR SAVINGS.
Lower Energy Costs at Your Hotel Through Energy Efficiency

ENERGY SOLUTIONS
AN ENERGY SERVICES COMPANY

A Sound Investment
Did you know that energy costs represent four to six percent of a hotel's operating costs, with the largest chunk of that going to heating and air conditioning? You can use less.

To help your hotel gain a competitive edge, join our Large Commercial & Industrial Program. We'll identify energy-saving opportunities that can boost your bottom line, lessen your impact on the environment and improve comfort and safety for your employees and guests. You may even receive incentives to offset costs further.

Source: nytimes.com

Available Incentives
Our program offers incentives and services on energy-efficient equipment and measures for hotels, including, but not limited to:

- Upgrading HVAC equipment and performing CoolSaver™ A/C Tune-ups on non-PTAC units.
- Installing energy-efficient lighting.
- No-cost direct installation of low-flow water devices, weather stripping, door sweeps and LEDs.

For more detailed information about the energy-saving measures we can help you implement, see the reverse side of this document.

Get Started
Get a free on-site inspection of your hotel's faucets, lighting and heating and cooling systems to identify facility-specific upgrades that are right for you.

Contact the Energy Efficiency Solutions Center at **877-212-2420** or visit entergyarkansas.com/commercial to start saving today.


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KNOW THE SAVINGS.
Some of the energy-saving measures eligible for incentives under the program include:


Measure	Estimated Incentive	Estimated Annual Energy Cost Savings
Replacing a 175-watt metal halide wall pack with an 80-watt LED.	\$77	\$46
Replacing a 400-watt metal halide in your parking lot with a 190-watt LED.	\$157	\$95
Installing weather stripping on exterior doors.	No charge	\$160
Installing an aerator that slows the flow of a faucet to 0.5 gallons per minute.	No charge	\$16
Installing a low-flow showerhead.	No charge	\$30
Installing an ENERGY STAR® certified ice maker.	\$45	\$27
Installing PTAC occupancy setback controls.	\$58	\$35
Replacing a four-lamp, four-foot T8 lighting fixture with two 18-watt LED tubes.	\$77	\$49
Replacing a 50-watt halogen spotlight with a 12-watt LED spotlight.	\$28	\$17
Installing an energy-efficient exit sign.	\$53	\$32

Other energy-saving measures are also eligible for incentives, including high-efficiency HVAC units, water heaters, gaskets and strip curtains.

BY THE NUMBERS
Converting Lighting and Direct Install
By installing energy efficiency measures in a typical* hotel room, the estimated incentive is \$58 per room, with estimated annual energy savings of \$56.14 per room.

*Typical hotel room consisting of four LED lighting fixtures, one shower and one sink.

To start saving, contact the Energy Efficiency Solutions Center at **877-212-2420** or visit entergyarkansas.com/commercial.


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WE POWER LIFE®



SERVE UP THE SAVINGS

Achieve Long-term Savings at Your Restaurant Through Energy Efficiency



A Sound Investment

Did you know that the average restaurant uses five to 10 times more energy per square foot than other commercial buildings? Energy Arkansas can help you use less.

Our Large Commercial & Industrial Program and Small Business Program help restaurant owners like you invest in cost-effective, turnkey improvements that will narrow the energy-consumption gap between you and neighboring businesses. Since these improvements result in lower energy bills month after month, they often pay for themselves over time, while making your restaurant more comfortable for customers and employees.

Source: energyark.gov

Available Incentives

Our program offers incentives and services on energy-efficient equipment and measures, including:

- Upgrading heat pumps, air conditioning units and other HVAC equipment with a CoolSaver™ A/C Tune-up.
- Implementing technologies that boost refrigeration efficiency.
- Installing energy-efficient lighting and advanced lighting controls.
- Equipping your kitchen with demand-based ventilation controls.

For more detailed information about the energy-saving measures we can help you implement, see the reverse side of this document.

Get Started

To help you identify facility-specific upgrades that are right for you, we offer free on-site inspections of your restaurant's refrigeration, lighting, and heating and cooling systems.

To start saving, contact the Energy Efficiency Solutions Center at 877-212-2420 or visit energyarkansas.com/commercial.



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KNOW THE SAVINGS

Some of the energy-saving measures eligible for incentives under the program include:

Measure	Estimated Annual Electricity Savings (kWh)	Estimated Annual Energy Cost Savings
Refrigeration		
Installing an anti-sweat heater control on a refrigerated display case with five doors.	2,737	\$246
Equipping a 3' x 7' freezer or refrigerator door with a strip curtain.	3,375	\$304
Installing an energy-efficient novelty case cooler.	4,604	\$414
Installing a refrigerator door gasket.	1,192	\$107
HVAC controls		
Installing hood controls in your kitchen.	4,227	\$380
Upgrading to SEER 16 or better HVAC unit.		
Using controls for scheduling, set points, setbacks and improved occupant comfort.		
Lighting Controls		
Installing a two-fixture fluorescent or LED occupancy sensor in one of your bathrooms.	68	\$6
Lighting		
Replacing one 100-watt incandescent lamp in your freezer with a 3-watt LED.	367	\$33
Replacing a four-lamp, four-foot T8 lighting fixture with two 15-watt LED tubes	362	\$33
Replacing a 50-watt halogen spotlight with a 12-watt LED spotlight.	151	\$14
Installing an energy-efficient exit sign.	353	\$32
Other		
Installing an aerator that slows the flow of a faucet to 0.5 gallons per minute.	1,437	\$129
Installing a pre-rinse spray valve that slows the water flow while maintaining pressure.	5,000	\$450

Other energy-saving measures are also eligible for incentives, including high-efficiency HVAC units, water heaters, gaskets and strip curtains.

To start saving, contact the Energy Efficiency Solutions Center at 877-212-2420 or visit energyarkansas.com/commercial.



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WE POWER LIFE™

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ENERGY ARKANSAS NEW CONSTRUCTION INCENTIVES



Helping You Make the Most of Your New Building

Building efficiently gives you the best return on your investment, financially and socially. It improves air quality and lessens your impact on the environment. It's also affordable and enhances the work environment.

One way to ensure your new building is constructed efficiently is by following ENERGY STAR® certification. Though it's not required for Entergy Arkansas program incentives, ENERGY STAR certified buildings use an average of 35 percent less energy than similar buildings and cost \$50.50 less per sq. ft. to operate. In 2014, that came out to savings of nearly \$200,000 per building.

How We Can Help

Our program offers incentives and technical services that will help you optimize the most energy-intensive processes in your new construction, using measures such as:

- Installing high efficiency HVAC equipment.
- Installing energy-efficient lighting.
- Use of high efficiency production equipment.
- Use of building automation systems.

Contact us below if you want more detailed information about the energy-saving measures we can help you implement.

Who Can Benefit?

Architects and Building Design Engineers

- Utility incentives and savings estimates can clearly illustrate the benefits of high efficiency design, allowing these systems to survive "value engineering."
- Feasibility study co-funding for Leadership in Energy and Environmental Design™ and other high efficiency designs.
- "Incentive Re-Assignment" payment option authorized by a customer, which reduces initial capital expenditure and may serve as a form of alternative financing to conventional loans.
- Adding incentives to a construction project increases customer confidence and satisfaction.

General Contractors and Project Managers

- Incentives help lower construction costs so more bids can be won.
- Leveraging incentives provides more control over profit margin.
- Adding incentives to a construction project increases customer confidence and satisfaction.

Commercial Building Owners

- Increased asset value.
- Higher rental rates.
- Reduced operating costs.

Industrial or Manufacturing Facilities

- Lean manufacturing is possible with top-of-the-line equipment that is made cost-effective with incentives.
- Increased capacity at a lower cost.
- Reduced downtime.
- Boosted safety and improved productivity.

Questions? Contact the Energy Efficiency Solutions Center at **877-212-2420** or visit **entergyarkansas.com/commercial**.



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ENERGY ARKANSAS COMMERCIAL COOLSAVERSM A/C TUNE-UP



Overview

The CoolSaver A/C Tune-up is designed to overcome market barriers that prevent commercial customers from receiving high-performance air conditioner and heat pump tune-ups. By identifying and correcting system inefficiencies, you save energy and money. CoolSaver provides incentives, training on best practices and discounts on high-quality tools for contractors to conduct high-performance system tune-ups.

Who is eligible?

All Entergy Arkansas commercial customers with a central air conditioner or heat pump system of any size that is at least one year old. Systems above 25 tons may qualify on a case-by-case basis pending pre-approval by the program implementer. Systems that have been incentivized through the CoolSaver A/C Tune-up Program in the past five years are not eligible to receive these incentives.

What are the benefits?

- Instant discount.
- Use of precision digital instruments to increase system efficiency.
- Reduced cooling costs.
- Extended equipment life.
- Better humidity control.

How to participate

1. Contact the Energy Efficiency Solutions Center at **877-212-2420** or visit entergyarkansas.com/commercial for more details and to find a list of trade allies in your area.
2. Your trade ally will conduct an evaluation of your system to determine whether you would benefit from a high-performance tune-up, which could include services listed in the table below.
3. Your trade ally carries out your recommended tune-up measures.
4. Your instant incentive is applied to your final invoice.

Commercial CoolSaver Incentive Rates

Measure Type	Potential Services	Incentives			
High-performance air conditioner tune-up	<ul style="list-style-type: none"> • Cleaning evaporator coil. • Cleaning outdoor condenser. • Cleaning blower. • Adjusting refrigerant charge to manufacturer specification. 	1.5 – 3.5 Tons:	\$225	26 – 30 Tons:	\$850
		4 – 5 Tons:	\$275	31 – 50 Tons:	\$1,400
		6 – 10 Tons:	\$450	51 – 80 Tons:	\$2,000
		11 – 15 Tons:	\$650	80+ Tons:	\$2,500
		16 – 25 Tons:	\$800		

Questions? Contact the Energy Efficiency Solutions Center at **877-212-2420** or visit entergyarkansas.com/commercial.



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ENERGY ARKANSAS CONTINUOUS ENERGY IMPROVEMENT INITIATIVE



Energy use is a management expense. Take control.

Energy is typically one of an organization's largest operating expenses and impacts everything from the bottom line to occupant comfort. For many, limited time, awareness and expertise prevent optimal management of this resource. We can help.

Continuous Energy Improvement provides energy efficiency strategies, technology, consulting advice and technical expertise at no additional cost to customer. This changes the way people use energy within your facility, which leads to quantifiable savings and fosters a culture of energy awareness.

What CEI Offers

- Strategic planning and guidance.
- On-site technical analysis and facility assessments.
- Identification of low/no-cost energy-saving and quick-payback project opportunities.
- Facilitated and targeted training and education for staff and occupants.
- Cutting-edge modeling to track energy performance at no additional cost to your organization.
- Incentive bonus for CEI energy savings (\$0.02 per annual kWh saved).

Benefits of CEI

- Potentially lower energy use and reduced utility costs.
- Access to tailored CEI energy models, tools, consultants and resources.
- Best practices for facility operations.
- Process efficiencies, reduced maintenance and increased comfort for occupants.
- Increased awareness of energy use.
- Networking with other CEI participants and learning best practices for energy management.

How It Works

CEI is built on principles of continuous improvement and organizational change, integrating cost-saving and operational excellence initiatives such as Lean and Six Sigma. CEI sets your organization up to save energy by providing your facility and operational managers with on-call energy consultants. Think of it as empowering your organization to control your energy use. Participants attend CEI workshops, complete behavioral or operational energy-saving actions and engage their leadership and organization in savings efforts and progress.

"The Continuous Energy Improvement Initiative has really benefited Johnson Controls by helping us achieve our corporate continuous improvement energy goals this year. Involvement in the CEI Initiative, especially in the group workshops, has helped us build a strong JC Energy team, as well as enabled us to build teamwork by inclusion of others across our plant in saving energy!"
 Matt Trull, UFG GAS Manager, Building Efficiency Johnson Controls



First Year - Workshops and Activities

Type	Activity	Timing Initiative Month												
		1	2	3	4	5	6	7	8	9	10	11	12	
Workshops	Cohort Kickoff	■												
	Engaging Your Organization in Saving Energy				■									
	Measuring and Modeling Energy Performance						■							
	Technical Forum							■						
	Sustaining Energy Savings/Report Out													■
Individual Events	Site Review/Opportunity Assessment		■											
	Review and Prioritize Opportunities - CEI Plan			■										
	Mid-Year Executive Sponsor Update						■							
	Energy-Saving Engagement Event								■					
	Energy Management Assessment												■	
Other Activities	Monthly Check-in Calls													
	Milestones													

Questions?

Contact Richard Gregg at 501-221-4011 or richard.gregg@clearresult.com.



RESERVE YOUR CONTINUOUS ENERGY IMPROVEMENT COHORT SEAT.



Entergy Arkansas is pleased to offer your organization the opportunity to participate in our upcoming Continuous Energy Improvement Initiative. Please review the following information, participation guidelines and criteria.

We will work with you to implement a continuous improvement process for saving and managing energy, including:

- Choosing a member of your executive management team to be the executive sponsor to oversee CEI implementation and conducting regular progress reviews with the energy champion and team.
- Designating an energy champion to lead CEI efforts and provide the energy champion with resources and oversight reasonably necessary to accomplish the goals described in this document.
- Establishing an energy team consisting of representatives from various sites and functional areas.
- Establishing an energy policy or charter that includes an energy reduction goal and assigns responsibilities to appropriate persons for meeting that goal.
- Implementing cost-effective energy efficiency activities and projects (as defined by your organization).
- Providing information to establish an energy-use baseline and maintain an energy performance model.

What are the benefits and services?

- Potentially reduce utility costs for electricity and other energy sources.
- Gain access to energy management training resources for your staff.
- Receive tools and templates to help implement strategic energy management.
- Receive knowledgeable coaching and mentoring.
- Get technical assistance to help staff identify and quantify energy-saving opportunities.
- Get documentation of energy consumption levels and savings.
- Benefit from incentives for energy savings.



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What are the commitments and requirements?

The CEI Initiative begins with a one-year initial engagement with the option to continue as part of the CEI alumni cohort. The initiative will engage the participants' designated representatives in on-site meetings and peer-to-peer group training sessions that will typically occur monthly during the first CEI year. Participants are asked to send to each session at least two staff members who must actively participate, including presenting on relevant topics or progress.

Participants are asked to make a good faith effort to fulfill the requirements of participation. Lack of responsiveness on communications, repeated missed attendance at meetings or trainings, last-minute cancellations or other similar actions indicating a lack of organizational commitment may result in CEI services being withdrawn.

The number of participants is limited and designed to meet CEI savings targets. Entergy Arkansas and CLEARresult reserve the right to manage participation according to CEI Initiative design and available space, and to address potential competitive concerns between prospective participants.

Sign a customer participation agreement.

Participants are asked to sign a customer participation agreement, which sets forth the legally binding terms for the Entergy Solutions Programs including confidentiality, incentives and liability. Participation in CEI is voluntary, and there are no additional costs beyond your staff engagement.

PARTICIPANT INFORMATION			
Company (Participant) Name			Date
Company Address		City	State ZIP
Executive Sponsor (Print Name)		Executive Sponsor Title	
Primary Contact (Energy Champion) (Print Name)			
Energy Champion Phone Number		Energy Champion Email Address	

Email this document to richard.gregg@clearresult.com.

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3.6.35 0321-EAI-AR-Large CI-2264282-Overview Flyer_CLEAN.pdf



Large Commercial & Industrial Program

Overview

The Large Commercial & Industrial Program is offered to commercial and industrial customers of Entergy Arkansas. The program helps facility supervisors understand the technical and financial benefits of investing in energy efficiency upgrades and provides financial incentives for qualifying projects.

Eligibility

To participate, you must be a commercial or industrial customer with a valid Entergy Arkansas account and at least 100kW in cumulative peak demand for any given billing period over the past 12 months.

Incentive Rates

Qualifying upgrade	Incentive per kWh saved	Cap
1	\$0.14	up to 100%
2	\$0.15	up to 100%
3	\$0.16	up to 100%
4+	\$0.18	up to 100%

- Measures must be 30,000 kWh each for tier credit.
- Measure credits for tiers are only retroactive to January of the previous program year.
- Program direct install measures will count as only one tier, even if different end uses exist.
- Excess incentives can be leveraged against other projects (up to the cap) and can carry forward to the end of the following program year.
- Retroactive incentives can be leveraged against other projects (up to the cap) back to January of the previous program year.

How It Works



The Large C&I Program Offers

- A walk-through assessment of your facility's energy use and savings potential.
- A report summarizing your facility's current energy use and future savings opportunities.
- Access to our participating trade ally network.
- Measurement and verification of energy savings for custom projects.

Benefits

- Incentives to help cover your project costs.
- Reduced energy costs.
- Improved efficiency of your facility.
- Enhanced workplace comfort and productivity.

Eligible Projects

- Lighting and lighting controls.
- Strategic energy management.
- Industrial process and compressed air system controls.
- HVAC/chiller replacements and tune-ups.
- Industrial pump and fan upgrades.
- Motor replacements.
- Industrial heating and cooling.
- Building automation controls and retrocommissioning.
- Motor and variable frequency drive upgrades.
- Non-heating/cooling industrial process upgrades.
- Computer power management.
- Compressed air upgrades.
- Commercial refrigeration upgrades.
- Other cost-effective, measurable and verifiable upgrades.

Ready to Start?

Contact the Energy Efficiency Solutions Center at 877-212-2420 or visit entergyarkansas.com/commercial.

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3.6.36 0520-EAI-LCI-1894428-Single Measure-Sheet-Compressed Air leaks_CLEAN.pdf



SAVINGS ARE IN THE AIR.



According to the Department of Energy, up to 30% of an industrial compressed air system's output can be lost through air leaks. In poorly maintained systems, all this wasted energy can add up to thousands of dollars a year in unnecessary operating expenses.

Entergy Arkansas is here to help. Contact us today to learn how the program can help find and fix your system's air leaks, recommend replacement if needed and potentially cover up to 100% of your repair costs.

Why fix compressed air leaks?

- **Increased production.** Fluctuating system pressure can cause air tools and other air-operated equipment to function less efficiently, which can impact production.
- **Cost savings.** Excess compressor capacity can lead to higher than necessary energy and equipment costs.
- **Less maintenance.** Unnecessary cycling and longer runtimes cause greater wear and tear on your supply equipment, leading to higher maintenance costs and shorter equipment life.

Common Problem Areas:

- Couplings.
- Hoses.
- Tubes.
- Fittings.
- Pipe joints.
- Quick disconnects.
- Condensate traps.
- Valves.
- Flanges.
- Packings.
- Thread sealants.
- Point-of-use devices.



Ready to save?

Visit entergyarkansas.com/commercial to find a list of participating trade allies near you, or give us a call at 877-212-2420.



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STOP LEAKING MONEY.

How It Works

1. **Discover.** You or a participating trade ally identifies, tags and labels all compressed air leaks in your system. Compressed air leaks are easy to find with ultrasonic acoustic detectors, which can recognize the high-frequency hissing associated with air leaks.
2. **Verify.** An Entergy Arkansas representative measures and verifies each leak.
3. **Repair.** You or your trade ally repairs all leaks following internal safety protocols. Most leaks are simple and inexpensive to fix. Document the cost and labor of all leak repairs, or save a copy of the invoice if using an outside contractor.
4. **Confirm.** An Entergy Arkansas representative confirms all repairs and removes the tags. We can also provide preventative maintenance training upon request.



Typical Cost Savings

The following examples show the estimated savings for repairing air leaks totaling up to 20% of the system capacity of a typical compressed air system operating 5,000 hours per year at a specific power of 0.18 kW/cfm with an electricity rate of \$0.06 per kWh.

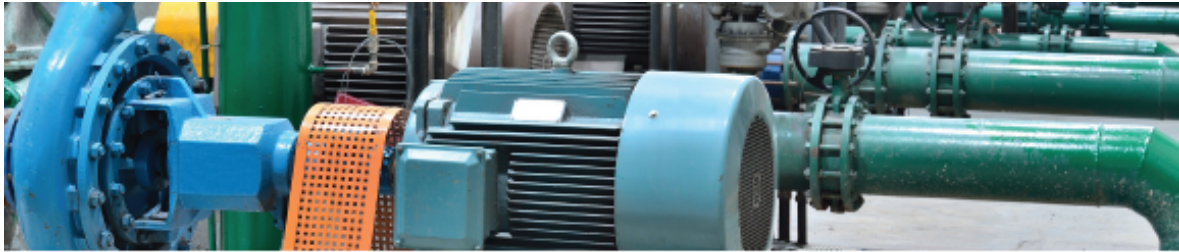
Compressor (HP)	Est. Capacity (ACFM)	Available Incentives	Est. Annual Savings
200	1,000	Up to 100%	\$10,800
150	750	Up to 100%	\$8,100
100	500	Up to 100%	\$5,400
50	250	Up to 100%	\$2,700

Let's get started.

Find a list of trade allies at entergyarkansas.com/commercial, or contact our Energy Efficiency Solutions Center at 877-212-2420.

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3.6.37 0619-EAI-CI-1585640-Variable-Frequency-Drive-flyer_CLEAN.pdf



ENTERGY ARKANSAS VARIABLE SPEED DRIVES



Drive Home Savings for Your Business

Did you know that reducing a machine's fan speed by even 20 percent can reduce its electricity use by about 50 percent?*

By joining one of the Entergy Arkansas energy efficiency programs, you can receive incentives toward the installation of variable speed drives on HVAC systems, cooling tower fans, water pumps, air compressors, process equipment and more.

How Will I Benefit?

- Receive cash incentives that offset your up-front costs.
- See monthly energy and cost that can be re-invested into your business.
- Reduce your impact on the environment.

How it Works

Installing VSDs on motors saves energy by utilizing the affinity laws. These laws show that a small decrease in the rotating speed of the motor can greatly reduce the power input needed and yield big savings.**

How to Participate:

1. Contact us at 877-212-2420 or visit entergyarkansas.com/commercial to enroll in one of the Entergy Arkansas energy efficiency programs.
2. We'll perform an on-site inspection of your existing systems — at no cost to you.
3. You'll receive customized project recommendations, tailored to your facility's needs.
4. We will provide a list of qualified participating trade allies who are trained in the Entergy Arkansas energy efficiency programs.
5. The system upgrades will be installed.
6. You'll receive cash incentives for all qualifying completed projects.

Variable Speed Drives Facts

VSDs save energy by utilizing the affinity laws. These show that a small decrease in the rotating speed of the motor can yield significant energy savings. For example, reducing the rotating speed of the motor by 20 percent can reduce the power input needed by about 50 percent.***



Source: ENERGY STAR

**Source: U.S. Department of Energy

***Source: www.eere.energy.gov

Ready to save? Contact the Energy Efficiency Solutions Center at 877-212-2420 or visit entergyarkansas.com/commercial.



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3.6.38 1020-EAI-C-I-2060436-QSync-Single-Measure Sheet_CLEAN.pdf



THE BEST JUST GOT BETTER.

One of the most energy-efficient and cost-effective motors on the market just got even more affordable. Entergy Arkansas now offers custom rebates for new Q-Sync motors, a higher efficiency alternative to shaded-pole, permanent split-capacitor and even electronically commutated motors.

Compatible with most commercial refrigerated equipment, Q-Sync motors offer an easy upgrade to the stock motors in your refrigerated display cases, walk-in coolers and freezers, HVAC systems and more. Get in touch today to see how much we can help you save.

Q-Sync Motors:

- Consume less energy than any other motor type.
- Typically pay for themselves in one to three years.
- Are compatible with most refrigeration systems.
- Can be installed in 15 to 30 minutes.
- Reduce heat exhaust, improving efficiency and customer comfort.
- Help cut maintenance costs, increase equipment life and reduce spoilage—ultimately moving more products off the shelves.



Get started.

Find a list of trade allies near you at entergyarkansas.com/commercial, or contact our Energy Efficiency Solutions Center at 877-212-2420.



A COOLER WAY TO SAVE

How It Works

1. Discover. You or a participating trade ally identifies your facility's existing evaporator fan motors.
2. Verify. An Entergy Arkansas representative verifies the existing evaporator fan motors.
3. Replace. You or your trade ally replaces existing motors with Q-Sync motors. You or your trade ally documents the material cost and labor or saves a copy of the invoice if using an outside contractor.
4. Confirm. An Entergy Arkansas representative confirms all replacements.



Motor Comparison

	Q-Sync	ECM	Permanent split-capacitor	Shaded-pole
Operational efficiency	70–80%	50–60%	40–50%	20%
Refrigerated space—estimated annual energy costs per motor*				
0–12 Watt	\$14.96	\$20.35	\$40.62	\$48.97
38–50 Watt	\$39.91	\$53.96	\$68.32	\$128.98
Freezer space—estimated annual energy costs per motor*				
0–12 Watt	\$17.77	\$24.18	\$48.25	\$58.17
38–50 Watt	\$47.41	\$64.10	\$81.16	\$140.61

*This cost figure assumes an electricity rate of \$0.09 per kWh.

Let's sync up.

Visit entergyarkansas.com/commercial to find a trade ally near you, or call 877-212-2420.

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3.6.39 1020-EAI-CI-2067435-Direct Install Flyer EDIT and REPRINT_CLEAN.pdf



Cut down your energy use and your bill.

Entergy Arkansas offers solutions to help you cut energy use and save money. Participating technicians will install electricity and water-saving devices at your business for no additional charge. Simple adjustments like these can aid your business in saving on energy and water costs every year:

- Low-flow aerators.
- Low-flow showerheads.
- Pre-rinse spray valves.
- Weather stripping.
- Overhead door weather stripping.
- A19 LED bulbs.
- Compressed air leak repair.

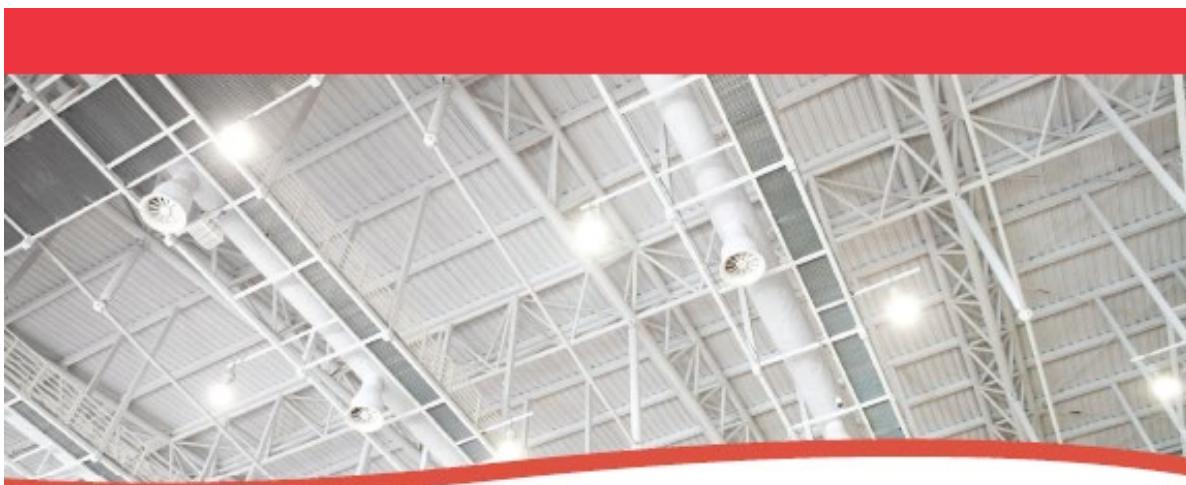
If you're an Entergy Arkansas commercial customer, contact us to see if you qualify to start saving immediately with these energy-saving devices at no additional cost.

Questions? Contact Bryan Vericker at **501-221-4041** or **bryan.vericker@clearesult.com**. You can also visit **entergyarkansas.com/commercial** to learn more about commercial energy efficiency programs.



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3.6.40 0619-EAI-LA-1585460-midstream-counter-display-clean.pdf



Are you an Entergy customer?

Save more on high-efficiency lighting when you purchase through the Entergy Arkansas Commercial Midstream Program. Get HUGE discounts on select lighting equipment. Benefits include:

- ▶ Instant savings through upgrade incentives.
- ▶ Reduced energy use month after month.
- ▶ Years of energy savings.

For more information, call the Energy Efficiency Solutions Center at **877-212-2420**, or visit entergyarkansas.com/commercial.


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3.7 Small Business Solutions

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**2022 Program Manual
Small Business**

PREPARED BY:
CLEARResult
 1 Allied Dr. Suite 1600
 Little Rock, AR 72202
 Contact: Ashley Scott
 Phone: 501-221-4010
 Email: ascott@clearresult.com

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Energy Arkansas, LLC
2022 Small Business Program Manual

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Energy Arkansas, LLC
2022 Small Business Program Manual

PROGRAM OVERVIEW

Program Description

The Energy Arkansas portfolio of Business Solutions Programs includes attractive value propositions and provides energy saving opportunities for Energy Arkansas's small business customers. The Small Business Program (Program), one of the programs within that portfolio, offers multiple participation opportunities for commercial customers that have peak electricity demand of less than 100 kilowatts (kW).

This Program is designed to help Energy Arkansas's small business customers achieve electricity savings through assessments conducted by local trade allies. Trade allies will help small business customers evaluate their facility's energy use, identify energy efficiency improvement projects, and install cost-effective energy-saving measures. Small business customers may receive no cost energy assessments and installed measures as well as rebates for eligible energy efficiency measures that are installed in their business.

Program Objectives

- Achieve electricity savings by using local trade allies to make efficiency improvements.
- Help Energy Arkansas small business customers understand how their business is using energy, identify opportunities for energy savings specific to their facilities, and prioritize a wide range of energy conservation measures.
- Transform these markets over time by addressing the following market barriers that hinder the adoption of energy efficient technologies and practices:
 - Small business owners may not have the technical expertise or time to decide on energy efficiency improvements, particularly those most of these businesses have less limited staff, most of which do not necessarily have adequate time or resources to focus on sound energy management.
 - Limited ability to effectively assess and procure energy efficiency services that can be easily delivered; most small businesses do not have the benefit of being targeted by energy service companies (ESCOs), lighting distributors, and other market actors who help facilitate energy management.
 - Most small businesses have limited access to investment capital, meaning that their cost can be a significant barrier for efficiency upgrades without intervention or support from external sources.
- Develop a trained group of trade allies capable of providing whole facility energy services in the market.
- Provide a suite of educational and supporting services for customers and trade allies to promote the implementation of energy efficiency measures.

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Energy Arkansas, LLC
2022 Small Business Program Manual

Program Management & Contacts

Ashley Scott
 Phone: 501-221-4010
 Email: ascott@clearresult.com
 Energy Efficiency Solutions Center ("ESC")
 Phone: 1-877-232-3400

Program Roles & Responsibilities

Program Sponsor: Energy Arkansas, LLC
Website: <http://www.energysolutions.com/smallbusiness>

- Provides all funding for the energy efficiency program and the program incentives.
- Manages the energy efficiency programs and oversees implementation.

Program Evaluation: Yale Tech

- Provides oversight of program implementation to verify that savings claimed in the program is correct, valid, and adequately documented.
- May perform post-install on-site inspections, measurements, or phone conversations to collect data for program savings verification.
- Provides updates to program calculation methodologies through annual TRM updates.
- Surveys program participants to determine if program implementation is meeting their needs and expectations.
- Surveys customers to determine if program outreach is adequately informing the market of the energy efficiency program opportunities.

Program Implementer: CLEARResult

- Performs outreach and education about the energy efficiency program.
- Provides energy efficiency assistance to program participants (at no cost).
- Assists program participants and trade allies with program documentation.
- Performs all required on-site inspections and documentation.
- Provides calculations on energy savings potential for identified projects.
- Assists in evaluation of financial metrics for energy efficiency projects (payback, ROI, etc.).
- Processes and delivers incentive checks for successful projects.

Program Participant: Customer

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To participate in the program, participants must: (Customers using a trade ally may have the trade ally complete some of the following actions on the customer's behalf.)

- Work with program Trade Ally to schedule a facility assessment
- Submit a project application to receive incentives for qualifying energy efficiency projects
- Event lead efforts to approve, fund, install and report selected projects before the end of program year
- Contact the program implementer when projects are completed and allow staff to perform a post-inspection
- Provide program implementation staff, including quality assurance/quality control and evaluation staff, access to facilities and facility supervisors both before and after project completion. These staff members may conduct inspection of the facility and/or the post-project activities as required.

Trade Ally:

To participate in the program as a trade ally, the trade ally must:

- Execute the trade ally agreement
- Complete required training(s) and adhere to program guidelines set out in this program manual
- Provide verification of adequate insurance coverage
- Work with program implementation staff to take advantage of program marketing materials and technical assistance
- Coordinate with program implementation staff to verify customer eligibility and define the scope for the energy efficiency project
- Share with program staff adequate project information on proposed projects to allow the calculation of energy savings and incentives for the program participant
- Provide program staff with sufficient project information to calculate and record the potential participant energy savings and participant incentives
- Coordinate verification of the pre-inspection data provided to the program implementer is correct and verifiable accuracy of the savings and incentives as calculated by the implementer's staff or the tools provided by the implementer
- Install eligible energy efficiency measures and submit appropriate documentation as requested by program implementer
- Perform all work to the required standards of the program

PROGRAM ELIGIBILITY

Customer Eligibility

To participate in the program, the customer:

- Must be a commercial customer of Energy Services with a valid account number.
- Must have total electric demand less than 100 kilowatts (KW).

Trade Ally Eligibility

Trade allies of various trades that meet all program qualifications and standards (listed below) are eligible to participate in the program. Trade allies may continue as a part of the program as long as they maintain compliance with all program requirements, achieve satisfactory customer satisfaction scores, and pass quality control inspections and verifications.

- To participate, trade allies must sign a trade ally agreement, and attend online, on-site, and in-field training as required to comply with program guidelines. Follow-up training will be provided as needed to ensure trade allies proficiency. Trade allies will not be included on the program's website until they demonstrate proficiency in the skills required to be a trade ally in the program. In order to participate in the program, customers are required to use trade ally. Details on the training, tools, and performance are listed below.
- Technical Requirements**
 - Understanding of basic building science principles.
 - Completion of program required best practices training(s).
 - Provide proof of appropriate and required licensing.
- Business Requirements**
 - Demonstrate the capability to conduct business successfully by providing ONE of the following:
 - Satisfactory Dun and Bradstreet Rating, or
 - Specified evidence of business capacity including at least two of the following:
 - A satisfactory banking reference.
 - A minimum of three satisfactory professional trade references, such as suppliers of materials, tools, or tools.
 - Confirmation that the principals in the business have a satisfactory individual credit score with no outstanding liens or judgments.

Trade

- To ensure that all materials are installed to manufacturer specifications, trade allies must own, use, and maintain all tools used.

Quality Performance

- In order to maintain trade ally eligibility, the trade ally, upon request from CSEM/MSU, and at the additional cost to the customer, shall make reasonable repairs or corrections to work that the Trade ally has performed to bring such work up to the Program standards. The repairs or corrections are to be completed within the timeframe specified by CSEM/MSU. Trade ally also agrees to take steps to ensure that future work will comply with the Program standards.

Trade Ally Documentation/Confidentiality

Trade ally should note that this program is in place to drive energy efficiency in the Energy Services service territory. Any program documentation created for a proposed project within the Energy Services program will be treated with care and will not be shared with anyone outside the participant for whom it was developed. All information submitted is considered the property of the program participant and will be shared with that customer upon request unless that documentation is clearly and obviously labeled as confidential on each page of the documentation. All confidential information so labeled will be verified with the provider prior to sharing with the program participant.

PROGRAM INCENTIVES
Measures & Incentive Levels

A project, for program purposes, is defined as proposed measure at one facility owned and/or operated by the customer.

All measures must meet the following requirements:

- Must result in a measurable and verifiable reduction in energy usage (kW).
- Must produce energy savings through an increase in energy efficiency.
- New equipment must exceed minimum equipment efficiency standards.

Qualifying small business customers who participate in the program may be eligible for some or all of the following services and/or measures:

- Energy assessment performed by either a trade ally or CSEM/MSU.
- Direct installed equipment including pre-rinse spray valves, low flow faucet aerators, low flow shower heads, weather stripping, LEDs and venting mixers (note: pre-rinse spray valves, faucet aerators, and low flow shower heads are for customers with electric water heat only).

- Lighting measures such as:**
 - High efficiency Interior Lighting
 - Interior Lighting Controls
 - High efficiency Exterior Lighting
 - Refrigerated Case Lighting
- Refrigeration measures such as:**
 - Electronically Controlled Motors (ECM)
 - Air-Side Heat Exchanger Controls
 - Refrigerant Cooler Shut-Off Controls
 - ECM Controls
 - Gas and Strip Curtains

Figure 1: Incentive Levels

Measure Type	Rate (per kW)
AI Lighting (including refrigeration lighting)	\$0.17
Interior Lighting Controls	\$0.17
MSRC Replacement	\$0.17
Direct Install**	Full Cost
Window Film	\$0.30
AI Refrigeration**	\$0.30
Direct Sealing***	\$0.30
Curtain Installation***	\$0.30

Note: Project incentives other than direct install measure or refrigeration gas leak and strip curtain will be capped at 150% of the total incremental project cost. Any additional measure approved by the program will be paid at a rate of \$0.17 per kW.

**Minimum spray valves, low flow faucet aerators, low flow shower heads, weather stripping, LEDs and venting mixers

***Refrigeration settings other than gas leak and strip curtain in the Program will be capped at \$0.03 per kW for the current program year. Once the cap has been met, refrigeration savings will be paid at a rate of \$0.17 per kW.

***Curtained measures only

Figure 2: Program Measures

Lighting Retrofit	Lighting retrofit projects replace inefficient lighting systems with more efficient lighting systems. A variety of high efficiency fixtures, ballasts and lamps produce equivalent light levels as previous technologies while consuming less energy.
Lighting Controls	For incandescent, T8 fluorescent lamps and electronic ballasts can be replaced with more efficient lighting systems such as qualified LED lamps or fixtures. Metal ballasts may be replaced with systems such as T8 fluorescent lamps with electronic ballasts or compact fluorescent.
Exterior Lighting	There are a variety of lamp and ballast combinations that are eligible for this Program depending on the current technology installed at a facility.
Refrigeration	Automatic lighting controls save energy by turning off or dimming lights when they are not necessary. Many different varieties of sensors are available including passive infrared (PIR), dual technology, integral occupancy sensors, photoeyes, which can be coupled with a variety of control strategies including day lighting controls, occupancy controls, time controls and time clocks.
	For certain conditions, light reduction and automatic controls are mandatory for new construction and affected retrofit projects.
	Energy savings opportunities exist for all major exterior lighting applications including parking lots, streets and walkways, and other building mounted lighting.
	Energy savings opportunities exist for both improved lighting performance and enhanced control strategies. For example, retrofitting less efficient HID technologies with LED lighting and occupancy based technology are good candidates for exterior applications.
	There are a number of refrigeration measures that are eligible for upgrades or replacement in Energy Services Programs:
	<ul style="list-style-type: none"> Gas leak replacement. Strip curtains. Evaporator fan retrofits. Refrigerant seal controls. Refrigerant leak controls. Air-cooled door leader controls.

Insulation (Converted Measure) (Only)	Building businesses with inefficient levels of insulation have the opportunity to increase the insulation R-value to R-30. Insulation savings and incentive amounts are based on a per square foot of treated ceiling area.
Dust Sealing (Converted Measure) (Only)	Dust sealing will seal leaks that exist in supply and return ducts of existing homes. Dust prescription or a blower door test is required before and after the measure installation. Only pre-approved sealing materials will be allowed by the Program.
MSRC Replacement	For existing buildings, inefficient (non-ENERGY STAR) heat pumps and air conditioning units are eligible to be replaced with ENERGY STAR qualified units.
Water Conservation Line (RCA Line)	Eligible units for replacement include central split system and single package air conditioners and heat pumps.
	This is a prescriptive approach to building automation services developed to better meet the needs of the small and medium businesses. The program identifies "find and fix" measures to improve building operation with savings that are calculated within RCA Line participants. Participants will be trained to perform the RCA Line surveys, enter the information into the RCA Line Workbook, create the reports and submit to the program for approval and incentives.



Non-Cash Benefits

During an energy assessment, the trade ally and/or the Program Implementer will identify opportunities for the Program to direct install energy saving devices with customer permission. These devices provide customers with instant energy savings and are installed at NO COST. Please note that some of these measures are only available for installation at sites where small business customers have electric water heaters.

Direct Install Measures: Low Flow Faucet Aerators, Pre-Flush Spray Valves, Venting Mirrors, LEDs, and Low Flow Shower Heads.

	Low flow showerheads reduce the amount of water used in older hand washing faucets while reducing the energy needed to heat the water.
	Pre-flush spray valves are used in commercial or institutional kitchens to remove food residue from dishes prior to cleaning in a dishwasher. The Program installs pre-flush spray valves with a flow rate of 1.20 gpm, which offers both high performance and substantial energy savings.
	8 watt A19 Direct-directional LED provides 870 lumens and replaces 60 watt incandescent directional bulbs for use in table lamps, floor lamps, wall scones, and task lighting applications. Multi-Chip LED and an advanced cooling system provides for 10,000 hours of LED life. Medium screw base. Energy Star rated product (E13 V2.0). Suitable for outdoor use. Single location, when installed in fixtures and not directly exposed to weather.

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	Low flow showerheads and handoff showerheads use pressure compensating technology to ensure the feeling of great flow while using less water. Typically, these showerheads use up to 40% less water than, reducing the amount of energy needed to heat the water.
	Weather stripping is used to seal doors against drafts and leaks. It is available in different sizes and colors and is made for all types of doors.

Proposal Requirements

A project is defined by a set of proposed energy savings measures included in a single proposal. Comprehensive projects that include a range of measure types are encouraged. A proposal will be completed by the trade ally and sent to the customer for review and approval to move forward with the project.

All projects must meet the following requirements:

- Project costs must pass a cost-benefit analysis test to receive incentives. In order to comply with this requirement, all project costs are needed by the program implementer before the project starts. This includes the cost of installation and the equipment cost.

Application Process

Upon receipt of a signed proposal, the program implementer will review the proposal for completeness and eligibility, and then process the rebate for distribution to the trade ally. From the date of the proposal, should sites, customers will be placed on a waiting list in the order in which the signed proposals were received.

Incentive Payment Process

The trade ally is responsible for meeting all of the submission requirements for an eligible rebate to be processed and paid.

- A proposal is deemed eligible if it is:
 - Complete, containing all required signatures and other necessary information.
 - Legible.
 - Submitted with a verified Energy Arkansas account number.
 - Submitted with all necessary accompanying documents.

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- CLEARwill will pay eligible small business rebates within 30 days of submit of all necessary documentation.
- CLEARwill will pay verified rebates to the accountants early (typically, to the trade ally after said trade ally has provided an instant rebate to their customer).

Limits on Participation

- Once the incentive budget for the current year is expended, a waiting list will be established for program participation in the following program year.
- If re-identification to the program occurs, customers on the waiting list may be able to receive incentive funding for the current program year if other projects are cancelled and funds become available. Otherwise, they will be eligible to receive funding through the next program year if they choose.

PARTICIPATION PROCESS

Overall Program Process

Primarily, small business customers enter the program as a result of sales calls or promotions from trade allies. As a secondary source of customer recruitment, the program will market and promote the program directly to small business customers. For customers who initiate contact with the Program (both by calling the Energy Efficiency Solutions Center and/or visiting the Program website), recommendations will be provided for trade allies who work in the customer's geographic area.

The program focuses on recruiting and training local trade allies to perform eligible energy efficiency services, including facility energy assessments and eligible direct install and prescriptive measures. Trade allies are required to adhere to program guidelines, including best practices for identifying and installing qualifying measures. In addition to technical trainings, trade allies will also learn how to navigate the program to ensure effective participation as well as sales techniques for promoting and closing projects. Once a trade ally has enrolled in the program and completed the required trainings, he or she may begin promoting the program to his or her small business customers. Trade allies are required to call the program implementer in order to qualify individual customers as both a small business and an eligible Energy Arkansas electric customer.

After the customer is qualified, the trade ally completes an energy assessment of eligible facilities. As part of this assessment, trade allies will identify eligible program measures within the customer's facility. The trade ally provides each customer with a list of recommended energy efficiency improvements, including both direct install and prescriptive measures. The customer has the opportunity to approve individual measures for installation and the trade ally then proceeds with the agreed upon work.

The small business program requires trade allies to provide customers with an instant rebate for the work being performed. The instant rebate is intended to minimize cost barriers for small business customers and generate additional sales for trade allies. This rebate must be specifically identified as a line item on the trade ally's invoice, which is submitted with the project application.

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Once the work is completed at the customer site, the trade ally must ensure all the appropriate information and signatures from the customer, and then submit required documentation to the program for review. The program will process invoice rebates for distribution to the trade ally. From the date of the necessary information, subject to customer and measure eligibility. Before payment, the program may elect to complete a post-installation inspection on a random sample of projects.

Program metrics are subject to annual review based on regulatory requirements, independent evaluation and verification, and other circumstances outside the control of the program. Reporting requirements and other documentation could change based upon this review.

Program participants may be contacted by an independent third party evaluator in the year immediately following the year of participation for the purposes of project verification and evaluation.

The diagram below describes the participation process and the steps required of the program implementer, trade ally, and small business customers in order to take advantage of the incentives and services available through the program.

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QUALITY MANAGEMENT SYSTEM

Quality Assurance

IQ1 Program Process Trainings	Trade allies that choose to participate in the program will attend training that explains the program process and technical aspects of participation. Where the installing contractor has chosen not to participate as a trade ally in the program, the program implementer will work with you to ensure that all steps are taken to create an incentive.
IQ2 Application Review	Incomplete proposals will be rejected and sent back to you for completion. You may not receive a reservation of incentive funding until the proposal is completed appropriately and confirmed by the program implementer.

Quality Control

IQ3 Pre-Post-Installation Inspections	We will inspect 100% of the top 10% of projects identified by kWh savings values. For small businesses, that would mean any single project/measure estimated under \$0,000 kWh savings will be inspected. We will inspect 10% of all other projects/measurements under \$0,000 kWh. Each Trade Ally will have a minimum of 10% of their projects inspected. That means that any Trade Ally who completes less than 10 projects in a calendar year will have greater than 10% of their projects inspected. Any project determined to have errors or discrepancies of 5% of the projected amount of work will be deemed to be a failed project and will cause that Trade Ally to be removed from the relevant inspection rate list that CLEARwill will maintain. Once a Trade Ally is removed, that contractor will need to complete 5 consecutive projects without "failures" as defined above to be returned to the relevant inspection rate list. In order to qualify immediately for the relevant inspection rate, a Trade Ally must have completed 5 consecutive projects without a failure determined by the program implementer.
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Customer Communication

Program Contacts

- ClearResult - Program Implementation Coordinator
 - Customer service: 1-877-270-2400
 - Email: SmallBusiness@AR.ClearResult.com
- Energy - Energy Arkansas Program Manager
 - Case Manager - Energy Arkansas

Trade Ally Performance Standards

- Production and/or suspension
 - Program implementer will handle issues that may require a trade ally's production, suspension, or program exclusion on a case-by-case basis.
 - Trade ally acknowledges that failure to follow program requirements and procedures, including processing of required documents, will result in a forfeiture of rebate redemption and possible disciplinary action.
 - Program implementer may suspend or terminate trade ally's participation in the program for any reason, including failure to maintain the requirements set forth in this document, in all cases involving a trade ally's participation status, or denial of coupon redemption, program implementer's written decision is final. It is further understood that the trade ally can suspend or terminate the agreement at any time.
 - Energy Arkansas and program implementer are not responsible for any costs incurred by the trade ally prior to production or suspension from the program.

Ethics/Fair Business Practices

- The trade ally acknowledges that participation in the program is a privilege.
- Trade ally should not employ any sub-contractor any firm that has been suspended or terminated from this program or any other Energy or program implementer program without Energy's or program implementer's prior written permission.
- Trade ally should not directly or indirectly disparage another trade ally; this includes, but is not limited to, in connection with a customer or in print.
- Trade ally should treat program participants fairly and respectfully, and deliver prompt services in a timely and responsible manner.
- Trade ally should properly represent his or her relationship to Energy and program implementer (i.e. the trade ally is an independent contractor and a customer in Energy's program). Furthermore, the trade ally should not make false claims about performance or savings, nor engage in fraudulent or deceptive conduct in the sale or installation of measures.
- Trade ally warrants to follow up communication with each customer to ensure customer satisfaction.

DISCLAIMERS

Energy Arkansas and/or ClearResult

The selection of a trade ally to perform work is the sole discretion of the property owner, customer, and/or authorized representative. Inclusion of a trade ally in the trade ally list for the program does not constitute an endorsement by Energy Arkansas or ClearResult of any product, individual, or company. Work performed by trade allies is not guaranteed or subject to any representation or warranty, either expressed or implied or otherwise, by either Energy Arkansas or ClearResult. Neither Energy Arkansas nor ClearResult makes any guarantee or any other representation or warranty, expressed or implied or otherwise, as to the quality, cost, or effectiveness of any product(s) provided or work(s) performed by any trade ally or by any such trade ally's employees, subcontractors or suppliers.

Energy efficiency gains are subject to a number of variable conditions and circumstances. While it is the intent of the program to achieve energy efficiencies, neither Energy Arkansas nor ClearResult guarantees or warrants that any specific energy efficiency gains will be achieved for a particular customer under the program.

Trade Allies

Each trade ally shall, to the fullest extent allowed by applicable laws, indemnify, protect and hold harmless ClearResult, Energy Arkansas, their affiliates, their trade allies and each of their officers, directors, senior persons, employees, agents and representatives (all of the foregoing being herein referred to, individually and collectively, as the "Indemnified") from and against any and all losses, damages, claims, liabilities, costs and expenses (including attorney's fees) that may be imposed on, incurred by, or asserted against the Indemnified or any of them by any party or parties (including, without limitation, a governmental entity), caused by, arising from, relating to or in connection with, in whole or in part, directly or indirectly, (a) such trade ally's breach of any provision of this agreement (b) such trade ally's act or omission that results directly or indirectly in any property damage, personal injury or death in connection with the performance of any work by such trade ally, (c) any violation of law by such trade ally or (d) the treatment, storage, disposal, handling, transportation, release, spillage or leakage by such trade ally of any hazardous substance in any form. THIS INDEMNITY SHALL APPLY EVEN IN THE EVENT OF THE CONTRIBUTOR'S NEGLIGENCE, ACTIVE OR PASSIVE, OR ANY OR ALL OTHERS THEREIN. Indemnitors, including any of their subcontractors or suppliers, who are liable to such trade ally, may require such trade ally to defend any of its subcontractors concerning the foregoing.

Participant Agreement: A non-binding document that once submitted by the participant, will enroll them into the Incentive Programs offered by Energy Arkansas, allow Program Staff to verify eligibility, and permit appropriate program follow-up.

Pre-installation Inspection: A facility walkthrough performed by Program Staff prior to implementation of energy efficiency projects to verify and document proposed or identified energy efficiency upgrades within a participant's facility.

Prescriptive Measure: An energy efficiency measure that has a prescriptive calculation methodology, given in the Arkansas DSM (Technical Resource Manual). This type of measure does not require measurement and verification.

Post-installation Inspection: A facility walkthrough performed by Program Staff or Program Evaluators after implementation of energy efficiency projects to verify and document proposed or identified energy efficiency upgrades within a participant's facility.

Program Evaluation: An independent party that reviews the documentation and calculations completed by the Program Implementer and provides technical guidance on the program.

Program Implementation: Technical and administrative consultants hired by the Program Sponsor to operate the energy efficiency program.

Program Sponsor: The entity funding and operating the energy efficiency program.

Project: A general set of energy efficiency measures for a single Participant (either a single facility or multiple facilities) as proposed by Program Staff or a Trade Ally.

Project Checklist: A document provided by the Program Implementer and executed by the Participant that outlines the proposed energy efficiency measures, the estimated savings, and the project incentives. Acknowledged receipt of this form by the Program Implementer will receive the listed incentive for the Participant.

Site: A unique measure (or combination of measures) that when evaluated for an energy efficiency project, may provide enhanced incentive rates for comprehensive projects.

Trade Ally: A contractor, supplier, or industry professional seeking to assist his or her business model to utilize the energy efficiency programs to promote energy efficiency projects.

- Trade ally will provide prompt, courteous and reliable service, while attempting to perform services at the customer's convenience, including the initial phone call, setting appointment times, and follow-up visits.

Customer Service

It is the goal of Energy and program implementer to provide the highest quality service and to maintain a high level of customer satisfaction with all aspects of the program. Some elements of high quality service include:

- Professionalism: all members of the program staff are expected to respond professionally to customer inquiries at all times.
- Reliability: always provide accurate, up-to-date information to customers. Be sure that follow up activities are completed as promised.
- Responsiveness: have all program or related information available for customers. Obtain and relay answers to Program related requests quickly.

Customer Service Policies

To achieve the high levels of customer satisfaction demanded by this program, the following customer service policies must be followed at all times:

- Do not waste on customer practices.
- Do not contact customers in any way under the influence of drugs or alcohol.
- Do not engage in unethical behavior or practices.
- Look and act professionally.
- Treat customers with respect. The ultimate goal of this Program is 2000 customer complaints. However, you should always verify the Program manager if anything occurs that might have upset a customer.
- Do not give out financial information, if you cannot answer a question, inform the customer and get back to them with the correct answer.
- Maintain the confidentiality of customer information.

DEFINITIONS

Customer Measure: An energy efficiency measure that does not have a prescriptive calculation methodology. This type of measure requires measurement and verification to accurately quantify demand and energy savings.

EE: Energy Efficiency

EV: Evaluation, Measurement and Verification, often referred to as Measurement and Verification.

Energy Measure Portfolio: The process of reviewing Energy Performance Benchmarking reports and establishing a strategic approach to the effective use of energy, which may include the implementation of energy efficiency measures.

Energy Performance Benchmarking: A comprehensive analysis of facility energy use which provides a rating for the performance of buildings (typical on a scale of 1 to 100) relative to a peer group of facilities using regional data. This evaluation may be used to identify energy efficiency measures or set a baseline a tool for Energy Master Planning.

Facility Assessment: A preliminary facility walkthrough performed by Program Staff or a Trade Ally to determine energy savings opportunities. An assessment does not necessarily provide adequate inspection documentation and additional onsite verification may be required for identified energy efficiency projects.

Facility Study: A comprehensive energy savings evaluation and the associated analysis (prepared by a licensed engineer or other professional) that evaluates the Participant's opportunities for energy savings at their facility using established calculation methodologies and computer simulated energy models.

Incentive: A one-time payment to the Participant for a designated amount for energy efficiency projects completed through the program.

Incentive Rate: A defined value of incentive dollars on a per unit basis to calculate total incentives.

kWh: The abbreviation for kilowatt (equal to 1,000 watts), which is the unit of measurement for electrical demand or power.

kWhr: The abbreviation for kilowatt hour, which is the unit of measurement for electrical energy use. One kWh is the amount of energy consumed by the use of one kW for one hour.

Measure: A single proposed energy efficiency improvement, at either a single facility or multiple facilities.

Measurement and Verification: A process of observation and measurements that establish energy use of a proposed energy efficiency measure for both pre-retrofit and post-retrofit conditions that allows the calculation of energy savings. This process may also require gathering data on operating factors for a specific system or facility, such as production, occupancy, operating hours, or similar metrics.

Participant: Any non-residential Energy Arkansas customer that has enrolled in the energy efficiency programs who will start best efforts to approve, fund, and install projects during the program year.

FREQUENTLY ASKED QUESTIONS (FAQS)

As a small business customer, why should I participate in DSM Programs?

There is a long list of potential benefits including:

- Energy efficiency is considered a low risk, high return investment.
- Begin saving money on your energy bills right away.
- Increase the comfort and productivity of your facilities.
- Enhance some and/or customer satisfaction.
- Oversee hidden problems.
- Improve the environment.
- Take advantage of government incentives.
- How do I initiate participation in the Small Business Program?

If you are small business customer, please call the Energy Efficiency Solutions Center at 1-877-270-2400.

What can I do to prepare for my energy assessment?

Make a list of any existing problems such as condensation and uncomfortable or drafty rooms. Have copies or a summary of the facility's yearly energy bills if possible. Be prepared to answer the following questions during your assessment:

- What are the typical operating hours for the facility?
- How many people work at the facility? What is the typical occupancy?
- Are there any special energy uses associated with the business?
- Are there any comfort or maintenance issues that have already been identified?
- How much are we willing to invest in order to start saving now?

APPENDICES

Appendix A	Proposal
Appendix B	Trade Ally Agreement
Appendix C	Treatment of Projects

2021 Small Business Program Manual

PROGRAM PARTICIPATION AGREEMENT
Energy Arkansas is committed to... Engage Arkansas is committed to...

TO PARTICIPATE IN THESE PROGRAMS, YOU WILL NEED TO UNDERSTAND AND AGREE TO THESE TERMS.
1. Participants acknowledge...

2. Participants acknowledge... Engage Arkansas is committed to...

3. Participants acknowledge... Engage Arkansas is committed to...

4. Participants acknowledge... Engage Arkansas is committed to...

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2021 Small Business Program Manual

CUSTOMER ACKNOWLEDGMENT
I acknowledge that by signing below...

THIRD PARTY ACKNOWLEDGMENT
I acknowledge that by signing below...

SURVEYOR AND DIRECT INSTALLER ACKNOWLEDGMENT
I acknowledge that by signing below...

THIS IS THE TRUCK-APPLY METHOD FOR USE...

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2021 Small Business Program Manual

These Standard Terms and Conditions...

1. ACCEPTANCE OF TERMS AND CONDITIONS...

2. ASSIGNMENT OF RIGHTS...

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2021 Small Business Program Manual

Appendix B: Trade Ally Agreement

TRADE ALLY PARTICIPATION AGREEMENT

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2021 Small Business Program Manual

Appendix A: Proposal



ENERGY ARKANSAS CUSTOMER PROPOSAL

Dear Sample Smith,
The Energy Arkansas - Small Business Energy Solutions Program is pleased to present the Project Summary for the proposed survey and installation of direct install measures performed at your facility by ABC Trade Ally.

The Project Summary outlines your facility's energy savings opportunity in Energy Arkansas - Small Business Energy Solutions. To encourage your facility to make an energy efficiency investment, we offer you a direct install subsidy of 100% of the project costs up to \$10,000 per facility. This amount is subject to the Energy Arkansas - Small Business Energy Solutions Program Manual.

The energy equipment at your facility may need to be installed prior to the installation of your new energy efficiency technologies. Program staff will coordinate this work with you, and this is included in your construction. This work is not included in your portion of the proposed work and installation is completed and verified.

Non-Binding Agreement
By signing this agreement, you are entering into a non-binding agreement to participate in the Project Summary. You are not bound to complete the installation of the Scope of Work. You may decide not to complete one or all of the measures identified in the Scope of Work. An approved cost for the equipment with the most preferred projects will be provided to you. The direct install measures, you have 30 days to install the Energy Arkansas staff to request the original equipment to be returned to you.

If you have any questions related to the program, installation, or have questions about the agreement please contact ABC Trade Ally or the program representative listed below.

Energy Arkansas - Small Business Energy Solutions Program Representative
Name: [Name]
Phone: [Phone]
Email: [Email]
Address: [Address]

Energy Arkansas - Small Business Energy Solutions Program Representative
Name: [Name]
Phone: [Phone]
Email: [Email]
Address: [Address]

Energy Arkansas - Small Business Energy Solutions Program Representative
Name: [Name]
Phone: [Phone]
Email: [Email]
Address: [Address]

Energy Arkansas - Small Business Energy Solutions Program Representative
Name: [Name]
Phone: [Phone]
Email: [Email]
Address: [Address]

Energy Arkansas - Small Business Energy Solutions Program Representative
Name: [Name]
Phone: [Phone]
Email: [Email]
Address: [Address]

Energy Arkansas - Small Business Energy Solutions Program Representative
Name: [Name]
Phone: [Phone]
Email: [Email]
Address: [Address]

2021 Small Business Program Manual

Project Savings Summary

Table with 2 columns: Category, Value. Includes Customer Information, Project Savings, and Annual Carbon Impact.

Customer Information
Sample Business, Sample Location, 1 Office Way, Sample, AR 70000
Trade Ally Information
ABC Trade Ally, 1 Trade Ally Dr, Little Rock, AR 72201

Project Savings
Estimated Annual Energy Savings: \$1,000.00
Project Cost: \$2,000.00
Payback Period: 2.00 Years
Annual Energy Savings: 10,000 kWh



Annual Carbon Impact
Annual CO2E Savings: 10,000 lbs
Annual CO2E Savings: 10,000 lbs

Energy Arkansas - Small Business Energy Solutions Program Representative
Name: [Name]
Phone: [Phone]
Email: [Email]
Address: [Address]

Energy Arkansas - Small Business Energy Solutions Program Representative
Name: [Name]
Phone: [Phone]
Email: [Email]
Address: [Address]


Energy Arkansas - Small Business Energy Solutions Program Representative
Name: [Name]
Phone: [Phone]
Email: [Email]
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Energy Arkansas - Small Business Energy Solutions Program Representative
Name: [Name]
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Energy Arkansas - Small Business Energy Solutions Program Representative
Name: [Name]
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Energy Arkansas - Small Business Energy Solutions Program Representative
Name: [Name]
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ENERGY SOLUTIONS



Redeem your 2022 incentives

Saving energy means saving your business money. That's why **Entergy Arkansas' Small Business Energy Solutions program** helps make your business more energy efficient. By participating in this program, you can receive financial incentives for a range of qualifying projects, like:

- Indoor and outdoor LED lighting
- Interior lighting controls
- HVAC replacement
- Insulation and sealing upgrades
- Smart thermostats
- And more

REMINDER: Dec. 31 is XX days away
To obtain 2022 incentives, all qualifying energy-saving projects must be installed and post-inspected by Dec. 31, 2022.


[EMAIL US](#)

Or give us a call at **877-212-2420** to discuss current or future projects at your facility.

The Entergy Solutions program connects a variety of commercial customers with the technical know-how and financial support to implement qualifying energy efficiency projects to improve the performance of facilities, including:

- Schools
- Government entities
- Commercial businesses
- Large industrial facilities
- And more

[LEARN MORE](#)


We power life. 

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To manage your preferences, change your email address or to stop receiving certain notifications, visit your [preferences](#) page.

Unsubscribe

ENERGY SOLUTIONS



Put our energy solutions to work

Last year, our Small Business Program awarded over \$3 million in incentives—helping hundreds of local businesses save energy and money when they needed it the most.

Now, it's your turn. Take a look at our wide range of energy-saving solutions and see what we can do for your bottom line.

[Explore savings ▶](#)

Six reasons to invest in energy efficiency:

1. **Savings** – The right upgrades can dramatically lower your energy, maintenance and operational costs.
2. **Value** – Energy-efficient buildings typically hold greater value in the market and, when you spread the word about your business's commitment to energy efficiency, can have a positive impact on your brand.
3. **Comfort** – Modern, high-efficiency equipment can improve occupant comfort, which often means a boost in employee productivity and sales.
4. **ROI** – Many projects can quickly pay for themselves in cost savings alone.
5. **Reinvestment** – The money you save on operating costs can be reinvested into your business.
6. **Incentives** – Entergy Arkansas incentives may help cover the cost of your energy-saving upgrades.

[Let's get started ▶](#)

Email or give us a call at 877-212-2420


Did you know?

Entergy Arkansas offers its eligible non-residential customers:

- **Instant discounts** on select interior and exterior lighting, variable frequency drives and more.
- **New construction project support** to help you invest in energy-efficient solutions that will provide long-term benefits.
- Affordable **CostSaver Tune-ups** to get your HVAC system running at top performance.

[Learn more or call 877-212-2420](#)

We power life.



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12/2022



STORE UP THE SAVINGS

Achieve Long-term Energy Savings at Your Convenience Store



Reduce Consumption. Increase Savings.

It takes a lot of energy to run a convenience store. On average, refrigeration consumes about 40 percent of a store's energy use, while lighting consumes about 25 percent — combined, that's more than half of a store's energy use. Entergy Arkansas' energy efficiency programs offer solutions that will improve the efficiency of not only your refrigeration equipment, but also the lighting and HVAC systems in your facility.

Benefits of Upgrading to Energy Efficiency:

- Boost your bottom line.
- Lower your energy costs.
- Improve comfort and safety in your store.
- Increase employee productivity.
- Lessen your store's impact on the environment.

Eligible Measures

The following measures are available for incentives:

- Refrigeration
- Lighting
- HVAC systems

Participation Is Simple:

1. Enroll in the Entergy Arkansas Small Business Program.
2. We'll perform an on-site inspection of your existing systems — at no cost to you.
3. You'll receive customized project recommendations, tailored to your store's needs.
4. We will provide a list of qualified participating trade allies who are trained in the Entergy Arkansas energy efficiency programs.
5. The system upgrades will be installed.
6. You'll receive cash incentives for all qualifying completed projects.

Ready to save? Contact the Energy Efficiency Solutions Center at **877-212-2420** or visit entergyarkansas.com/smallbusiness.



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SERVE UP THE SAVINGS

Achieve Long-term Savings at Your Restaurant Through Energy Efficiency



A Sound Investment

Did you know that the average restaurant uses five to 10 times more energy per square foot than other commercial buildings? Energy Arkansas can help you use less. Our Large Commercial & Industrial Program and Small Business Program help restaurant owners like you invest in cost-effective, turnkey improvements that will narrow the energy-consumption gap between you and neighboring businesses. Since these improvements result in lower energy bills month after month, they often pay for themselves over time, while making your restaurant more comfortable for customers and employees.

Source: energystar.gov

Available Incentives

Our program offers incentives and services on energy-efficient equipment and measures, including:

- Upgrading heat pumps, air conditioning units and other HVAC equipment with a CoolSaver™ A/C Tune-up.
- Implementing technologies that boost refrigeration efficiency.
- Installing energy-efficient lighting and advanced lighting controls.
- Equipping your kitchen with demand-based ventilation controls.

For more detailed information about the energy-saving measures we can help you implement, see the reverse side of this document.

Get Started

To help you identify facility-specific upgrades that are right for you, we offer free on-site inspections of your restaurant's refrigeration, lighting, and heating and cooling systems.

To start saving, contact the Energy Efficiency Solutions Center at 877-212-2420 or visit entergyarkansas.com/commercial.



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KNOW THE SAVINGS

Some of the energy-saving measures eligible for incentives under the program include:

Measure	Estimated Annual Electricity Savings (kWh)	Estimated Annual Energy Cost Savings
Refrigeration		
Installing an anti-sweat heater control on a refrigerated display case with five doors.	2,737	\$246
Equipping a 3' x 7' freezer or refrigerator door with a strip curtain.	3,375	\$304
Installing an energy-efficient novelty case cooler.	4,654	\$414
Installing a refrigerator door gasket.	1,392	\$107
HVAC controls		
Installing hood controls in your kitchen.	4,227	\$380
Upgrading to SEER 16 or better HVAC unit.		
Using controls for scheduling, set points, setbacks and improved occupant comfort.		
Lighting Controls		
Installing a two-feature fluorescent or LED occupancy sensor in one of your bathrooms.	68	\$6
Lighting		
Replacing one 100-watt incandescent lamp in your freezer with a 9-watt LED.	367	\$33
Replacing a four-lamp, four-foot T8 lighting fixture with two 18-watt LED tubes	362	\$33
Replacing a 50-watt halogen spotlight with a 12-watt LED spotlight.	151	\$14
Installing an energy-efficient exit sign.	353	\$32
Other		
Installing an aerator that slows the flow of a faucet to 0.5 gallons per minute.	1,437	\$129
Installing a pre-rinse spray valve that slows the water flow while maintaining pressure.	5,000	\$450

Other energy-saving measures are also eligible for incentives, including high-efficiency HVAC units, water heaters, gaskets and strip curtains.

To start saving, contact the Energy Efficiency Solutions Center at 877-212-2420 or visit entergyarkansas.com/commercial.



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ENERGY ARKANSAS RETROCOMMISSIONING-LITE



Optimize your building (and your savings).

The Entergy Solutions Program has expanded its offerings to commercial customers to include Retrocommissioning-Lite. Where full retrocommissioning requires comprehensive, time-intensive and costly engineering services, Retrocommissioning-Lite is a rightsized alternative for small and medium-sized businesses. Through the Entergy Solutions Programs, Entergy Arkansas offers a streamlined, no-cost energy survey to identify energy inefficiencies and correct them to improve building operations.

Benefits:

- Improve building energy performance and reduce energy use by an estimated 5%.
- Advance occupant comfort and productivity.
- Extend equipment life and reduce maintenance needs.
- Increase internal knowledge of building systems and controls.

Who is eligible?

Facilities under 100,000 square feet using an Entergy Solutions trade ally may be eligible for Retrocommissioning-Lite. Common projects include programmable thermostat scheduling, ventilation adjustments, economizer installations and more.

How to participate:

1. Call **877-212-2420** or visit entergyarkansas.com/commercial to enroll in one of the Entergy Solutions Programs.
2. We'll provide a list of Entergy Solutions trade allies trained in the Entergy Arkansas energy efficiency offerings.
3. Your selected trade ally will perform a no-cost on-site inspection to examine your existing building control systems.
4. You'll receive a list of customized recommendations for your business designed to increase efficiency, reduce your Entergy bills, optimize your facility's performance and improve occupant comfort.
5. Get cash incentives for all qualifying completed projects.

Did you know?

Approximately 72% of the measures implemented through retrocommissioning are centered around operations and control. That means lower costs for you.

Ready to save? Contact the Energy Efficiency Solutions Center at **877-212-2420** or visit entergyarkansas.com/commercial.



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SMALL BUSINESS ENERGY SOLUTIONS PROGRAM



The Small Business Energy Solutions Program helps business owners like you understand why and when energy efficiency upgrades make good financial sense. Our trade allies work with you to develop and implement a plan, which frequently improves more than just your business's energy efficiency—upgrades often improve occupant comfort, health, safety and more.

We'll help you:

- Improve the efficiency and performance of your facility.
- Achieve significant, long-term energy savings.
- Earn incentives to help offset the cost of energy efficiency upgrades.

What are the benefits?

- Financial incentives.
- Reduced energy costs and non-energy-related impacts.
- Access to trade ally network.
- No-cost walk-through energy assessment and energy efficiency product installations including:
 - Showerheads.
 - Low-flow aerators.
 - Pre-rinse spray valves (electric water heater customers only).
 - LEDs.
 - Weather stripping.

Program incentives

The most common energy efficiency upgrades in small businesses are listed below:

Small Business Incentive Rates (per kWh)	
Lighting/Lighting Controls	\$0.17
Direct Install	Full cost
Refrigeration*	\$0.20
Duct Sealing (Converted Businesses Only)	\$0.20
Ceiling Insulation (Converted Businesses Only)	\$0.20
HVAC Replacement	\$0.17

*Total savings allocation for refrigeration savings will be capped at 200,000 kWh for the 2021 program year.

Who is eligible?

Small business customers with a valid Entergy Arkansas account and less than 100kW peak demand over the past 12 months are eligible.

How to participate:

1. Call the Energy Efficiency Solutions Center at 877-212-2420 to speak to a program representative and to be provided a list of trade allies.
2. Your trade ally will contact you to schedule a walk-through energy assessment of your facility.
3. Upon your approval, your trade ally will install the energy-saving improvements identified.
4. Receive instant rebates from your trade ally.

Small Business Program-Eligible Measures

Measure Type	Measure Description
Lighting Retrofit	Lighting retrofit projects replacing inefficient lighting systems with more efficient ones are eligible. An example is linear fluorescent systems being replaced with LED lamps or metal halides with T5 fluorescent tubes. A variety of lamp and ballast combinations are eligible for this program, depending on the current technology installed at a facility.
Lighting Controls	Automatic lighting controls save energy by turning off or dimming lights when they are not needed. Available sensors include passive infrared, dual-technology, integral occupancy sensors and photocells, which are used with controls that manage usage based on daylight hours, occupancy or with adjustable timers.
Exterior Lighting	Energy can be saved on many major exterior lighting applications—including parking lots, streets and roadways, and other building-mounted lighting—by improving lighting performance, control strategies or both. An example of this would be retrofitting with LED lighting.
Refrigeration	Measures eligible for upgrades or replacement include evaporator fan upgrades to electronically commutated motors, anti-vandal heater controls and refrigerated door gaskets.
Direct Install Measure	The following direct install measures are eligible for upgrades or replacement: low-flow faucet aerators, pre-rinse spray valves, LEDs and weather stripping.
Ceiling Insulation (Converted Buildings Only)	Existing businesses with insufficient levels of insulation have the opportunity to increase the insulation R-value to R-20. Insulation savings and incentives are based per sq. ft. of treated ceiling area.
Duct Sealing (Converted Buildings Only)	Leaks can be sealed in supply and return ducts of existing businesses. Duct penetration or a blower door test is required before and after measure installation. Only pre-approved sealing materials are permitted by the program.
HVAC Replacement	Inefficient heat pumps and air conditioner units are eligible when replaced with efficient units in both existing buildings and new construction. Eligible units include small split-system and single-package air conditioner units and heat pumps.
CoolSense™ A/C Tune-Up*	In addition to lowering your facility's energy and maintenance costs, a CoolSense A/C Tune-Up is carefully designed to provide a cooler, more comfortable and more productive work environment. Plus, churches, restaurants and small office customers may qualify for additional energy-saving upgrades—including a smart thermostat.

*Please see the CoolSense Fact Sheet for details on the CoolSense measures and incentive levels available under the program.

Questions?

Contact the Energy Efficiency Solutions Center at 877-212-2420 or visit entergyarkansas.com/smallbusiness.



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3.8 Public Institutions Solutions

3.8.1 0520-EAI-CitySmart-1949187-Schools-Report-Smartsheet-Template FINAL.pdf



BRYANT SCHOOL DISTRICT ENERGY EFFICIENCY REPORT CARD

Cumulative Report: Electric Data Through April 2020; Natural Gas Data Through February 2020

How well does your facility stand out?

Facility	Energy Type	Energy Savings Change	Grade	Total Energy Savings
Elementary Schools				
Hurricane Creek	Electricity	▼	A	20.80%
Collegeville	Natural Gas	►	A	18.70%
Davis	Electricity	▲	A	15.80%
Bryant	Natural Gas	►	A	11.10%
Salem	Natural Gas	►	A	9.40%
Davis	Natural Gas	►	A	9.20%
Hill Farm	Electricity	▲	A	8.00%
Salem	Electricity	▼	A	8.00%
Bryant	Electricity	▲	A	5.30%
Hill Farm	Natural Gas	►	A	5.20%
Springhill	Electricity	▲	C	2.00%
Collegeville	Electricity	▲	D	1.10%
Springhill	Natural Gas	►	F	-4.30%
Parkway	Natural Gas	►	F	-12.10%
Parkway	Electricity	▲	F	-15.60%
Hurricane Creek	Natural Gas	►	F	-113.40%
Middle Schools				
Bryant	Electricity	▲	A	25.70%
Bryant	Natural Gas	►	A	11.10%
Bethel	Electricity	▲	A	5.80%
Bethel	Natural Gas	►	F	-12.30%
High Schools				
Bryant High (Bldg. 10 Only)	Electricity	▲	A	5.5%
Miscellaneous				
Central Office	Electricity	▲	A	27.00%
Business Office	Natural Gas	►	A	28.70%
Sports Complex	Electricity	▲	A	15.80%
1200 S. Reynolds Buildings	Electricity	▲	A	5.20%
Bus Maintenance Facility	Natural Gas	►	A	5.20%
Bus Maintenance Facility	Electricity	▲	A	4.00%
Business Office	Electricity	▲	F	-10.60%
1200 S. Reynolds Buildings	Natural Gas	►	F	-21.60%

Please report to maintenance:

- Dripping water faucets.
- Gaps and drafts from windows and doors.
- Occupancy sensors that are not working properly.
- Opportunities for power strip installations (for ease of access).
- Ideas for any additional energy-saving opportunities.

Energy Savings Tips

- Turn off lights in unoccupied rooms and use sunlight where possible.
- Shut down computer monitors and other devices when not in use (most devices still use power even when they are "asleep").
- Fully close all doors and windows, and double check for gaps and drafts.
- Turn off ice machines, fridges and other common equipment during school breaks, holidays and weekends.
- Turn down thermostats in unoccupied areas.
- Make sure air vents are not blocked. The longer the system needs to run, the more energy is wasted.

Grading Rubric

Grades are based on a facility's measured electricity and natural gas savings compared to the current savings goal of 5%.

Grade	Savings
A	≥ 4%
B	3-3.9%
C	2-2.9%
D	1-1.9%
F	≤ 0.9%

Energy Savings Change Rubric

Energy savings are calculated monthly to update the total energy savings and compare to the previous month.

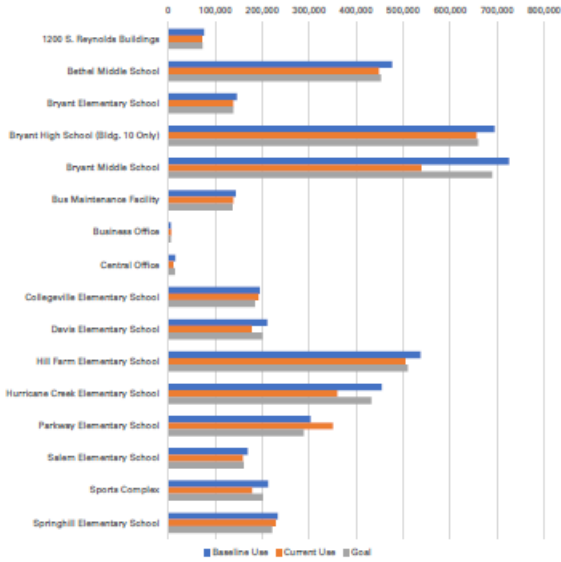
Energy Savings Change Key	
▼	Decrease
►	No Change
▲	Increase



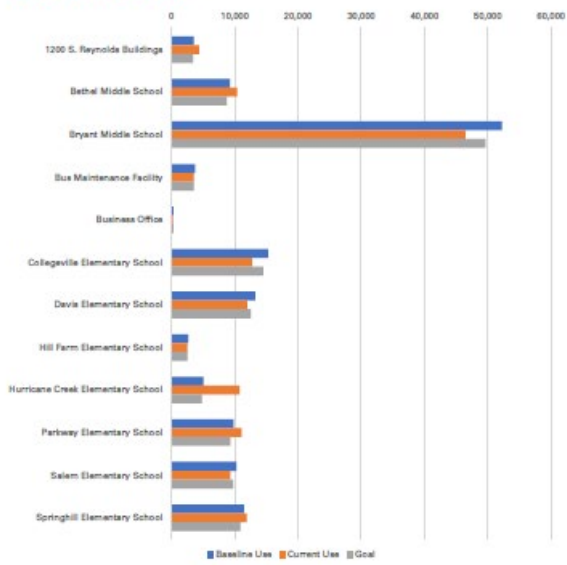
BRYANT SCHOOL DISTRICT ENERGY EFFICIENCY REPORT CARD
 Cumulative Report: Electric Data Through April 2020; Natural Gas Data Through February 2020

BRYANT SCHOOL DISTRICT ENERGY EFFICIENCY REPORT CARD
 Cumulative Report: Electric Data Through April 2020; Natural Gas Data Through February 2020

Electricity Use (kWh)



Natural Gas Use (Therms)

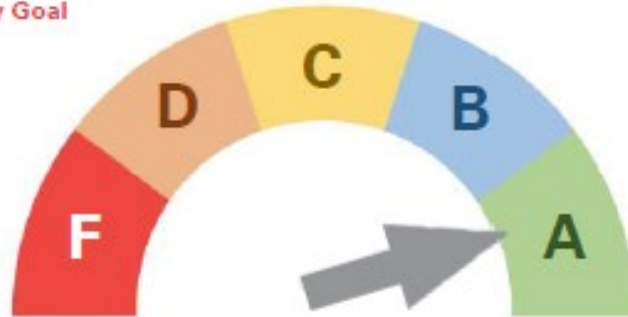




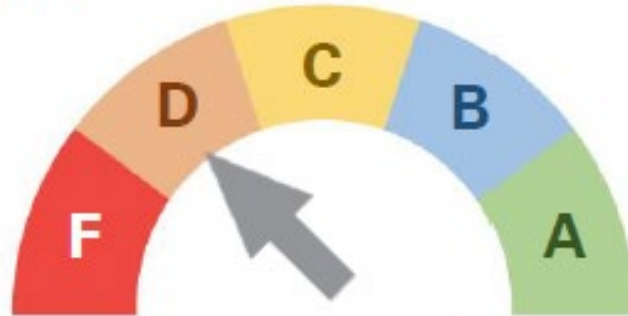
BRYANT SCHOOL DISTRICT ENERGY EFFICIENCY REPORT CARD

Cumulative Report: Electric Data Through April 2020; Natural Gas Data Through February 2020

Gauge of Annual Electricity Goal



Gauge of Annual Gas Goal



Top-Class Efficiency Solutions

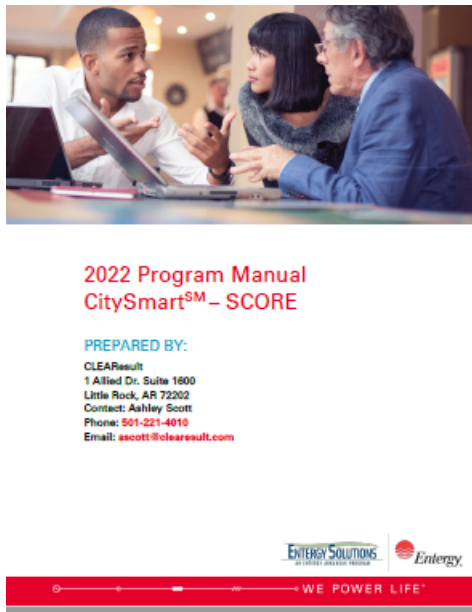
After salaries, energy is the second-largest operating expense for most school districts—more than the cost of computers and textbooks combined. Let's continue to work together to make sure your facilities are performing at their greatest potential.

Questions?

Contact **Todd Sellers** at tsellers@bryantschools.org.

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Energy Arkansas, LLC
2022 CitySmart - SCORE Program Manual

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PROGRAM OVERVIEW

Program Description

The CitySmart - SCORE Program is offered to governments, government-owned institutions and public/private education entities that are customers of Energy Arkansas. Designed to help facility supervisors (the you who seem to operate facilities more efficiently, the CitySmart - SCORE Program outlines the technical and financial benefits of investing in energy efficiency and developing a plan towards energy efficiency improvements to your facilities. By enrolling in the program, you will be referred to as a program participant and receive technical and energy-related assistance to help you make decisions about cost-effective investments in facility energy efficiency. Under this program, you are eligible for financial incentives for completing qualifying energy efficiency projects. Additional program benefits that may be available include energy benchmarking, creating an energy master plan, technical assistance and communications support. In general, the program does not prescribe technologies or end uses to participants, but instead provides a framework through which you can receive incentives for implementing and installing a wide range of measures at your site.

Program Objectives

The program is designed to drive cost-effective energy efficiency in the marketplace while minimizing the impact of market barriers to your implementation of energy efficiency. Some objectives are related to transforming the energy efficiency market, while others are benefits that are offered to you. The CitySmart - SCORE Program is designed to:

- Overcome barriers that hinder the implementation of energy efficiency projects.
- Provide energy efficiency information and enhance awareness of energy and non-energy benefits.
- Save budget constraints that typically rule out energy efficient technologies and associated higher "first costs."
- Improve understanding about potential payback for installed energy efficiency projects.
- Enhance awareness of, and technical assistance for, energy efficient technologies.
- Provide assistance to help customers address energy efficiency at all major end uses.
- Address your needs to avoid any lost opportunities within your facility.
- Promote cost-effective energy efficiency projects that maximize the net benefit to both customers and Entergy.
- Assemble a list of qualified vendors and installers (trade ally) participating in the program to facilitate access by participants to such resources.
- Provide adequate evaluation, measurement and verification resources to support the implementation of energy efficiency projects.

Program Benefits Include

Participants receive technical assistance to help identify energy efficiency opportunities.

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- Transform the market through training, education and the implementation of the program to make energy efficiency a primary consideration for customers.
- Identify and support the implementation of cost-effective and comprehensive energy savings projects for Entergy customers in order to meet annual energy savings goals.
- Leverage cash incentives to assist you in implementing cost-effective projects under the program.
- Develop a strategic plan for the implementation of multiple phased projects.

Program Management & Contacts

Activity built

Phone: 501-221-4010
Email: score@clearresult.com

Energy Efficiency Solutions Center
Phone: 1-877-212-3600

Program Roles & Responsibilities

Program Sponsor: Energy Arkansas, LLC
Website: www.arkansas.energysolutions.com

- Provides all funding for the energy efficiency program and the program incentives.
- Manages the energy efficiency programs and oversees implementation.

Program Evaluation Table Task

- Provides oversight of program implementation to verify that savings claimed in the program are correct, valid and adequately documented.
- May perform post-retrofit audits, inspections, measurements or phone conversations to collect data for program engineering evaluation.
- Provides updates to program evaluation methodologies through annual Technical Resource Manual updates.
- Surveys program participants to determine if program implementation is meeting their needs and expectations.
- Surveys customers to determine if program outreach is adequately informing the market of the energy efficiency program opportunities.

Program Implementer: CLEARresult

- Performs outreach and education about the energy efficiency program.
- Provides energy efficiency assistance to program participants. For example, benchmarking and energy master planning services.
- Assists program participants and trade allies with program documentation.

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- Perform all required on-site inspections and documentation.
- Provide calculations on energy savings potential for identified projects.
- Assist in evaluation of financial metrics for energy efficiency projects (payback, IRR, etc.).
- Process and deliver incentive checks for approved projects.

Program Participant: Energy Arkansas Customer

To participate in the program, participants must! Customers using a trade ally may have the trade ally complete some of the following activities on the customer's behalf:

- Execute the participation agreement.
- Contact the program implementer to schedule a facility assessment and/or engage in benchmarking and energy master planning services.
- Submit a project application to receive incentives for qualifying energy efficiency projects.
- Invest best efforts to approve, fund, install and repair projects before the end of program year.
- Contact the program implementer when projects are completed and allow staff to perform a post-project inspection.
- Provide access to program implementer staff as well as OAVC evaluator staff to facilities both before and after project completion for inspection of the baseline and post-project condition as required.

Trade Ally

To participate in the program as a trade ally, the trade ally must:

- Execute the trade ally agreement.
- Complete required trainings and adhere to program guidelines set out in the program manual.
- Provide verification of adequate insurance coverage.
- Work with program implementation staff to take advantage of program marketing materials and technical assistance.
- Offer developing a suitable energy efficiency project, work with program implementation staff to verify customer eligibility and assist in the development of project scope for the identified energy efficiency measures for which the trade ally may be responsible.
- Share with program staff adequate project information to proposed projects to allow the calculation of energy savings and incentives for the program participant.
- Review the pre-inspection data and confirm that program implementer has included the proposed project scope correctly in that communication.
- Install eligible energy efficiency measures and submit appropriate documentation as requested by program implementer.
- Perform all work to the required standards of the program.
- Consult the Customer Trade Ally Manual for trade ally details around this measure.

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PROGRAM ELIGIBILITY

Program Changes

The following are new measure offerings within the CitySmart SCORE Program:

- Customer: Customer will no longer be a standalone program. It will be viewed as a measure within the program. (Please see the Customer Trade Ally Manual for more details.)
- Continuous Energy Improvement (CEI). The program will include the CEI behavioral component to help a group of customers adopt energy management practices in their organization and implement operational and maintenance changes to achieve energy savings. This measure will leverage school-based structure to provide group education, on-site or on-line activities, and energy monitoring services to increase customer engagement and measure operational and maintenance energy savings.
- Retro commissioning the RCU (RM). This is a prescriptive approach to building automation services developed to better meet the needs of the small and medium businesses. The program identifies "find and fix" measures to improve building operation with savings that are calculated within the RCUs Use Workbook. Trade allies will be trained to perform the RCUs Line surveys, enter the information into the RCUs Use Workbook, enter the reports and submit data to the program for approval and incentive.

Participant Eligibility

Any public and/or private entity customer (e.g., K-12 schools, government, higher education and municipalities) that receives retail electric service from Energy Arkansas is eligible for the CitySmart - SCORE Program. Organizations with multiple locations are hereby considered a single customer, regardless of how many Energy Arkansas account numbers they may have. However, projects will be separated by utility account number for reporting purposes to Entergy.

Trade Ally Participation and Eligibility

Trade allies are members of a trade ally that meet all program qualifications and standards listed below. Trade allies are eligible to participate in the program and will have their company name on a list of eligible trade allies that may be given to you. Trade allies may continue to participate in the program as long as they remain in compliance with all program requirements.

To participate, trade allies must sign a trade ally agreement and receive training as required by the program guidelines. Additional training will be provided as needed in order to ensure the proficiency of the trade ally. The level of trade ally participation (i.e., number and type of completed projects) within the trade ally has been involved will be included on the trade ally list for you to consider in selecting appropriate trade ally for your projects. Details on the training, tools and performance requirements are listed below.

Technical requirements for the trade ally include:

- Understanding of basic building science principles.
- Completion of program required best practices trainings.

Business requirements for the trade ally are:

- Demonstrate the capability to conduct business successfully by providing one of the following:
 - Satisfactory Dun and Bradstreet Rating or

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- Specific evidence of business capacity including at least two of the following:
 - A satisfactory banking reference.
 - A minimum of three satisfactory professional trade references, such as suppliers of materials, tools or tools.
 - Confirmation that the participants in the business have a satisfactory individual credit score with no outstanding lines of judgment.

Tools required for the trade ally:

- Trade ally can, use and maintain all tools used so that all materials may be installed to manufacturer specifications.

Quality Performance Requirements for Trade Ally

The trade ally, upon request from the program implementer, and at no additional cost to you, shall make reasonable repairs or corrections to work that the trade ally has performed to bring such work up to the program standards. The repairs or corrections are to be completed within the timeframe specified by the program implementer. The trade ally also agrees to take steps to ensure that subcontractors will comply with the program standards.

Trade Ally Documentation Confidentiality

Trade ally should note that this program is in place to promote energy efficiency in the Energy Alliance service territory. Any program documentation submitted for a proposed project within the Energy Alliance program will be maintained as confidential and will not be shared with anyone except the participant for whom it was developed. All information submitted is considered the property of the program participant and will be shared with that customer upon request unless that documentation is clearly labeled as confidential on each page of the documentation. All confidential information is labeled with the word "confidential" on the top of each page of the documentation.

PROGRAM INCENTIVES

Measures & Incentive Levels

A measure, for the purposes of calculating incentives, is considered to be a single proposed energy efficiency improvement, at either a single facility or multiple facilities. A project is considered to be a planned set of measures for a single participant (at either a single facility or multiple facilities), as listed on the project application. Both new construction and retrofit projects are eligible for incentives under this program. The combined total projects for a single participant should target to create a minimum of 25,000 kWh of annual savings to qualify for incentives.

All measures within a project must be confirmed in the pre-installation inspection report and meet the following requirements:

- Must result in a measurable and verifiable reduction in energy usage (50%).
- Must produce energy savings through an increase in energy efficiency.
- Must be cost effective as defined by the program utility and the program implementer.
- New equipment must exceed minimum equipment efficiency standards.
- Must not develop any savings as a result of fuel switching.
- Measures should target to meet at least 20,000 kWh of annual savings.

The incentive rates for this program have been designed to encourage comprehensive projects at each location. The incentive approach will be used to provide additional incentives for multiple measures at each location in order to level away from the frequency of single measures that have been common in past program years. In order for a measure to be eligible to receive a project incentive, it should meet the requirements as listed above. Some additional rules for measures and listed incentives are:

- If an energy efficiency measure is installed at a single facility or at multiple facilities for the same participant, that measure is still considered a single measure.
- If multiple measures are eligible for incentives, but they do not meet the target of 25,000 kWh of annual savings to qualify as "the eligible," then they can be grouped together to qualify as a single measure in order to qualify the project for an additional tier of incentives (as long as the total of the individual measures still up to more than the 25,000 kWh of annual savings target). Only one such grouping is allowed per project.
- If, during the peak heating months, the participant completed measures that would qualify for demand incentives, those projects can be awarded incentive stacking based incentive rates with new measures. Previously completed measures can be paid additional incentives if they were installed from January of the previous program year to the current program year.
- Because budgeting requirements may limit participants from completing multiple measures in the same program year, they will be allowed to complete measures across the next program year and still qualify for the demand incentive rate. However, measures not been accomplished prior to January 1st of the previous program year will not carry forward to the current program year. Note that non-demand incentives developed by projects can only be carried forward to the subsequent program year provided the funds are used within twelve months.

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No one participant designated by an individual federal Tax ID may receive over 10 percent of the annual incentive budget. The incentive rates are listed in the table below. These rates are set at levels that are intended to persist through year 2021.

It is expected that these incentive funds will available after September 1, 2021, you may expect the 90 percent cap to either fully satisfy the program.

Figure 1: Incentive Table

Measure Type	CityPlan - SC200 Incentive Levels (per kWh)				Incentive Cap
	1 measure	2 measures	3 measures	4+ measures	
EC Power Management	\$0.10	\$0.10	\$0.10	\$0.10	500%
Leak and Duct Curtains	Paid per LP (or 90% of damaged gasline) curtain replaced				500%
All other measures	\$0.12	\$0.13	\$0.14	\$0.15	500%

1 Measure equals 25,000 kWh each for the credit

2 Measure credits for three energy retrofits for 12 months

3 Program direct install measures will count as only one tier, even if different and case work

4 Excess incentive can be leveraged against other projects (up to the cap) in same program year

5 Excess incentive can be leveraged against other projects (up to the cap) in same program year

To exemplify these objectives, the table below has been developed and the hypothetical examples below help illustrate how the listed incentive levels are to work:

Example 1: You have identified three energy efficiency measures you plan to install. If you install all three energy efficiency measures in one program year, you will receive incentive rates of \$0.14/kWh for the projects since all the projects are installed.

Example 2: You identify five energy efficiency measures you plan to install. However, due to budget constraints or equipment delivery, you choose to install one measure during the current program year and the two other measures in the next program year. Also, during the next program year, you update your plan to include another measure. The incentive rates will be as follows:

- \$0.12/kWh for the current program year for the prescriptive measures
- \$0.15/kWh for the additional prescriptive measure for the next program year (based on four qualifying measures)

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4) \$0.02/kWh for the other projects based on four qualifying measures, applied prospectively once all four qualifying measures are installed.

Hypothetical Wastewater Project

This hypothetical example illustrates the calculations associated with a specific set of facts that are assumed to exist at a reasonably large wastewater facility. Simulated existing conditions and simple proposed retrofits are listed with example calculations of energy savings, incentives, and simple payback. The data set forth below is not necessarily indicative of what you will realize at your respective site, but rather simply to allow you to better understand how the program will operate and the potential value of the CityPlan - SC200 program.

Measure	Estimated Annual Energy Savings (kWh)	Estimated Annual Incentive (\$)	Estimated Annual Savings (\$)	Estimated Annual Cost (\$)	Estimated Annual Net Savings (\$)	Estimated Annual Net Savings (\$/kWh)	Estimated Annual Net Savings (\$/kWh)	Estimated Annual Net Savings (\$/kWh)	Estimated Annual Net Savings (\$/kWh)
1. Sewer Lift Station (SLS) Upgrade (100,000 kWh)	100,000	12,000	112,000	10,000	102,000	1.02	1.02	1.02	1.02
2. Sewer Lift Station (SLS) Upgrade (100,000 kWh)	100,000	12,000	112,000	10,000	102,000	1.02	1.02	1.02	1.02
3. Sewer Lift Station (SLS) Upgrade (100,000 kWh)	100,000	12,000	112,000	10,000	102,000	1.02	1.02	1.02	1.02
4. Sewer Lift Station (SLS) Upgrade (100,000 kWh)	100,000	12,000	112,000	10,000	102,000	1.02	1.02	1.02	1.02
5. Sewer Lift Station (SLS) Upgrade (100,000 kWh)	100,000	12,000	112,000	10,000	102,000	1.02	1.02	1.02	1.02
6. Sewer Lift Station (SLS) Upgrade (100,000 kWh)	100,000	12,000	112,000	10,000	102,000	1.02	1.02	1.02	1.02
7. Sewer Lift Station (SLS) Upgrade (100,000 kWh)	100,000	12,000	112,000	10,000	102,000	1.02	1.02	1.02	1.02
8. Sewer Lift Station (SLS) Upgrade (100,000 kWh)	100,000	12,000	112,000	10,000	102,000	1.02	1.02	1.02	1.02
9. Sewer Lift Station (SLS) Upgrade (100,000 kWh)	100,000	12,000	112,000	10,000	102,000	1.02	1.02	1.02	1.02
10. Sewer Lift Station (SLS) Upgrade (100,000 kWh)	100,000	12,000	112,000	10,000	102,000	1.02	1.02	1.02	1.02

The total annual savings would be approximately 1,000,000 kWh, resulting in an estimated \$102,000 of annual utility savings. The estimated cost of this project (using the above simulation) is \$20,000, with an estimated incentive of \$20,000. If the facility were to make these upgrades, the net project cost to you (after incentives) would be \$20,000, yielding approximately \$300,000 per year.

Incentive Basis

Financial incentives received through the program will be based on a project's total annual kWh reduction as determined pursuant to this program manual. Savings will be calculated using one of several savings approaches. Customers will need to select a trade ally or other service provider to actually install the measures within the program. The program implementer will select and implement an appropriate savings measurement and verification plan including installing field monitoring equipment where applicable. Customers may submit aggregated measures, along with a suggested EMSV approach, to the program implementer. Note that any such approach must include adequate calibration or monitoring to justify savings as determined by the Program Implementer in order for the measures to be considered for incentives under this program.

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- General or elevated savings: General savings are considered savings relative to a simple baseline for a range of measures in residential building types. This approach is suitable for a variety of projects where energy savings may be realized in a reasonable degree of accuracy without additional EMSV. Variables such as operating hours and energy consumption of heating equipment are assumed to be the same as existing to previously gathered field data. For example, lighting installed by the program qualifies for a general savings approach, meaning that estimated energy consumption savings are determined without additional testing. Programmed savings calculations may be applicable on a case-by-case basis subject to program approval.
- EMSV Option A ("Demand Key Performance Measurement"): For an Option A project, the sub-meter that affects energy use is measured, usually with data logging equipment. Example pump VFD installation.
- EMSV Option B ("Demand Key Performance Measurement"): For an Option B project, all aspects that affect energy use are measured. Typically, the actual energy use of equipment is logged. An example that affects energy use such as temperature of HVAC system or occupancy, may be measured. For example, a project where installed equipment will have additional incentive effects may require the use of the EMSV option.
- EMSV Option C ("Whole Facility kWh Analysis"): When savings are expected to be more than 10 percent of the whole building energy use, Option C can be used. This option involves collecting at least a year's worth of utility bill or sub-meter data for a facility. Example: Retro-commissioning of a facility that involves commissioning and control changes that have complex interactions.
- EMSV Option D ("Whole Facility Carbon Footprint"): Option D is for new construction buildings or major retrofits. Instead of measuring energy use, the facility is modeled with building modeling software (e.g. eQUEST). Example: new construction project involving numerous efficiency improvements that have complex interactions.
- The methodologies for savings measurement and verification described above (in terms of detail and rigor) are chosen based upon the probability of equipment operation, availability of evaluation data from previous programs and benefits of the chosen measurement and verification approach relative to be used. Ultimately, the program implementer has the discretion to choose or confirm the EMSV option that shall be utilized for your project.

Non-Cash Benefits Offered Under the Program

A number of non-cash benefits are available to you including:

During an energy assessment, the trade ally and/or the program implementer will identify opportunities to install energy saving devices with customer permission. These devices provide customers with instant energy savings and are installed at no cost. Please note that some of these measures are only available for residential or small commercial/low-voltage water heaters. These direct install measures include pre-wire energy audits, smart meters, LED lighting retrofits and weather stripping.

Energy Performance Retrofits: The program implementer benchmarks your current energy consumption using the U.S. Energy Information Administration's Energy Audit Tool. This tool provides a baseline for the performance of buildings on a scale of one to 100 relative to other buildings. Other benchmarking metrics include use per meter, use per square foot, etc.

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Energy Needs Planning: The program implementer will provide each participant with training and guidance for developing your own Energy Master Plan. EMSVs are designed to overcome extended installation problems by pre-qualifying them before the start and relating them with better procedures that help minimize problems that may be caused by non-compliance with energy efficiency (such as installing low flow toilet systems).

Technical Support: The program implementer will provide technical support to help you assess and evaluate various energy efficiency upgrades to determine which projects are selected to be optimal in terms of the specific work. Once you identify potential projects, you complete and submit a project application to indicate your intention to complete a project and receive an incentive. The program implementer will provide the application form as well as assistance in completing the form.

Rebate: If participants choose to fund their upgrades with traditional funding sources, the CityPlan - SC200 Program also offers rebates that would allocate minor details (such as how to integrate outside sources of bank through performance contracts, lease purchase agreements and third party financing).

Recognition: The CityPlan - SC200 Program, specifically the program implementer, may provide news releases and other communications support to you, which are designed to share with community about the steps you are taking to improve the energy performance of your facility, reduce your operating costs and to use your budget more effectively.

PARTICIPATION PROCESS

The program is designed to encourage trade allies to recruit participants from Energy Key accounts, joint program participants and trade ally references. The program implementer will provide a participation agreement for the participant to enroll in the program. The participant must sign the participation agreement to be eligible as an Energy customer and enrolled in the program. Once the signed participation agreement is received and the participant is verified, the program implementer will schedule pre-installation inspections on each project, as necessary, and appropriate measurement and verification efforts will occur to quantify the savings of projects above BMSB requirements. Once the participant has selected the projects to implement and funding has been secured, program staff will help you to roll out the individual sections of the project application to receive incentive funding.

After completing the project, the program implementer will schedule necessary post-installation inspections and request incentives for the participant. Program metrics are subject to annual review based on regulatory requirements, independent evaluation and verification, and other circumstances outside the control of the program. Program implementer and Energy reporting requirements and other documentation could change based upon this review.

After completing the project and receiving incentives, you may be contacted by an independent evaluator to verify information gathered by the program and/or to review on-site equipment installation. You may be contacted by the independent third-party evaluator in the year immediately following the year of participation for the purposes of project verification and evaluation.

Project Application Process

For projects of the program, a project is defined by a set of proposed energy savings measures included in a single project application. Components of projects that include a range of measure types are encouraged. Note that you must execute the participation agreement to receive the process. Ultimately, a project application will be completed by the program for review and approval to move forward with the project. The project application is completed and executed by you and sent to the program implementer for that approval and execution of incentive funding.

All projects should meet the following requirements:

- Targeted Minimum Project Size: Each project for which an application is submitted, or combination of projects, should target a total estimated energy reduction of at least 20,000 kWh of annual savings.
- Project Dates: Projects may occur over multiple months, but must be eligible for incentives. In order to maximize the use of project funds, the program implementer will schedule incentive funding as it is applied for and received. This includes the cost of the equipment and installation.

Incentive Reservation/Application Process

Upon receipt of a signed project application, the program implementer will review the application for completeness and eligibility then and indicate what incentive funding has been reserved for the project. The program implementer also will contact you to schedule a pre-installation inspection of your facilities as needed, for purposes of verifying the information that is submitted in the project application. The anticipated project completion date should be accumulated to the program implementer, which will provide adequate time for that project verification and post-installation inspection prior to receiving the incentive payment. The completion date for a project should not extend beyond December 31, 2021 unless noted.

Feasibility Tiered Structure		
Feasibility Study Savings**		
Min kWh	Max kWh	Incentive*
100,000	100,000	\$3,000
100,001	200,000	\$6,000
200,001	300,000	\$9,000
300,001	500,000	\$12,000
500,001	1,500,000	\$15,000
1,500,001	5,000,000	\$20,000

*Full year amount with a total feasibility budget of \$20,000
 **Based on kWh for single installation and the remaining kWh upon annual completion for all savings
 ***Based on kWh credits, Energy Alliance, LLC reserves the right to vary the amount of the Incentive.

To request funding assistance, a participant needs to enroll in the program and submit the enrollment document (see Appendix A), as well as the proposal from the consultant or trade ally preparing the study. The submission must also include a letter from the participant stating the request for feasibility study on funding and how the participant is positioned to fund and complete any potential projects determined to be cost-effective energy efficiency measures by the feasibility study. The submission should include any pertinent background data, preliminary estimates and calculations, the feasibility study used and a list of the expected deliverables to the participant.

After review, if the feasibility study is selected for co-funding by the program implementer, the participant will be informed of the selection of the project and the co-funding amount being provided to assist the participant with the study. The program implementer will review the funding for the feasibility study on a case-by-case basis, but it is typically required to cover up to 100 percent of the cost of the study. Forty percent on funding will be paid to the participant upon the completion of the study and the submission of the completed report to the program implementer. If the owner moves forward with the cost-effective recommended projects that were outlined within the feasibility study, and the savings of those projects are equal to or greater than the feasibility table above, then the program will pay the balance of the feasibility cost an additional incentive when the projects are complete and that project incentives are paid. The maximum on-funding incentive amount for any participant in the current program year is \$20,000. In addition, no single consultant or trade ally may receive or submit for projects totaling more than 10 percent of the total on-funding budget during the program year.

Limits on Participation

To ensure incentives are available for multiple projects, you and your affiliate may not receive more than 10 percent of the Energy Alliance program incentives budget in any funding year.

It is noted that there are incentive funds still available after September 1, 2021, you may exceed the 10 percent cap to enter to fully subscribe the program.

See the figure below for more details on the program process, which does not include any third-party BMSB procedures. The program process flow chart below illustrates contact points and responsibilities of trade allies, participants, and the program implementer.

TIMELINE OF PROJECTS

- Submitted Project - 20 business days**
 - Pre-Inspection (SA/IC) - CLS/Result will have two business days to determine if more information/documents are needed and request.
 - Pre-Inspection - CLS/Result will have five business days to add to the pre-inspection queue, and an additional 10 business days to complete pre-inspection service.
 - Incentive Reserved - CLS/Result will have three business days to complete and send email to trade ally confirming incentive reservation.
- Open project completion - 10 business days**
 - Trade ally notifies program team of project completion and submits documentation for review: final tracking and invoices. If complete, project will be added to post-inspection queue within the business days.
 - Post-Inspection (SA/IC) - CLS/Result will review post-inspection photos and review and perform project re-inspection (if necessary) within 10 business days if the project passes post-inspection. If a failure occurs, the project reverts to previous step.
- Incentive Approval and Payout - 20 business days**
 - CLS/Result receives Energy Approval - 10 business days
 - CLS/Result invoice check - 10 business days

approved in writing by the program implementer. If co-construction to the program should also, participants will be placed on a waiting list in the order of when the project application, including the associated participation agreement, was received.

Participants on the waiting list may be able to receive incentive funding for the current program year if other projects for which funding was reserved are cancelled and funds become available. Otherwise, they will be eligible to receive funding during the next program year, but note that the project must be completed in the year in which the funds are reserved.

Incentive Payment Process

Deemed savings projects: you will receive an incentive payment representing 100 percent of the final calculated incentive amount set forth in the verified project application after the project is installed, documented and verified. You are encouraged to enroll the program implementer prior to installation of additional measures not identified in pre-installation inspections to determine whether additional funds may be available. Incentive funds in excess of the estimated amount will be paid based on final calculated savings only if the program is not fully subscribed at the time of project completion.

BMSB projects: you will receive 40 percent of the total estimated incentive amount set forth in the verified project application after the project is installed, documented and verified. The remaining incentive will be calculated based on the final BMSB report and will be paid once the BMSB efforts are complete. To the extent that additional measures are installed that were not identified in the application and confirmed by the pre-installation inspection, you may be eligible for additional incentive funds. You are encouraged to contact the program implementer prior to installation of each additional measure to determine whether additional funds may be available. Incentive funds in excess of the estimated amount will be paid based on final calculated savings only if the program is not fully subscribed at the time of project completion.

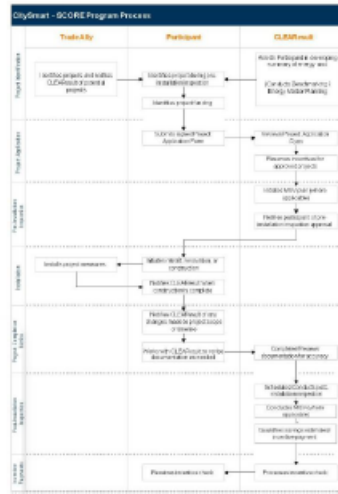
Incentives are paid by check directly to you as explained above. Checks should be delivered no later than December 30, 2021 and verified unless otherwise notified.

Co-Funding of Feasibility Studies

The program will assist qualifying customers by co-funding feasibility studies for energy efficiency projects. A feasibility study is a comprehensive energy savings evaluation and financial analysis which can provide a participant with a cost-effective method for identifying potential energy savings associated with the installation of complex measures and processes, where prescriptive methods are not adequate.

The purpose of these studies is to evaluate the participant's opportunities for energy savings at their facility using collected data, logical data, calculation, methodology and/or computer-estimated energy models to determine if cost-effective energy saving opportunities exist within that facility or campus. However, it is understood that the entire cost of these feasibility studies may not be within the budget of the participant. The program has allocated incentive funds in the current program year to all participants who wish to obtain these studies. In the interest of the program that these studies provide a comprehensive evaluation of a facility, if more than one study is submitted for one participant within a three-year time span, program management approval will be required for additional funding.

To qualify for co-funding of a feasibility study, a proposed study must have an estimated annual energy savings based on preliminary data and calculations that adhere to the feasibility table below. The funding reserved for these projects in the current program year will be allocated to participants on a first-come, first-served basis. Requests for funding will be awarded in the same way as project applications in the case of over-subscription (see the "Wait List Procedures" section of this document). If the funds reserved for feasibility studies are not used by September 1 of the program year, these funds may be reserved back into the general incentive funds for projects completed that program year.



Quality Assurance

- Program Process Training (2x)**: Trade allies that choose to participate in the program will attend training that explains the program process and technical aspects of participation. Where the training coordinator has chosen not to participate as a trade ally in the program, the program implementer will work with you to ensure that all roles are clearly defined as needed.
- Application Review (2x)**: Incomplete project applications will be rejected and sent back to you for completion. You may not receive a reservation of incentive funding review until the project application is complete, appropriate and confirmed by the program implementer.

Quality Control

We will inspect 100 percent of the largest 10 percent of projects identified by kWh savings value for CLS/Result. The result from any single project/measure estimated over 100,000 kWh savings will be inspected. We will inspect 10 percent of all other projects/measurements under 100,000 kWh. CityGreen will also inspect and verify that a trade ally is eligible for the reduced inspection rate. Each trade ally will have a maximum of 10 percent of their projects inspected. That means that any trade ally who completes less than 10 projects in a calendar year will have greater than 10 percent of their projects inspected. Any projects that are determined to have errors or discrepancies of 5 percent of the projected amount of work will be determined to be a failed project and will cause that trade ally to be removed from the reduced inspection rate list. That CLS/Result will re-inspect. Once a trade ally is re-inspected, that contractor will need to complete 3 consecutive projects without "failures" as defined above to be returned to the reduced inspection rate list. In order to qualify for the reduced inspection rate, a trade ally must have completed 3 consecutive projects without a failure, as determined by the program implementer.

Customer Communication
 Program Contacts
 CLS/Result - Program Implementation Coordinator
 Customer service: 1-877-270-2620
 Email: CityGreen@EnergyAlliance.com
 Energy Alliance Program Manager
 Heather Henderson

ADDITIONAL NOTICES AND DISCLAIMERS

Entergy Arkansas and/or CLEARresult

The selection of a trade ally to perform work is the sole decision of the property owner, customer and/or authorized representatives. Although a list of approved trade allies is prepared in connection with this program, inclusion of a contractor in the trade ally list for the program does not constitute an endorsement by Energy Arkansas or CLEARresult of any product, individual or company. Work performed by trade allies is not guaranteed or subject to any representation or warranty either expressed or implied or otherwise by either Energy Arkansas or CLEARresult.

Neither Energy Arkansas nor CLEARresult makes any guarantee or any other representation or warranty, expressed or implied or otherwise, as to the quality, cost or effectiveness of any products provided or work performed by any trade ally by any such trade ally's employees, subcontractors or suppliers.

Energy efficiency gains are subject to a number of variable conditions and circumstances. While it is the intent of the program to achieve energy efficiencies at your facilities, neither Energy Arkansas nor CLEARresult guarantees or warrants that any specific energy efficiency gains will be achieved for a particular customer under the program.

Trade Allies

Each trade ally shall, to the fullest extent allowed by applicable law, indemnify, protect and hold harmless CLEARresult, Energy Arkansas, their affiliates, their contractors and each of their officers, directors, control persons, employees, agents and representatives (all of the foregoing being herein referred to, individually and collectively, as the "Indemnitee") from and against any and all losses, damages, claims, liabilities, costs and expenses (including attorney's fees) that may be imposed on, incurred by or asserted against the Indemnitee or any of them by any party or parties (including, without limitation, a governmental entity), caused by, arising from, relating to or in connection with, in whole or in part, directly or indirectly (a) each trade ally's breach of any provision of its trade ally agreement (b) each trade ally's act or omission that results directly or indirectly in any property damage, personal injury or death in connection with the performance of any work by such trade ally (c) any violation of law by such trade ally or (d) the treatment, storage, disposal, handling, transportation, release, spillage or leakage by such trade ally of any hazardous substance in any form. THIS WARRANTY SHALL APPLY EVEN IN THE EVENT OF THE CONCURRENT NEGLIGENCE, ACTIVE OR PASSIVE, OF ANY OR ALL INDEMNITORS. Indemnities, respectively, at their option exercisable by written notice to such trade ally, may require such trade ally to defend any or all suits or claims concerning the foregoing.

DEFINITIONS

Energy Efficiency An energy efficiency measure that does not have a prescriptive calculation methodology. This type of measure requires measurement and verification to accurately quantify demand and energy savings.

Energy Efficiency

Measurement, Measurement and Verification, often referred to as measurement and verification.

Process, Master Planning The process of reviewing energy performance benchmarking reports and establishing a strategic approach to the effective use of energy, which may include the implementation of energy efficiency measures.

Energy Performance Benchmarking A comprehensive analysis of facility energy use, which provides a rating for the performance of buildings (typical on a scale of one to 100) relative to a peer group of facilities using regional data. This evaluation may be used to identify energy efficiency measures or can be used as a tool for Energy master planning.

Facility Assessment A preliminary facility walkthrough performed by program staff or a trade ally to determine energy savings opportunities. An assessment does not necessarily provide adequate inspection documentation and additional onsite verification may be required for identified energy efficiency projects.

Comprehensive Energy Savings Evaluation and Life Cycle Cost Analysis (prepared by a licensed engineer or other professional) that estimates the participant's opportunities for energy savings at their facility using established calculation methodologies and computer simulated energy models.

Incentive A one-time payment to the participant (or a designated assignee) for energy efficiency projects completed through the program.

Incentive Rate A defined value of incentive dollars on a per unit basis to calculate total incentives.

kWh The abbreviation for kilowatt (equal to 1,000 watts), which is the unit of measurement for electrical demand or power.

kWhE The abbreviation for kilowatt-hour, which is the unit of measurement for electrical energy use. One kWhE is the amount of energy consumed by the use of one kW for one hour.

Measure A single proposed energy efficiency improvement at either a single facility or multiple facilities.

Measurement and Verification Protocol A process of observation and measurement that establish energy use of a proposed energy efficiency measure for both pre-install and post-install conditions that allows the calculation of energy savings. This process may also require gathering data on operating factors for a specific system or facility, such as production, occupancy, operating hours or similar metrics.

Participant Any non-residential Energy Arkansas customer that has enrolled in the energy efficiency programs who will want best efforts to approve, fund and install projects during the program year.

Participant Agreement A non-binding document that once submitted by the participant will enroll them into the incentive programs offered by Energy Arkansas, allow program staff to verify eligibility and permit appropriate program follow-up.

Pre-Installation Inspection A facility walkthrough performed by program staff prior to implementation of energy

efficiency projects to verify and document proposed or identified energy efficiency upgrades within a participant's facility.

Prescriptive Measure An energy efficiency measure that has a prescriptive calculation methodology, given in the Arkansas Technical Resource Manual. This type of measure does not require measurement and verification.

Post-Installation Inspection A facility walkthrough performed by program staff or program evaluator after implementation of energy efficiency projects to verify and document proposed or identified energy efficiency upgrades within a participant's facility.

Program Provider An independent party that reviews the documentation and calculations completed by the program implementer and provides technical guidance to the program.

Program Subcontractor Technical and administrative contractors hired by the program sponsor to operate the energy efficiency program.

Program Sponsor The utility funding and operating the energy efficiency program.

Project A defined set of energy efficiency measures for a single participant (at either a single facility or multiple facilities) as proposed by program staff or a trade ally.

Project Agreement A document provided by the program implementer and accepted by the participant that outlines the proposed energy efficiency measures, the estimated savings and the participant's acknowledged receipt of this form by the program implementer will receive the listed incentive for the participant.

Rate A unique measure for combination of measured that when evaluated for an energy efficiency project, may provide additional incentive rates for comprehensive projects.

Trade Ally A contractor, supplier or industry professional seeking to assist his or her business model to utilize the energy efficiency programs to promote energy efficiency projects.

FREQUENTLY ASKED QUESTIONS

What is the CityPlan - SC208 Program?

The CityPlan - SC208 Program is designed for local public entities that receive retail electric service in the Energy Arkansas Territory. The program will help senior managers and facility managers like you at local public entities operate your buildings more efficiently by understanding the technical and financial benefits of investing in energy efficiency and developing a plan to realize energy efficiency improvements.

Who is Eligible for the CityPlan - SC208 Program?

Any local public entity customer receiving retail electric service from Energy Arkansas is eligible for the CityPlan - SC208 Program is eligible. A customer is defined by a single tax ID number. Multiple locations of an organization are thereby considered a single customer, regardless of how many Energy account numbers they may have. In general, sites having more facility square footage and higher energy usage realize greater program benefits.

How Does a Customer Enroll to Participate in the Program?

To join CityPlan - SC208, the participating local public entity signs a participation agreement with Energy Arkansas. The participation agreement describes program commitments required of the participant, which includes agreement to the conditions and processes set forth in the program manual. The program implementer will contact participants who submit the participation agreement to provide the participant with details on program participation, benefits and requirements and instructions on how to begin the program process.

What are the Next Steps After We Enrolled in the Program?

After the CityPlan - SC208 participant has joined the program by submitting a properly executed participation agreement, you can complete energy benchmarking, master planning (if applicable) and identify energy efficiency upgrade projects you wish to undertake.

Who Decides What Energy Efficiency Technologies to Install or Who is to Install Them?

You are the sole determinant for what energy efficiency measures you decide to implement and how they are implemented. The program does not provide any installation of energy efficiency measures, and is neutral on whether you perform the work in-house or use a trade ally.

What is Energy Benchmarking?

Benchmarking the energy performance of the participants is done through the use of the US EPA's Portfolio Manager tool. Information is entered into the tool along with the energy use of the facility, where the facilities are located geographically, the number of occupants in the building and some information about certain types of equipment within the facilities. Once this information is completed as inputs to the tool, the output is a numerical score from one to 100. Higher benchmark scores demonstrate better energy performance, conversely, lower scores confirm poorer energy performance. After the scores are returned, participants in the program can work with the program implementer to determine the energy efficiency opportunities in their facilities and to prioritize their efforts.

What is the Energy Master Plan?

The energy master plan is a document developed by you, focusing on short-term and long-term strategies in order to manage and reduce energy usage. The document is developed after a workshop, in which best practices in the industry are reviewed and you select practices you believe are in your best interest to pursue.

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To best serve Energy Arkansas customers, please provide an accurate indication of where you are willing to invest within the Energy Arkansas service territory before we perform the measures listed by the Energy Arkansas energy efficiency Program. This information will be provided to potential customers; therefore, it must be accurate. You can change your service coverage area later by contacting CLEAResult.



Along the state below, please indicate in which areas you plan to conduct business by marking the cell below:

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CLEAResult⁺
CLEAResult STANDARD TERMS AND CONDITIONS FOR PARTICIPATING CONTRACTORS

The CLEAResult Standard Terms and Conditions for Participating Contractors (this "Agreement") are made available to you by CLEAResult ("CLEAResult") and the Energy Arkansas ("Energy Arkansas") program ("Program") in accordance with the CLEAResult Standard Terms and Conditions for Participating Contractors ("CLEAResult Standard Terms and Conditions") and the Energy Arkansas Standard Terms and Conditions for Participating Contractors ("Energy Arkansas Standard Terms and Conditions"). This Agreement is intended to be read in conjunction with the CLEAResult Standard Terms and Conditions and the Energy Arkansas Standard Terms and Conditions. If there is any conflict between this Agreement and the CLEAResult Standard Terms and Conditions or the Energy Arkansas Standard Terms and Conditions, the CLEAResult Standard Terms and Conditions and the Energy Arkansas Standard Terms and Conditions shall prevail.

- 1. ACCEPTANCE OF TERMS AND CONDITIONS.** This Agreement is made available to you by CLEAResult and the Energy Arkansas program. By accepting this Agreement, you agree to be bound by the terms and conditions of this Agreement, including any amendments, modifications, and supplements, and you agree to indemnify and hold CLEAResult and the Energy Arkansas program harmless from and against all claims, damages, and expenses, including reasonable attorneys' fees, arising out of or from the use of this Agreement, including any amendments, modifications, and supplements.
- 2. CONFIDENTIALITY.** CLEAResult and the Energy Arkansas program may disclose your name and the name of your company to other CLEAResult and Energy Arkansas program participants and to other CLEAResult and Energy Arkansas program staff. CLEAResult and the Energy Arkansas program may also disclose your name and the name of your company to other CLEAResult and Energy Arkansas program staff for the purpose of providing you with information about the Program. CLEAResult and the Energy Arkansas program will not disclose your name and the name of your company to any other CLEAResult or Energy Arkansas program participant or to any other CLEAResult or Energy Arkansas program staff, except as may be necessary to provide you with information about the Program. CLEAResult and the Energy Arkansas program will not disclose your name and the name of your company to any other CLEAResult or Energy Arkansas program participant or to any other CLEAResult or Energy Arkansas program staff, except as may be necessary to provide you with information about the Program.
- 3. ASSIGNMENT.** You agree not to assign, transfer, or otherwise dispose of your rights or obligations under this Agreement, including any amendments, modifications, and supplements, to any other party. Any attempt to do so shall be null and void.
- 4. ENTIRE AGREEMENT.** This Agreement, including any amendments, modifications, and supplements, constitutes the entire agreement between you and CLEAResult and the Energy Arkansas program, and it supersedes all other agreements, including any amendments, modifications, and supplements, between you and CLEAResult and the Energy Arkansas program.
- 5. FORCE MAJEURE.** If the performance of this Agreement is prevented or delayed by an event beyond your control, you will not be liable for any failure to perform under this Agreement, including any amendments, modifications, and supplements, for as long as the event continues.
- 6. GOVERNING LAW.** This Agreement shall be governed by the laws of the State of Arkansas.
- 7. SEVERABILITY.** If any provision of this Agreement is found to be unenforceable, the remaining provisions of this Agreement shall remain in full force and effect.
- 8. WAIVER.** The failure to exercise a right or remedy under this Agreement shall not constitute a waiver of that right or remedy.
- 9. ASSIGNMENT OF RIGHTS.** You agree to assign to CLEAResult and the Energy Arkansas program all of your rights and interests in any intellectual property that you create or develop in connection with the Program.
- 10. INDEMNIFICATION.** You agree to indemnify and hold CLEAResult and the Energy Arkansas program harmless from and against all claims, damages, and expenses, including reasonable attorneys' fees, arising out of or from the use of this Agreement, including any amendments, modifications, and supplements.
- 11. LIMITATION OF REMEDY.** Your sole remedy under this Agreement shall be the performance of your obligations under this Agreement, including any amendments, modifications, and supplements.
- 12. FORCE MAJEURE.** If the performance of this Agreement is prevented or delayed by an event beyond your control, you will not be liable for any failure to perform under this Agreement, including any amendments, modifications, and supplements, for as long as the event continues.
- 13. ENTIRE AGREEMENT.** This Agreement, including any amendments, modifications, and supplements, constitutes the entire agreement between you and CLEAResult and the Energy Arkansas program, and it supersedes all other agreements, including any amendments, modifications, and supplements, between you and CLEAResult and the Energy Arkansas program.
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CLEAResult⁺
CLEAResult STANDARD TERMS AND CONDITIONS FOR PARTICIPATING CONTRACTORS

- 1. ACCEPTANCE OF TERMS AND CONDITIONS.** This Agreement is made available to you by CLEAResult and the Energy Arkansas program. By accepting this Agreement, you agree to be bound by the terms and conditions of this Agreement, including any amendments, modifications, and supplements, and you agree to indemnify and hold CLEAResult and the Energy Arkansas program harmless from and against all claims, damages, and expenses, including reasonable attorneys' fees, arising out of or from the use of this Agreement, including any amendments, modifications, and supplements.
- 2. CONFIDENTIALITY.** CLEAResult and the Energy Arkansas program may disclose your name and the name of your company to other CLEAResult and Energy Arkansas program participants and to other CLEAResult and Energy Arkansas program staff. CLEAResult and the Energy Arkansas program may also disclose your name and the name of your company to other CLEAResult and Energy Arkansas program staff for the purpose of providing you with information about the Program. CLEAResult and the Energy Arkansas program will not disclose your name and the name of your company to any other CLEAResult or Energy Arkansas program participant or to any other CLEAResult or Energy Arkansas program staff, except as may be necessary to provide you with information about the Program. CLEAResult and the Energy Arkansas program will not disclose your name and the name of your company to any other CLEAResult or Energy Arkansas program participant or to any other CLEAResult or Energy Arkansas program staff, except as may be necessary to provide you with information about the Program.
- 3. ASSIGNMENT.** You agree not to assign, transfer, or otherwise dispose of your rights or obligations under this Agreement, including any amendments, modifications, and supplements, to any other party. Any attempt to do so shall be null and void.
- 4. ENTIRE AGREEMENT.** This Agreement, including any amendments, modifications, and supplements, constitutes the entire agreement between you and CLEAResult and the Energy Arkansas program, and it supersedes all other agreements, including any amendments, modifications, and supplements, between you and CLEAResult and the Energy Arkansas program.
- 5. FORCE MAJEURE.** If the performance of this Agreement is prevented or delayed by an event beyond your control, you will not be liable for any failure to perform under this Agreement, including any amendments, modifications, and supplements, for as long as the event continues.
- 6. GOVERNING LAW.** This Agreement shall be governed by the laws of the State of Arkansas.
- 7. SEVERABILITY.** If any provision of this Agreement is found to be unenforceable, the remaining provisions of this Agreement shall remain in full force and effect.
- 8. WAIVER.** The failure to exercise a right or remedy under this Agreement shall not constitute a waiver of that right or remedy.
- 9. ASSIGNMENT OF RIGHTS.** You agree to assign to CLEAResult and the Energy Arkansas program all of your rights and interests in any intellectual property that you create or develop in connection with the Program.
- 10. INDEMNIFICATION.** You agree to indemnify and hold CLEAResult and the Energy Arkansas program harmless from and against all claims, damages, and expenses, including reasonable attorneys' fees, arising out of or from the use of this Agreement, including any amendments, modifications, and supplements.
- 11. LIMITATION OF REMEDY.** Your sole remedy under this Agreement shall be the performance of your obligations under this Agreement, including any amendments, modifications, and supplements.
- 12. FORCE MAJEURE.** If the performance of this Agreement is prevented or delayed by an event beyond your control, you will not be liable for any failure to perform under this Agreement, including any amendments, modifications, and supplements, for as long as the event continues.
- 13. ENTIRE AGREEMENT.** This Agreement, including any amendments, modifications, and supplements, constitutes the entire agreement between you and CLEAResult and the Energy Arkansas program, and it supersedes all other agreements, including any amendments, modifications, and supplements, between you and CLEAResult and the Energy Arkansas program.
- 14. FORCE MAJEURE.** If the performance of this Agreement is prevented or delayed by an event beyond your control, you will not be liable for any failure to perform under this Agreement, including any amendments, modifications, and supplements, for as long as the event continues.
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- 17. WAIVER.** The failure to exercise a right or remedy under this Agreement shall not constitute a waiver of that right or remedy.
- 18. ASSIGNMENT OF RIGHTS.** You agree to assign to CLEAResult and the Energy Arkansas program all of your rights and interests in any intellectual property that you create or develop in connection with the Program.
- 19. INDEMNIFICATION.** You agree to indemnify and hold CLEAResult and the Energy Arkansas program harmless from and against all claims, damages, and expenses, including reasonable attorneys' fees, arising out of or from the use of this Agreement, including any amendments, modifications, and supplements.
- 20. LIMITATION OF REMEDY.** Your sole remedy under this Agreement shall be the performance of your obligations under this Agreement, including any amendments, modifications, and supplements.

CLEARResult[®]
CLEARRESULT STANDARD TERMS AND CONDITIONS FOR PARTICIPATING CONTRACTORS

13. **PROTECTION OF PERSONAL INFORMATION:** This Agreement shall be subject to the terms and conditions of the Privacy Policy... 14. **ASSIGNMENT:** This Agreement shall be subject to the terms and conditions of the Assignment Policy... 15. **FORCE MAJEURE:** This Agreement shall be subject to the terms and conditions of the Force Majeure Policy...

CLEARResult[®]
EXHIBIT A - DATA SECURITY REQUIREMENTS

This Agreement shall be subject to the terms and conditions of the Data Security Policy... 1. **SCOPE:** This Agreement shall apply to all data processed by the Contractor... 2. **DEFINITIONS:** For the purposes of this Agreement, the following definitions shall apply... 3. **SECURITY MEASURES:** The Contractor shall implement and maintain appropriate security measures... 4. **ACCESS:** Access to data shall be restricted to authorized personnel only... 5. **DISCLOSURE:** The Contractor shall not disclose any data to third parties without prior written consent...

CLEARResult[®]
EXHIBIT A - DATA SECURITY REQUIREMENTS

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Energy Services, LLC
2021 ClearPoint - SCORP Program Manual

EXHIBIT B - SUBCONTRACTOR FORM

By signing this form, the Contractor agrees to the terms and conditions of the Data Security Policy...
Contracting to CLEARResult[®] means that you agree to the terms and conditions of the Data Security Policy...

I/We, the undersigned, agree to the terms and conditions of the Data Security Policy...
I/We, the undersigned, agree to the terms and conditions of the Data Security Policy...

- 1. **DEFINITIONS:** This form is effective upon signature by both parties.
2. **SCOPE:** This Agreement shall apply to all data processed by the Contractor...

This Agreement shall be subject to the terms and conditions of the Data Security Policy...
This Agreement shall be subject to the terms and conditions of the Data Security Policy...

Contractor Name: _____
Contractor Address: _____
Contractor City: _____
Contractor State: _____
Contractor Zip: _____
Contractor Phone: _____
Contractor Email: _____

Appendix E: Timeline of Projects

1. **Submitted Projects - 20 business days**
 - Pre - Inspection (DIA/DCC) - 2 business days to respond, and determine if more information/documents are needed.
 - Pre - Inspection (CLEAR) will have 8 days to add to the Queue, and an additional 10 business days to complete pre - inspection service
 - Inactive Renewal - 3 business days to complete and send email to Trade Allow confirming inactive reservation
2. **Open project completion - 10 business days**
 - Trade Allow notifies program team of project completion and submits documentation for review that involving and out state review. If complete project will be added to post inspection queue 8 business days.
 - Post - Inspection (DIA/DCC) CLEAR will review post price and receive post inspection notes and perform project re-inspection (if needed), 10 business days to complete if project passes post inspection. If a future course, project reverts to step previous step.
3. **Incentive Approval and Processing - 20 business days**
 - CLEAR will receive Energy Approval - 10 business days
 - CLEAR will issue check - 10 business days



LITTLE ROCK CONVENTION & VISITORS BUREAU



The Opportunity

Little Rock Convention & Visitors Bureau was looking to lower energy use in its Arkansas facility. The bureau reached out to Entergy Arkansas, having worked with the utility company before. During an energy audit, several lighting upgrade opportunities were identified. The bureau enrolled in the Entergy Arkansas CitySmartSM - SCORESM Program to have the work completed.

PROJECT AT A GLANCE

1,195,884 Annual kWh savings

\$167,423 Incentives paid

\$95,670 Estimated annual savings

2.3 years Payback period

The Project

At the Little Rock Convention & Visitors Bureau facility, over 450 fixtures were replaced or installed during the project. The interior lighting retrofit consisted of replacing 1,000 W high bay metal halides—which were running 24/7—as well as metal halide troffers and high bay quartz fixtures all with LEDs. The facility also had advanced lighting controls installed, which will allow the building operator to schedule when the lights are running and to dim them when the space is unoccupied. Overall, 24 percent of the project savings came from these advanced lighting controls, a measure few customers choose to implement.

The Results

The project is estimated to save Little Rock Convention & Visitors Bureau \$95,670 annually. The bureau received \$167,423 in incentives from Entergy Arkansas, putting the payback period at 2.3 years. It saved 1,195,884 kWh annually, which equates to the greenhouse gas emissions from 178 passenger vehicles driven for one year or the CO₂ emissions from 896,828 pounds of coal burned, according to U.S. Environmental Protection Agency calculations. Little Rock Convention & Visitors Bureau was so pleased with the results, it plans on completing additional interior and exterior lighting retrofits and phase two of the chiller plant optimization.

Questions? To learn more about the CitySmart - SCORE Program, contact the Energy Efficiency Solutions Center at **877-212-2420** or visit enteryarkansas.com/citysmart.

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PULASKI COUNTY SPECIAL SCHOOL DISTRICT



The Opportunity

To reduce costs and improve learning environments for students throughout the Pulaski County Special School District, administrators partnered with the staff of Entergy Arkansas CitySmart™ - SCORE™ Program to identify cost-effective ways to improve energy efficiency throughout the district.

PROJECT AT A GLANCE

2,357,094 Annual kWh savings

\$190,714 Incentives paid

\$188,567 Estimated annual savings

0 months Payback period

The Project

According to ENERGY STAR®, 60 percent of the computers and monitors at organizations such as K-12 schools are left on at night, and 40 percent of monitors are not enabled for power management. This results in energy waste that costs schools and other organizations about \$750 million every year. To reduce energy costs associated with ineffective computer power management, PCSSD worked with Entergy Arkansas to install PC power management software at 25 schools throughout the district.

The Results

PCSSD now houses 1,444 laptops and 4,522 desktops that are equipped with power management software, which will save the district an estimated \$188,567 in energy costs each year. To help PCSSD finance the project, the CitySmart - SCORE Program provided over \$190,000 in cash incentives, which covered the entire cost of the upgrade.

Prior to this project, PCSSD worked with the CitySmart - SCORE Program staff to improve interior lighting quality and efficiency by replacing metal halide lighting fixtures with T-5 fixtures in 11 schools throughout the district. Exterior lighting is next for PCSSD: administrators plan to install energy-saving LED fixtures throughout the district.

Questions? To learn more about the CitySmart - SCORE Program, contact the Energy Efficiency Solutions Center at **877-212-2420** or visit entergyarkansas.com/citysmart.

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NATIONAL PARK COMMUNITY COLLEGE



The Opportunity

National Park Community College is nestled in the resort community of Hot Springs, Arkansas. Aside from beautiful surroundings, the college promises quality education at an affordable price. To do so, NPCC must keep operating costs down, beginning with its utility bill.

NPCC decided to partner with the Entergy Arkansas CitySmartSM - SCORESM Program to reduce energy waste. The result? A multi-year commitment to efficiency and an A+ in energy savings.

PROJECT AT A GLANCE

155,260 Annual kWh savings

\$3,844 Total incentives paid

\$12,421 Estimated annual savings

1.5 years Payback period

The Projects

In 2013, NPCC made its first steps toward an energy-efficient campus with no-cost direct install and energy benchmarking. This included installation of 119 faucet aerators across campus. In 2014, the college took its high efficiency even further with a chiller changeout. The CitySmart - SCORE provided NPCC with incentive money to replace its lab science building's old chiller with a high-efficiency one.

The Results

University staff members have reported significant savings in both energy and water use based on utility data. The direct install did not cost the university any money, and the savings seen from this measure helped reduce the payback for the chiller installation. As a result of these upgrades, the college will achieve 155,260 kWh and \$12,421 in annual savings. And NPCC isn't stopping there with its energy-efficiency overhaul. The college hopes to begin retrofitting its T12 lamps to high-efficiency T8s in the near future.

Questions? To learn more about the CitySmart - SCORE Program, contact the Energy Efficiency Solutions Center at 877-212-2420 or visit entergyarkansas.com/citysmart.

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CONTINUOUS ENERGY IMPROVEMENT CASE STUDY

UNIVERSITY OF ARKANSAS COMMUNITY COLLEGE AT MORRILTON

THE OPPORTUNITY

Entergy Arkansas' Continuous Energy Improvement initiative helps qualified facilities achieve lasting energy cost savings through simple, low- and no-cost improvements. Focusing on behavioral and operational changes, our CEI team offers personalized, step-by-step guidance, resources and yearly incentives to embed energy efficiency into your organization's culture.

Available to schools, governments and municipalities through our CitySmart™ Program, CEI recently helped the University of Arkansas Community College at Morrilton lower their overall electricity use by 9.89%.

THE INITIATIVE

Starting with an engineering walk-through of the school facilities, the CEI team identified several no-cost actions the school staff could take to save energy when the facilities were less occupied.

Ongoing improvements include:

- **Adjusting HVAC schedules** to increase building setpoints on nights and weekends when buildings were unoccupied.
- **Implementing a shutdown checklist** for staff to use when closing buildings for the evenings and weekends.
- **Organizing staff walk-throughs** before long holiday breaks to ensure equipment is turned off and/or unplugged.

THE RESULTS

The 16 participating facilities saw their electricity use drop by an average of 9.89%, with some individual facilities saving as much as 20%. In financial terms, the improvements are saving UACCM an annual \$14,353 in energy costs and earning them another \$3,377 a year in incentives from Entergy Arkansas.

Questions?

Reach out to the CEI team at **501-265-0249** or cei.central@clearesult.com.

For all the ways we can help your business save, visit entergyarkansas.com/citysmart or call our Energy Efficiency Solutions Center at **877-212-2420**.

PROGRESS TO DATE

9.89% Reduction in overall electricity use

\$14,353 Estimated annual cost savings

168,859 kWh Estimated annual energy savings

\$3,377 Estimated annual incentive

"I'm excited to see the campus embrace this effort. Not only is it the right thing to do, but it also allows us to use some of the money we have saved to do even more projects."

-Allen Holloway, Director of Facilities, UACCM

"We are very happy for UACCM for their commitment to energy improvement!"

-Kenny Muhammad, Customer Service Manager, Entergy Arkansas



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ENTERGY ARKANSAS CITYSMARTSM - SCORESM PROGRAM FOR COLLEGES



Did you know that colleges and universities in the U.S. spend almost \$14 billion a year on energy?*

Join the CitySmart - SCORE Program to identify energy-saving opportunities at your college and receive financial incentive offers toward energy efficiency upgrades. This will not only lower your energy use and costs, but also boost comfort and productivity on campus.

Eligible Measures

The following measures are eligible for financial incentives:

HVAC systems

- Includes installing or replacing air conditioning units, heat pumps, demand-controlled ventilation systems and more.

Lighting

- Includes installing or replacing interior and exterior lighting systems in classrooms, hallways, offices, parking lots and between buildings.

Personal computer power management

- Helps control power use on campus.

How to Participate:

1. Contact us at 877-212-2420 or visit entergyarkansas.com/citysmart to enroll in the CitySmart - SCORE Program.
2. We'll perform an on-site inspection of your institution's end-use energy systems — at no cost to you.
3. You'll receive customized project recommendations, tailored to your needs.
4. We will provide a list of qualified participating trade allies who are trained in the Entergy Arkansas energy efficiency programs.
5. You'll receive cash incentives for all qualifying completed projects.

College and University Energy Facts

- Lighting accounts for about 30 percent of the annual electricity consumed by educational facilities in the U.S.**
- HVAC makes up approximately 46 percent of the annual electricity consumed by educational institutions in the U.S.**

* Source: U.S. Environmental Protection Agency
** Source: U.S. Energy Information Administration

Ready to save? Contact the Energy Efficiency Solutions Center at 877-212-2420 or visit entergyarkansas.com/citysmart.



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SMART IDEAS FOR GRADE A SAVINGS



Energy efficiency is vital to helping balance school budgets. The nation's 17,450 K-12 school districts spend more than \$5 billion annually on energy costs alone.

When districts implement energy-efficient improvements, they save up to 30 percent on their annual energy bills and also prevent harmful greenhouse gas emissions, which improves the learning environment.* It is estimated that \$2 billion of that 30 percent – an amount equivalent to the cost of nearly 40 million new textbooks – can be saved by improving energy efficiency through programs like the Energy Arkansas CitySmart™ - SCORE™ Program.

Lowering Your Entergy Bill is as Easy as 1-2-3. Once you've enrolled in the CitySmart - SCORE Program, a program representative will perform an on-site inspection of your facility's on-use energy systems at no cost to you.

After determining which measures will achieve maximum savings, the program representative will compare the data gathered to industry standards. Such measures typically include interior and exterior lighting technologies, HVAC systems and computer power management.

Next, you will receive a customized list of recommendations. This list prioritizes projects that, if implemented, will increase efficiency and significantly reduce your Entergy bills.

If needed, we can provide a list of qualified trade allies enrolled in Entergy Arkansas' Small Business Energy Solutions Programs that can install the upgrades. Finally, you'll receive cash incentives for any qualified, completed projects.

K-12 Energy Facts

- A properly illuminated and ventilated environment is among the many factors that contribute to increased productivity in the classroom, which in turn affects performance and achievement.
- Typically, one-third of the energy used goes to waste largely due to outdated equipment and technology.
- Energy costs are a typical school district's second largest operating expense, after salaries. That's more than the cost of computers and textbooks combined.

Source: *U.S. EPA, 2, DOE, 20060601p DOE, Updated U.S. EPA, 2006b
Source: **energyark.gov

Ready to save? Contact the Energy Efficiency Solutions Center at 877-212-2420 or visit entergyarkansas.com/citysmart.



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WE POWER LIFE®

2020 CitySmart - SCORE Program Eligible Measures

Measure Type	Measure Description
Lighting	
Retrofits	Lighting retrofit projects replace existing lighting systems with more efficient lighting systems. A variety of high efficiency fixtures, ballasts and lamps provide equivalent light levels as previous technologies while consuming less energy. There are a variety of lamp and ballast combinations that are eligible for this program depending on the current technology installed at a facility.
Controls	Automatic lighting controls save energy by turning off or dimming lights when they are not necessary. Many different sensors are available and can be coupled with a variety of control strategies including day lighting controls, occupancy controls, timer controls and time clocks. For certain conditions, light reduction and automatic controls are mandatory for new construction and affected retrofit projects.
Exterior	Energy saving opportunities exist for all major exterior lighting applications including parking lots, streets and roadways and other building-mounted lighting. Energy saving opportunities apply to both improved lighting performance and enhanced control strategies. For example, retrofitting less efficient high-intensity discharge technologies with light emitting diode lighting and occupancy-based technology are good candidates for exterior applications.
HVAC	
Replacement	For existing buildings and new construction, non-ENERGY STAR® qualified heat pumps and air conditioning units are eligible to be replaced with ENERGY STAR qualified units. Eligible units for replacement include small split system and single package air conditioners and heat pumps.
Chiller Replacement	Chillers are commonly used to provide cooling for a variety of building types and process loads. The most common applications are for larger cooling loads (e.g. 50 to 100 tons and greater). This measure applies to the replacement of air-cooled and water-cooled chillers with energy efficient chillers.
Controls	HVAC controls are eligible in the Entergy Arkansas programs when no other controls previously exist or when existing controls can be modified or improved to provide measurable energy savings. Controls can be installed on building HVAC systems or central plant equipment to help control common operating parameters such as temperature, humidity, chilled water temperature, etc., for more effective use of the HVAC system.
VFD Motor Drives	A variable frequency drive controls the rotational speed of an electric motor by controlling the frequency of the electrical power applied to the motor. VFDs allow for soft starts and can be optimized to better match system loads, reducing stress and improving the motor life. VFDs work well when used with systems that have motors that can operate at lower speeds. The installation of VFDs that show measurable energy savings are eligible under the program.
Wastewater Treatment	
Fans/Blower Retrofits	These measures are ideal for ventilation blowers that are greater than 100 HP and have no VFD controls. The replacement must be a single-stage centrifugal variable blower with automatic dissolved oxygen control to be a cost effective project.
Pump Retrofits	Retrofits can be completed on pumps that are centrifugal pumps, do not have VFD or slip controls and pumps where total horsepower is greater than 100 HP and the operating hours are greater than 2,000 hours/year. Retrofit options include the installation of VFDs, start/stop controls, throttle valves and bypass controls.
Other Measures	
Improved Building Design (New Construction Only)	Incentives are given to buildings that are built above and beyond the required energy codes. These measures will be incentivized as a part of the individual measure type (lighting, lighting controls, HVAC, etc.) as listed below for the purpose of qualifying for bonus incentives, and are not separate measures from similar technology. For instance, if a participant is installing a lighting retrofit at one facility and is building a new facility with a qualifying lighting project, all of the lighting measures are considered one lighting measure for the purpose of calculating bonus incentives.
Refrigeration	There are a number of refrigeration measures that are eligible for upgrade or replacement in Entergy Arkansas Programs: <ul style="list-style-type: none"> • Evaporator fan upgrade to electronically commutated motors • Anti-sweat heater controls • Refrigerated door gaskets
Kitchen and Plumbing Upgrade	There are a number of kitchen measures that are eligible for upgrade or replacement in Entergy Arkansas Programs: <ul style="list-style-type: none"> • Low flow pre-rinse spray valve • Low flow faucet aerators • Low flow shower heads • Energy efficient dishwashers • High efficiency electric combination ovens • High efficiency fryers • ENERGY STAR steam cookers
Personal Computer Power Management (PCPM)	Personal Computer Power Management is a computer software that turns off the power of a device when it's not in use, or puts the hardware into the lowest power demand state available. Because schools have a significant amount of computers, this method is highly effective in conserving energy.

Ready to save? Contact the Energy Efficiency Solutions Center at 877-212-2420 or visit entergyarkansas.com/citysmart.



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WE POWER LIFE®



BENCHMARKING WITH ENERGERY ARKANSAS



Understand Your Energy Use Patterns to Save More.

Benchmarking and Your Facility

According to ENERGY STAR®, 30 percent of the energy consumed in commercial and industrial facilities is used inefficiently or unnecessarily.* Benchmarking your municipal building, school, university or commercial facility allows you to identify specific energy-wasting issues and pinpoint the most cost-effective ways to save energy and reduce energy costs.

How Will You Benefit?

- Our no-cost benchmarking service compares your energy performance metrics to those of similar buildings and results in a prioritized list of projects that, if implemented, will increase efficiency and reduce your monthly Entergy Arkansas bill.
- We also offer a no-cost energy master planning workshop to help stakeholders in your organization collaborate on short- and long-term plans for managing energy more effectively.
- After you've implemented one or more of the suggested energy efficiency improvements, we can perform re-benchmarking services at no cost so that you can measure your energy savings progress and continue improving the efficiency of your buildings.

*Source: energystar.gov

How to Participate:

1. To sign up for this no-cost benchmarking service from the Entergy Arkansas CitySmart™ - SCORE™ Program, call us at **877-212-2420** or visit entergyarkansas.com/citysmart.
2. Once you complete the registration process, a program representative will collect data from your building and provide a comprehensive benchmarking report. If you'd like to sign up for a no-cost energy master planning workshop, notify the program representative.
3. We can also provide you with contact details for Entergy Solutions trade allies, who are qualified to install the upgrades recommended in the benchmarking report.
4. Finally, you'll receive cash incentives for any qualified completed projects and you'll be eligible to receive follow-up benchmarking services every two years. To request follow-up benchmarking, call us at **877-212-2420**.

Energy Efficiency and Benchmarking Facts

- Organizations that consistently subject their commercial buildings to energy benchmarking can reduce their energy bills by seven percent over three years, according to the U.S. Environmental Protection Agency.
- New technologies and renewable energy sources have advanced and grown in popularity in recent years, but according to ENERGY STAR, energy efficiency remains the easiest and most cost-effective way to reduce energy consumption.*

Questions? Contact the Energy Efficiency Solutions Center at **877-212-2420** or visit entergyarkansas.com/citysmart.



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Custodial Services

Daily Energy-Saving Actions



Our school is participating in an innovative initiative aimed at reducing our energy costs by incorporating energy-saving actions into our daily routines. Together we can achieve significant savings.

Building

- Close all blinds and window coverings in all areas.
- Make sure all windows and doors to the outside are closed and locked.
- Close all interior doors separating spaces (gyms, auditoriums, entryways).

Lighting & Devices

- Turn off lighting in all unoccupied areas.
- Only turn on lights where work is taking place.
- Check computer labs and make sure all computers and monitors are switched off.
- Turn off all display case lighting and hallway lighting.
- Turn off all cleaning room or janitorial closet lights when not in use.
- When the building is not occupied, make sure all interior lights are turned off except exit and emergency lighting.

Water

- Check all drinking fountains, faucets, showers and toilets for leaks.
- Report any leaks to the facilities team.
- Unplug fountains during major break periods.

Special Projects

- If performing major floor projects such as shampooing or waxing, do so with energy efficiency in mind.
- Coordinate these activities with the facility maintenance departments.

Facility-Specific Items

- _____
- _____

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3.8.11 1219-EAI-1757472-Food Svc Daily Shutdown Handout -clean.pdf



Daily Energy-Saving Actions



Our school is participating in an innovative initiative aimed at reducing our energy costs by incorporating energy-saving actions into our daily routines. Together we can achieve significant savings.

Lighting

- Turn off walk-in cooler lights when not in use.
- Turn off all storage room and office lights when unoccupied.
- Turn off service area lights and table lights once service is complete.

Equipment

- Turn off open-air milk coolers when not in use.
- Turn off steam tables, warmers and coolers immediately after service.
- Turn off ovens and cooking equipment once cooking is complete.
- Turn off screens and POS systems after service.
- Consolidate cooler space and unplug any stand-up units not used.
- Shut off ice machines and drain during break times.
- Use exhaust fans only when cooking. Report any air returned to the space through the exhaust fan system. Air should be removed by the fan and not reintroduced to the space.

Water

- Ensure that faucets are turned off when not in use.
- Report any water leaks immediately.
- Ensure dishwashing equipment is only on when washing is active.

Facility-Specific Items

- _____
- _____
- _____

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3.8.12 1219-EAI-1757472-Occupant Daily Shutdown Handout-clean.pdf



Daily Energy-Saving Actions



Our school is participating in an innovative initiative aimed at reducing our energy costs by incorporating energy-saving actions into our daily routines. Together we can achieve significant savings.

A minute a day keeps our energy costs at bay.

Close window blinds.

Did you know? The sun radiates heat onto interior surfaces and increases air conditioning run time and cost. An air gap between windows and blinds acts as an insulating layer that prevents convection of hot or cold air and radiates both out at night.

Turn off ALL devices when not in use: display screen, computers, monitors, audio systems, printers, decorative lighting, desk or floor lamps, aquarium lights, cable boxes, TVs.

Did you know? Vampire, or phantom energy (energy used by devices when they are "off"), could account for 10 percent of residential electricity costs.

Close doors and windows.

Eliminating just four hours of unneeded lighting per day in 10 classrooms can equate to enough savings to feed three students lunch for the entire school year.

Can you incorporate energy efficiency into your lesson plans?

Engaging your students in these activities will encourage a culture of energy efficiency awareness in your classroom and beyond.

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3.8.13 1219-EAI-CISMT-1769755-CitySmart Fact Sheet_CLEAN.pdf



ENTERGY ARKANSAS CITYSMART™ | SCORE PROGRAM



Program overview

The CitySmart | SCORE Program is offered to institutional and public entities, including local state and federal governments, public/private schools and colleges in the Entergy Arkansas service area. The program helps facility supervisors understand the technical and financial benefits of investing in energy efficiency and develop an improvement plan. The program does not prescribe technologies or end uses, but instead provides a framework through which the participants can receive incentives for implementing and installing a wide range of measures at their sites.

What are the benefits?

- Financial incentives.
- Reduced energy costs.
- Energy performance benchmarking and master planning.
- Technical assistance.
- Communications support.
- No additional costs, directly installed measures (low-flow faucet aerators, pre-rinse spray valves, LEDs, vending mixers and weather stripping).

Who is eligible?

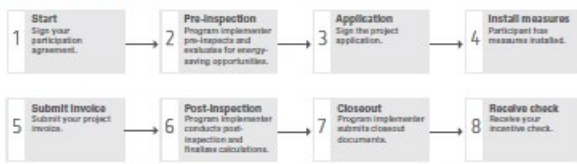
Institutional and public entities that receive electric service from Entergy Arkansas, including:

- K-12 schools.
- Accredited higher education institutions.
- Local governments.
- State and federal governments.

The CitySmart | SCORE Program will help you:

- Identify energy savings specific to your buildings.
- Prioritize a wide range of energy-conservation measures.
- Achieve significant, long-term electricity savings.
- Earn incentives for completing qualifying energy efficiency projects.

The process is simple:



Program-Eligible Measure Categories

Lighting and on/off controls (interior, exterior, specialty lighting)	Behavioral savings, strategic energy management
Advanced lighting controls (multi-step controls, dimming, task-activated controls, etc.)	Industrial controls and/or compressed air system controls (installation or modification of process or compressor controls)
Comfort cooling HVAC/chiller replacement	Industrial pump/tan upgrades
CoolSaver HVAC/Chiller tune-up *	Injection molding system upgrades (heater barrel upgrades, heater band replacement, heater barrel blankets, injection machine cooling, etc.)
Motor replacement (including DCAC conversion and electronically commutated motors)	Industrial heating (boilers, overhaulers, drying processes, etc.)
Building automation controls and retrocommissioning	Industrial cooling (process chillers, industrial refrigeration, etc.)
Motor drive or variable frequency drive upgrades	Other industrial process upgrades (oven-heating/cooling)
Computer power management (personal computer power management, server virtualization, server consolidation, data center upgrades, uninterruptible power supply upgrades)	Compressed air upgrades (leak fixes, demand side supply side air treatment, storage, distribution, VFD-driven compressors, etc.)
Commercial refrigeration upgrades (gaskets, strip curtains, anti-sweat heater controls, zero-energy doors, night covers, open cases to solid doors)	Other measurable and verifiable upgrades
Direct install (aerators, pre-rinse spray valves, shower heads, screw-in LEDs, weather stripping)	

Program Incentives

CitySmart | SCORE Incentive Rates (per kWh)

Number of Measures	1	2	3	4+	Cap
PC Power Management	\$0.10	\$0.10	\$0.10	\$0.10	Up to 100%
Gaskets and Strip Curtains	Paid per linear ft. for sq. ft. replaced.				Up to 100%
All Other Measures	\$0.12	\$0.13	\$0.14	\$0.15	Up to 100%

- * Measures must be 20,000 kWh each for tax credit.
- Measure credits for tiers are only retroactive to January of previous program year.
- Program direct install measures will count as only one tier, even if different and used again.
- Excess incentive can be leveraged against other projects in same program year.
- Retroactive incentive can be leveraged against other projects in same program year.

* Please see the CoolSaver Fact Sheet for details on the CoolSaver measures and incentive levels available under the program. CoolSaver measures are eligible for tax credits, provided they meet the program requirements for eligibility.

→ **Questions?** Contact the Energy Efficiency Solutions Center at 877-212-2420 or visit entergyarkansas.com/citysmart.



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WE POWER LIFE®

WE POWER LIFE®

3.9 Agricultural Energy Solutions

3.9.1 22540_EAL_AG_Bill_Insert_GrowYourGreen_v07_Release_Web



Reap the savings.

Grow your green.

The Entergy Arkansas Agricultural Energy Solutions Program offers incentives for you to switch to energy-efficient lighting and irrigation equipment.

- LED lighting can boost production, lower maintenance and energy costs, and improve security and worker safety.
- Efficient irrigation systems minimize environmental impacts and operating costs while reducing water and energy consumption.

Get long-term, cost-effective electric savings for your farm. Visit entergyarkansas.com/agriculture to learn more.



ENERGY SOLUTIONS
AN ENTERGY ARKANSAS PROGRAM

The Entergy Arkansas Agricultural Energy Solutions Program offers incentives on other equipment upgrades for your farm:

- Exhaust, circulation and high-volume, low-speed fans increase air circulation and cool spaces at a fraction of the standard energy usage.
- Milk pre-coolers remove heat from the milk before it enters the refrigeration system to cut energy costs.
- Variable-speed controllers for vacuum pumps reduce energy use and noise levels and extend the life of the pump and motor by reducing wear and tear.

Ready to get started?
Email us at agriculturaleal@icf.com or call **501-435-3010**.



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E-032102

WE POWER LIFE*



The Agricultural Energy Solutions Program is offered to agribusiness customers of Entergy Arkansas. Custom incentives are available for more complex energy-saving projects and are based on energy savings. All custom projects require preapproval prior to purchase or installation.

- All applications for incentives must be preapproved by Entergy Arkansas prior to purchasing and installing equipment. A pre-installation verification may be required.
- Upon receipt of written approval, the customer may begin project installation. Projects must be completed by the date indicated on the preapproval letter.
- Customers must notify Entergy Arkansas upon project completion. If the project is completed in a manner different from what was indicated in the approved application, the customer shall provide an amended application and explanation of changes prior to making the changes. Incentives will be determined based upon the actual qualified equipment installed. Copies of invoices for all work are required.
- A post-installation verification may be required.

Upon final approval of the project, incentives will be paid to the customer (account holder) within six to eight weeks.

Customer/Project Information (Entergy Arkansas Account Holder)			
Company Name:	Contact Person:	Title:	
Street Address:	Entergy Arkansas Electric Account Number:		
City:	ZIP Code:	Email:	Telephone:
Mailing Address (if different):	City:	State:	ZIP Code:
<input type="checkbox"/> Corporation <input type="checkbox"/> LLC <input type="checkbox"/> Partnership <input type="checkbox"/> Individual Proprietorship <input type="checkbox"/> Not-for-Profit			
Farm Type: <input type="checkbox"/> Aquaculture <input type="checkbox"/> Cattle <input type="checkbox"/> Dairy <input type="checkbox"/> Ditch/Dugout/Crop <input type="checkbox"/> Poultry <input type="checkbox"/> Swine <input type="checkbox"/> Other			
Expected Completion Date:			
Trade Ally Information			
Trade Ally Company Name:	Contact Person:	Title:	
Street Address:	City:	State:	ZIP Code:
License Number:	Email:	Telephone:	
Customer Acknowledgment			
Pre-Installation - By signing below, I hereby certify that all statements made on this application are correct to the best of my knowledge and that I have read and agree to the terms and conditions on the last page.			
Authorized Representative (please print):	Title:		
Authorized Signature:	Date:		
Post-Installation - By signing below, I hereby certify that I have seen the energy efficiency measures that have been installed and I am satisfied with their installation.			
Authorized Representative (please print):	Title:		
Authorized Signature:	Date:		
ADMINISTRATIVE USE ONLY			
Date Received:	Project Number:	Program Representative:	
Preapproval Date:	Program Manager:	Preapproved Incentive \$:	
Final Approval Date:	Program Manager:	Final Incentive \$:	

Terms and Conditions		
<p>1. PROGRAM OFFER: This application covers products purchased and installed after Jan. 1, 2021, and is not retroactive for products purchased or installed prior to this date. Preapproval is required for all projects. The program offers \$0.17 per kWh saved/annually up to 75% of the product cost.</p> <p>2. ELIGIBILITY: Incentives are available to Entergy Arkansas nonresidential customers for the purchase and installation of qualifying energy conservation measures in their Entergy Arkansas service territory, subject to these terms and conditions. Entergy Arkansas reserves the right to deny any application that may result in Entergy Arkansas exceeding its program budget. Incentives are offered on a first-come, first-served basis and are subject to project and customer eligibility and availability of funds. No project will be provided incentives that exceed 75% of the sum of the nonmaterial measure costs, and no one participant designated by an individual Federal Tax ID may receive over 20% of the annual incentive budget. In the event that there are incentive funds still available after Sept. 1 of the current program year, a participant may exceed the 20% cap in order to fully submit to the program upon approval by the program implementer. The completion date of a project should not extend beyond Nov. 30 of the current program year, unless approved in writing by the program implementer.</p> <p>3. AUTHORIZATION, PROGRAM CHANGES, SUSPENSION OR CANCELLATION: Entergy Arkansas may change the program requirements, incentives or terms and conditions, including suspending acceptance of applications or terminating the program, at any time without notice. In the event of a program change, preapproved applications will be processed to completion under the terms and conditions in effect at time of preapproval. Entergy Arkansas' obligation to pay incentives will occur only after Entergy Arkansas has granted written authorization, which Entergy Arkansas may approve or disapprove at its sole discretion.</p> <p>4. PROJECT APPROVAL: Preapproval is required for all custom and prescriptive projects. Entergy Arkansas reserves the right to pre-verify any project prior to preapproval. No project-related measures may be ordered or installed prior to the date of Entergy Arkansas' preapproval.</p> <p>5. PROOF OF PURCHASE: Prior to Entergy Arkansas' verification of the measure installation, the customer must provide copies of all invoices or other reasonable documentation that verify the costs of purchasing and installing the measure, including all material, labor and equipment discounts. Invoices must indicate a verifiable breakdown of all measures purchased for installation under this application.</p>	<p>6. PROJECT VERIFICATION: Entergy Arkansas is not obligated to pay any incentive until it has performed a satisfactory post-installation verification. If Entergy Arkansas determines that measures were not installed in a manner consistent with the approved application, or if an unapproved measure was installed or if the installation was not consistent with generally accepted engineering practices, changes may be required before payment is issued. Entergy Arkansas' sole liability is limited to paying the properly qualified incentives specified herein. Neither Entergy Arkansas nor any of its affiliates shall be liable to the customer or any other party for any indirect, consequential or incidental damages, regardless of the theory of recovery, caused by or arising from any activities associated with this program.</p> <p>7. CUSTOMER TAX OBLIGATION: The customer is responsible for declaring and paying any and all applicable federal, state and local taxes that may be owed on any incentive payment.</p> <p>8. COMPLIANCE: The customer is responsible for obtaining any and all necessary licenses and permits related to the installation of measures. The customer also agrees to comply with all federal, state and local laws and regulations related to the installation and disposal of all equipment.</p> <p>9. REMOVAL OF EQUIPMENT: The customer agrees to remove and dispose of the equipment being replaced by the measures in accordance with all legal requirements. The customer agrees not to reinstall any of this equipment in the Entergy Arkansas service territory or transfer it to any other party for such installation.</p> <p>10. REPLACEMENT OF FAILED EQUIPMENT: Customers who install measures are expected to replace any of the measures that fail with similar or superior energy saving equipment at the customer's expense.</p> <p>11. EVALUATION FOLLOW-UP VISITS: With advance notice, Entergy Arkansas reserves the right to make follow-up visits to customer facilities during the 36 months following the actual completion of the project to provide Entergy Arkansas with an opportunity to review the operation of the measures for program evaluation purposes.</p> <p>12. TRADE ALLY SELECTION: The customer may select any trade ally to perform the work contemplated by the application, whether an Entergy Arkansas trade ally or not. However, Entergy Arkansas reserves the right, in its sole reasonable discretion, to prohibit specific trade allies from program participation.</p> <p>13. CUSTOMER COMMUNICATION: Participant agrees that Entergy Arkansas or Entergy Arkansas program implementer may contact participant via mail, phone, text or email in connection with the program, including quality assurance.</p>	<p>14. WARRANTIES: Entergy Arkansas and ICF do not endorse, guarantee or warrant any particular manufacturer or product and Entergy Arkansas and ICF provide no warranties, expressed or implied, for any products or services. Entergy Arkansas and ICF are not liable or responsible for any act or omission of any company hired by the customer if any, whether or not said company is a participating Entergy Arkansas trade ally. The customer's reliance on warranties is limited to any warranties that may arise from, or be provided by trade allies, vendors, etc. The customer acknowledges that neither Entergy Arkansas nor ICF nor any of its consultants are responsible for ensuring the design, engineering and construction of the facility or installation of the measures in proper or compliance with any particular laws (including patent laws), codes or industry standards. Entergy Arkansas and ICF do not make any representations of any kind regarding the results to be achieved by the measures or the adequacy of safety of such measures.</p> <p>15. LIMITATION OF LIABILITY: Entergy Arkansas' and program implementer ICF's sole liability is limited to paying the properly qualified incentives specified herein. Entergy Arkansas and ICF shall not be liable to the customer or any other party for any indirect, consequential or incidental damages, regardless of the theory of recovery, caused by or arising from any activities associated with this program.</p> <p>16. LIABILITY WAIVER: By accepting an application, the Customer voluntarily agrees not to hold Entergy Arkansas, ICF, its trade allies or any of their affiliates, directors, officers, employees, agents, or contractors liable for any illness or injury. Customer further agrees not to engage in any inappropriate actions or otherwise endanger the safety or health of same.</p> <p>17. EVALUATION BETWEEN THE PARTIES: The customer acknowledges that any trade ally selected by the customer is not an agent or trade ally of Entergy Arkansas and is an independent trade ally engaged by the customer, and that Entergy Arkansas does not manage or control the trade ally's performance. Entergy Arkansas shall have no obligation to maintain, remove or perform any work whatsoever on the measures installed. Entergy Arkansas shall have no liability for trade ally's failure to perform, for failure of the measures to function, for any damage to the customer's premises caused by the trade ally or for any and all damages to property or injuries to persons caused by the measures.</p> <p>18. MISCELLANEOUS: These terms and conditions on this application constitute the entire agreement between the parties and supersedes all other communications and representations.</p>

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Boost production, lower costs and save energy by installing energy-efficient lighting equipment.

Lighting can be a major contributor to your horticulture facility's energy use and costs. Installing energy-efficient lighting can make your facility more productive and help you save on your Entergy bill.

Entergy Arkansas offers incentives on eligible LEDs, lighting controls and other qualifying lighting equipment to help you save energy while lowering operating costs.

Discover the Benefits

No matter the size of your indoor grow room, greenhouse or other indoor horticulture facility, LEDs:

- Boost production to help you grow your green faster and easier.
- Lower HVAC costs by reducing the energy it takes to cool your facility.
- Improve employee and visitor safety.
- Enhance security.
- Set you apart as an environmentally responsible green facility.

According to the U.S. Department of Energy, horticulture lighting uses annual electricity equal to approximately 550,000 U.S. households. Switching to LEDs could reduce annual energy use by 40% – saving approximately \$240 million per year.

More Ways To Save

By providing incentives to horticultural businesses that are installing energy-efficient equipment, Entergy Arkansas helps reduce upfront improvement expenses, as well as long-term energy costs. **In addition to LEDs, incentives are available on variable frequency drives for irrigation pumps and ventilation equipment.**

Start Saving

To learn more about the Agricultural Energy Solutions Program, call 501-435-3010 or visit entergyarkansas.com/agriculture.

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Entergy Solutions Agricultural Energy Solutions Customer Satisfaction Survey

1. Please enter the information indicated below (optional).

First Name:

Last Name:

Home Phone:

Email Address:

2. How satisfied were you with the Agricultural Energy Solutions Program?

	Very satisfied	Satisfied	Neutral	Somewhat dissatisfied	Very dissatisfied
Customer Service	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Professionalism	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Understanding customer needs	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Program staff	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Incentives	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Other (please specify):

3. Were the financial incentives beneficial in providing the updates? If no, please explain.

Yes

No

Please explain:

4. Have you taken any other energy efficiency actions since you participated in the program? If yes, please explain.

Yes

No

Please explain:

5. Do you have other Ag facilities, or another business that receives electricity from Entergy, for which you would like to make energy efficiency improvements? If yes, please explain.

Yes

No

Please explain:

6. Do you have any suggestions for improving our program?

7. How likely are you to participate in the program again?

Very likely

Somewhat likely

Neutral

Somewhat unlikely

Very unlikely

8. How likely is it that you would recommend this program to other farmers?

Very likely

Somewhat likely

Neutral

Somewhat unlikely

Very unlikely





Test test
123 test drive
Apt E6
Russellville, AR 71937

Dear Test test

Thank you for participating in the Entergy Arkansas Agricultural Energy Solutions Program.

We invite you to provide feedback about your experience through our brief customer survey. The survey will only take a few minutes to complete, and your valuable response will help us improve our service to customers just like you.

Please go to tinyurl.com/AgriculturalEnergy or use your smartphone to scan the QR code below to begin the survey.



Interested in other ways Entergy Arkansas can help with energy-efficient upgrades to your farm? Please visit energysolutionsar.com for more information.

If you need additional assistance or have any questions, feel free to call 501-435-3010 or email AgriculturalEAL@icf.com.


Sincerely,

Beau Blankenship
Project Manager
Entergy Arkansas

3.9.6 Survey Email

APSC FILED Time: 5/1/2023 8:36:58 AM: Recvd 5/1/2023 8:18:54 AM: Docket 07-085-TF-Doc. 793

Thank you for participating in an Entergy Solutions program.

 donotreply@programprocessing.com
Thu 10/15/2020 2:30 PM
To: Gorjachev, Igor

Dear Test Test,

Thank you for participating in the Entergy Arkansas Agricultural Energy Solutions Program.

We invite you to provide feedback about your experience through our brief customer survey. The survey will only take a few minutes to complete, and your valuable response will help us improve our service to customers just like you.

Click [here](#) to begin the survey.

Interested in other ways Entergy Arkansas can help with energy-efficient upgrades to your farm? Please visit our [website](#) for more information.

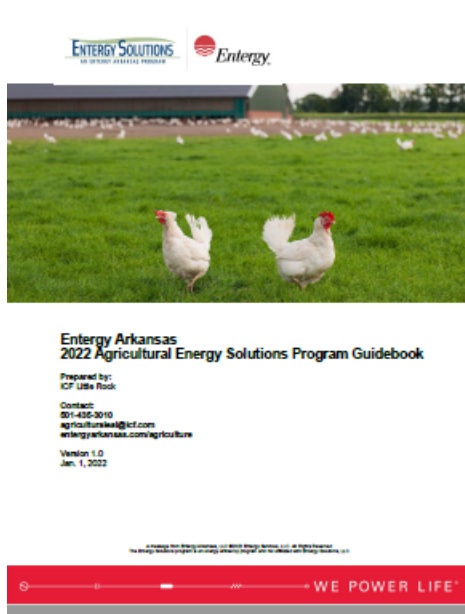
If you need additional assistance or have any questions, feel free to call **501-435-3010** or email AgriculturalEAL@icf.com.

Sincerely,

Beau Blankenship
Project Manager
Entergy Arkansas



[Privacy Policy](#)



Entergy Arkansas
2022 Agricultural Energy Solutions Program Guidebook

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Program Overview

Program Description

The Entergy Arkansas Agricultural Energy Solutions Program is available to all agriculture electric customers on agriculture commercial or industrial rate schedules. The program is designed to help farmers and other agricultural customers make their property more energy-efficient by offering farm audits, custom incentive and education of suppliers of agricultural equipment.

More than 40% of Arkansas' total land area is farmland. The agriculture sector contributes approximately 12% of the state's GDP, making it the largest industry in Arkansas.

Changes in energy prices affect the agriculture sector both through direct energy consumption as well as through energy-related products such as fertilizer. Thus, finding ways to reduce agricultural dependence on energy is important not only on an individual level, but also at a state level.

The program's goal is to produce long-term, cost-effective electric savings in the agricultural sector in part by offering incentives structured to cover a portion of the customer's cost of installing energy efficiency measures.

Our custom approach supports customers in identifying and implementing more complex site-specific opportunities through energy efficient measures. The program provides incentives and technical assistance to customers seeking to improve the efficiency of existing facilities as well as the efficiency of new equipment purchases, facility modernization and new construction.

Program Objectives

The Entergy Arkansas Agricultural Energy Solutions Program is designed to drive cost-effective energy efficiency in the marketplace, while minimizing the impact of barriers to implementation of energy efficiency. This is accomplished by utilizing a streamlined process that leverages cash incentives for applying cost-effective projects under the program.

These barriers include:

- Lack of customer awareness of energy efficiency technologies, benefits and project payback.
- Limited resources to identify energy efficiency opportunities.
- Limited access to financial capital.
- Absence of tools to quantify energy savings.
- Limited availability of energy efficiency technologies.

Program Roles

Customer Roles and Requirements:

- Submit a completed custom application.
- Contact the program implementer to schedule a pre-inspection.
- Once projects are pre-approved by Entergy Arkansas, make best efforts to fund, install and report projects before the end of the program year.
- Contact the program implementer when projects are completed to schedule a post-

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Inspection:

- Submit a signed application and detailed invoice.
- Receive payment processing letter and, within 6-8 weeks following, incentive payment.

Trade Ally Roles and Requirements:

- Provide verification of current license and insurance requirements.
- Perform all work to the required standards of the program.
- Install eligible energy efficiency measures and submit appropriate documentation requested by the program implementer.

Program Eligibility

Customer Eligibility

Any agricultural customer that receives electric service from Entergy Arkansas is eligible for the Agricultural Solutions Program at their facilities receiving electric service from Entergy Arkansas.

The following rate codes are among those eligible:

- Agricultural Pumping.
- General Farm Service.
- Small General Service.
- Large General Service.

For purposes of this program, a customer is defined by a single Federal Tax ID number. Organizations with multiple locations are considered a single customer, regardless of how many Entergy Arkansas account numbers they may have.

The Entergy Arkansas team will support farm customers and their trade allies throughout the decision and installation process. While recognizing that some farm customers may choose not to use a trade ally at all, for those who do, Entergy Arkansas will help to facilitate the communication between customers and trade allies that can address the customer's needs.

Through this program, agricultural customers will have access to a variety of resources including an educated trade ally and equipment supply network, educational tools to help them identify and prioritize cost-effective savings opportunities and, access to program experts who will offer guidance throughout the participation process.

Trade Allies

The program offers a flexible approach to participation and allows customers to select their trade ally to perform the work.

Custom Equipment Eligibility

The custom program covers cost-effective measures. Site-specific engineering and cost analysis may be required for each project submitted.

The proposed project or equipment must have verifiable electric energy savings and pass the program cost-effectiveness criteria. The custom program only approve projects, not overall

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technologies. So, while a specific custom measure is approved under one project, it does not guarantee that the same technology will be approved on any other project.

Typical custom measures include, but are not limited to:

- Low-energy livestock heaters.
- Exhaust fans.
- Circulation fans.
- High-volume low-speed fans.
- Milk pre-coolers.
- Pump tune-up.
- Exhaust fan tune-up.
- Variable speed controllers.
- Scroll compressor replacements.
- Variable frequency drive.

All custom measures require supporting documentation on equipment performance and calculations documenting the energy and demand savings that are expected to result from each measure. This information typically includes performance data for the existing or base case equipment and the energy efficiency equipment proposed as well as the operating load profiles that the equipment operates under. Please refer to the Custom Application Form for details on the required supporting documentation for each measure.



Program Incentives

Qualifying agricultural customers can receive cash incentives for installing qualifying energy efficiency measures by tailoring a custom project specific to their operation.

No single participant designated by an individual Federal Tax ID may receive more than 20% of the annual incentive budget. In the event that there are incentive funds still available after Sept. 1 of the current program year, a participant may exceed the 20% cap in order to fully subscribe to the program upon approval by the program implementer.

The completion date of all projects should not extend beyond Nov. 30 of the current program year, unless approved in writing by the program implementer.

Measure	Measure Description
Lighting	Replace lighting projects that replace existing lighting systems with more efficient lighting. There are a variety of lamp, ballast, and fixture combinations that are eligible for this program dependent upon existing conditions.

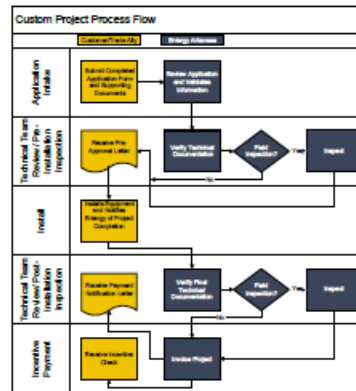
Lighting Controls	A variety of lighting controls incentives are available. These controls save energy by turning the lights off when a space is unoccupied. These incentives are not available for some new construction or major renovation projects.
-------------------	--

Custom Incentive Basis

Custom application incentives are determined on a case-by-case basis. In general, incentives received through this program are based on a project's reduction in energy consumption and the Energy Arkansas cost effectiveness analysis. For all custom measures, incentive will be based at a rate of \$0.175/kWh saved, covering up to 75% of the product cost.

Program Application Process

The following diagram highlights the various steps in the application process followed by a description of what to expect during each step.



Application Intake

The application process is relatively simple for the customer and trade ally, with the Energy Arkansas team performing support functions as needed and processing applications in a transparent manner. Once a customer expresses interest in participating in the program, a program representative will work closely with the customer to help them navigate the participation process.

When an application is received, the program uses a detailed process to review and track the application throughout the project life cycle, from intake to completion.

Applications can be submitted by the following methods:

- Email: agriculturess@ef.com
- Mail: Agricultural Energy Solutions
425 West Capital Ave, Suite 2110
Little Rock, AR 72201
- Fax: 501-688-1700

Application Processing

All applications require pre-approval from Energy Arkansas before purchasing and installing any energy-efficient equipment. Customers or trade allies must submit a complete package containing:

- Completed application, signed by the customer.
- Price quote of product cost.
- Detailed engineering analysis showing energy calculations, cost analysis of proposed equipment and baseline equipment for replacement projects.
- All equipment specification sheets demonstrating program requirements are met.

Once the application is sent to Energy Arkansas, the technical review process begins. If there are questions regarding program eligibility, an Energy Arkansas representative will contact the individuals listed on the application. If a project passes the review process, a pre-approval letter will be mailed to the customer and emailed to the trade ally, reserving the funds through Nov. 30 of the current program year. If the program is oversubscribed, applications will be placed on a wait list, in the order in which the applications are received. Participants on the wait list may be able to receive the incentive funding for the current program year if projects are cancelled and funds become available.

Technical Review

Once a completed application has been submitted, Energy Arkansas begins the technical review process.

To do so, Energy Arkansas reviews the supporting documentation including all equipment specifications required to prove eligibility. Lighting projects require an Electronic Lighting Worksheet that provides a detailed lighting inventory of the entire project.

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<p>If any concerns arise, the Energy Arkansas technical reviewer will contact the trade ally or customer. All documentation must be accurate and thorough to be pre-approved. The typical Technical Review process takes three to four weeks for custom applications. Once the technical review is completed, Energy Arkansas may request a pre-inspection.</p> <p>Pre-Inspections</p> <p>The pre-installation inspection of measure establishes a baseline from which the incentive is calculated. During the pre-installation inspection, the existing conditions at the customer's facility, operating characteristics of the equipment and applicability of all assumptions that factor into the energy-savings calculations are verified. A pre-inspection also ensures that the equipment being replaced is consistent with the application, that the quantities of measures are accurate and that the appropriate documentation is in place. In lieu of onsite pre-inspection, the necessary documentation needed for pre-approval can be provided by the trade ally or farmer which includes: photo documentation of existing measure type, quantity, purchased measure replacement, account number and application. For quality assurance purposes, 20% of the total volume will be inspected by a program representative. Depending on the pre-inspection results, program representative and customer can make necessary adjustments to the application. Once the existing conditions are verified, the proper incentive can be determined for pre-approval.</p> <p>Installation</p> <p>After the customer has received the pre-approval letter for a custom application, the customer may complete the retrofit, renovation or construction project listed in the application. The customer or trade ally is responsible for notifying Energy Arkansas when the project has been completed.</p> <p>Please be advised that the pre-approval releases the program funds through Nov. 30 of the current program year.</p> <p>Notification email to the general program jobs that alert project completion should include:</p> <ul style="list-style-type: none"> • Any changes made to project scope. • Final invoices. • Signed (by customer) application, verifying equipment has been installed as listed on the application. <p>Please note Energy Arkansas must receive final project notification of completion prior to Nov. 30 of the current program year.</p> <p>Post-Inspection</p> <p>If it is determined that a post-inspection will be performed, a program representative will contact the customer or trade ally to set up the site inspection.</p> <p>The goal is to confirm the installed equipment, quantity and operating hours, along with any other technology-specific verification that must be performed.</p>
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Energy Arkansas 2022 Agricultural Energy Solutions Program Guidebook
<p>Incentive Payments</p> <p>Once the final technical review and post-inspection (if required) are complete, the project is ready for final project approval and payment processing. As with the pre-approval process, Energy Arkansas will email a letter confirming the payment processing and stating that the incentive check will arrive in 45 to 10 weeks. Energy Arkansas must release all incentive payments prior to Dec. 31 of the current program year.</p> <p>Quality Management Systems</p> <p>Quality Assurance</p> <p>To increase the overall quality of the program, trade ally training courses will be provided for trade allies serving agricultural customers. The focus of these training courses is to ensure that participating trade allies are knowledgeable of all program details and processes as well as to help position their companies to promote the Agricultural Energy Solutions Program.</p> <p>Quality Control</p> <p>Upon receipt, all application forms go through a quality control review for eligibility, completeness and accuracy.</p> <p>For custom projects, a more in-depth review is completed by the technical reviewer to ensure technical eligibility is met and to verify the accuracy of energy-savings estimates.</p> <p>In addition to these reviews, all projects are subject to on-site inspections to confirm pre-existing and installed measure and operating conditions. Pre- and post-inspections will be selected on a random basis. Typically, 5 will consist of 20% of the qualifying measures.</p> <p>If your project fails its inspection, additional inspections will be conducted in an attempt to determine whether there is reasonable assurance that the project has been documented and that the actual savings can be verified.</p> <p>In connection with any such inspection, adjustments to the application may be required for completion and submission to Energy Arkansas. Depending on the discrepancies found, the incentive amount may increase or decrease.</p> <p>Participant Communications</p> <p>Once a participant submits an application for an incentive, a program representative will become the main point of contact for all communications. The program representative will be in regular contact with participants throughout the process.</p> <p>In addition, written communications will be mailed to the participant to document key milestones such as:</p> <ul style="list-style-type: none"> • Missing information letter if any information required to evaluate the project is missing. • Project advance letter informing participant of the reasoning for cancellation of the application. • Payment notification letter notifying the customer that the application process is complete.
10

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<p>and the request for payment has been initiated.</p> <p>Disclaimer</p> <p>The selection of a trade ally to perform work is the sole decision of the property owner, customer and/or authorized leaseholder/tenant.</p> <p>Inclusion of a trade ally in the participating trade ally list for the program does not constitute an endorsement by Energy Arkansas or ICF of any product, individual or company.</p> <p>Neither Energy Arkansas nor ICF makes any guarantee or any other representation or warranty, expressed or implied, as to the quality, cost or effectiveness of any products provided or works performed by any trade ally or by any employees, subcontractors or suppliers.</p> <p>Energy efficiency gains are subject to a number of variable conditions and circumstances. While it is the program's intent to achieve energy savings, neither Energy Arkansas nor ICF guarantees or warrants that any specific energy efficiency gains will be achieved for a particular customer participating in the program.</p> <p>Trade Ally Offering</p> <p>Energy Arkansas is pleased to partner with local trade allies to promote energy efficiency services to business customers through the Agricultural Energy Solutions Program. Trade allies help raise awareness of the program and inform customers about the opportunities and incentives available.</p> <p>This audience not only possesses the capability of driving end-users to become first-time program participants but can also encourage existing participants to assume a greater degree of involvement.</p> <p>Trade allies in the Agricultural Energy Solutions Program include electricians, architects and engineers; energy service companies and distributors; manufacturer representatives; and other companies that offer relevant services. This includes services related to fire, variable frequency drives, pumps, tractor heat lines, lighting, irrigation or any other related agricultural service.</p> <p>Interface between customers, trade allies and the program is primarily carried out by program representative. Program representative will also outreach, educate, recruit and maintain regular contact with program participants. Program representative work closely with local trade and professional associations (for end-users and product providers) to make them aware of the program.</p>
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<p>Frequently Asked Questions</p> <p>Q: Who is ICF and why are they involved? ICF is an energy consulting company that was selected through a competitive bidding process by Energy Arkansas to implement the Agricultural Energy Solutions Program. ICF has extensive experience managing similar programs throughout the country. ICF has a local office in Little Rock.</p> <p>Q: Are incentives available for gas-consuming devices? The Energy Arkansas Agricultural Energy Solutions Program encourages more efficient use of electricity. While the program does not offer incentives for reduced usage of other fuels, we encourage customers to contact their gas provider for information about what programs they may offer.</p> <p>Q: Will the program change from year to year? The program was designed using a best-practice approach from utilities across the country. However, programs are reviewed periodically, and it is possible for programmatic processes or elements, including incentives, to change from year to year.</p> <p>Q: Who can participate in the program? Non-residential customers who receive electric distribution service through Energy Arkansas regardless of their electric or gas supplier.</p> <p>Terms and Conditions</p> <p>PROGRAM OFFER: This application covers products purchased and installed after Jan. 1, 2022, and is not retroactive for products purchased or installed prior to this date. Preapproval is required for all projects. The program offers \$0.17 per kWh saved annually up to 75% of the product cost.</p> <p>ELIGIBILITY: Incentives are available to Energy Arkansas nonresidential customers for the purchase and installation of qualifying energy conservation measures in the Energy Arkansas service territory, subject to these terms and conditions. Energy Arkansas reserves the right to deny any application that may result in Energy Arkansas exceeding the program budget. Incentives are offered on a first-come, first-served basis and are subject to project and customer eligibility and availability of funds. No project will be provided incentives that exceed 75% of the sum of the incremental measure costs, and no one participant designated by an individual Federal Tax ID may receive over 20% of the annual incentive budget. In the event that there are incentive funds still available after Sept. 1 of the current program year, a participant may exceed the 20% cap in order to fully subscribe to the program upon approval by the program implementer. The completion date of a project should not extend beyond Nov. 30 of the current program year, unless approved in writing by the program implementer.</p> <p>AUTHORIZATION, PROGRAM CHANGES, SUSPENSION OR CANCELLATION: Energy Arkansas may change the program requirements, incentives or terms and conditions, including suspending acceptance of applications or terminating the program.</p>
12

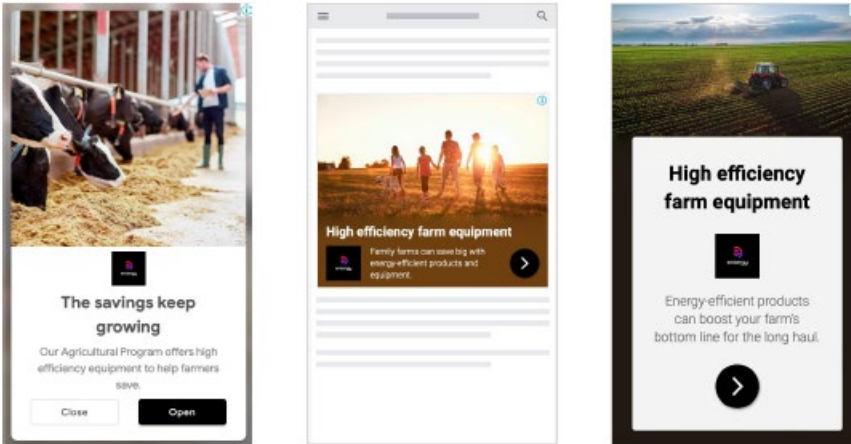
Energy Arkansas 2022 Agricultural Energy Solutions Program Guidebook
<p>at any time without notice. In the event of a program change, preapproved applications will be processed to completion under the terms and conditions in effect at time of preapproval. Energy Arkansas' obligation to pay incentives will occur only after Energy Arkansas has granted written authorization, which Energy Arkansas may approve or disapprove at its sole discretion.</p> <p>PROJECT APPROVAL: Preapproval is required for all custom and prescriptive projects. Energy Arkansas reserves the right to pre-verify any project prior to preapproval. No project-related measures may be ordered or installed prior to the date of Energy Arkansas' preapproval.</p> <p>PROOF OF PURCHASE: Prior to Energy Arkansas' verification of the measure installation, the customer must provide copies of all invoices or other reasonable documentation that verify the cost of purchasing and installing the measure, including all material, labor and equipment discounts. Invoices must indicate a verifiable breakout of all measures purchased for installation under this application.</p> <p>PROJECT VERIFICATION: Energy Arkansas is not obligated to pay any incentive until it has performed a satisfactory post-installation verification. If Energy Arkansas determines that measures were not installed in a manner consistent with the approved application, or if an unapproved measure was installed or if the installation was not consistent with generally accepted engineering practices, changes may be required before payment is issued. Energy Arkansas' sole liability is limited to paying the properly qualified incentive specified herein. Neither Energy Arkansas nor any of its affiliates shall be liable to the customer or any other party for any indirect, consequential or incidental damages, regardless of the theory of recovery, caused by or arising from any activities associated with this program.</p> <p>CUSTOMER TAX OBLIGATION: The customer is responsible for declaring and paying any and all applicable federal, state and local taxes that may be owed on any incentive payment.</p> <p>COMPLIANCE: The customer is responsible for obtaining any and all necessary licenses and permits related to the installation of measures. The customer also agrees to comply with all federal, state and local laws and regulations related to the installation and disposal of all equipment.</p> <p>REMOVAL OF EQUIPMENT: The customer agrees to remove and dispose of the equipment being replaced by the measure in accordance with all legal requirements. The customer agrees not to reinstall any of this equipment in the Energy Arkansas service territory or transfer it to any other party for such installation.</p> <p>REPLACEMENT OF FAILED EQUIPMENT: Customers who install measures are expected to replace any of the measures that fail with similar or superior energy-saving equipment at the customer's expense.</p> <p>EVALUATION FOLLOW-UP VISITS: With advance notice, Energy Arkansas reserves</p>
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<p>MISCELLANEOUS: These terms and conditions and this application constitute the entire agreement between the parties and supersede all other communications and representations.</p>
15

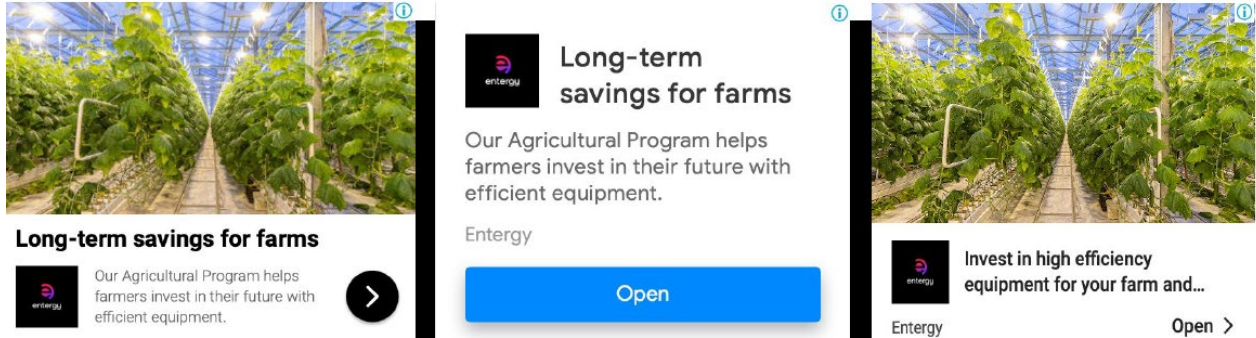
Energy Arkansas 2022 Agricultural Energy Solutions Program Guidebook
<p>the right to make follow-up visits to customer facilities during the 36 months following the actual completion of the project to provide Energy Arkansas with an opportunity to review the operation of the measure for program evaluation purposes.</p> <p>TRADE ALLY SELECTION: The customer may select any trade ally to perform the work contemplated by the application, whether an Energy Arkansas trade ally or not. However, Energy Arkansas reserves the right, in its sole reasonable discretion, to prohibit specific trade allies from program participation.</p> <p>WARRANTIES: Energy Arkansas and ICF do not endorse, guarantee or warrant any particular manufacturer or product and Energy Arkansas and ICF provide no warranties, expressed or implied, for any products or services. Energy Arkansas and ICF are not liable or responsible for any act or omission of any company hired by the customer (if any) whether or not said company is a participating Energy Arkansas trade ally. The customer's reliance on warranties is limited to any warranties that may arise from, or be provided by trade allies, vendors, etc. The customer acknowledges that neither Energy Arkansas nor ICF nor any of its consultants are responsible for ensuring the design, engineering and construction of the facility or installation of the measure is proper or complies with any particular laws (including patent laws), codes or industry standards. Energy Arkansas and ICF do not make any representations of any kind regarding the results to be achieved by the measures or the adequacy of safety of such measures.</p> <p>LIMITATION OF LIABILITY: Energy Arkansas' and program implementer ICF's sole liability is limited to paying the properly qualified incentive specified herein. Energy Arkansas and ICF shall not be liable to the customer or any other party for any indirect, consequential or incidental damages, regardless of the theory of recovery, caused by or arising from any activities associated with the program.</p> <p>LIABILITY WAIVER: By executing an application, the Customer voluntarily agrees not to hold Energy Arkansas, ICF, its trade allies or any of their affiliates, directors, officers, employees, agents, or contractors liable for any losses or injury. Customer further agrees not to engage in any inappropriate actions or otherwise endanger the safety or health of same.</p> <p>OBLIGATIONS BETWEEN THE PARTIES: The customer acknowledges that any trade ally selected by the customer is not an agent or trade ally of Energy Arkansas and is an independent trade ally engaged by the customer, and that Energy Arkansas does not manage or control the trade ally's performance. Energy Arkansas shall have no obligation to maintain, remove or perform any work whatsoever on the measure installed. Energy Arkansas shall have no liability for trade ally's failure to perform, for failure of the measure to function, for any damage to the customer's premises caused by the trade ally or for any and all damages to property or injuries to persons caused by the measure.</p> <p>CUSTOMER COMMUNICATION: Participant agrees that Energy Arkansas or Energy Arkansas' program implementer may contact participant via mail, phone, text message or email in connection with the program, including quality assurance communication.</p>
14

Energy Arkansas 2022 Agricultural Energy Solutions Program Guidebook
<p style="text-align: center;">Agricultural Energy Solutions Program Case Study</p> <div style="border: 1px solid #ccc; padding: 10px;">  <p style="text-align: center;">Agricultural Energy Solutions Program Spotlight: Tom Vanenberg</p> <p>Making Every Dollar Count</p> <p>Tom Vanenberg grew up on the same land as his great-grandfather. He's a fourth-generation farmer in Van Wert, Ohio. "I love the way my family has been here for over 200 years," says Tom. "I love the way my family has been here for over 200 years, and I love the way my family has been here for over 200 years."</p> <p>Savings Carry Home to Farm</p> <p>The Energy Arkansas Agricultural Energy Solutions Program provides financial incentives and technical assistance to help age businesses install energy-efficient equipment and practices. Tom's farm has installed energy-efficient technologies, including LED lights. "The program definitely covers the cost of energy-efficient equipment and practices," says Tom. "Incentives are available for LEDs, CFLs and other energy-efficient lighting. Tom received CFLs on his poultry houses and received more than \$10,000 in incentives. Plus, with the program, Tom will realize a 99 percent reduction in annual lighting costs, saving him a minimum of \$10,000 each year. And his investment in energy-efficient lighting has a payback of less than three weeks. In fact, efficient lighting enables him to realize a 99 percent payback on any other investment in energy-efficient lighting. "The way you make money in this business is to save money," Tom says.</p> </div>
16

3.9.8 AES AG Online Display Ads 2022



3.9.9 AG Program Banners Display 2022



3.9.10 EAL Homepage Banner_Ag_March 2022.docx



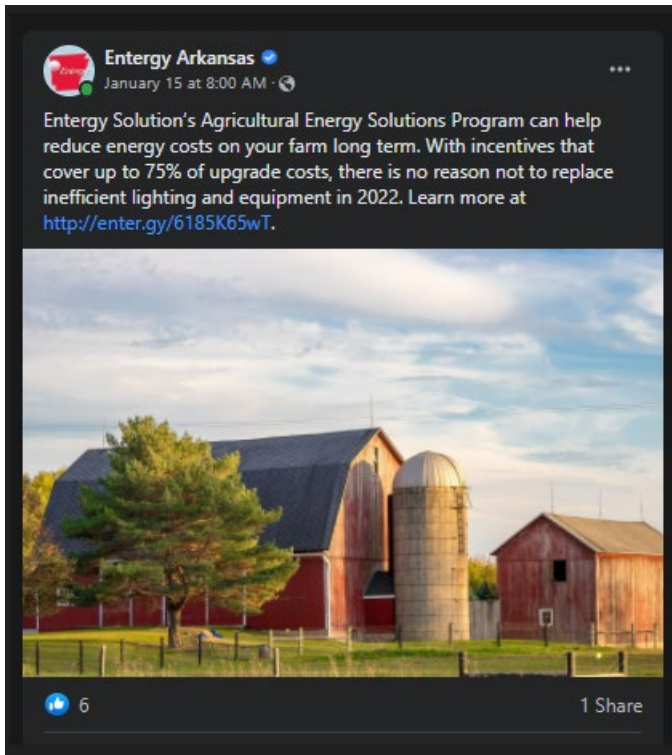
Reduce energy costs on your farm.


Get incentives covering up to 75% of project costs when you install energy-efficient measures through our Agricultural Energy Solutions program.

[LEARN MORE](#)


LEARN MORE Link - https://www.energy-arkansas.com/your_business/save_money/ee/agricultural/



3.9.11 AES EAL 2022 Social Media Posts – Facebook and Twitter




 **Entergy Arkansas** ✓
March 19 · 🌐

Celebrate National Poultry Day by saving energy on your poultry farm. Get incentives up to 75% of project costs through our Agricultural Energy Solutions program when you install energy efficiency measures on your farm. Visit entergyarkansas.com/agriculture or call 501-435-3010 to learn more.





 3  4 Comments

 **Entergy Arkansas** ✓
November 29, 2022 · 🌐

Big incentives. Long-term savings. We reward our agribusiness customers for installing energy-efficient measures when building a new facility or by replacing aging, inefficient equipment. Visit entergyarkansas.com/agriculture for details.



 14  4 shares

 Entergy Arkansas
October 12, 2022 · 🌐

Happy National Farmer's Day. We are proud to help Arkansas farms harvest long-term energy savings by offering incentives on high-efficiency equipment through our Agricultural Energy Solutions Program. Visit entergyarkansas.com/agriculture to learn more.


#NationalFarmersDay #WePowerLife



 3

3.10 Residential Direct Load Control

3.10.1 31195_EAL_Jan_Biz_Email_v01_RELEASE.pdf




Zero-Cost Smart Thermostat*


Save money and energy, and enjoy the convenience of smart thermostats for your business at no additional cost.

Join our Smart Direct Load Control Program to turn up your savings.


[Learn more >](#)




We'll give you smart thermostats with professional installation at no additional cost – a \$225 value.




On a few hot days from June through September (never on holidays or weekends), when the demand and cost for electricity are highest, we may send a signal to your thermostat to slightly raise the temperature for a brief time.



You'll save energy, help prevent outages and earn a cash incentive of up to \$100 for each thermostat enrolled at the end of the year.




The more you participate, the more you earn. So make the most of your opportunities to save.



Already have smart thermostats? Great. Sign up with your **qualifying** thermostats and receive an enrollment incentive of up to \$100 for each thermostat.


Ready to get started? Visit us [online](#) or call 833-807-7682 for details.

*Eligible Entergy business customers receive a smart thermostat at no additional cost when they participate in the Smart Direct Load Control Program.



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**An offer to adore.
Get a smart thermostat
at zero cost.***


Save money. Save energy. And enjoy the convenience of a smart thermostat.

Looking for a way to save energy while increasing comfort? Say "I do" to our Smart Direct Load Control Program to turn up your savings.

[Learn more >](#)




Get a smart thermostat with professional installation at no additional cost – a **\$225** value.



On a few hot days from June through September (never on holidays or weekends), when the demand and cost for electricity are highest, we may send a signal to your thermostat to slightly raise the temperature for a brief time.

You'll save energy, help prevent outages and earn a cash incentive of up to **\$40** at the end of each year.




The more you participate, the more you earn. So, make the most of your opportunities to save.



Have a smart thermostat already? Sign up with your **qualifying** thermostat and get an enrollment incentive of up to **\$66**.

What's not to love? Visit us **online** or call **833-807-7682** for more details or to get started.

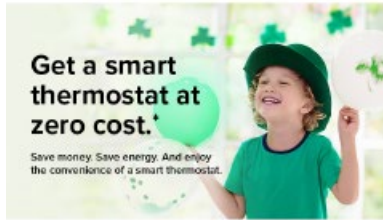
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ENERGY SOLUTIONS



Get a smart thermostat at zero cost.*

Save money. Save energy. And enjoy the convenience of a smart thermostat.

If you're looking to save energy while staying comfortable, today is your lucky day. Enroll in our Smart Direct Load Control Program to optimize your home's energy use. Get incentives when you join, plus more incentives each year you participate.

Learn more >



Get a smart thermostat with professional installation at no additional cost – a \$225 value.

On a few hot days from June through September (never on holidays or weekends), when the demand and cost for electricity are highest, we may send a signal to your thermostat to slightly raise the temperature for a brief time.



You'll save energy, help prevent outages and earn a cash incentive of up to \$40 at the end of each year.

The more you participate, the more you earn. So, make the most of your opportunities to save.



Have a smart thermostat already? Sign up with your qualifying thermostat and get an enrollment incentive of up to \$50.

Save energy and save some green. Visit us [online](#) or call 833-897-7682 for more details or to get started.

*Eligible Energy Efficiency solutions require a smart thermostat. An additional incentive is available when you participate in the Smart Direct Load Control Program.

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Every day is Earth Day

Energy efficiency is important all year long. Save money and energy while enjoying the convenience of a \$0 smart thermostat.*

Celebrate Earth Day by enrolling in our Smart Direct Load Control Program to optimize your energy use at your home or business. You'll receive a free smart thermostat when you join and get a cash incentive each year you participate.*

[Learn more >](#)



Get smart thermostats with professional installation at no additional cost* – a \$225 value.



On a few hot days from June through September (never on holidays or weekends), when the demand and cost for electricity are highest, we may send a signal to your thermostat to slightly raise the temperature for a brief time.



You'll save energy, help prevent outages, and earn a cash incentive at the end of each year. For every thermostat enrolled, residential customers can get up to \$40, and business customers can get up to \$100.



The more you participate, the more you earn. So, make the most of your opportunities to save.



Have a smart thermostat already? Sign up with your **qualifying thermostat** and get an enrollment incentive of up to \$50 for residential customers or up to \$100 for business customers.

Earth Day marks the perfect time to enroll. Visit us [online](#) or call 833-407-7952 for more details or to get started.

*Eligible Energy Efficiency customers receive a smart thermostat at no additional cost when they participate in the Smart Direct Load Control Program.

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Beat the heat with a \$0 smart thermostat*



Enroll in our Smart Direct Load Control Program to optimize your energy use at your home or business. You'll receive a free smart thermostat when you join and get a cash incentive each year you participate.*

[Learn more ▶](#)



Get smart thermostats with professional installation at no additional cost** – a \$226 value.

On a few hot days from June through September (never on holidays or weekends, when the demand and cost for electricity are highest), we may send a signal to your thermostat to slightly raise the temperature for a brief time.





You'll save energy, help prevent outages, and earn a cash incentive at the end of each year. For every thermostat enrolled, residential customers can get up to \$40, and business customers can get up to \$100.

You'll save energy, help prevent outages, and earn a cash incentive at the end of each year. For every thermostat enrolled, residential customers can get up to \$40, and business customers can get up to \$100.

The more you participate, the more you earn. So, make the most of your opportunities to save.





Have a smart thermostat already? Sign up with your qualifying thermostat and get an enrollment incentive of up to \$50 for residential customers or up to \$100 for business customers.

Have a smart thermostat already? Sign up with your qualifying thermostat and get an enrollment incentive of up to \$50 for residential customers or up to \$100 for business customers.

Visit us [online](#) or call 855-867-7682 for more details or to get started.

* Eligible Entergy Arkansas customers receive a smart thermostat at no additional cost when they participate in the Smart Direct Load Control Program.

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† Please visit Entergy Arkansas, L.P.S. at 855-867-7682, or 800-333-3333. To change your enrollment, change your email address or stop receiving these notifications, visit your [account page](#).

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Celebrate summer by enrolling in our Smart Direct Load Control Program to optimize your home's energy use. You'll save energy and money, receive a \$0 smart thermostat, and get a cash incentive each year you participate.*

[Learn more >](#)



Get a smart thermostat with professional installation at no additional cost** – a \$225 value.

On a few hot days from June through September (never on holidays or weekends), when the demand and cost for electricity are highest, we may send a signal to your thermostat to slightly raise the temperature for a brief time.



You'll save energy, help prevent outages and earn a cash incentive at the end of each year – up to \$40 for each thermostat enrolled.

The more you participate, the more you earn. Make the most of your opportunities to save.



Have a smart thermostat already? Sign up with your qualifying thermostat and get an enrollment incentive of up to \$50.

Enjoy the summertime savings. Visit us [online](#) or call 833-807-7682 for more details or to get started.

*Eligible Energy Advantage customers receive a smart thermostat at no additional cost when they participate in the Smart Direct Load Control Program.

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*Eligible customers receive a smart thermostat at no additional cost when they participate in the Smart Direct Load Control Program.

ENERGY SOLUTIONS



Beat the heat with a \$0 smart thermostat.*

Stay cool all summer long by enrolling in our Smart Direct Load Control Program to optimize your business's energy use.

Enroll now >



Get smart thermostats with professional installers at no additional cost** - a \$225 value.

During a few hot days from June through September (never on weekends), when the demand and cost for electricity are highest, we may send a signal to slightly raise the temperature for a short time.



You'll save energy, help prevent outages and earn a cash incentive at the end of each year. For every thermostat enrolled, business customers can get up to \$100.

The more you participate, the more you earn. Make the most of your opportunities to save.



Have a smart thermostat already? Sign up with your qualifying thermostat and get an enrollment incentive of up to \$100.

Don't let summer pass you by without enrolling. Visit us [online](#) or call **833-857-7662** for more details or to get started.

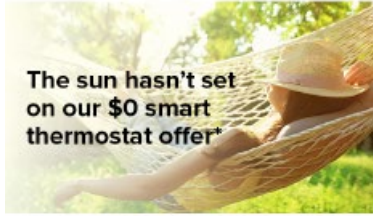
*Digital Energy Incentive customer needs a smart thermostat and additional enrollment fees per house in the Smart Direct Load Control Program.

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The sun hasn't set on our \$0 smart thermostat offer*

Summer rolls on, and the temps are staying high. Entergy is here to help you save energy and money in your home or business with the Smart Direct Load Control Program. Get the award-winning Smart Touch thermostat for \$0 when you enroll today.†

Learn more »



Get smart thermostats with professional installation at no additional cost** – a \$225 value.

On a few hot days from June through September (never on holidays or weekends), when the demand and cost for electricity are highest, a signal may be sent to your thermostat to slightly raise the temperature for a brief time.



You'll save energy, help prevent outages and earn a cash incentive at the end of each year. For every thermostat enrolled, residential customers can get up to \$40, and business customers can get up to \$100.

The more you participate, the more you earn. Make the most of your opportunities to save.



Already have a smart thermostat? Sign up with your qualifying thermostat and get an enrollment incentive of up to \$50.

Let's get you set up. Visit us [online](#) or call 833-807-7682 for more details or to enroll.

*Eligible Entergy customers receive a smart thermostat at no additional cost when they participate in the Smart Direct Load Control Program.

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ENERGY SOLUTIONS



You'll optimize how your business uses energy so you use less, plus you'll get a smart thermostat professionally installed (a \$225 value) at no cost* to you. And at the end of each year, you'll get a cash incentive of up to \$100 for every enrolled thermostat that participates.



Enroll ▶

 On a few summer days, we may send a signal to slightly raise the temperature for a short time (never on holidays or weekends). You can opt out up to three times per year and still get the cash incentive.

 Already have a smart thermostat? Cool. Sign up with your qualifying thermostat to get an enrollment incentive of up to \$50.

Visit us [online](#) or call 833-807-7682 to enroll.

* Eligible Entergy Arkansas customers receive a smart thermostat at no additional cost when they participate in the Smart Direct Load Control Program.

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12/20/2022

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Help your energy bill fall

Enroll in our Smart Direct Load Control Program

Optimize your home's HVAC to use less energy, and get a smart thermostat professionally installed (a \$225 value) at no cost* to you. At the end of each year, you'll get a cash incentive of up to \$40 for every enrolled thermostat that participates.



Enroll ▶



On a few summer days, we may send a signal to slightly raise the temperature for a short time (never on holidays or weekends). You can opt out up to three times per year and still get the cash incentive.

Already own a smart thermostat? Cool. Sign up with your **qualifying thermostat** for an enrollment incentive of up to \$50.



Visit us [online](#) or call **833-807-7682** to enroll.

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ENERGY SOLUTIONS





Energy efficiency fits any business plan

Wrap up your year with a smart move by enrolling in our Smart Direct Load Control Program. You'll optimize how your business uses energy, plus you'll get a smart thermostat professionally installed (a \$225 value) at *no cost to you.** And at the end of each year you'll get a cash incentive of up to \$100 for every enrolled thermostat that participates.



[Enroll >](#)

 On a few summer days, we may send a signal to slightly raise the temperature for a short time (never on holidays or weekends). You can opt out up to three times per year and still get the cash incentive.

 Already have a smart thermostat? Great. Sign up with your qualifying thermostat to **get an enrollment incentive of up to \$50.**

Visit us [online](#) or call **833-807-7682** to enroll.

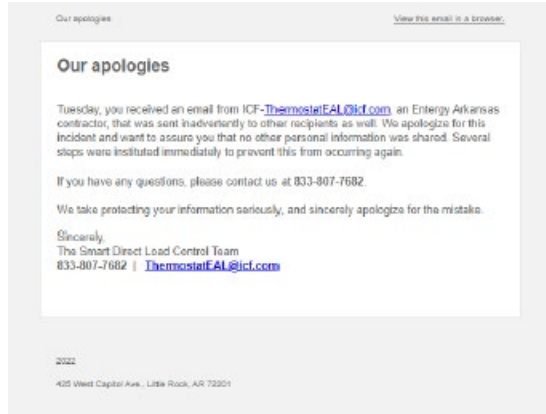
*Eligible EnergyArkness customers receive a smart thermostat at no additional cost when they participate in the Smart Direct Load Control Program.

We power life.™

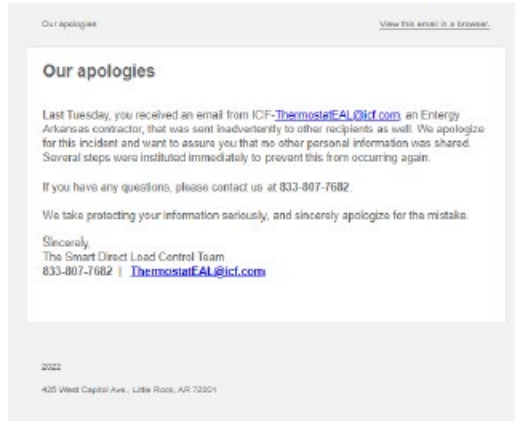


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3.10.12 Apology Email.pdf



3.10.13 Apology Email Follow Up.pdf



View this message in a browser

ENERGY SOLUTIONS

You have received this email because you are enrolled in the Entergy Arkansas Smart Direct Load Control Program.

Thank you for enrolling in the Smart Direct Load Control Program. A total of four events were held this year, and your participation helped reduce energy demand on some of the hottest days during the summer.

Our records indicate that you opted out of four or more events, therefore, do not qualify for this year's annual participation incentive. As a reminder, incentive values are based on the participation level in demand response events, and event opt outs can reduce your annual participation incentive. Thermostats that are offline during the time of an event are considered to be opted out of an event and are counted toward your total opt outs for the conservation season.

Don't forget. Keeping your thermostat connected to Wi-Fi and participating in demand response events is an easy way for you to qualify for incentives at the end of next year's event season.

Customer Type	Annual Participation Incentive			
	2-10 Event Opt Outs	11-20 Event Opt Outs	21-30 Event Opt Outs	31 or More Event Opt Outs
Residential Customers	\$40	\$60	\$75	\$0
Nonresidential Customers	\$100	\$150	\$200	\$0

We invite you to provide feedback about your experience through our brief customer survey. The survey will take only a few minutes to complete, and your valuable response will help us improve the program.

[Begin survey](#)

Sincerely,
 Your Entergy Smart Direct Load Control Team
ThermostatEAL@icf.com | 833-807-7662
entergyarkansas.com/thermostat

We power life.™

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 420 W. Capitol Ave., Little Rock, AR 72201
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ENERGY SOLUTIONS

You have received this email because you are enrolled in the Entergy Arkansas Smart Direct Load Control Program.

Thank you for enrolling in the Smart Direct Load Control Program. A total of four events were held this year, and your participation helped reduce energy demand on some of the hottest days during the summer.

Incentive checks for participating in the 2022 event season will be mailed to you in four to six weeks. As a reminder, incentive values are based on the participation level in demand response events, and event opt outs can reduce your annual participation incentive. Thermostats that are offline during the time of an event are considered to be opted out of an event and are counted toward your total opt outs for the conservation season.






Customer Type	Annual Participation Incentive			
	Zero Event Opt Outs	One Event Opt Out	Two or Three Event Opt Outs	Four or More Event Opt Outs
Residential Customers	\$40	\$40	\$35	\$0
Nonresidential Customers	\$100	\$100	\$80	\$0


We invite you to provide feedback about your experience through our brief customer survey. The survey will take only a few minutes to complete, and your valuable response will help us improve the program.

[Begin survey](#)



Sincerely,
 Your Entergy Smart Direct Load Control Team
 ThermostatEAL@ecf.com | 833-807-7662
entergyarkansas.com/thermostat

We power life.™










60022 Entergy Arkansas, LLC
 420 W. Capitol Ave. | Little Rock, AR 72201
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3.10. 16 Summer Advantage Bilingual Doorhanger 2022



Thank you for participating in Entergy Solutions Summer Advantage, our central air conditioning and heat pump cycling program that helps participants use energy more efficiently during the hot summer months.

To ensure our installation and operational standards meet your expectations, our field team has performed a routine inspection of our equipment on:


at _____ a.m. p.m.

Notes:

For more information, please visit enteryarkansas.com/summeradvantage or call 866-224-7812.

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We power life.™



Gracias por participar en el programa de Summer Advantage de Entergy Solutions. El programa de encendido y apagado del aire acondicionado central y de bombas de calor ayuda a los participantes a usar energía de modo más eficiente durante los calurosos meses de verano.

Para asegurar que nuestros estándares de instalación y operación cumplan con sus expectativas como consumidor, hemos realizado una inspección de rutina del equipo el día:

a las _____ a.m. p.m.

Notas:

Para más información, visite enteryarkansas.com/summeradvantage o llame al 866-224-7812.

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We power life.™

3.10.17 Summer Advantage Postcard v1 2022

Savings are right around the corner

Dear Summer Advantage Program Participant,

The Summer Advantage Program season is about to begin. You are participating at the **50%** level, which rewards you with an incentive payment of up to **\$25** this December.

If you become concerned about the operation of your central air conditioner or heat pump this summer, please call **866-224-7812**. Before calling, please check your digital cycling unit (DCU) for a conservation period. You will need to go outside to inspect the device. A red LED light will appear in the window of the DCU throughout the conservation period.

Thank you for your participation in this important energy efficiency program for Arkansas.

The Summer Advantage Program season begins June 1 and continues through Sept. 30.

866P122X



7812 Main Street, Box 2280
North Little Rock, AR 72116-7812

John O. Smith
1204 Main Street
Anytown, US 01778-0771

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Ready. Set. SAVE.

We power life.™

Savings are right around the corner

Dear Summer Advantage Program Participant,
The Summer Advantage Program season is about to begin. You are participating at the **75%** level, which rewards you with an incentive payment of up to **\$40** this December.
If you become concerned about the operation of your central air conditioner or heat pump this summer, please call **866-224-7882**. Before calling, please check your digital-cycling unit (DCU) for a conservation period. You will need to go outside to inspect the device. A red LED light will appear in the window of the DCU throughout the conservation period. You may also call us if you wish to lower your participation level to 50%.
Thank you for your participation in this important energy efficiency program for Arkansas.

The Summer Advantage Program season begins June 1 and continues through Sept. 30.

19W02218



2023 McCraw Blvd., Box 2, Oneonta, MS 38874

John O. Smith
1234 Main Street
Anytown, MS 38874

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Ready. Set. SAVE.

We power life.™

3.11 Smart Direct Load Control

3.11.1 27937_EAL_DLC_BYOD_Bill_Insert_v02_RELEASE-WEB.pdf



Turn up the savings.

The Smart Direct Load Control Program can help lower your energy costs and offers cash incentives for participating every year.

Entergy Arkansas is helping commercial customers save energy and money the smart way. Enroll your qualifying smart thermostats in our program to receive:

- Up to \$100 for each thermostat upon sign-up.
- Up to \$100 every year for each participating thermostat.

Interested in this easy way to save? Visit entergyarkansas.com/thermostat to learn more.



How it works.

- Get incentives for each qualifying smart thermostat that you add to the program.
- On a few hot days from June through September (never on holidays or weekends), when the demand and cost for electricity are highest, we may send a signal to your thermostat to slightly raise the temperature for a brief time.
- You'll save energy, help prevent outages and earn a cash incentive at the end of each year—up to \$100 for each thermostat.
- The more you participate, the more you earn. So, make the most of your opportunities to save.

Ready to get started?

Learn more and sign up today at entergyarkansas.com/thermostat.



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E-072102

WE POWER LIFE®



Kick off summer with a smart thermostat that saves energy and money.

Now that summer is just around the corner it's the perfect time to get a smart thermostat that can provide convenience and insight while giving you control of your home's comfort and energy use. These smart devices learn your personal preferences to automatically adjust your home's temperature when you come and go. And by connecting them to your home's Wi-Fi, you can control the temperature from anywhere, using your smartphone or tablet. A smart thermostat is a great tool for controlling your home's energy use.

Smart Thermostats:

- Learn your temperature preferences and establish a schedule that adjusts to energy-saving temperatures when you're asleep or away.
- Provide home-energy-use data that you can track and manage.
- Give you control of your home's cooling and heating remotely through your smartphone.

Enroll in the [Energy Arkansas Smart Direct Load Control Program](#) and get a smart thermostat with professional installation on us – a \$225 value. Plus get a cash incentive of up to \$40 at the end of each year you participate in the program. It's a smart, simple way to save energy and money.

Already have a smart thermostat? Great. Sign up with your qualifying thermostat and receive an enrollment incentive of up to \$50.

Take your savings a step further with these energy-saving tips:

- **Curb daytime use of big appliances** like washers, dryers and dishwashers.
- **Turn off lights** when you leave a room. You'll get to enjoy more natural light and save energy.
- **Use smart power strips** that automatically sense when devices are inactive and cut their power supply to save energy.
- **Keep your vents clear** to help your heating system work more efficiently.

Enjoy smart, simple savings. Visit us [online](#) or call **833-807-7682** to learn more.



Keep you and your family comfortable with a smart thermostat.

With smart thermostats, you can save energy and maintain your home's comfort no matter where you are. These thermostats are designed to learn your lifestyle whether you are home or not. Simply connect the smart thermostat to your home's Wi-Fi and then you can start controlling your home's temperature from anywhere you go, using your tablet or smartphone. Smart thermostats provide convenience, insight and control of your home's comfort and energy use.

Save money and stay comfortable



Smart thermostats that have earned the ENERGY STAR® certification are a great investment since almost half of the average household energy bill goes to heating and cooling. That's more than \$900 a year. And with an ENERGY STAR certified smart thermostat, you get optimal energy savings and home comfort at the same time.


Take your savings a step further.

Enroll in the [Entergy Arkansas Smart Direct Load Control Program](#) and get an ENERGY STAR certified smart thermostat with professional installation on us – a \$225 value. Plus, get a cash incentive of up to \$40 for each thermostat enrolled at the end of each year you participate in the program. Don't wait, start saving energy and money today.

Already have a smart [thermostat](#)? No problem. Sign up with your qualifying thermostats and receive a one-time enrollment incentive of up to \$50 per thermostat and up to \$40 per year for each thermostat.

Stay comfortable and enjoy simple savings. Visit entergyarkansas.com/thermostat to learn more.



SMART DIRECT LOAD CONTROL PILOT PROGRAM

ENROLLMENT FORM

Customer Information				
Last Name:		Entergy Account #:	Select One: <input type="checkbox"/> Owner <input type="checkbox"/> Renter	
First Name:		Email Address:		
Daytime Phone #:		Alternate Phone #:		
Street Address:		City:	ZIP: County:	
Trade Ally Information				
Business Name:		Technician Name:		
Home Qualification Information				
Total Square Footage of Home:		Number of Occupants in Home:	Age of Home in Years:	
Project Information				
Qualifying Questions:			Yes No	
Does the customer have functioning Wi-Fi? If yes, circle type: Fiber Optic Cable or DSL Satellite			Not Eligible	
Is the customer a current participant in the Summer Advantage Direct Load Control Program?			Not Eligible	
Is the current thermostat an advanced smart thermostat? (Emerson, Honeywell, etc.)			Not Eligible	
Does the customer wish to be considered for an additional incentive to allow data-logging device to be installed (at time of thermostat installation or at a later date)?			Not Eligible	
Thermostat 1	Installation Date: mm/dd/yy	Measure Location:	Heating Type: <input type="checkbox"/> Gas <input type="checkbox"/> Electric Resistance <input type="checkbox"/> Heat Pump <input type="checkbox"/> Unknown	
	Type of Thermostat Replaced: <input type="checkbox"/> Manual <input type="checkbox"/> Digital <input type="checkbox"/> Programmable	Cooling Type: <input type="checkbox"/> Central A/C <input type="checkbox"/> Heat Pump <input type="checkbox"/> Window A/C <input type="checkbox"/> ES Window <input type="checkbox"/> Fans Only <input type="checkbox"/> N/A	Thermostat Manufacturer:	
	If programmable, was the thermostat properly programmed? <input type="checkbox"/> Yes <input type="checkbox"/> No	Thermostat Serial #:	Thermostat Serial #:	Thermostat Serial #:
	C-Wire installed? <input type="checkbox"/> Yes <input type="checkbox"/> No	Cover Plate installed? <input type="checkbox"/> Yes <input type="checkbox"/> No	Thermostat Serial #:	Thermostat Serial #:
	HVAC Manufacturer:	Tonnage:	# of Compressors:	Area ft ² :
	RLA:	FLA:	M&V Device: <input type="checkbox"/> Yes <input type="checkbox"/> No	M&V Device ID:
Thermostat 2	Installation Date: mm/dd/yy	Measure Location:	Heating Type: <input type="checkbox"/> Gas <input type="checkbox"/> Electric Resistance <input type="checkbox"/> Heat Pump <input type="checkbox"/> Unknown	
	Type of Thermostat Replaced: <input type="checkbox"/> Manual <input type="checkbox"/> Digital <input type="checkbox"/> Programmable	Cooling Type: <input type="checkbox"/> Central A/C <input type="checkbox"/> Heat Pump <input type="checkbox"/> Window A/C <input type="checkbox"/> ES Window <input type="checkbox"/> Fans Only <input type="checkbox"/> N/A	Thermostat Manufacturer:	
	If programmable, was the thermostat properly programmed? <input type="checkbox"/> Yes <input type="checkbox"/> No	Thermostat Serial #:	Thermostat Serial #:	Thermostat Serial #:
	C-Wire installed? <input type="checkbox"/> Yes <input type="checkbox"/> No	Cover Plate installed? <input type="checkbox"/> Yes <input type="checkbox"/> No	Thermostat Serial #:	Thermostat Serial #:
	HVAC Manufacturer:	Tonnage:	# of Compressors:	Area ft ² :
	RLA:	FLA:	M&V Device: <input type="checkbox"/> Yes <input type="checkbox"/> No	M&V Device ID:
<p>You must confirm that the thermostat and HVAC are functioning properly after install.</p> <p>The customer and thermostat MUST be registered with manufacturer before leaving customer's home.</p> <p>The following must be submitted along with this application:</p> <ul style="list-style-type: none"> Customer invoice showing installation cost and incentive for each thermostat. Photo(s) of manufacturer nameplate(s) on outdoor compressor unit. Photo(s) of the replaced thermostat. 				

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WE POWER LIFE®

Turn up the savings.

Enroll your smart thermostat into the Smart Direct Load Control Program and get up to \$200.

Energy Arkansas Smart Direct Load Control Program

Energy Arkansas is helping its commercial customers save energy and money the smart way. Enroll your qualifying smart thermostat into our Smart Direct Load Control Program and earn incentives.

Who's eligible?
Energy Arkansas commercial customers who own businesses, have control air conditioning, have Wi-Fi and have a qualifying smart thermostat are eligible to participate.

Eligible smart thermostats
• Emerson Sensi Touch and Sensi Wi-Fi
• Honeywell Lyric T5, T5 Plus, T5, T5i, T5E Smart, Wireless FocusPRO and Round Smart

How to enroll
To enroll your eligible thermostat or learn more, visit energyarkansas.com/thermostat or call 855-901-6662.

Enrollment incentive
Get up to \$80 for enrolling your qualifying smart thermostat.

Annual participation incentive
Get up to \$200 every year for participating in demand response events. The more you participate, the more you earn.

How it works
The Smart Direct Load Control Program helps reduce high energy demand in the summer, when lots of thousands of central air conditioners and heat pumps are all running at the same time, putting a strain on the power supply. That's where you come in.
On days when electricity demand is highest, we will automatically send a signal to your thermostat to raise its temperature to a set point for the length of the demand response event. These events may occur from June 1 through Sept. 30.

Benefits

- Help prevent outages by automatically reducing your energy use when electrical demand is high.
- Earn cash incentives when you enroll and annually for participation. If you already own an eligible device, all you have to do is sign up.
- Do your part for the environment by saving energy.

ENERGY SOLUTIONS
BY ENERGY ARKANSAS REGION

Energy Arkansas Smart Direct Load Control Program

When will my smart thermostat be affected?
Your smart thermostat will only be affected during demand response events. Outside of these times, you are free to set your thermostat to your desired schedule and temperature.

How often do demand response events occur?
The number of demand response events in any given year varies. Typically, they occur on a hot not or humid weekdays between June 1 and Sept. 30. Events are not activated on weekends or holidays.

How can I tell an event is occurring?
In most instances, you will receive a notification to email and on your thermostat the day prior to a scheduled event. Please note that in order to participate in your participation incentive, your thermostat must be online and connected.

Can I "opt out" of an event?
You can opt out of up to three events per year using your phone, tablet or thermostat. The system will monitor your opt-out activity. Once you have used your three opt-outs for the year, that option will no longer be available to you. For mandatory events, you must call 855-901-6662.

Save energy and earn cash incentives by enrolling your smart thermostat in the Smart Direct Load Control Program. Visit energyarkansas.com/thermostat or call 855-901-6662 to enroll.

What are the advantages of a smart thermostat?
Smart thermostats save you energy all year long by learning how your business responds to weather conditions and adjusting the temperature. You can also control the thermostat from mobile devices or computers and receive reports about your business's energy usage and savings habits, convenience.

How does the smart thermostat work during demand response events?
On select days with high electrical demand, the thermostat's sensors will help manage your air conditioner's run times to save you energy. This is known as a demand response event. When a demand response event occurs, your thermostat will temporarily increase your temperature set point by up to four degrees to reduce energy usage. If the temperature in your business exceeds this set point, your air conditioner will turn on to keep you comfortable. Once the event is over, your thermostat will return to your regularly scheduled temperature.

ENERGY

WE POWER LIFE™

Congratulations on enrolling

Here's a reminder about how the Energy Solutions Smart Direct Load Control Program works:

- When demand for electricity is highest, a signal will be sent to your thermostats to adjust the temperature by two to four degrees.
- You will receive an alert when an energy-saving demand response (conservation) event begins.
- You'll learn the time that the event is scheduled to end.
- By participating, you qualify for an annual incentive. It's your reward for helping to reduce electricity demand during times of highest strain.

Quick reference guide

For general thermostat or Wi-Fi connectivity questions
Sensi Thermostat Support
sensi@emerson.com or [888-605-7101](tel:888-605-7101)
Monday-Friday, 7 a.m.-7 p.m. (CST)
Saturday-Sunday, 8 a.m.-5 p.m. (CST)

For HVAC and other general program questions
Energy Solutions Smart Direct Load Control Program Support
833-807-7622
ThermostatEAL@ek.com
Monday-Friday, 8 a.m.-5 p.m. (CST)

To access the Sensi Touch Navigation Guide
Scan the QR code with your smartphone or visit sensi.emerson.com/documents/sensi-app-navigation-scheduling-guide-an-5014666.pdf.

To download the Sensi Touch Operation Manual
Scan the QR code with your smartphone or visit sensi.emerson.com/an-us/support/sensi-manuals.

To access instructions for reconnecting your thermostat to Wi-Fi
Scan the QR code with your smartphone or visit sensi.emerson.com/an-us/support/reconnecting-sensi-thermostat-to-wifi. You may also call Sensi at 888-605-7101.

Welcome to the Energy Solutions Smart Direct Load Control Program

You're on the way to automatic savings

ENERGY

WE POWER LIFE™



Invite others to add a comment x

Customer Satisfaction Survey - Smart Direct Load Control Program

Thank you for taking a few moments to provide your feedback on your experience with the Entergy Arkansas Smart Direct Load Control Program.

* 1. Please describe your overall satisfaction with the Entergy Arkansas Smart Direct Load Control Program.

- Very Satisfied
- Satisfied
- Neutral
- Somewhat Unsatisfied
- Very Unsatisfied

* 2. How did you first become aware of this Entergy Solutions program?

- Entergyarkansas.com
- General online search
- Friend or neighbor
- Trade ally (Entergy Solutions contractor)
- Entergy Arkansas email
- Entergy Solutions staff member
- Social media

Other (please specify):

* 3. Why did you participate in this program? Select all that apply.

- To receive a free thermostat
- To save money on my energy bill
- Neighbor/friend encouraged me
- To improve the efficiency of my home
- To help the environment
- To improve the comfort of my home or business

Other (please specify):

* 4. How likely would you be to recommend this Entergy Solutions program to others?

- Very likely
- Likely
- Not Sure
- Somewhat Unlikely
- Unlikely

* 5. Based on your recent experience, please rate your level of satisfaction with the trade ally (contractor) who installed your thermostat.

	Very Satisfied	Satisfied	Neutral	Somewhat Unsatisfied	Very Unsatisfied	Not Applicable
Ease of making appointment	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
On-time arrival for the appointment	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Notifying you ahead of time that they are going to be running	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

* 5 Based on your recent experience, please rate your level of satisfaction with the trade ally (contractor) who installed your thermostat.

	Very Satisfied	Satisfied	Neutral	Somewhat Unsatisfied	Very Unsatisfied	Not Applicable
Ease of making appointment	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
On-time arrival for the appointment	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Notifying you ahead of time that they are going to be running late	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Overall appearance	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Had a friendly and courteous attitude	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Responded to specific energy concerns and questions	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Clearly described how the thermostat worked	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Your home or business was left the way they found it	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

* 6 During a conservation event, the temperature of your thermostat is increased to conserve energy. Please describe the comfort level of your home or business during the conservation events.

- Very Comfortable
- Comfortable
- Neutral
- Somewhat Uncomfortable (warm)
- Very Uncomfortable (hot)

* 7 Did you opt out of a conservation event due to your home or business becoming too warm?

- Yes
- No
- I did not opt out

8. Do you have any suggestions for improving this Entergy Solutions program or is there anything you liked or disliked about this program?

* 9. How has your overall experience as an Entergy Arkansas customer been?

- Very Satisfying
- Satisfying
- Neutral
- Unsatisfying
- Very Unsatisfying

* 10. Assuming everyone could choose their providers, what is the likelihood you would recommend Entergy Arkansas to a friend or colleague?

- Very Likely
- Likely
- Not Sure
- Somewhat Unlikely
- Unlikely

11. Please enter the information indicated below (optional).

First Name:

Last Name:

Phone Number:

Email Address:

Done

Powered by
 SurveyMonkey
 See how easy it is to [publish a survey](https://www.surveymonkey.com).

[Privacy & Cookie Notice](#)

  <p>Entergy Arkansas 2022 Smart Direct Load Control Program Guidebook</p> <p>Prepared by: ICF Little Rock</p> <p>Contact: 855-697-7652 Thermostat@AL.icf.com entgyarkansas.com/thermostat</p> <p>Version 1.0 Jan. 1, 2022</p> <p style="text-align: right;">WE POWER LIFE®</p>	<p style="text-align: right;">Entergy Arkansas 2022 Smart Direct Load Control Program</p> <p>Table of Contents</p> <p>Program Overview 3</p> <p>Program Description 3</p> <p>Program Objective & Benefits 3</p> <p>How It Works 3</p> <p>Program Contacts 3</p> <p>Program Eligibility 4</p> <p>Program Participation 4</p> <p>Incentives 4</p> <p>Smart Thermostat 5</p> <p>Conservation Periods 5</p> <p>Potential Curtailment Methods 5</p> <p>Customer Journey 7</p> <p>Program Quality Management 8</p> <p>Post-Verification 8</p> <p>Terms and Conditions 8</p> <p>Disclaimer 12</p> <p style="text-align: right;">2</p>							
<p style="text-align: center;">Entergy Arkansas 2022 Smart Direct Load Control Program</p> <p>Program Overview</p> <p>Program Description</p> <p>The Entergy Arkansas Smart Thermostat Direct Load Control Program is designed to help our residential and business customers save energy by offering an advanced Wi-Fi Thermostat with professional installation, at no additional cost, when you enroll in the program. Already have a smart thermostat? You can also participate in this Program if you have a qualifying Emerson Sensi or Honeywell Thermostat. Customers who already have a qualifying smart thermostat will receive an enrollment incentive and an annual participation incentive when enrolled.</p> <p>An advanced thermostat learns your personal preferences to automatically adjust temperature when you come and go. And by connecting it to your home's Wi-Fi, you can control the temperature from anywhere, using your tablet or smartphone.</p> <p>Program Objectives & Benefits</p> <p>The program objective is to reduce high-energy demand when it counts most – during the summer months, when tens of thousands of central air conditioners and heat pumps are all running at the same time. When you automatically reduce your energy use at these important times you help to lower demand during peak energy usage periods, which serves to prevent outages, and keep rates lower.</p> <p>How It Works</p> <p>For most months of the year, your Sensi or Honeywell thermostat works like any other advanced thermostat, using your Wi-Fi connection to communicate with weather sensors and sensors to keep you comfortable. But during Conservation Periods (between June 1 and Sept. 30 each year), your Sensi or Honeywell thermostat will alert you when an energy-saving demand response event is underway and provide the time an event is scheduled to end. Participating customers may qualify to receive an annual enrollment incentive each year after the event season for participating.</p> <p>Program Contacts</p> <p>Main Office</p> <table border="1"> <tr> <td>Taryl Sessinger</td> <td>Senior Director, Residential</td> <td rowspan="3">Thermostat@AL.icf.com</td> </tr> <tr> <td>Cody Allen</td> <td>Deputy Portfolio Manager</td> </tr> <tr> <td>Lisa Lucas</td> <td>Smart DLC Manager</td> </tr> </table> <p style="text-align: right;">3</p>	Taryl Sessinger	Senior Director, Residential	Thermostat@AL.icf.com	Cody Allen	Deputy Portfolio Manager	Lisa Lucas	Smart DLC Manager	<p style="text-align: center;">Entergy Arkansas 2022 Smart Direct Load Control Program</p> <p>Program Eligibility</p> <p>This offer is available to Entergy Arkansas residential and nonresidential customers who:</p> <ul style="list-style-type: none"> • Have central heating and air conditioning; • Have an in-home or in-business Wi-Fi service – hot spots do not qualify; • Have an existing qualifying smart thermostat or a qualifying thermostat that can be replaced at no additional cost to the customer for an Emerson Sensi or Honeywell Thermostat; • Are not already enrolled in the Summer Advantage Program (if enrolled, customers may unenroll from the Summer Advantage Program to participate); and • Have a qualifying HVAC system. Heat pump systems qualify, but window units and mini splits do NOT qualify. <p>Funds are limited, and services are available to all Entergy Arkansas customers on a first-come, first-served basis. If the customer decides to terminate the services, annual incentive payments will cease, and the customer will not be eligible for a re-enrollment incentive until 12 months following the date of termination. The customer will be allowed to re-enroll at any time.</p> <p>Factor must certify that he/she has received consent from the landlord or homeowner for receipt of the direct installation of equipment.</p> <p>For more information about other Entergy Arkansas programs, please visit enterysolution.com.</p> <p>Program Participation</p> <p>Customers can enroll in the program through the enrollment portal located at entgyarkansas.com/thermostat. To enroll in the Smart Direct Load Control Program, customers must meet all program requirements and agree to participate in summer demand response events (conservation periods).</p> <p>Customers may also enroll during the SLM or Deacon Audit performed by participating Home Energy Solutions Program Trade Allies. If you received a free professionally installed thermostat through the Home Energy Solutions Program and would like to participate in the Smart Direct Load Control Program, please contact your trade ally or speak with a program representative by calling 855-697-7652.</p> <p>Incentives</p> <p>For those who qualify for a no-additional-cost installation, customers will receive a professionally installed thermostat at no additional cost, a \$225 value. In addition to the free thermostat, participating customers will receive an annual enrollment incentive up to \$40 for residential customers and up to \$100 for business customers. This is a \$205-\$325 value in the first year of participating.</p> <p>For those who already have a qualifying Sensi or Honeywell Thermostat, the customer will</p> <p style="text-align: right;">4</p>
Taryl Sessinger	Senior Director, Residential	Thermostat@AL.icf.com						
Cody Allen	Deputy Portfolio Manager							
Lisa Lucas	Smart DLC Manager							

unenroll from the Summer Advantage Program to participate.

- Must have a qualifying HVAC system. Heat pump systems qualify, but without units and mini splits do NOT qualify.

ACCESS, INSTALLATION AND VERIFICATION: Contractor or customer will install an advanced thermostat in the Customer's home that will control the central air conditioner unit (referred to herein as the "Equipment") and operate during conservation period and events described above. The Customer agrees to provide Energy Arkansas or its Contractor with access, at reasonable times, to the Customer's premises to install, inspect, maintain and/or repair the Equipment. Energy Arkansas reserves the right to verify the delivery of services and to have reasonable access to the participant's residence to verify the performance of the installed or enrolled smart thermostat and/or energy efficiency work. Prior to any payment of incentive, Energy Arkansas reserves the right to verify same installation. The Customer's trade ally or Scope Services will verify that the installed smart thermostat meets all applicable building codes; zoning laws; local, state and federal requirements; and other relevant requirements. The Customer's trade ally or Scope Services is responsible for any applicable permits as required by law. Weather conditions may affect the verification process. The smart thermostat may also be selected for a quality-control post-installation verification by Energy Arkansas and subject to installation of a Measure and Verification device (M&V) to validate thermostat data and energy savings. No warranty is expressed or implied by the verification.

RENTER'S CERTIFICATION: Renter certifies that he/she has received consent from the landlord or homeowner for receipt of the direct installation or direct ship of equipment.

CONSERVATION PERIODS: Conservation periods will occur from June 1 through September 30 on non-holiday weekdays (Monday-Friday) from 7 a.m. Central Standard time. Outside of the conservation periods, you may set your thermostat to any temperature or schedule you wish. Conservation periods will last approximately four hours in any single day and occur for no more than three consecutive days in any one program season (June to September). The Customer may override conservation periods, recognizing that overriding conservation periods may reduce annual participation incentive. The Customer understands that the Equipment will permit Energy Arkansas to control or adjust the temperature of the Customer's thermostat that controls the central air conditioner unit or heat pump during times of high overall electricity demand.

POTENTIAL CURTAILMENT METHODS: The Customer understands that, by participating, the Customer is permitting Energy Arkansas to control the thermostat during demand response events.

INCENTIVES: Energy Arkansas may, from time-to-time, modify the incentive structure. The thermostat installed by a trade ally or program representative shall remain the property of the Customer, but the Customer agrees to notify Energy Arkansas immediately if the Customer disconnects or removes the Equipment, an action which will terminate the Customer's eligibility for incentives. This Agreement is not assignable or otherwise transferable by the Customer.

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INCENTIVE VALUES: Incentive values are based on the participation level in demand response events, and event opt-out can reduce your annual participation incentive. Thermostats that are offline during the time of an event are considered to be opted out of an event and are counted toward your total opt-outs for the conservation season.

TAX LIABILITY: The Customer is responsible for declaring and paying any and all applicable federal, state and local taxes that may be owed on any incentives. Energy Arkansas will not be responsible for any tax liability that may be imposed on the Customer as a result of the delivery of Energy Efficiency Measures (EEM). Please contact your tax professional for more information.

REMOVAL OF EQUIPMENT: The Customer agrees, as a condition of participation in the program, for direct installation and direct ship/install of a smart thermostat, to allow removal of the thermostat being replaced in accordance with all laws, rules and regulations. The Customer agrees not to reinstall any newly installed equipment or newly enrolled smart thermostat anywhere in Arkansas or transfer it to any other party for installation in Arkansas.

ENDORSEMENT: Energy Arkansas does not endorse any system design, claim, trade ally or service in promoting this program.

INFORMATION RELEASE: Participant agrees that Energy Arkansas and any contractor or other vendor providing services or support under the program for Energy Arkansas may have access to and use participant's name, address, Energy Arkansas account number, thermostat usage data for Energy Arkansas program use such as energy savings in reports or other documentation submitted to the program implementer on Energy Arkansas behalf and/or the Arkansas Public Service Commission. Energy Arkansas will treat all other information gathered in evaluations as confidential, and the information in the reports will be in the aggregate, where practicable.

LIMITATION OF LIABILITY: ENERGY ARKANSAS' AND PROGRAM IMPLEMENTER ICF'S LIABILITY IS LIMITED TO PAYING THE INCENTIVE SPECIFIED IN NO EVENT WILL ENERGY ARKANSAS OR ICF BE LIABLE WHETHER BY CONTRACT, TORT (INCLUDING NEGLIGENCE), STRICT LIABILITY, WARRANTY OR OTHERWISE FOR SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES CONNECTED WITH OR RESULTING FROM PARTICIPATION IN THE PROGRAM. ENERGY ARKANSAS RESERVES THE RIGHT TO NOT PAY THIS INCENTIVE IF THE APPLICATION FORM AND ALL REQUIRED ADDITIONAL INFORMATION ARE NOT COMPLETE OR ACCURATE.

The Customer understands that Energy Arkansas assumes no responsibility for and shall have no responsibility for the condition or repair of the Customer's central air conditioner or other equipment. The Customer understands that the Customer is responsible for the repair and maintenance of the Customer's equipment.

LIABILITY WAIVER: By executing an enrollment, the Customer voluntarily agrees not to hold Energy Arkansas, ICF, its trade allies or any of their affiliates, directors, officers, employees,

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agents, or contractors liable for any losses or injury. Customer further agrees not to engage in any inappropriate actions or otherwise endanger the safety or health of any.

WARRANTIES: Energy Arkansas and ICF do not warrant the proper completion of work or performance of installed (with assistance or otherwise) or serviced equipment, expressly or impliedly. Energy Arkansas and ICF do not endorse, guarantee or warrant any particular manufacturer or product, and Energy Arkansas and ICF provide no warranties, expressed or implied, for any products or services. Energy Arkansas and ICF make no warranties of any kind, whether statutory, expressed or implied, including without limitations, warranties of merchantability or fitness for a particular purpose regarding Energy Efficiency Measures (EEMs). Energy Arkansas and ICF make no guarantee of energy-saving results by installing measures installation or assistance with self-installation. The Customer acknowledges that neither Energy Arkansas nor ICF nor any of its consultants are responsible for ensuring the design, engineering or installation of the measures is proper or complies with any applicable laws (including patent laws), codes or industry standards. Customers should contact their independent contractors for details regarding equipment performance and warranties.

PROPERTY RIGHTS: Participant warrants that he/she has the right to complete and/or install the energy-saving equipment on the property on which the equipment is completed and/or installed and that any necessary landlord's or tenant's consent, as the case may be, has been obtained.

CUSTOMER'S CERTIFICATION: Property manager/owner certifies that he/she has consented for the received services (based on the application at the defined location. Property manager/owner agrees that all information is true and that he/she has confirmed all program and equipment requirements listed.

RIGHT TO REFUSE: The Energy Arkansas trade ally, Scope Services or program implementer has the right to refuse service or end the delivery when confronted by a Customer acting inappropriately or when facing an unsafe situation. "Inappropriately" includes but is not limited to the following: unreasonable demands for service, personally threatening or offensive language, threatening or erratic behavior, failure to comply with health and safety recommendations and personal contact. Authorized trade ally reserves the right to exclude any premises, or vicinity therein, deemed potentially unsafe or harmful.

TERMINATION OF SERVICE: The Customer shall have the right at any time to terminate the service by notifying Energy Arkansas in writing or by calling the Smart Direct Load Control Program at 833-007-7802. If the Customer decides to terminate the service, annual incentive payments will cease and the Customer will not be eligible for a re-enrollment incentive until 12 months following the date of termination. The Customer will be allowed to re-enroll at any time.

CUSTOMER COMMUNICATION: Participant agrees that Energy Arkansas or Energy Arkansas' program implementer may contact participants via mail, phone, text message or email in connection with the Smart Direct Load Control Program, including quality assurance communication.

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AUTHORIZATION, PROGRAM CHANGES, SUSPENSION OR CANCELLATION: Energy Arkansas may change the program requirements, incentives or terms and conditions, including suspending acceptance of applications or terminating the program, at any time without notice.

MARKETING WAIVER: Notwithstanding the foregoing, Participant hereby grants Energy Arkansas, LLC and its affiliated companies, and assigns the unqualified and unconditional right and permission to reproduce, copyright, publish, circulate, edit or otherwise use audio and video/film still photo production, project information, and/or quotes of me and/or quotes of me and/or my organization for any purpose relating to this project. This authorization and release cover the use of said audio and video/film still photographs/information and/or quotes made or taken regarding the organization by said company or on its behalf by any other person for any purpose related to the above-named project. By signing this document, I am aware that I give up and release all rights to such images and/or audio in any form. I grant these rights to my images, project information and/or audio to Energy Arkansas.

MISCELLANEOUS: These terms and conditions constitute the agreement between the parties and supersede all other communications and representations. By executing an enrollment, the Customer agrees to be bound by these terms and conditions.

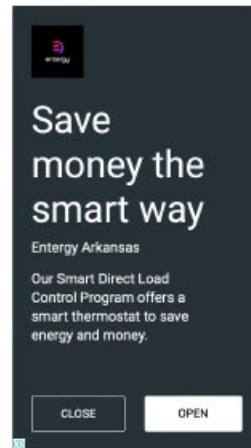
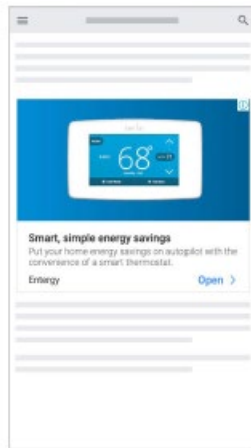
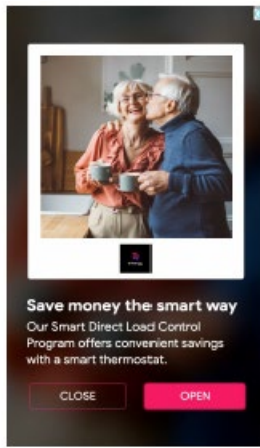
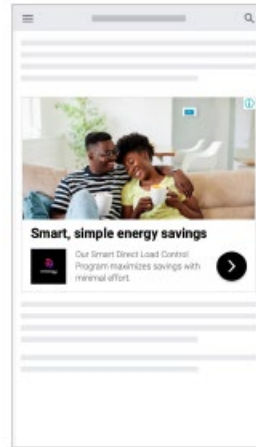
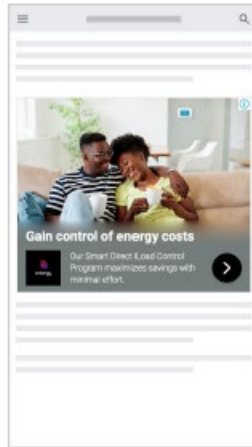
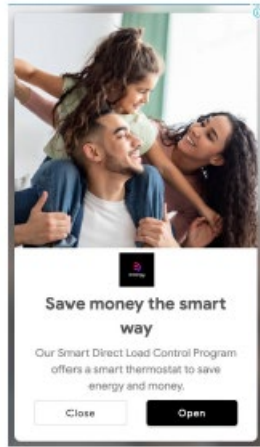
Disclaimer

Neither Energy Arkansas nor ICF make any guarantee or any other representation or warranty, expressed or implied, as to the quality or effectiveness of any product(s) provided or work(s) performed through this program.

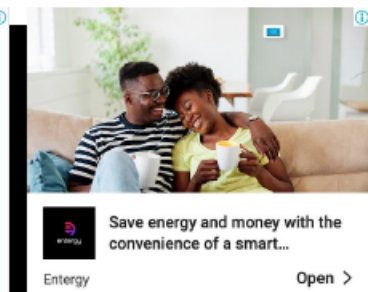
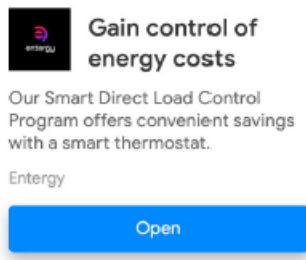
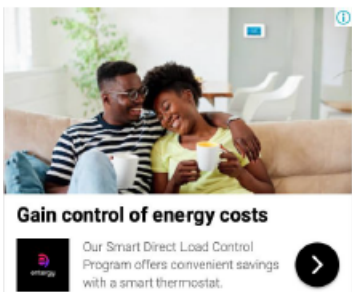
Energy efficiency gains are subject to a number of variable conditions and circumstances. While it is the intent of the program to achieve energy efficiency, neither Energy Arkansas nor ICF guarantees or warrants that any specific energy efficiency gains will be achieved for a particular customer participating in the program.

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3.11.11 SDLC Online Display Ads 2022



3.11.12 SDLC Program Banners Display 2022



 Entergy Arkansas ✓
April 4 · 🌐

Looking for an easy way to save energy and money? Our Smart Direct Load Control Program offers annual incentives of up to \$50 for residential customers, and up to \$100 for businesses, for enrolling your existing qualifying smart thermostat. To see if your thermostat qualifies, visit <http://enter.gy/6181KxHO3>.



 5

 Entergy Arkansas ✓
April 22 at 11:48 AM · 🌐


Looking for an easy way to save energy and money this Earth Day? Get an ENERGY STAR® certified smart thermostat for your home or business at no cost when you enroll in our Smart Direct Load Control Program. To learn more visit <http://enter.gy/6188KxHGw>. 🌍




MAKE YOUR ENERGY CHOICES COUNT





 4 1 Share

 **Entergy Arkansas** February 14 · 🌐


Show your home some love with a new thermostat through our Smart Direct Load Control Program. Enroll to get a smart thermostat, with professional installation, at no cost. Visit <http://enter.gy/6188KOV6> for more information.




 3

 **Entergy Arkansas** 6d · 🌐


Save with our Smart Direct Load Control Program. Get a smart thermostat and professional installation at no additional cost when you enroll. Visit entergyarkansas.com/thermostat to learn more.



 5

Entergy Arkansas January 17 at 10:00 AM · 🌐

Looking for a smart and simple way to save energy? Look no further. Enroll in our Smart Direct Load Control Program to save energy and get a smart thermostat with professional installation at no additional cost. Visit <http://enter.gy/6180K65H0> to enroll.



👍 Like 💬 Comment ➦ Share

Entergy Arkansas July 29 · 🌐


Our Smart Direct Load Control Program helps you save energy by offering a smart thermostat and professional installation at absolutely no additional cost. Enroll in our program by visiting entergyarkansas.com/thermostat.



👍 4 💬 4 Comments

Entergy Arkansas ✓
March 17 · 🌐

You're in luck. Our Smart Direct Load Control Program provides a smart thermostat at no additional cost. Claim yours today to improve comfort in your home or business. Visit entergyarkansas.com/thermostat for details.




7 2 Shares

Entergy Arkansas ✓
May 6 at 11:30 AM · 🌐


Increasing your home's comfort while saving energy and money couldn't be easier with our Smart Direct Load Control Program. Enroll to get a smart thermostat, with professional installation at no additional cost. Visit entergyarkansas.com/thermostat for details.





4 4 Comments

 **Entergy Arkansas** ✓
November 28, 2022 · 🌐


Our Smart Direct Load Control Program offers a free smart thermostat and/or cash incentives while helping you save energy. Don't wait to start saving. Visit entergyarkansas.com/thermostat to enroll now.




 8 1 comment

 **Entergy Arkansas** ✓
October 5, 2022 · 🌐

Celebrate Energy Efficiency Day with an **ENERGY STAR**® certified Sensi Touch smart thermostat. Enroll in our Smart Direct Load Control Program and get one for \$0. Visit entergyarkansas.com/thermostat for details. #EEDay2022



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 Entergy Arkansas 
September 14, 2022 · 

The sun hasn't set on our free thermostat offer. Get the award-winning Sensi Touch thermostat, plus free professional installation, when you enroll in our Smart Direct Load Control Program. Visit entergyarkansas.com/thermostat to enroll.



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Santiago Asimbaya
Program Manager
501-377-3512 | sasimba@entergy.com
P.O. Box 3797, Little Rock, AR 72203

Dear AILC Participant:

We are pleased to provide the attached incentive check to you for your farm's participation in the Entergy Arkansas 2022 Agricultural Irrigation Load Control Program during the month of August.

As the program agreement outlined, the August incentive payment was based on the number of your participating pumps in the program as of the end of the month, the run-time of the pumps during the month and the motor size of each pump. EACH participating pump had to have a minimum run-time of 64 hours in the month to qualify for an incentive.

To review the incentive schedule, visit:

entergyarkansas.com/irrigation

Thanks again for your participation in this valuable program.

Sincerely,

A handwritten signature in black ink that reads 'Santiago Asimbaya'.

Santiago Asimbaya
Entergy Arkansas, LLC



Santiago Asimbaya
Program Manager
501-377-3512 | sasimba@entergy.com
P.O. Box 3797, Little Rock, AR 72203

Dear AILC Participant:

We are pleased to provide the attached incentive check to you for your farm's participation in the Entergy Arkansas 2022 Agricultural Irrigation Load Control Program during the month of July.

As the program agreement outlined, the July incentive payment was based on the number of your participating pumps in the program as of the end of the month, the run-time of the pumps during the month and the motor size of each pump. EACH participating pump had to have a minimum run-time of 64 hours in the month to qualify for an incentive.

To review the incentive schedule, visit:

enteryarkansas.com/irrigation

Thanks again for your participation in this valuable program.

Sincerely,

A handwritten signature in cursive script that reads 'Santiago Asimbaya'.

Santiago Asimbaya
Entergy Arkansas, LLC

3.12.15 2022 AILC Incentive Letter FINAL – June.docx



Santiago Asimbaya
Program Manager
501-377-3512 | ssasimba@entergy.com
P.O. Box 3797, Little Rock, AR 72203

Dear AILC Participant:

We are pleased to provide the attached incentive check to you for your farm's participation in the Entergy Arkansas 2022 Agricultural Irrigation Load Control Program during the month of June.

As the program agreement outlined, the June incentive payment was based on the number of your participating pumps in the program as of the end of the month, the run-time of the pumps during the month and the motor size of each pump. EACH participating pump had to have a minimum run-time of 64 hours in the month to qualify for an incentive.

To review the incentive schedule, visit:

enteryarkansas.com/irrigation

Thanks again for your participation in this valuable program.

Sincerely,

A handwritten signature in cursive script that reads 'Santiago Asimbaya'.

Santiago Asimbaya
Entergy Arkansas, LLC

Your wells are now connected.



You are one step away from accessing your pumps through a computer, tablet or smartphone using your new farmer portal. The next step is to send an email to ailcfarmer@bplglobal.net with your farm name and contact phone number. Once this information is received, you will receive an email with the credentials needed to access your farmer portal account.

Call the Entergy Arkansas AILC Support Desk at **855-664-FARM** for customer support and farmer portal questions or visit entergy-fp.cnr.com.



Frequently Asked Questions:

- **How will I know when a load control event is being called?**

Once your notifications are set up in the farmer portal, you will receive advanced text or email updates for scheduled load control events. If the yellow LED light on the load control device is on, the pump is currently being controlled by Entergy Arkansas.



Load Controller in a Control Event

- **What if I already have a farmer portal account but am having difficulty logging in?**

Try resetting your password by going to entergy-fp.cnr.com and click "forgot password" or contact us at **855-664-FARM**.

- **Who do I contact if I would like to add wells into the program or need assistance with remote pump operation?**

Call the AILC support desk at us at **855-664-FARM** or email ailcfarmer@bplglobal.net for additional assistance.

Customer Service Information:

For technical support and farmer portal questions please call **855-664-FARM (3276)** or visit entergy-fp.cnr.com.

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The Entergy Solutions program is an energy efficiency program and not affiliated with Entergy Solutions, LLC.

Entergy Arkansas, LLC
P.O. Box 3797
Little Rock, AR 72203



WE POWER LIFE®

**Entergy Arkansas LLC Agricultural Irrigation Load Control Program
Terms and Conditions**

Program Eligibility

To participate in the Agricultural Irrigation Load Control (AILC) program, participants must have 1) An active non-residential account in good standing with Entergy Arkansas LLC; 2) Authorization to modify existing motor configuration; 3) A motor size of at least 10 HP, which is the minimum size to participate in the program; 4) Accessible motor control panels capable of accommodating program equipment.

Program Incentives

Participating customers may qualify to receive a monthly rebate incentive for the program months of June, July and/or August. The incentive will be paid for each month of active participation regardless of whether any curtailment events were called in that month. Incentive levels will vary by motor size. Entergy Arkansas LLC anticipates the average incentive to be \$100 per month for June, July and August, and the incentive level is described in the Table below:

Motor HP	Tier 1	Tier 2	Tier 3	Tier 4	Tier 5	Tier 6	Tier 7	Tier 8	Tier 9
10-25	26-50	51-75	76-100	101-125	126-150	151-175	176-200	Larger	
Monthly Incentive*	\$ 50.00	\$ 100.00	\$ 200.00	\$ 250.00	\$ 350.00	\$ 450.00	\$ 550.00	\$ 650.00	Upon Request

*Incentive void if a participant's actions interfere with a curtailment event. A minimum of 64 run-time hours for a pump is required during the program calendar months of June, July and/or August to qualify for a rebate incentive payment for that month.

If a participant chooses to opt out of the program *during a curtailment event*, the participant forfeits that month's incentive. Active participation is defined as 1) A participant must have an active, non-delinquent, non-residential Entergy Arkansas LLC account; 2) The participating account must be equipped with AILC control equipment except where Entergy Arkansas LLC has failed to install equipment through no fault of the participant; 3) The enrolled motor must be available for curtailment during the designated program hours. Only the motor's ability to be activated remotely is required to participate; the motor is not required to be on for the motor to be considered available; 4) A minimum of 64 run-time hours during the program month is required. This is equivalent to running the motor 16 hours a day for four times during the month.

Enrollment

The open enrollment period is from February 1, 2021 through August 15, 2021 (or until all of the required enrollments for that program season are received). Eligible customers must furnish Entergy Arkansas LLC written or electronic consent for the installation of the control device. If the participation response is greater than anticipated, Entergy Arkansas LLC will establish a waiting list for program participation for the following program year.

Equipment Installations and Maintenance

EP, Global LLC, d/b/a Connected Energy, Entergy Arkansas LLC's implementing contractor, will coordinate the installation of all program equipment. The equipment will be tested for operability during the installation process. This testing may require the motor to be turned off and on via the controller unit, which utilizes cellular technology. The unit will also be tested to ensure the unit is reporting the correct load after installation. Please note that once the installation is complete, it may take as much as 24 hours for the motor and controller to be operated remotely through the participant web-portal (in most cases the availability will be a matter of minutes).

Existing participants which had the program equipment installed from 2008-2013 may now upgrade your AILC equipment by having a new CNRG controller installed. These participants must re-register using the remote AILC website (<https://wr-fp.carg.com>) to operate these locations. All program equipment remains property of the AILC program, and any maintenance issues should be reported to the Entergy Arkansas LLC Irrigation Desk at 1-800-324-4709 or Entergy Orange at 1-800-90UTAGE. For specific controller questions or to gain farmer portal access, participants may call Connected Energy's farmer help line at 1-855-666-FARM (3276). The participant agrees to allow Entergy Arkansas LLC representatives to have access to the pumping unit for the purpose of installing, testing and maintaining the remote control device at all times.

Equipment Operations and Remote Access

After the AILC equipment has been installed, the participant may operate the pump motor as normal. The controller is wired to turn the motor on or off remotely but will not interfere with manual operation. The controller is equipped with an amber LED indicator. When the amber LED is on, a curtailment event is in effect. During a curtailment event, the motor is de-energized and the motor will not operate. To operate the pump remotely, the participant must register in the AILC website (<https://wr-fp.carg.com>). Once registered, the participating wells will be displayed along with their current availability, run status and load. If the motor is on, a history of the load in kW is recorded and displayed. If the motor is available, the motor can be turned on, or if it is already turned on, it may be turned off. As a precaution against motor damage, the start function will be temporarily locked out for six (6) minutes after the motor has been turned off. Remote operations of the pump(s) will not be accessible during any AILC curtailment.

Curtailment Events

Entergy Arkansas LLC may conduct test curtailments during the equipment's installation to test the communications and operations. Other test curtailments may occur as required. The AILC program will only curtail the participating irrigation loads from June 1 through August 31. Except in cases of emergency, the curtailments may only be scheduled on weekdays for a total of up to four hours (not counting an up to 15 minute ramp-up window) and be limited to occur between 12 p.m. noon and 9 p.m. Additionally, Entergy Arkansas LLC will limit planned curtailment events to no more than two events in one calendar week. Emergency Events may occur at any time from June 1 to August 31 regardless of program limitations. Before a curtailment event, the participant will receive an e-mail or text message notifying him or her of an upcoming curtailment. The message will include the duration of the curtailment as long as curtailment notification is selected during the enrollment process. Remote operations of the pump(s) will not be accessible during any AILC curtailment.

Renewal, Termination or Expulsion

Enrollment starts February 1 and continues through August 15 (or until all of the required enrollments for that season are received). Participation in this program shall be from the date of successful equipment installation or June 1, 2021, whichever is later, to August 31, 2021 and shall be automatically renewed for successive peak seasons in succeeding years unless terminated by the participant. If participants find they cannot continue or do not wish to continue participation in the program, participants may opt out or discontinue participation by forfeiting any pending monthly incentives. Participants may opt-out and re-enroll in the program at any time prior to June 1, 2021. After June 1, a participant may opt-out of the program; however, his or her re-enrollment into the program will be considered on a case-by-case basis. Allowable mid-season re-enrollment examples would be administrative error, change of pump ownership or management, account activation or de-activation, and pump motor modifications. Unless equipment removal is requested, opting out of the program will initiate field services to place the load control box on "by-pass" mode. This will allow the opt-out customer to experience uninterrupted service and allow future participation without additional service calls for equipment installation. If there is evidence of alteration or tampering with the AILC program's control equipment, the participant will reimburse Entergy Arkansas LLC for repair costs. Furthermore, if Entergy Arkansas LLC considers the tampering to be recurrent or malicious, Entergy Arkansas LLC may cancel participation in this program, nullify any pending incentives, remove its control device and bill the participant the removal costs of \$1,950.00.

Save time. Earn cash. Enroll now.

Your large motor wells receive large checks.



Monthly cashback incentives

Motor Horsepower	10-25	26-50	51-75	76-100	101-125	126-150	151-175	176-200	Large HP
Monthly incentive*	\$50	\$60	\$80	\$150	\$200	\$400	\$500	\$650	Up to Request

- *Incentive will be credited to your account within an exact Minimum of 61 hours of monthly runtime required during AILC Program months.
- The Agricultural Irrigation Lead Central Program period is June 1 through Aug. 31.
 - The program is available to all Entergy Arkansas customers taking service under the Agricultural Pumping Service rate schedule.
 - There are no installation fees.
 - You will have remote access to your wells throughout the growing season, not just during the program period. Pumps are controlled using wireless signals.
 - During the program period, Entergy Arkansas might need to interrupt the electric service to the pump for no more than four hours each weekday, Monday through Friday, between the hours of noon and 3 p.m., excluding holidays.
 - Cashback is mailed approximately two weeks following end of month – an average of \$100 per pump, per month for the AILC Program months of June, July and August.
 - Maximum irrigation leads and air conditioning leads coincide on hot summer afternoons and place the greatest demand on electricity resources that serve you. This program helps to reduce some of that demand for the benefit of all customers.
 - Entergy Arkansas enables farmers to remotely operate wells enrolled in the Agricultural Irrigation Lead Central Program year-round from your laptop, tablet or smartphone. Now, you can turn your compatible wells on or off from home, in town or in the field anytime of the day or night.

Program benefits

- Operate wells from anywhere, anytime with a laptop, tablet or smartphone. There is no more need to drive from well to well in the middle of the night just to turn them on or off.
- You will receive advance notifications from Entergy Arkansas when wells will be turned off or on.
- Save an average of \$350 per pump per month in June, July and August on your meters between 100-150hp. Larger meters will qualify for larger monthly incentives.

Sign up some or all of your pumps

Program participation is limited. We are eager to help you make the right decision for your crop needs and reserve your place in the program. Call 855-664-FARM (3276) or email farmers@entergy.com now to get more information. Also visit entergyarkansas.com/irrigation.

*To ensure emergency situations, Entergy Arkansas could be required to curtail service to preserve system integrity. For details, visit us online.

Frequently Asked Questions

For complete details, visit our website at entergyarkansas.com/irrigation.

How is the payment calculated?

The payment is based on rated horsepower of the pump meters in the program. At the end of each month, rebate incentives earned for the total number of pumps enrolled for the entire month are calculated. Entergy Arkansas' program agent will send you a check within about two weeks.

How does the remote switching work?

Farmers participating in the AILC Program can use the same technology Entergy Arkansas uses to remotely control their irrigation wells. Farmers will have access to a secure website where they can register any qualified, participating and active irrigation well for remote control by a laptop, tablet or smartphone. Please note: remote control access will not be available during the hours of lead central interruption. Otherwise, you can manage your wells' operation at any time during the growing season.

Why is Entergy Arkansas offering this program?

We want to help customers save money and also reduce the total peak load – the amount of electricity required to serve all our customers during the weekday periods of summer afternoons. As seen in previous years, reducing peak load benefits all of our customers.

We make it simple to participate

To participate in the AILC Program, you must agree to allow Entergy Arkansas to:

- Install a lead central device on your pump, which will turn the power off and on to the pump. There is no installation fee for these devices.
- Allow us to turn off the pump for up to four hours per day, Monday through Friday, anytime between the hours of noon and 3 p.m., excluding holidays. Pumps will be turned off and on remotely by a two-way communication system.
- Upon request, we will send you texts or emails to let you know when the well will be turned off and when the pump is available again after the interruption.
- You can opt out of the AILC Program anytime during June, July or August. You may end your participation for a specific well or for all of your wells by calling 855-664-FARM (3276). But if you do, your pumps will be ineligible for an incentive payment for the month in which you terminate and all subsequent AILC Program months.

Are there any installation fees?

There are no installation fees. To participate, you must allow Entergy Arkansas contractors access to the meter central panel.

Have participating farmers been satisfied with your program?

Yes. We polled 101 farmers at the end of the 2013 season. More than 78% expressed satisfaction in the overall program. More than 87% plan to stay in the program.

What happens if I choose to terminate the program before the three months are over?

You may end your participation for a specific well or for all of your wells by calling us at 855-664-FARM (3276). But if you do, you will not receive a payment for the month in which you terminate or any subsequent month.

What if something goes wrong with the meter or the switching controls?

Installation and maintenance are Entergy Arkansas' responsibility. During business hours, call 855-664-FARM (3276). During nights, weekends and holidays, call 800-9OUTAGE (800-968-8243).



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