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April 29, 2022

Ms. Mary Loos, 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. Loos:

Please find attached for filing with the Arkansas Public Service Commission, Entergy Arkansas, LLC's Energy Efficiency Program Portfolio Annual Report for the 2021 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 Sharnelle Allen at (501) 377-5720.

Sincerely,

/s/ J. David Palmer

JDP/sa  
Attachments

c: All parties of record w/ attachments



# ENTERGY ARKANSAS, LLC

## Arkansas Energy Efficiency Program Portfolio Annual Report

**Docket No. 07-085-TF**

**2021 PROGRAM YEAR**

**April 29, 2022**

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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 2021 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 2021 Annual Report provides information for the 2021 program year.

Overall, the Annual Report demonstrates:

- Entergy Arkansas’ successful implementation of its energy efficiency programs continued for the 2021 program year, with the Company maintaining its overall energy efficiency savings through its portfolio of energy efficiency programs.
- Energy savings of 319,928 MWh (gross or *ex ante*<sup>1</sup>) for the 2021 program year, which is comparable to the 320,609 MWh energy savings achieved by the Company for the 2020 program year.<sup>2</sup>
- Entergy Arkansas increased net savings<sup>3</sup> to 311,158 MWh compared to 294,313 MWh in 2020 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 90 percent in 2021 to 95 percent in 2022.
- 2021 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 140% 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.

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<sup>1</sup> 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.

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

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

- Entergy Arkansas' energy efficiency programs continue to receive national recognition. Below are the latest awards being issued to various programs:
  - 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 & 2020 & 2021.

In prior annual reports, Entergy Arkansas discussed the challenges inherent in running energy efficiency programs. In 2021, several steps were taken to overcome current challenges, as the new challenges never before experienced in 2020 persisted, 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)
  - 2021 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 2021 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 2021, 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 second 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 eligible<sup>4</sup> 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 Multi-family Homes). With a total of 12,951 unique participants enrolled, the four residential programs installed 93,862 energy-saving units. While the programs addressed multiple end-uses including lighting, HVAC,

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<sup>4</sup> 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.

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 about a quarter of savings for HES and Low-Income Solutions.

- Common Commercial and Industrial (“C&I”) Approach
  - On June 8, 2015, the Commission, in Order No. 27 in Docket No. 13-0020-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, 2021, 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
  - For most of 2021, there were no policy updates for General Service Incandescent Lamps (“GSILs”), therefore EISA-compliant halogen bulbs remained in the market for all bulb types, necessitating continued incentives for general service LED lighting. 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).<sup>5</sup> Enforcement of the “backstop” would result in market transformation for all major bulb shapes (A-Line, Candle, Globe, Reflector) with the definition expansion and efficacy requirement being enacted. It remains unclear what the implementation period will be for this market transformation, however.

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<sup>5</sup> See 86 Fed. Reg. 70755 (Dec. 13, 2021)

- COVID-19 Pandemic

2021 saw a continuation of the unforeseen and unprecedented uncertainties in the market due to the COVID-19 virus surges among Arkansas residents.

- Residential

The residential portfolio continued to feel the effects of COVID-19 during the 2021 program year, presenting challenges to program implementation and savings achievement. Customers continued to be leery of allowing Trade Allies inside their homes and many canceled or delayed appointments during the COVID-19 surges. Almost all Trade Allies had staff who were unable to work due to COVID-19 effects at different times during the year, and six postponed operations completely during part of the first quarter. As the pandemic continued, variants exacerbated these issues. Additional challenges revolved around supply chain constraints caused by COVID-19, as well as rising inflation beginning toward the end of 2021. Energy efficient products and shipping costs rose several times throughout the year, and many Trade Allies reported difficulty accessing products such as insulation. The Home Energy Solutions, Low-Income Solutions, Manufactured Homes, and Multifamily programs increased incentives for measures such as ceiling insulation and direct installation products to help offset the rise in costs. EAL continues to monitor these challenges as it could create constraints on the program incentives budgets in 2022.

- Commercial

Impacts from COVID-19 were realized across the Entergy Arkansas portfolio of Entergy Solutions commercial programs in 2021. Program staff had challenges going onsite to health care and other facilities that had implemented access restrictions. This development affected the ability to conduct project verification and challenged quality assurance/ quality control and EM&V processes to find ways to provide contactless inspections and data logging/audits. Some projects were cancelled or experienced delays due to these facility restrictions and/or COVID-19 outbreaks making each project susceptible to unstable forecasting. Loss of capital expenditures for energy efficiency improvements along with

limited material availability and shipment delays caused projects to be further delayed and/or cancelled.

Program staff navigated facility access restrictions to implement virtual assessment options through virtual tools and applications designed for contactless QA/QC activities and outreach efforts. Calculated savings methodologies were developed on smaller custom projects, where risk to savings accuracy was minimal, to avoid going onsite to place data loggers. Marketing efforts shifted to those facilities that remained opened to circumvent participation barriers caused by COVID-19. Program staff worked with customers and the Trade Ally Network to install direct measures in available facilities at little to no additional cost. Contactless giveaway events were organized with employees of organizations engaged in Continuous Energy Improvement, direct install, schools/universities, food bank participants, non-profit organizations and online marketplace activities. Program staff is continuing to research, develop and implement innovative ways to evolve the programs to handle the varying impacts of this ongoing pandemic.

### *1.1 2021 Program Results and Achievements*

For the 2021 program year, Entergy Arkansas achieved 95.4 MW<sup>6</sup> of evaluated net demand reduction and 311,158 MWh<sup>4</sup> 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:

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

Table 1.1.1

Portfolio Summary of 2021 Entergy Arkansas' energy efficiency Program Results<sup>7</sup>

2021 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	311,158	\$ 58,872,091	\$ -	\$ 5,566,779	\$138,975,180	3.20	3.00	1.20%	1.68%	140%

Applying the required adjustments to these savings estimates for the PY 2021, 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 140% of its savings target established by the Commission, as reflected in Table 1.1.2 below:

Table 1.1.2

## Evaluated Savings and Goal Achievement

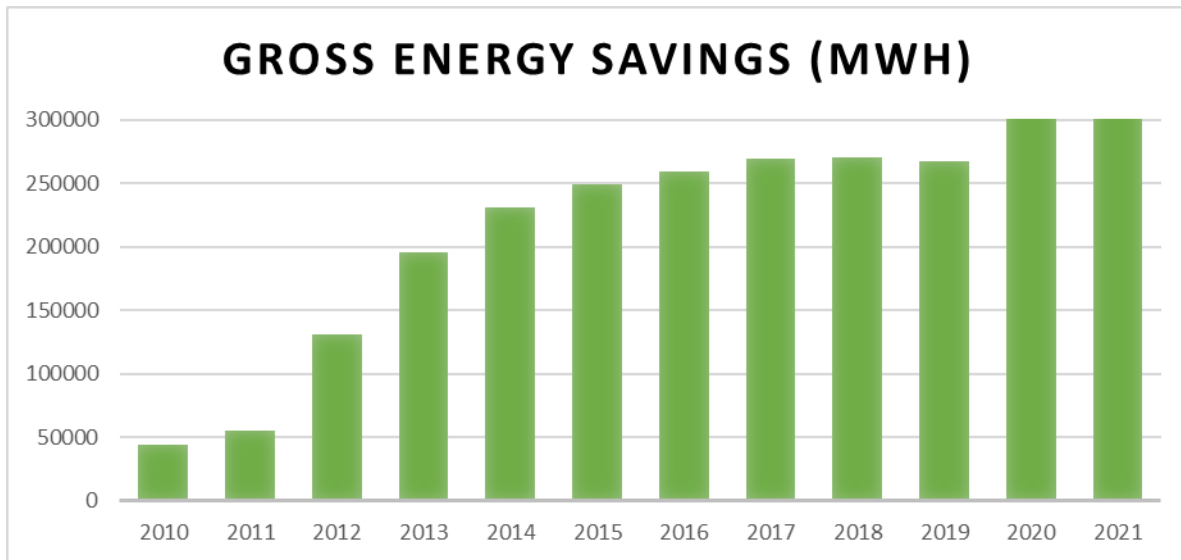
<b>Entergy Arkansas' Gross Savings (<i>ex ante</i>)</b>	<b>319,928 MWh<sup>8</sup></b>
<b>As adjusted by Tetra Tech for Realization Rate (<i>ex post</i>)</b>	<b>327,144 MWh</b>
<b>As adjusted for Net-To-Gross ("NTG") ratios</b>	<b>311,158 MWh</b>
<b>Entergy Arkansas MWh Target adjusted for SD</b>	<b>221,740 MWh</b>
<b>% of Target Achievement Based on Evaluated Energy Savings</b>	<b>140%</b>

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 2011-2021. These initiatives have helped increase energy efficiency savings by approximately 481% over that 10-year time period.

<sup>7</sup> Demand and Energy values do not include transmission and distribution line losses.

<sup>8</sup> 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.

Table 1.1.3 – Gross Energy Savings



For the 2021 Program Year, there were differences, as is normally the case, between budgeted and actual expenditures. These differences can be attributed to the following factors:

- 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 SD 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 2021, Entergy Arkansas customer accounts approved to opt-out of the Programs remained consistent to that of 2020. The sales to SD customers represents approximately 17.3% of Entergy Arkansas’ total retail sales. Additionally, approximately 43% of C&I customer accounts eligible to self-direct have done so, representing approximately 57% 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 2021 incentive budget.

- In general, the Company's energy efficiency portfolio benefited from economies of scale realized in the 2021 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 2021, except the Agricultural Irrigation 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' 2021 Program Year Results and 2021 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 2021 are shown in Table 1.2.1 below:

Table 1.2.1  
Entergy Arkansas 2021 Results

Entergy Arkansas' Gross Savings	319,928 MWh
As adjusted by Tetra Tech for RR ( <i>ex post</i> )	327,144 MWh
As adjusted for NTG and RR ratios <sup>9</sup>	311,158 MWh

Indeed, Tetra Tech's Evaluation Report recognized Entergy Arkansas' continued success in its 2021 program year report and EM&V processes, stating:

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<sup>9</sup> Energy savings do not include transmission and distribution line losses.

Evaluation results are positive, demonstrating EAL's continuous improvement in its program design and delivery processes, tracking system, documentation, and savings tools, building on its prior program success to effectively launch the new program cycle even amid a pandemic. 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 to 95 percent in PY2021. 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. 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, as the new program cycle launched, 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. All in all, evaluated savings were a bit higher than *ex-ante* energy savings with an overall portfolio gross realization rates of 102% for energy savings and demand reductions. Program-level gross realization rates ranged from 96% to 107% for energy savings and 97% to 118% 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 61% of the demand goal. The performance difference between energy savings and demand goals is similar to last year. Investigations to better align energy savings and demand savings continue per a recommendation from the 2019 and 2020 evaluation.

Individual program performance relative to program savings and demand goals varied. Five of the nine programs<sup>10</sup> achieved their megawatt-hour savings goals, while three programs with energy savings goals still performed well, especially

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



given the COVID-19 pandemic context. These three programs met more than 90 percent of energy savings goals, whereas the Energy Solutions for Multifamily program only met 60 percent of its goal. EAL, the program implementer, and the EM&V team have discussed this shortfall and increased energy savings for next year. Four of the 11 programs achieved their megawatt goals. While two programs met 80 percent or more of the demand savings goal, five met less than 80 percent of the demand savings goal. The Smart Direct Load Control pilot is still gaining momentum, meeting 71 percent of its energy savings and 17 percent of its demand reduction goals. The Agricultural Energy Solutions program was 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 2021, there were 549 accounts that had been approved by the Commission to "opt-out" of the Entergy Arkansas energy efficiency programs.

Accordingly, for 2021, 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 2021 C&I program goals, Entergy Arkansas made minor adjustments to the C&I energy efficiency program budgets and the energy savings reductions for 2021.<sup>11</sup> 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 2021 goals and the associated adjustments are shown in Table 1.2.2.

Table 1.2.2  
Entergy Arkansas' 2021 Energy Savings Goals

Original 2021 Goal (MWh)	268,075
Adjustment due to SD (MWh)	46,335
New 2021 Goal (MWh)	221,740

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

Entergy Arkansas made changes to the commercial programs in 2021 based upon:

- 1) the number and magnitude of 2021 SD applications and approvals;<sup>12</sup>
- 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 8.2 Deemed Savings and Protocols as adjusted by the Joint Recommendations of the Independent Evaluation Monitor (“IEM”) and the PWC and approved by the Commission,<sup>13</sup> or where appropriate, utilized 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’ 2021 Energy Efficiency programs is attached as Appendix A.

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

<sup>13</sup> Docket No. 10-100-R.

### 1.3 Cost Benefit Results

Entergy Arkansas performed a cost-benefit analysis in connection with the 2021 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,<sup>14</sup> 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' 2021 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
<b>Program</b>									
Home Energy Solutions	\$ 26,831	3.7	\$ 0.03	\$ 44,344	6.4	\$ (22,419)	0.5	\$ 15,113	2.5
Multifamily Homes	\$ 3,965	2.9	\$ 0.02	\$ 12,007	13.7	\$ (6,616)	0.5	\$ 3,578	2.8
Manufactured Homes	\$ 2,610	3.1	\$ 0.02	\$ 6,868	10.1	\$ (3,676)	0.5	\$ 2,157	2.7
Low Income Solutions	\$ 5,231	2.5	\$ 0.04	\$ 11,580	6.7	\$ (7,111)	0.5	\$ 2,708	1.8
Point of Purchase Solutions	\$ 53,441	6.0	\$ 0.01	\$ 115,264	11.0	\$ (48,033)	0.5	\$ 47,189	7.1
Commercial & Industrial	\$ 25,166	2.3	\$ 0.02	\$ 51,491	4.7	\$ (29,813)	0.6	\$ 24,233	2.6
Small Business	\$ 12,530	4.0	\$ 0.02	\$ 21,576	7.0	\$ (12,906)	0.5	\$ 8,681	3.3
Public Institution Solutions	\$ 6,826	2.3	\$ 0.03	\$ 19,245	5.4	\$ (12,106)	0.5	\$ 7,930	3.5
Agriculture Energy Solutions	\$ 6,173	6.8	\$ 0.01	\$ 9,874	22.8	\$ (3,522)	0.7	\$ 6,225	7.1
Smart Direct Load Control Pilot	\$ 1,031	1.6	\$ 0.06	\$ 4,584	n/a	\$ (3,140)	0.4	\$ (285)	0.9
Direct Load Control	\$ (1,833)	0.0	\$ 91.32	\$ 537	n/a	\$ (2,370)	0.0	\$ (2,370)	0.0
Agriculture Irrigation Load Control	\$ (2,707)	0.0	\$ 110.39	\$ 434	n/a	\$ (3,140)	0.0	\$ (3,140)	0.0
Energy Efficiency Arkansas	\$ (55)	0.0	n/a	\$ -	n/a	\$ (55)	0.0	\$ (55)	0.0
Portfolio	\$ 139,210	3.2	\$ 0.02	\$ 297,804	7.5	\$ (154,907)	0.5	\$ 111,965	3.01

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 some of the demand response programs. As anticipated in the 2020-2022 EE Plan Filing testimony,<sup>15</sup> Agricultural Irrigation Load Control and Residential Direct Load Control Programs were not cost effective. However, Entergy Arkansas currently has approximately 17,455 residential customers enrolled in the Res DLC program that provide capacity in 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 2021-22 in Docket No. 07-085-TF filed June 17, 2019, Entergy Arkansas is proposing to phase out the Res DLC program starting in 2023; due to the Commission-approved bridge year, as noted in

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

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

Order No. 63 of Docket 13-002-U, this will begin in 2024. This overall cost-effectiveness for the portfolio is primarily due to two reasons. First, the 2021 program year 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 2021 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 2021-2022. 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 \$35 M in the 2021 TRC. Compared to the TRC without NEBs, this was an increase of approximately 33% of the total Net Present Value in the portfolio’s TRC.

### 1.4 2021 Budgets and Changes

The 2021 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 \$69,584,739. In 2021, 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 2021 Budgets<sup>16</sup>

Program Name	Revised Budget*	Initial Budget	Difference	Change	Explanation for the Change
1. Home Energy Solutions	\$11,276,038	\$ 11,276,038	\$0	0%	No change.
2. Multifamily Homes	\$2,638,633	\$ 2,638,633	\$0	0%	No change.
3. Manufactured Homes	\$1,262,886	\$ 1,262,886	\$0	0%	No change.
4. Low-income Solutions	\$4,942,484	\$ 4,942,484	\$0	0%	No change.
5. Point of Purchase Solutions	\$8,597,428	\$ 7,274,730	\$1,322,698	18%	POPS program took on additional kWh with only a small budgetary impact.
6. Large Commercial & Industrial Solutions	\$21,092,276	\$ 23,217,504	-\$2,125,228	-9%	Large C&I shifting out 18.5 million kWh into POPS & Small to allow them to overdrive.
7. Small Business Solutions	\$3,834,747	\$ 2,914,458	\$920,289	32%	Small Business overdriving by 5 million kWh due to increased trade ally activities.
8. Public Institutions Solutions	\$3,535,955	\$ 3,653,713	-\$117,758	-3%	CitySmart shifting out 856k kWh to allow Small Business to overdrive.
9. Agricultural Energy Solutions	\$1,350,119	\$ 1,350,119	\$0	0%	No change.
10. Residential Direct Load Control	\$3,600,907	\$ 3,600,907	\$0	0%	No change.
11. Smart Direct Load Control Pilot	\$3,372,376	\$ 3,372,376	\$0	0%	No change.
12. Agricultural Irrigation Load Control	\$3,793,765	\$ 3,793,765	\$0	0%	No change.
13. Energy Efficiency Arkansas	\$287,124	\$ 287,124	\$0	0%	No change.
Regulatory	\$ -	\$ -	\$ -	-	NA
<b>Total Portfolio:</b>	<b>\$ 69,584,739</b>	<b>\$ 69,584,739</b>	<b>\$ 0</b>	<b>0%</b>	0

Order # 150 approved the Initial Budget.

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

## 1.5 Planned Program Modifications for the 2022 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 2022.

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

Table 1.5.1

EE Portfolio Summary by Program

EE Portfolio Expenditures by Program					
Program Name	Target Sector	Program Type	2021		% of Budget
			Budget (\$)	Actual (\$)	
Home Energy Solutions	Residential	Whole Home	11,276,038	10,175,278	90%
Low-Income Solutions	Residential	Market Specific/Hard to Reach	4,942,484	3,652,787	74%
Manufactured Homes	Residential	Whole Home	1,262,886	1,356,752	107%
Multifamily Homes	Residential	Whole Home	2,638,633	2,230,509	85%
Residential Direct Load Control	Residential	Demand Response	3,600,907	2,699,590	75%
Small Business Solutions	Small Business	Market Specific/Hard to Reach	2,914,458	3,833,416	132%
Smart Direct Load Control Pilot	Res/Small Business	Demand Response	3,372,376	2,836,382	84%
Large Commercial & Industrial Solutions	Commercial & Industrial	Custom	23,217,504	15,956,449	69%
Public Institutions Solutions	Municipalities/Schools	Market Specific/Hard to Reach	3,653,713	3,408,787	93%
Agricultural Energy Solutions	Agriculture	Prescriptive/Standard Offer	1,350,119	1,106,952	82%
Agricultural Irrigation Load Control	Agriculture	Demand Response	3,793,765	3,532,255	93%
Point of Purchase Solutions	All Classes	Consumer Product Rebate	7,274,730	7,884,806	108%
Energy Efficiency Arkansas	All Classes	Other	287,124	85,328	30%
Regulatory	-	-	-	112,800	-
<b>Total</b>			<b>69,584,739</b>	<b>58,872,091</b>	<b>85%</b>

Table 1.5.2

EE Portfolio Summary by Cost Type

<b>EE Portfolio Expenditure Summary by Cost Type</b>				
<b>Cost Type</b>	<b>2021 Total Expenditures</b>			
	<b>% of Total</b>	<b>Budget (\$)</b>	<b>Actual (\$)</b>	<b>% of Total</b>
Planning / Design	0%	175,000	-	0%
Marketing & Delivery	29%	20,231,106	19,810,069	34%
Incentives / Direct Install Costs	62%	43,203,632	36,025,638	61%
EM&V	5%	3,225,000	1,194,772	2%
Administration	4%	2,750,000	1,728,813	3%
Regulatory	0%	-	112,800	0%
	<b>100%</b>	<b>69,584,739</b>	<b>58,872,091</b>	<b>100%</b>

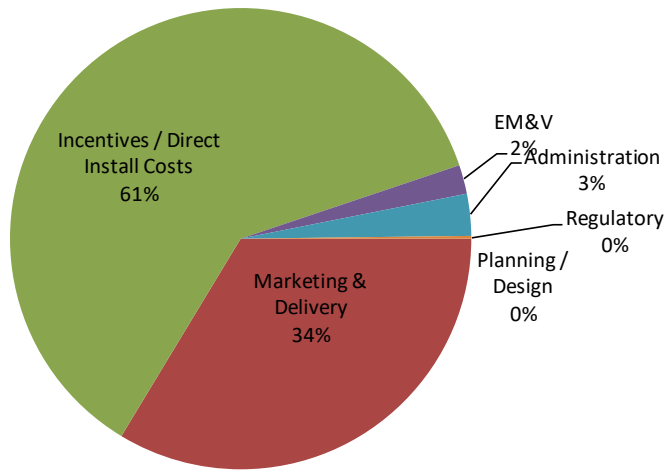
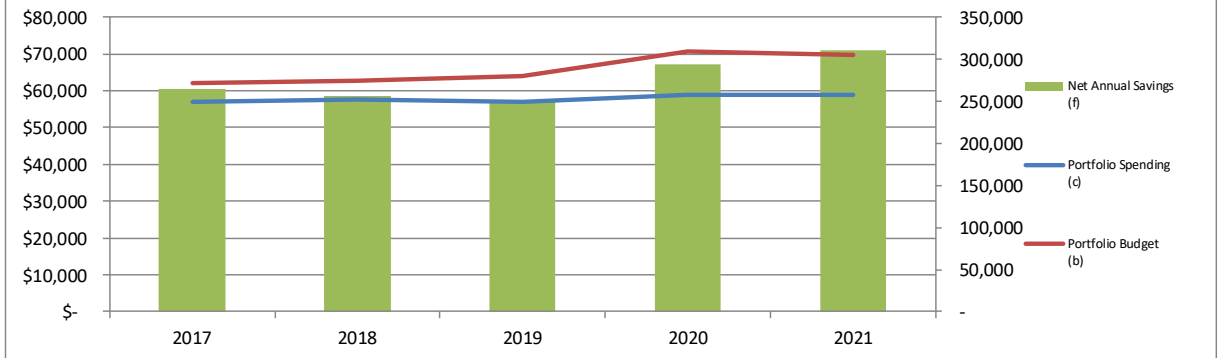


Table 1.5.3  
Company Statistics

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)
2017	\$ 1,739,545	\$ 62,035	3.6%	\$ 57,142	3.3%	20,888,455	238,130	1.14%	264,992	1.27%
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	285,557	1.28%	311,158	1.40%



## 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.

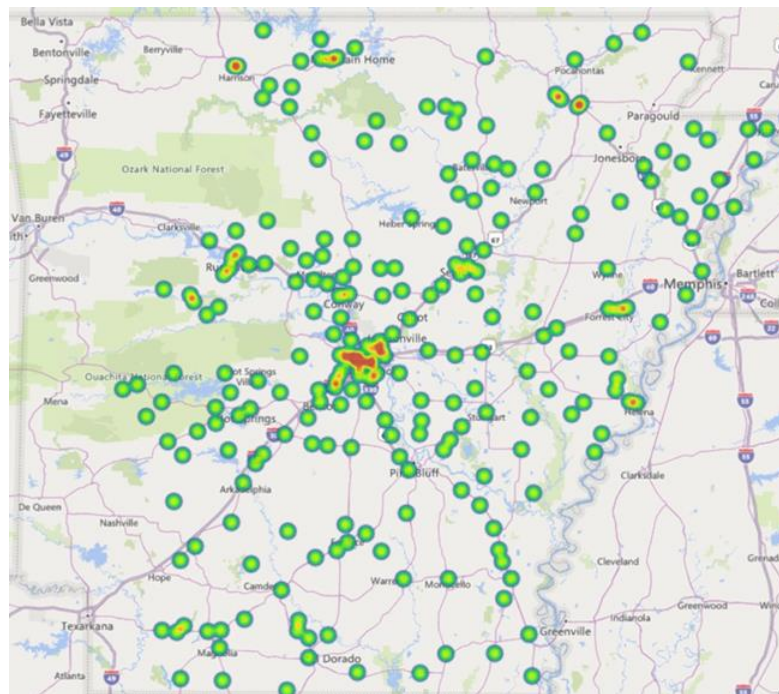
The trade ally also will perform diagnostic testing including a blower door test and duct blaster test to provide the customer with estimated energy savings and a list of prioritized recommendations. In 2021, the program achieved its energy savings by providing incentivized energy saving measures such 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. Direct install measures such as LED bulbs, advanced power strips, and high efficiency showerheads, kitchen, and bathroom aerators for customers with electric water heating, also are offered under 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 30,287 gross MWh in 2021 with a 98% realization rate and a net-to-gross ratio of 104.3%, resulting in 30,971 MWh net savings.
- Achieved 9.6 gross MW and 9.7 net MW savings in 2021 with a realization rate of 97.3%.
- Saw a total of 8,271 unique participants and 65,889 measures incentivized in 2021.
- 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, a 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 HES program.
- The HES program was able to service customers in 60 of the 63 counties in Arkansas that are serviced by Entergy Arkansas. This is represented in figure 2.1.2:2021.

Figure 2.1.2: 2021

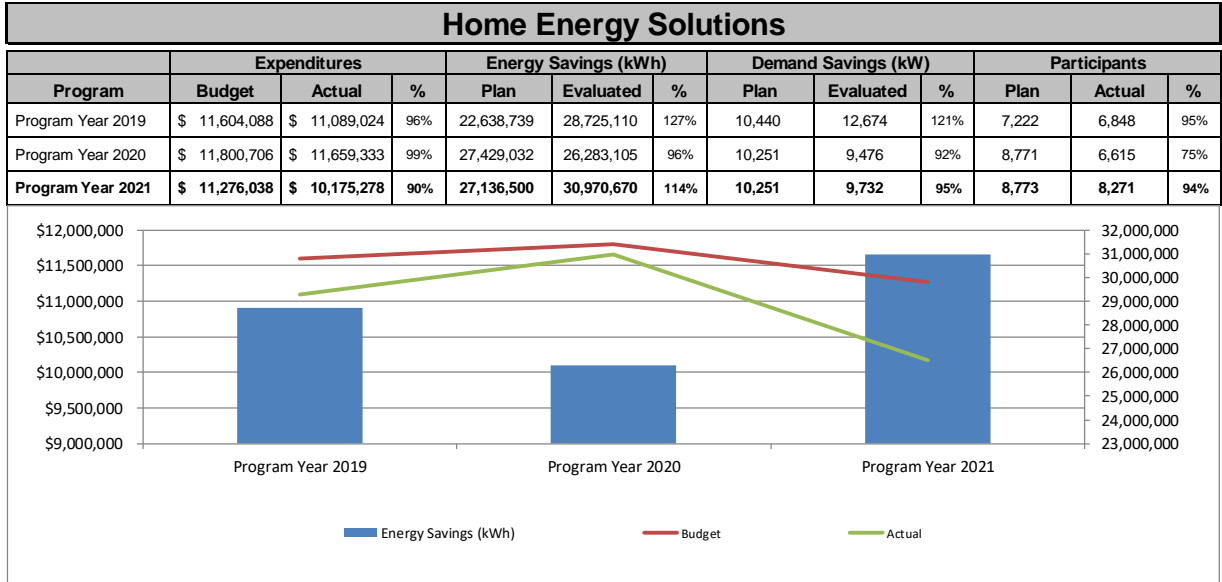


- 1,051 duct and air sealing projects went through the program's virtual QA/QC process and 297 of the projects went through the program's field inspection QA/QC process.
- 152 ceiling insulation projects went through the program's virtual QA/QC process and 99 projects of the projects went through the program's field QA/QC process.
- 52 air conditioner tune-ups went through the program's virtual QA/QC process and 9 of the projects went through the program's field inspection QA/QC process.
- 532 direct install projects went through the program's virtual QA/QC process and 211 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. These marketing efforts helped implement the program across the entire Entergy Arkansas service territory, rather than focusing on narrow areas.

### 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 (8,283) 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 2021, highlights key demographic information for participants in the Home Energy Solutions Program. Pertaining to Act 1102, approximately 23% 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 2021 Demographic Information from Process Surveys

Respondent characteristic		Percentage	PY2021 participants
Respondent age	18-24	0.9%	75
	25-34	15.1%	1,251
	35-44	19.8%	1,640
	45-54	21.7%	1,797
	55-64	18.9%	1,565
	65 or older	23.6%	1,955
	<b>Participants (n)</b>		
Income	Less than \$25,000	11.1%	919
	\$25,000 to less than \$50,000	20.40%	1,690
	\$50,000 to less than \$75,000	18.50%	1,532
	\$75,000 to less than \$100,000	22.20%	1,839
	\$100,000 or greater	27.8%	2,303
	<b>Participants (n)</b>		
LIHEAP status	LIHEAP eligible	14.0%	1,160
	Not LIHEAP eligible	86.0%	7,123
	<b>Participants (n)</b>		

## 2.1.5 Program Challenges and Opportunities

### Challenges:

With the supply chain constraints continuing due to COVID-19 and recent surge in inflation, EE product and shipping costs are rising. The program is increasing incentives for ceiling insulation and some Direct Installations (DI) measures to offset the rise in costs. If this continues, it could create constraints on the program incentives budgets. Additional COVID-19 impacts are detailed within the executive summary.

### 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 2021, the program introduced a software-based tool for the trade allies to use in real-time to verify past participation of Entergy Arkansas customers. 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 duct sealing projects, evaluate savings using actual units if available rather than technical reference manual (TRM) baselines.
- Ensure contractors are consistently submitting key savings project documentation.
- Increase customer service training for contractors.
- Consider a +/- 10% QA/QC threshold on square footage of homes for ceiling insulation.

## 2.1.6 Planned or Proposed Changes to Program and Budget

- The Home Energy Solutions Program will have a net energy savings goal of 28,869,000 kWh in 2022.
- 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.

- An increase in rebates for attic insulation and DI products will be implemented to account for the supply chain product price increases.
- Additional customer service training will be implemented with the contractor network to focus on communications with customers before and after their participation and also will include training on how to interact and communicate with customers during the on-site visit.
- An opportunity for training and certification as a BPI Building Analyst will be offered to the contractor network.
- Expanding the communications with trade allies will continue to be a focus of the program to ensure trade ally compliance with policies/procedures, address any concerns as they arise and ensure the benefit of participating in the HES Program.

## *2.2 Multifamily Homes Program*

### 2.2.1 Program Description

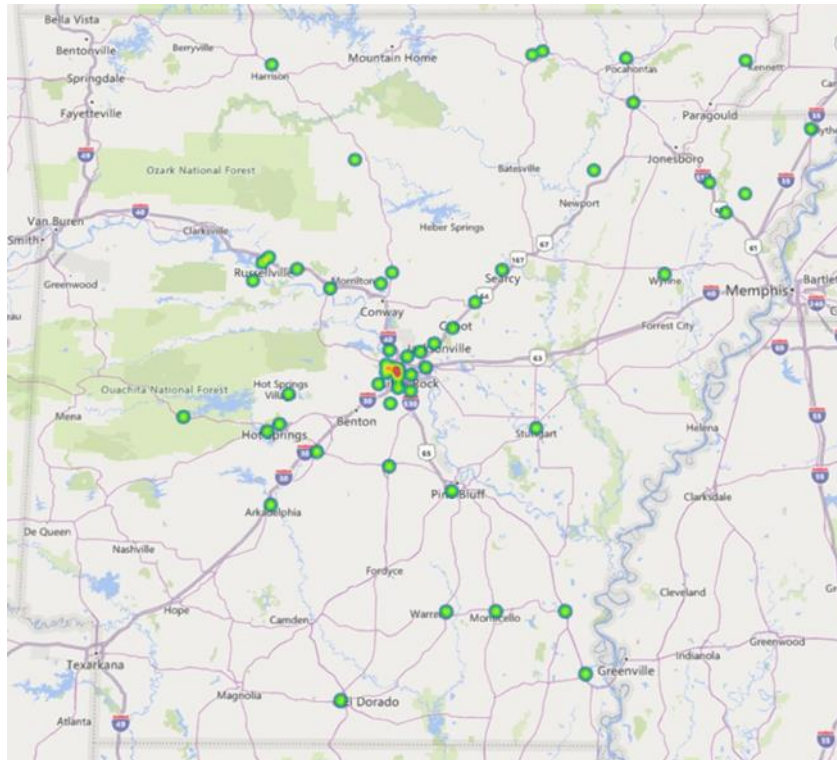
The Multifamily Homes (MF) Program continues to provide cost-effective energy efficiency measures to the multifamily residential and commercial market throughout the Entergy Arkansas service territory. The program is designed to benefit both the property owners and residents of multifamily dwellings 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 2021 Multifamily Homes Program:

- Saved 8,356 in gross MWh in 2021 with a 101.1% realization rate and a net-to-gross ratio of 1.00; this resulted in 8,444 MWh net energy savings.
- Achieved 1.2 gross MW and 1.3 net MW savings in 2021 with a realization rate of 105.3%.
- The program completed energy efficiency upgrades for 1,669 unique participants.
  - Figure 2.2.2.1 shows the multifamily properties completed in 2021. Outreach will continue throughout the Entergy Arkansas service territory to increase the customer participation throughout the state.

Figure 2.2.2.1: Map of 2021 Properties



- 269 air sealing and duct sealing projects went through the program’s virtual QA/QC process and 129 projects of the projects went through the program’s field QA/QC process.
- 21 ceiling insulation projects submitted through the program went through the program’s virtual QA/QC process and 25 projects of the projects went through the program’s field QA/QC process.
- 1 AC tune-up projects submitted through the program went through the program’s virtual QA/QC process and 26 projects of the projects went through the program’s field QA/QC process.
- 84 direct install projects submitted through the program went through the program’s virtual QA/QC process and 20 projects of the projects went through the program’s field QA/QC process.
- A summary of the energy savings and realization rates 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 <sup>17</sup>	Sampled kWh	Percentage kWh sampled	Reported kW	Sampled kW	Percentage kW sampled
Appliances	53,122	504	0.9%	6.3	0.1	1.0%
Domestic hot water	55,834	1,150	2.1%	5.8	0.1	2.1%
Envelope	1,106,795	35,003	3.2%	198.9	4.5	2.3%
HVAC	5,580,231	138,022	2.5%	701.0	16.7	2.4%
Lighting	131,965	2,072	1.6%	22.5	0.4	1.8%
<b>Total</b>	<b>6,927,947</b>	<b>176,752</b>	<b>2.6%</b>	<b>934.5</b>	<b>21.9</b>	<b>2.3%</b>

- Promotion and outreach in 2021 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.

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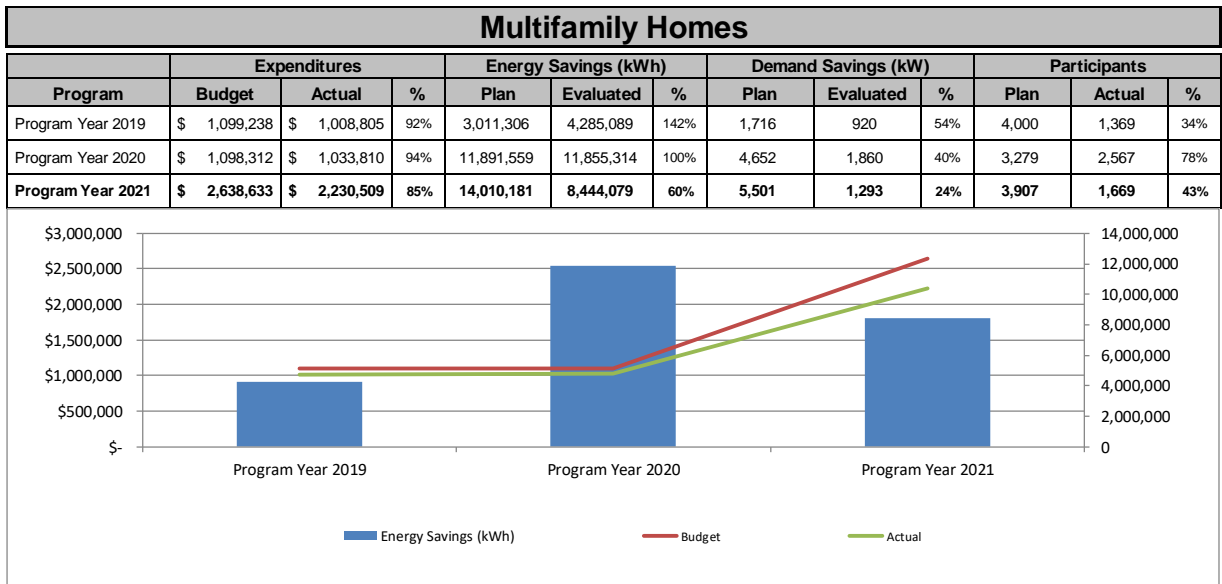
<sup>17</sup> Reported data as of time of sampling, October 1, 2021.

### 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 2021, highlights key demographic information for participants in the Multifamily Homes Program. Pertaining to Act 1102, in the Program Cycle, approximately 9% (or 145) of the Multifamily Homes participants were aged 65 or older and approximately 26% (or 439) of the respondents

were eligible for LIHEAP benefits. Approximately 84% 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 2021 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
Respondent age	18–24	4.3%	72
	25–34	21.7%	362
	35–44	30.4%	508
	45–54	17.4%	291
	55–64	17.4%	291
	65 or older	8.7%	145
<b>Participants (n)</b>			<b>1,669</b>
Income	Less than \$25,000	57.9%	967
	\$25,000 to less than \$50,000	26.3%	439
	\$50,000 to less than \$75,000	5.3%	88
	\$75,000 to less than \$100,000	5.3%	88
	\$100,000 of greater	5.3%	88
<b>Participants (n)</b>			<b>1,669</b>
LIHEAP status	LIHEAP-eligible	26.3%	439
	Not LIHEAP-eligible	73.7%	1,231
<b>Participants (n)</b>			<b>1,669</b>

\*Percentages are estimated from PY2018 process surveys.

## 2.2.5 Program Challenges and Opportunities

### Challenges:

With the supply chain constraints continuing due to COVID-19 and recent surge in inflation, EE product and shipping costs are rising. The program is increasing incentives for ceiling insulation and some DI measures to offset the rise in cost. If this continues, it could create constraints on the program incentive budget. Additional COVID-19 impacts are detailed within the executive summary.

Ownership turnover within the multifamily market is high, which can create a gap in the communication chain between program staff and trade allies. To mitigate this issue, the program is utilizing ALN Apartment data software which provides updates in management turnover at the property, even at the district level. 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 2021, the program introduced software-based tool for the trade allies to use in real-time to verify past participation of Entergy Arkansas customers. 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.
- Continue to accurately track cooling capacity in ArchEE for duct sealing measures since it is a key parameter in calculating savings.
- Ensure all documentation is available and legible and key parameters, such as model number, insulation level, and flow rate, are identifiable.
- Increase customer service training for contractors.

- Ensure timely responses to trade allies.
- 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.

## 2.2.6 Planned or Proposed Changes to Program and Budget

Proposed changes:

- An increase in rebate for attic insulation and DI products will be implemented to account for the supply chain product increases.

## *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.

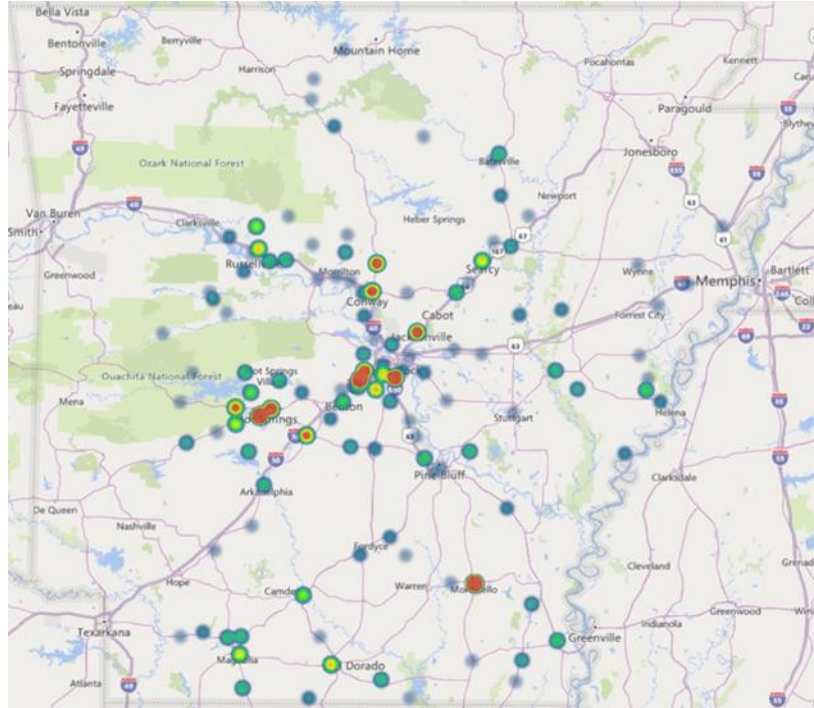
This program provides much needed services for a hard-to-serve customer segment, where customers paying the electric bill often do not have the ability to make energy efficiency upgrades. The program overcomes the upfront cost hurdle by making it easy for the occupant to participate at little to no cost. 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 4,774 gross MWh in 2021 with a 107.1% realization rate and a net-to-gross ratio of 1.00, resulting in 5,114 MWh net savings.
- Achieved 0.8 gross MW and 0.8 net MW savings in 2021 with a realization rate of 99.7%.

- In 2021, a total of 612 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 2021.

Figure 2.3.2: 2021 Participants



- 335 duct and air sealing jobs went through the program's virtual QA/QC process and 10 projects went through the program's field QA/QC process.
- 57 air conditioner tune-ups performed went through the program's virtual QA/QC process and 0 projects went through the program's field QA/QC process.
- 121 total direct install projects went through the program's virtual QA/QC process and 6 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 with the challenge of COVID-19 and the effect of the pandemic on the ability to implement the Manufactured Homes Program was tracked. 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.

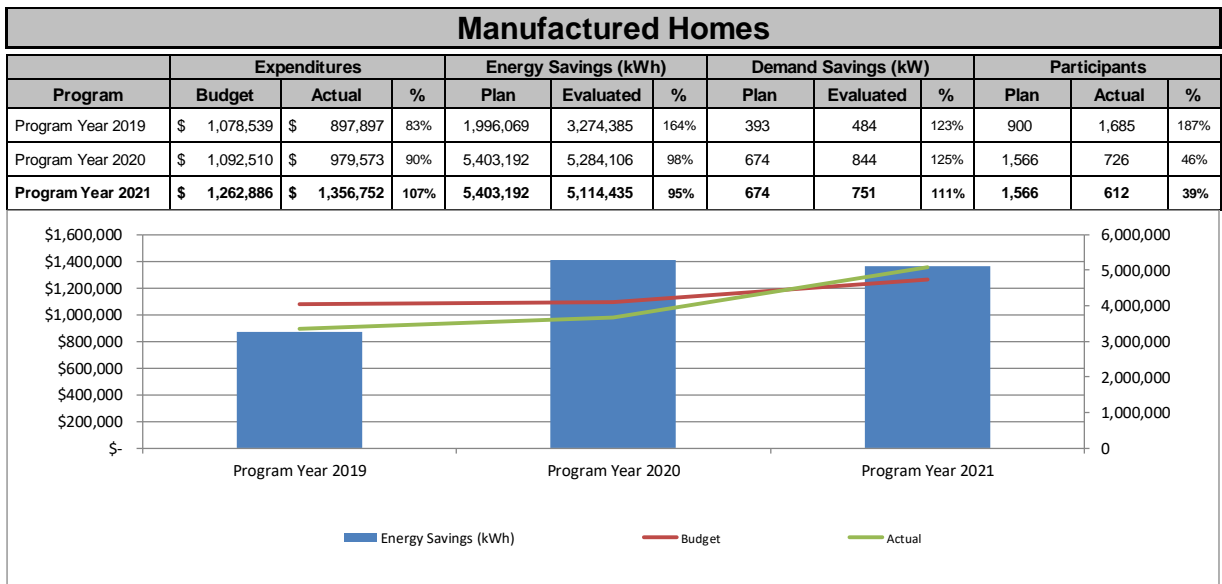
- The program continued to be more accessible to the Hispanic populations by having marketing collateral available in both English and Spanish in order to target this market.
- Promotion and outreach activities were executed in a variety of marketing channels. Paid media with print, digital and social 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.



### 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 2021 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 2021 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*
Respondent age	18–24	2.8%	17
	25–34	11.3%	69
	35–44	18.3%	112
	45–54	23.9%	146
	55–64	19.7%	121.0
	65 or older	23.9%	146
	<b>Participants (n)</b>		
Income	Less than \$25,000	44.6%	273
	\$25,000 to less than \$50,000	38.5%	236
	\$50,000 to less than \$75,000	10.8%	66
	\$75,000 to less than \$100,000	4.6%	28
	\$100,000 of greater	1.5%	9
	<b>Participants (n)</b>		
LIHEAP status	LIHEAP eligible	21.5%	132
	Not LIHEAP eligible	78.5%	480
	<b>Participants (n)</b>		

\*Percentages are estimated from PY2018 process surveys.

### 2.3.5 Program Challenges and Opportunities

Challenges:

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 to not only provide beneficial upgrades at no cost to the residents, 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.

With the supply chain constraints continuing due to COVID-19 and recent surge in inflation, EE DI product costs are rising. The program is increasing incentives for some DI products to offset the rise in cost. If this continues, it could create constraints on the program incentive budget. Additional COVID-19 impacts are detailed within the executive summary.

#### 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 2021, the program introduced a software-based tool for the trade allies to use in real time to verify past participation of Entergy Arkansas customers. 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:

- Continue to accurately track cooling capacity in ArchEE for duct sealing measures since it is a key parameter in calculating savings.
- Ensure all documentation is available and legible and key parameters, such as model number, are identifiable.
- Increase the internal quality assurance/quality control (QA/QC) process on the duct sealing measure for all heating types to capture all cooling and heating variables.
- Increase customer service training for contractors regarding communications.

- Ensure replaced equipment, such as incandescents, are removed and properly disposed of.
- 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.
- Ensure trade allies are aware of the database and process to check on customer eligibility

### 2.3.6 Planned or Proposed Changes to Program and Budget

- An increase in rebate for direct install products will be implemented to account for the supply chain product increases.

## *2.4 Low-Income Solutions*

### 2.4.1 Program Description

The Low-Income Solutions (LIS) Program was launched in Entergy's residential portfolio in 2020, and was designed to serve income-qualified customers, as defined under the 2017 Act 1102 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 at home. CBOs help the LIS Program identify eligible customers and distribute program information to the local communities they serve.

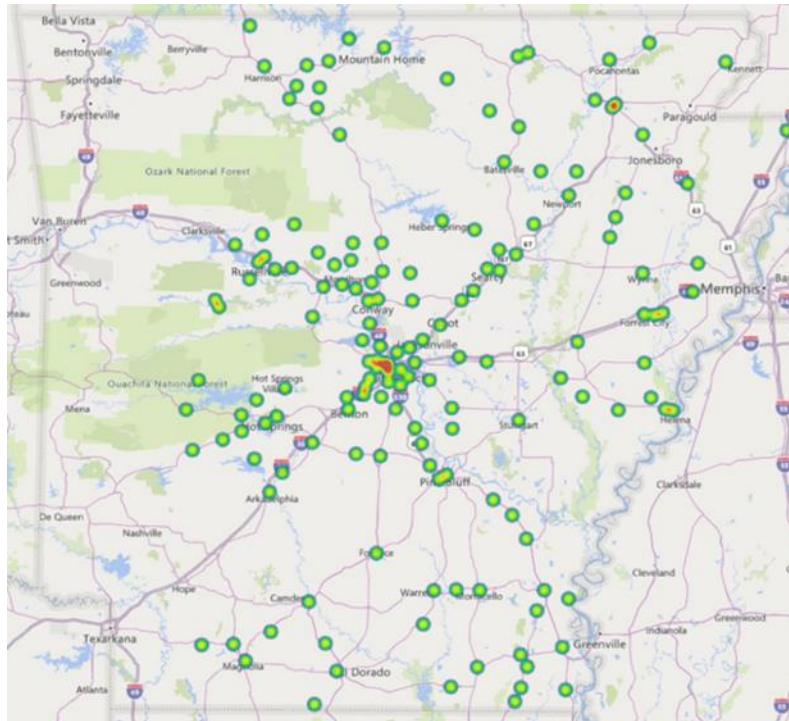
Design elements of the LIS Program include incentives to offset up to 100% of the cost of an energy evaluation provided by a certified trade ally. In addition, LIS customers may receive minor health and safety products or repairs for eligible homes, such as bathroom ventilation, smoke detectors, etc. 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 2021, the LIS Program:

- Saved 8,050 gross MWh in 2021 with a 99.8% realization rate and a net-to-gross ratio of 1.00, resulting in 8,034 MWh net savings.
- Achieved 2.2 gross MW and 2.2 net MW savings in 2021 with a realization rate of 99.9%.
- Served 2,231 individual Entergy account holders of which:
  - 67% were single-family homes.
  - 28% were multifamily apartments.
  - 5% were manufactured homes.
- Installed at least one health and safety measure in 45% of participating properties.
- 2,533 duct and air sealing jobs went through the program's virtual QA/QC process and 81 projects went through the program's field QA/QC process.
- 46 ceiling insulation performed went through the program's virtual QA/QC process and 25 projects went through the program's field QA/QC process.
- 14 air conditioner tune-ups went through the program's virtual QA/QC process and six projects went through the program's field QA/QC process.
- 325 direct install projects went through the program's virtual QA/QC process and 30 projects went through the program's field QA/QC process.
- 1,413 health and safety projects went through the program's virtual QA/QC process and 42 projects went through the program's field QA/QC process.

Figure 2.4.2: 2021 Participation



One of the LIS Program’s missions is to increase opportunities for low income and elderly customers to access energy efficiency services. In 2021, 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 2021 and increased the number of homes utilizing both LIS incentives and WAP funding. Working together, the LIS program and BCD successfully funded projects for seven single family homes, one manufactured home, and 21 apartments. Entergy produced a video of Mary Lowe, a satisfied customer, that 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, the BCD, and Entergy across multiple platforms and at virtual conferences in 2021.

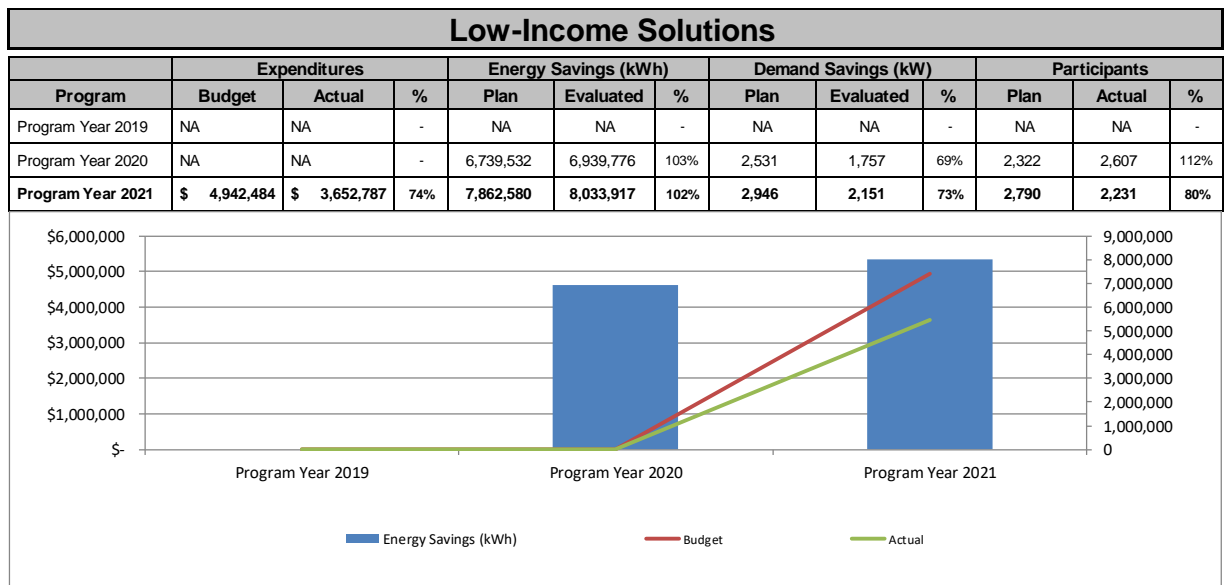
Other successful collaborations in 2021 included short-term partnerships with Community Thrive 365 Inc. (North Little Rock), and the Stuttgart Food Bank (Stuttgart), which both referred eligible customers for services. Traditional promotion and outreach activities were also

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 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 quantity of the health and safety measures provided by the program increased 30% from 2020 to 2021 due to increasing the health and safety specific training and workforce development efforts with the trade allies. The variety of projects also expanded as more trade allies took advantage of the improved health and safety measure identification and submission process introduced at the beginning of July.

### 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 provided over 23 training sessions to educate trade allies on program requirements in 2021, 17 of which were specific to health and safety measures and identifying income-qualified customers. The LIS Program also participated in the annual Trade Ally Summit in tandem with the other residential Entergy Solutions programs. This summit for business principals and crew leaders included training on program updates, safety training and program performance rewards. In 2021, a LIS-specific breakout session was included to cover updates to health and safety measures and other low-income specific topic.
  - 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.

#### 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 2021, highlights key demographic information for participants in the Low-Income Solutions Program. Pertaining to Act 1102, in the Program Cycle, approximately 45% (or 1,079) of the low-income participants were aged 65 or older and approximately 71% (or 1,696) of the respondents were eligible for LIHEAP benefits.

Table 2.4.4

For Program Cycle 2021 Demographic Information from Process Surveys Low-Income Solutions

Respondent characteristic		Share	Participants*
Respondent age	18-24	2.4%	57
	25-34	4.8%	115
	35-44	7.1%	170
	45-54	7.1%	169
	55-64	33.3%	795
	65 or older	45.2%	1,079
	<b>Participants (n)</b>		
LIHEAP status	LIHEAP eligible	71.1%	1,696
	Not LIHEAP eligible	28.9%	690
	<b>Participants (n)</b>		

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

## 2.4.5 Program Challenges and Opportunities

### Challenges:

With the supply chain constraints continuing due to COVID-19 and recent surge in inflation, EE product and shipping costs are rising. The program is increasing incentives for ceiling insulation and some DI measures to offset the rise in costs. If this continues, it could create constraints on the program's incentive budgets. Additional COVID-19 impacts are detailed within the executive summary.

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.

#### Opportunities:

In July 2021, the program introduced a streamlined process for the trade allies to identify and submit health and safety measures to the program. A list of “pre-approved” health and safety measures with set incentive rates was developed and provided to the LIS Program trade allies to create a familiar prescriptive measure delivery model. This adjustment, combined with additional training on identifying and addressing health and safety hazards on site, created a significant increase in the amount of health and safety measures provided to Entergy customers.

#### EM&V Recommendation:

- Ensure contractors are consistently submitting key savings project documentation.
- Ensure direct install measures such as LEDs, power strips, and low flow showerheads and faucet aerators are installed by the contractor rather than given to the customer to install.
- Increase customer service training for contractors.
- Continue standardizing Measure Description for prescriptive health and safety measures to track what the measure accomplished in the tracking database.
- Ensure replaced equipment, such as incandescent bulbs, are removed and properly disposed of.

### 2.4.6 Planned or Proposed Changes to Program and Budget

In 2022, the LIS Program will add a LIHEAP-eligibility chart and customer signature line to the Enrollment Form required for all program participants. This will serve to document the customer’s self-certification for LIHEAP eligibility and enrollment in the LIS Program. In alignment with the other residential programs in the portfolio, the LIS Program will also:

- Implement the increased incentive rates for attic insulation and DI products to account for the supply chain price increases.
- Provide additional customer service training with the contractor network on customer service communications.

## *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 2021, as in past years, the Point of Purchase Solutions Program sought to minimize market barriers to participation for Entergy Arkansas' approximately 580,000 residential and 91,000 commercial 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 2021.

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 2021, 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 2021.

In the third year in which the program offered incentives on smart thermostats, the measure continued to have robust participation, with 1,473 units incentivized, a 21% increase over 2020.

In 2021, 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 475,583 LED lighting unit sales in 2021 to customers the utility considers to be "hard to reach."

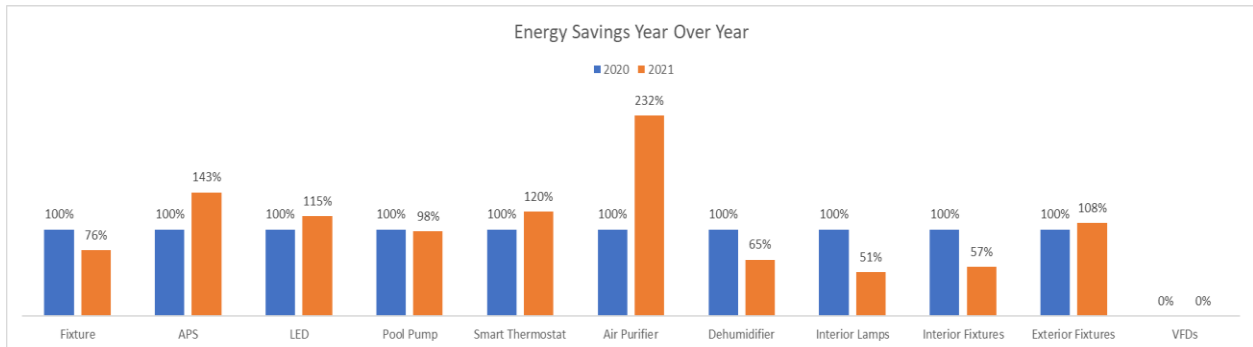
Electrical distributors participating in the program felt the impact of COVID-related business shut-downs and project delays, as well as difficulty getting some products due to supply chain disruptions. As a result, discounted sales to commercial customers in 2021 were still down from previous years. In an effort to evolve the program offerings beyond solid state lighting, work on new measures continued in 2021, and though none were launched in 2021, 2022 will see new measures on the commercial side.

In 2021, 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 the ongoing success of the program.

Table 2.5.1

Year Over Year (2019-21) Participation for All Measures

Measure				YOY % change	
	2019	2020	2021	2019-20	2020-21
<b>LEDs</b>	<b>1,358,848</b>	<b>1,868,848</b>	<b>2,170,880</b>	<b>38%</b>	<b>+16%</b>
<b>Fixtures</b>	<b>43,418</b>	<b>54,822</b>	<b>41,463</b>	<b>+14%</b>	<b>-24%</b>
<b>Advanced Power Strips</b>	<b>68,465</b>	<b>73,907</b>	<b>105,696</b>	<b>+8%</b>	<b>+43%</b>
<b>Clothes Washers</b>	<b>39</b>	<b>0</b>	<b>0</b>	<b>0%</b>	<b>0%</b>
<b>Pool Pumps</b>	<b>70</b>	<b>127</b>	<b>112</b>	<b>+81%</b>	<b>-12%</b>
<b>Air Purifier</b>	<b>20</b>	<b>49</b>	<b>114</b>	<b>+145%</b>	<b>+133%</b>
<b>Dehumidifier</b>	<b>25</b>	<b>49</b>	<b>45</b>	<b>+96%</b>	<b>-8%</b>
<b>Smart Thermostats</b>	<b>842</b>	<b>1,217</b>	<b>1,473</b>	<b>+45%</b>	<b>+21%</b>
<b>Freezers</b>	<b>0</b>	<b>1</b>	<b>5</b>	<b>-</b>	<b>+400%</b>
<b>Room AC</b>	<b>0</b>	<b>0</b>	<b>46</b>	<b>-</b>	<b>-</b>
<b>HPWH</b>	<b>0</b>	<b>0</b>	<b>44</b>	<b>-</b>	<b>-</b>



Lastly, the program continued training sales associates (where safe to do so) 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 86,096 MWh, 132% of the net savings goal. To put this in perspective, the energy saved by this program in 2021 is equivalent to the greenhouse gas emissions from 6.8 million gallons of gasoline consumed, or 11,872 homes' electricity use for one year. Over 2.3 million individual product units were acquired through the program in 2021, 16% more than in 2020. The widespread distribution of lighting products to those most impacted by the global pandemic continued to drive the volume of product units reported in 2021. The program also achieved approximately 13 MW of evaluated demand savings.

In response to the COVID-19 pandemic, the program recruited new community partners in order to safely donate energy efficient products to customers, including the Central Arkansas Food Bank and other non-profit organizations across the state, as well as school districts. By donating products to these well-known and trusted organizations, the program was able to assist their constituents during a time of continued need, without being in direct contact with them.

In 2021, 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

Upload Status for Entergy Arkansas

386 Results

File ID	File Name	Worksheet Name	Date Uploaded	Invoice File	Upload Status	Processing Status
11601	MULBERRY STORAS ...	Template	2/1/2021 8:06:28 AM	view delete	●	Processed
11648	Seary Schools ...	Template	1/29/2021 9:30:27 AM	view delete	●	Processed
11647	Elbert Cabot ...	January (2)	1/28/2021 12:19:54 PM	view delete	●	Processed
11643	Elbert LA.pdf ...	January	1/28/2021 11:36:48 AM	view delete	●	Processed
11640	LEAK HEART ADS ...	Template	1/28/2021 10:27:24 AM	view delete	●	Processed
11625	White County Co ...	Template	1/25/2021 8:46:02 AM	view delete	●	Processed
11618	Elbert LA.pdf ...	January	1/22/2021 8:00:52 AM		●	upload failed
11615	Elbert LA.pdf ...	January	1/22/2021 7:45:11 AM		●	upload failed
11612	Elbert Cabot ...	January	1/21/2021 1:53:49 PM	upload	●	invoice needed
11607	Garrison Bld ...	Template	1/21/2021 5:06:07 AM	view delete	●	Auto Sent

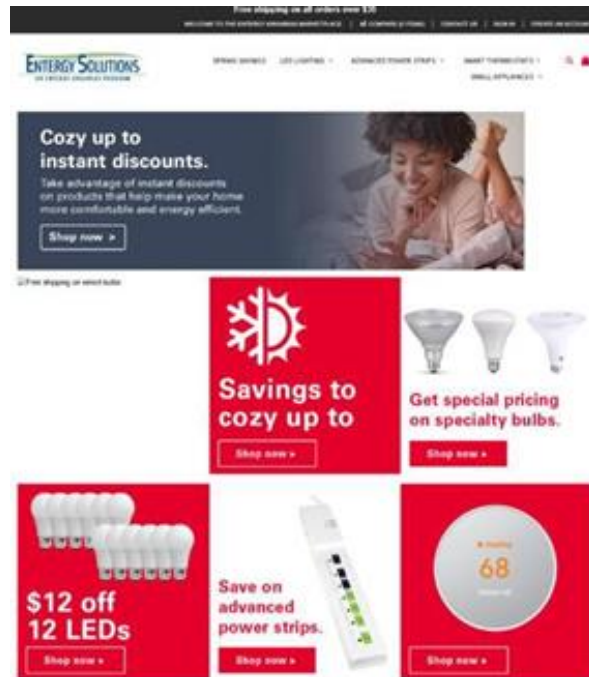
Our Review Process

- 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 ticket closed

The online marketplace introduced at the end of 2020 provided 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 freezers and pool pumps. The site is branded similarly to Entergy Arkansas’ website, and is linked to from many pages on Entergy’s website for a seamless and convenient customer experience.



Figure 2.5.3 POPS Online Marketplace



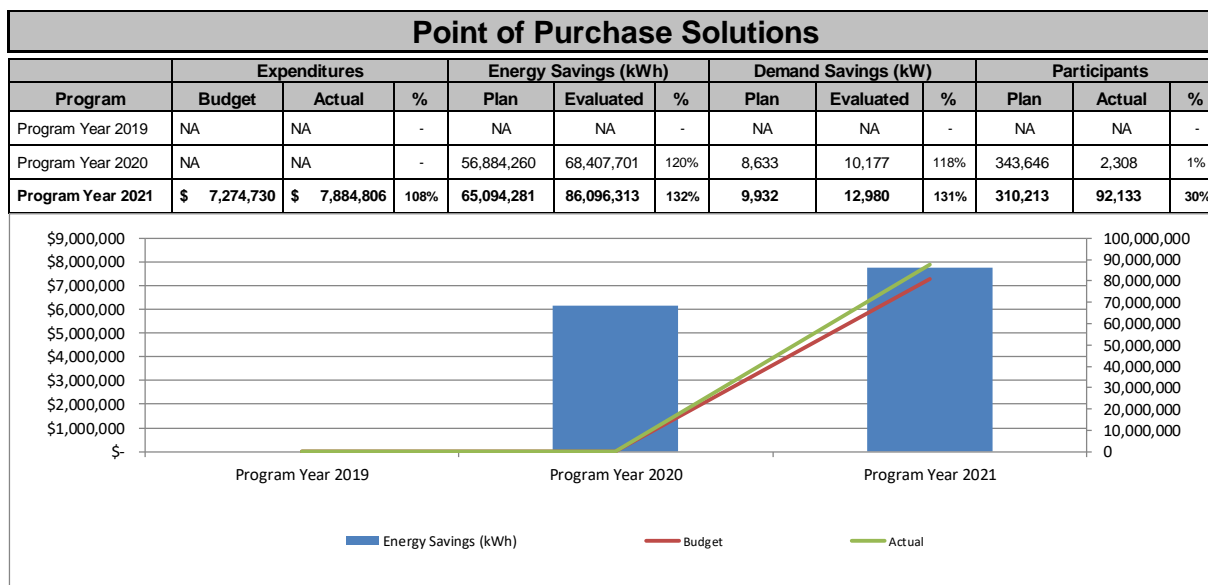
In 2021, an online rebate application portal was once again available for electronic submission of rebate applications. Any customer interested in submitting their application digitally could do so for pool pump, air purifier, dehumidifier, or smart thermostat rebates.

The program was recognized by the EPA ENERGY STAR Award as a Partner of the Year for the fourth consecutive year in 2021.

### 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 COVID-19 pandemic had an impact on the program’s approach to customer outreach and training due to continued directives related to mass gatherings. The annual Trade Ally Summit and Awards, which traditionally gathers hundreds of program partners from across the state for face-to-face trainings and networking in Little Rock, was held virtually in 2021. 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 15 trainings on commercial offerings and tools took place in 2021.

The Point of Purchase Solutions field team engaged with retail sales associates when deemed safe to do so, and in a socially distanced manner with personal protective equipment (“PPE”) in place. Customer engagement protocols were largely curtailed. In total, despite the challenges, the program led 405 training sessions for 424 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

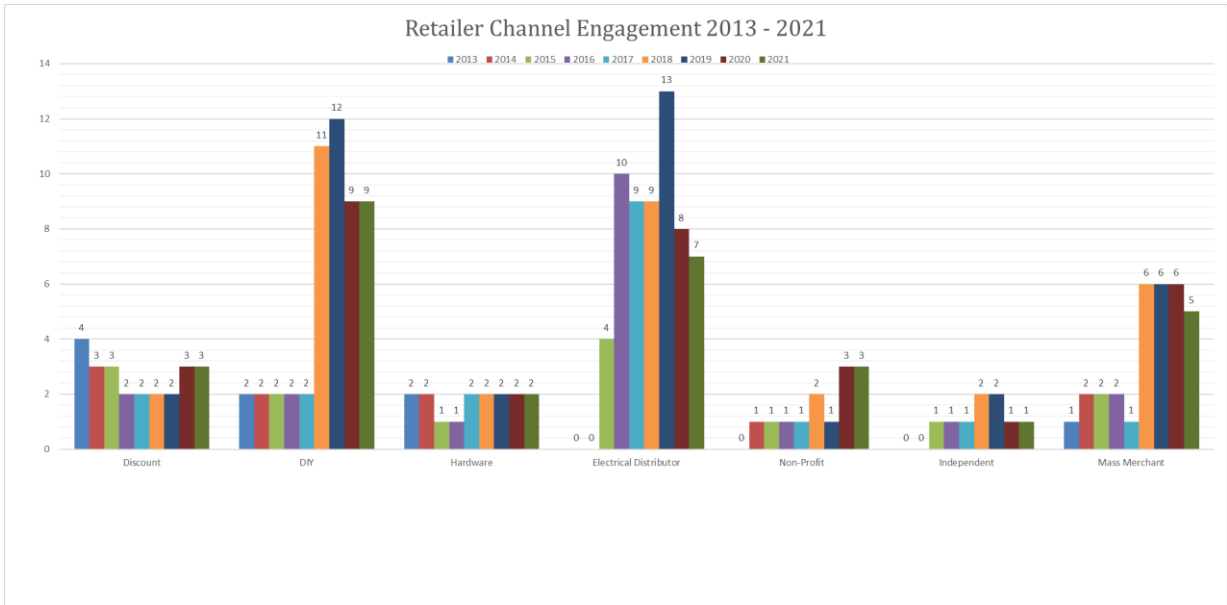
Participants included a diversified group of manufacturers, retail stores, electrical distributors and Energy Arkansas customers across the state that purchased the discounted energy efficiency measures. In 2021, the program continued working with electrical distributors and independent retailers, such as small grocery markets, hardware stores and rural general stores, as well as Energy Federation Incorporated, the partner implementing the online marketplace. Five electrical distributors participated in the program for the first time in 2021, and several new retailers offered pool pump rebates. Advanced Electrical Supply, Capitol Light, City Electric Supply Company – Batesville, Elliott Electric Supply – Stuttgart and W.W. Grainger, Inc. were first-time participants in the commercial promotions in 2021.

In 2021, a large focus was placed 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 low-cost smart thermostats via direct online purchase and products to food banks for distribution to their constituent pantries. While 2021 was 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 2021 is 771,274. This breaks down to 663,739 LEDs, 105,696 advanced power strips, 114 air purifiers, 45 dehumidifiers, 1,473 smart thermostats, 112 pool pumps, five freezers, 46 room air conditioners, and 44 heat pump water heaters subsidized through the program. Despite the pandemic, the program saw a 16% increase in the number of incentivized units over 2020. 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 air purifiers, which saw a 133% increase over 2020 levels; advanced power strips, at a 43% increase, and smart

thermostats, which saw a 21% increase over 2020 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 nine years is shown below.

Table 2.5.4.1  
Retailer Channel Engagement



### 2.5.5 Program Challenges and Opportunities:

In the tenth 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 2021. In order to further expand the program's reach to all demographic segments within the customer base, Feeding America-affiliated food banks were once again engaged to facilitate distribution of LED bulbs and advanced power strips to their recipient food pantries. 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, such as TOPPS in Pine Bluff, to small, like Roland Crisis Center in Little Rock. 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 and dehumidifier rebates. While more than 77 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.

Participation by electrical distributors in the commercial portion of the program took a slight dip in 2021. Comparing 2020 to 2021, three new distributors were recruited and participated in the program, while seven distributors who submitted reports in 2020 did not participate in 2021, for a net loss of five trade allies. For five of the seven distributors who did not participate in 2021, 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 energy savings by the seven distributors who did not return in 2021 is less than 1%. 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 2021 Program	Added to the 2021 Program
<b>Commercial and Residential:</b> <b>LED bulbs and fixtures</b> <b>Commercial only:</b> <b>Electric Hand Dryers</b> <b>Variable Frequency Drives</b> <b>VSD Air Compressors</b> <b>Residential only:</b> <b>Advanced Power Strips</b>  <b>Advanced Thermostats</b> <b>Room Air Purifiers</b> <b>Dehumidifiers</b> <b>Pool Pumps</b> <b>Freezers</b>	<b>no measures removed</b>	 <b>Residential:</b> <b>Heat Pump Water Heaters</b>  <b>ES Most Efficient Room Air Conditioners</b>

EM&V efforts resulted in largely positive results. In addition to almost across-the-board 100+% realization rates, the program received an overall Net-to-Gross ratio (NTG) of 81% due to 100% NTG values assigned to residential low-income measures. There was no change to the NTG ratio for advanced power strips, 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 2021. Non-energy benefits were again applied in 2021.

### 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 2021. 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 begin utilizing a new database for residential offerings, which will lead 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 recommendations for the program were all completed or are in progress. Additionally, all 2021 recommendations are in progress.

## 2.6 Large Commercial and Industrial Program 2021

### 2.6.1 Program Description

The 2021 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 2021 program year. The program continued the same structure to allow for retroactive and excess incentives to be applied in 2021. 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 2021 Large C&I Tiered Incentive Structure

Large C&I	1 measure	2 measures	3 measures	4+ measures	Cap
<b>PC Power Management:</b>	<b>\$0.10</b>	<b>\$0.10</b>	<b>\$0.10</b>	<b>\$0.10</b>	<b>100%</b>
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

## 2021 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.
- CoolSaver<sup>SM</sup> 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  
2021 Large C&I Entergy Arkansas Cost-Effectiveness Test Example

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

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 2021 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 2021 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  
2021 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 2021. After a successful year in 2020, CEI contributed over 41 MWh in the second full year of implementation within the program. These measures had a successful year within the programs in 2021 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 2021, 247 trade allies contributed to around 1% of the goal attainment. This equates to approximately 1 million kWh in generated savings per trade ally on the list.
- 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 2021. 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

	<b>% of Total Savings</b>	<b>% of Total Incentives</b>
Trade Ally #1	16.01%	15.84%
Trade Ally #2	13.28%	12.86%
Trade Ally #3	7.72%	9.04%
Trade Ally #4	4.05%	4.60%
Trade Ally #5	3.36%	3.34%
Trade Ally #6	3.33%	3.30%
Trade Ally #7	3.22%	3.42%
Trade Ally #8	2.83%	3.15%
Trade Ally #9	2.69%	1.37%
Trade Ally #10	2.60%	2.84%
Trade Ally #11	2.58%	2.57%
Trade Ally #12	2.56%	3.09%
Trade Ally #13	2.54%	2.60%
Trade Ally #14	2.09%	0.97%
Trade Ally #15	2.04%	2.06%
Trade Ally #16	2.02%	2.05%
Trade Ally #17	1.94%	2.14%
Trade Ally #18	1.72%	1.72%
Trade Ally #19	1.60%	1.59%
Trade Ally #20	1.57%	2.06%
Trade Ally #21	1.48%	1.48%
Trade Ally #22	1.37%	1.46%

Trade Ally #23	1.26%	0.69%
Trade Ally #24	1.13%	0.35%
Trade Ally #25	1.02%	1.01%
Trade Ally #26	0.98%	1.01%
Trade Ally #27	0.87%	0.64%
Trade Ally #28	0.86%	0.86%
Trade Ally #29	0.83%	1.89%
Trade Ally #30	0.78%	1.08%
Trade Ally #31	0.77%	0.77%
Trade Ally #32	0.75%	0.75%
Trade Ally #33	0.74%	0.58%
Trade Ally #34	0.64%	0.23%
Trade Ally #35	0.58%	0.53%
Trade Ally #36	0.57%	0.43%
Trade Ally #37	0.44%	0.44%
Trade Ally #38	0.42%	0.17%
Trade Ally #39	0.40%	0.40%
Trade Ally #40	0.36%	0.36%
Trade Ally #41	0.35%	0.45%
Trade Ally #42	0.29%	0.20%
Trade Ally #43	0.21%	0.26%
Trade Ally #44	0.20%	0.20%
Trade Ally #45	0.20%	0.20%
Trade Ally #46	0.19%	0.19%
Trade Ally #47	0.18%	0.18%
Trade Ally #48	0.17%	0.18%
Trade Ally #49	0.17%	0.17%
Trade Ally #50	0.16%	0.16%
Trade Ally #51	0.16%	0.16%
Trade Ally #52	0.14%	0.18%
Trade Ally #53	0.14%	0.10%
Trade Ally #54	0.14%	0.14%
Trade Ally #55	0.13%	0.13%
Trade Ally #56	0.12%	0.12%
Trade Ally #57	0.12%	0.12%
Trade Ally #58	0.12%	0.12%
Trade Ally #59	0.11%	0.11%
Trade Ally #60	0.11%	0.14%

Trade Ally #61	0.10%	0.28%
Trade Ally #62	0.09%	0.09%
Trade Ally #63	0.09%	0.10%
Trade Ally #64	0.09%	0.09%
Trade Ally #65	0.07%	0.07%
Trade Ally #66	0.04%	0.04%
Trade Ally #67	0.04%	0.04%
Trade Ally #68	0.03%	0.03%
Trade Ally #69	0.02%	0.01%
Trade Ally #70	0.01%	0.01%

Figure 2.6.2.2 Large C&I Program Measure Mix (2012 kWh percentage)  
 For Comparison to 2021 Measure Mix Below in Figure 2.6.2.3.

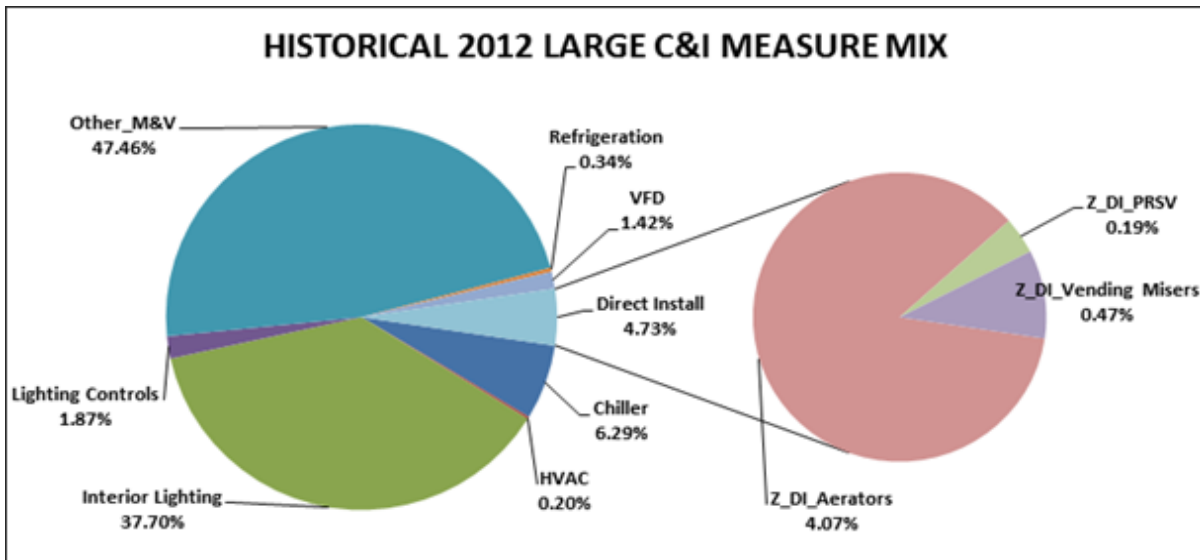


Figure 2.6.2.3

Large C&I Program Measure Mix (2021 kWh percentage)

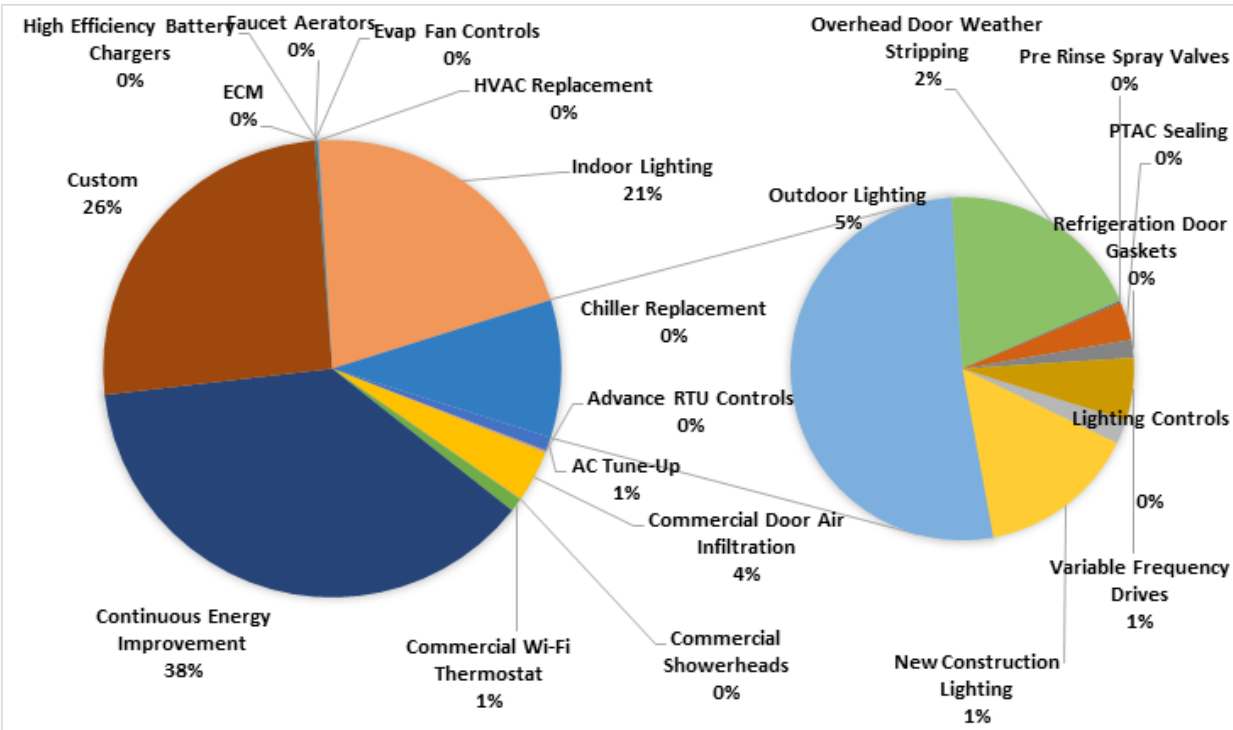
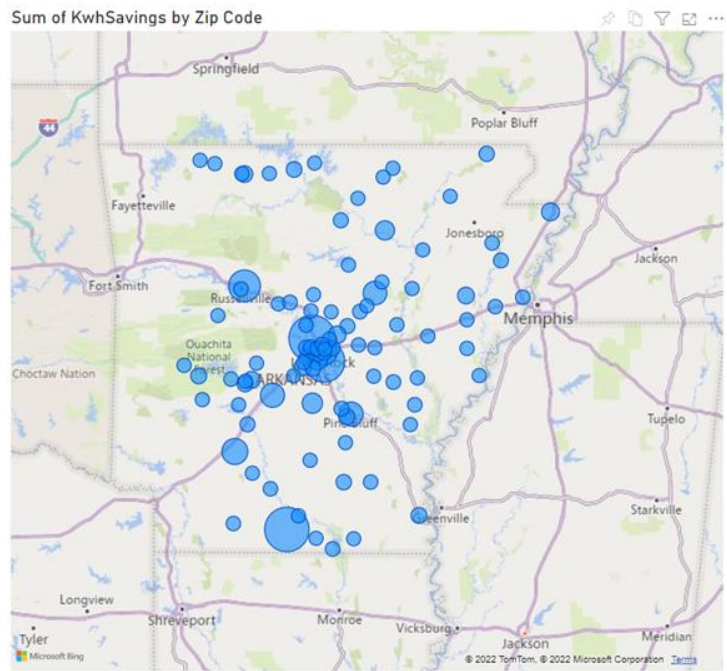


Figure 2.6.2.4

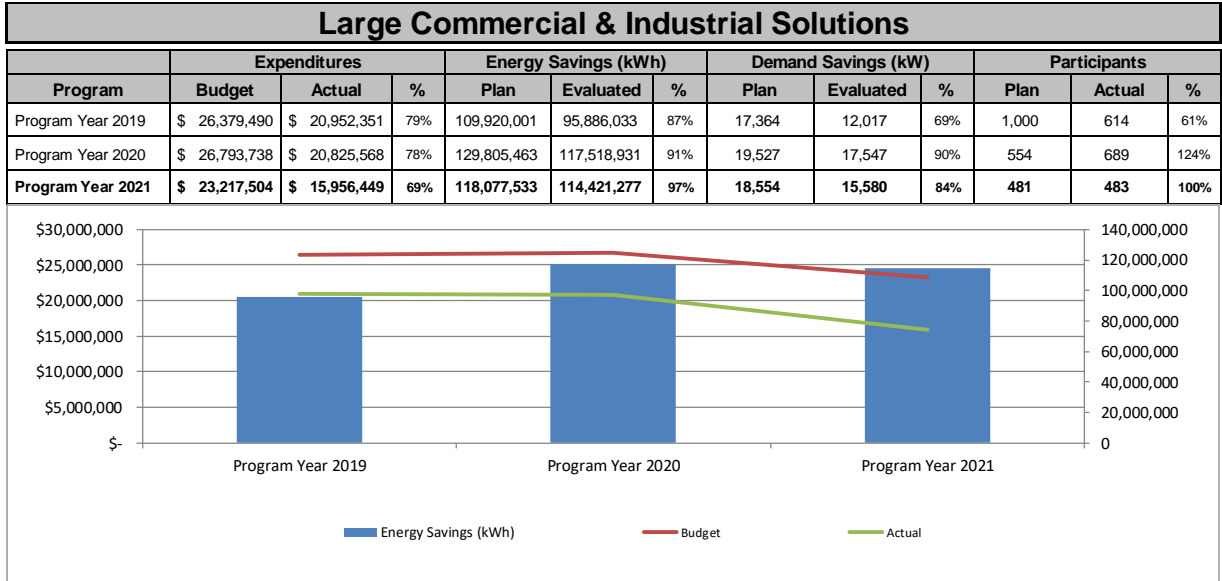
Distribution of Projects in Entergy Arkansas Service Area (Heat Map)



### 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 2021 Large C&I Program strived to deliver successful prescriptive and custom energy efficiency projects even during a challenging year. The challenges of COVID-19 impacted the program mainly from an increased project timeline perspective and capital funding availability. The program staff worked closely with customers impacted by the effects of COVID-19 to deliver contactless solutions through virtual audits, reduced inspections, and enhanced engineering calculations to limit the need for onsite logging. Though these efforts were mostly successful, the program experienced longer project lead times, material delays and some customers that could not participate due to economic impacts on their businesses as a result of COVID-19.

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 2021, 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 2021, 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 2021 trade allies in the network. Additionally, 63 different trade allies completed non-direct install projects in 2021. Figure 2.7.2.2 shows the approximate location of those projects.

Figure 2.7.2.1 Location of 2021 Trade Ally Home Offices

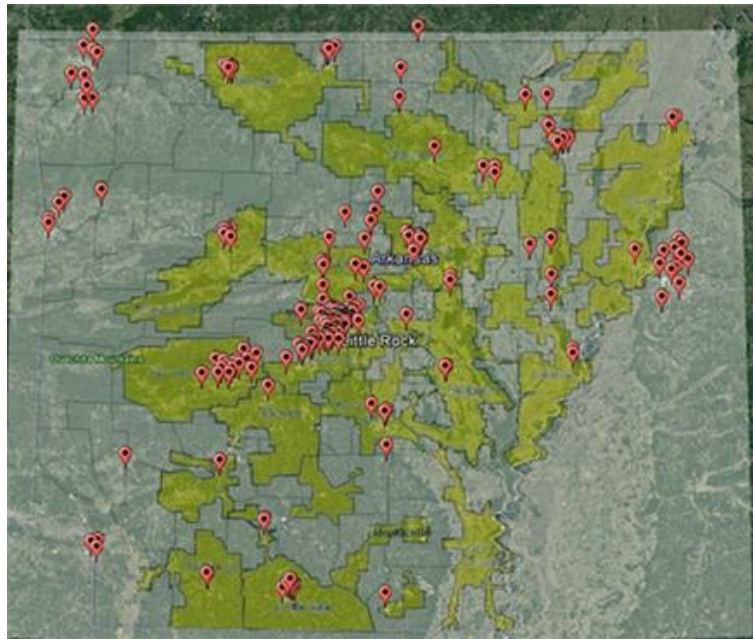


Figure 2.7.2.2 Distribution of Projects in Entergy Arkansas Service Area

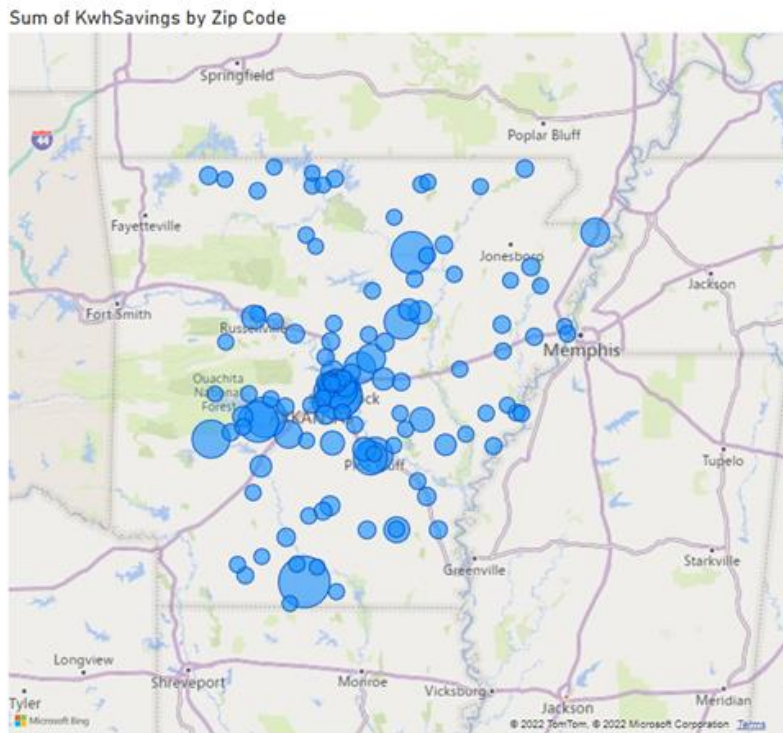


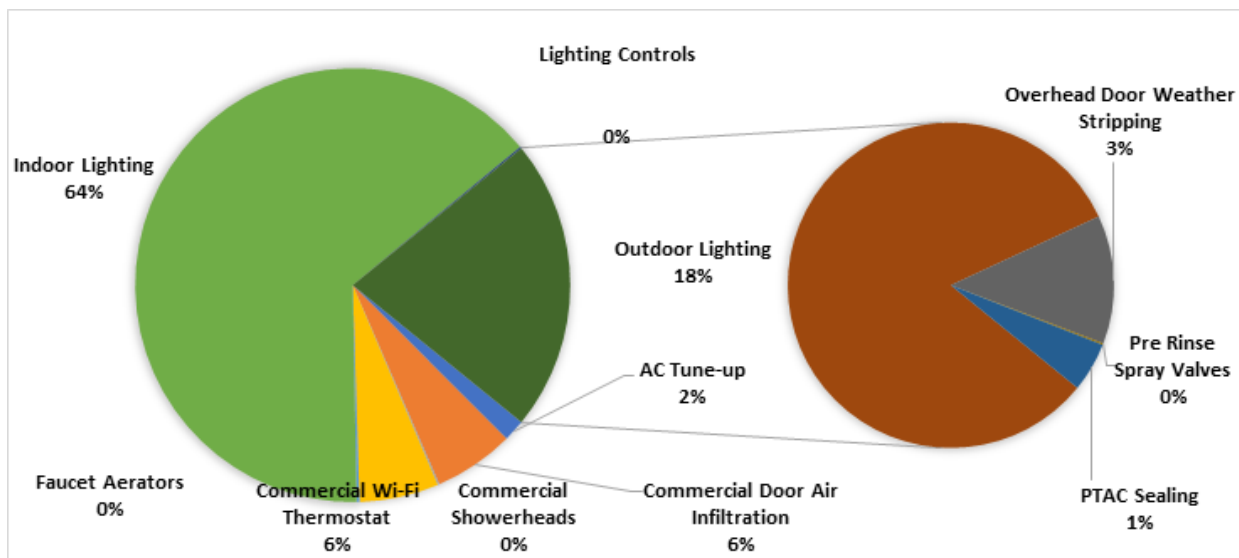
Table 2.7.2.3 represents 2021 Trade Ally achievement for non-direct install projects.

Table 2.7.2.3

	<b>% of Total Savings</b>	<b>% of Incentive Total</b>
<b>Trade Ally 1</b>	<b>50.48%</b>	<b>57.01%</b>
<b>Trade Ally 2</b>	<b>10.72%</b>	<b>11.91%</b>
<b>Trade Ally 3</b>	<b>4.30%</b>	<b>4.76%</b>
<b>Trade Ally 4</b>	<b>3.15%</b>	<b>1.72%</b>
<b>Trade Ally 5</b>	<b>2.95%</b>	<b>3.35%</b>
<b>Trade Ally 6</b>	<b>2.92%</b>	<b>3.23%</b>
<b>Trade Ally 7</b>	<b>2.45%</b>	<b>2.70%</b>
<b>Trade Ally 8</b>	<b>2.13%</b>	<b>1.44%</b>
<b>Trade Ally 9</b>	<b>0.89%</b>	<b>1.01%</b>
<b>Trade Ally 10</b>	<b>0.83%</b>	<b>0.94%</b>
<b>Trade Ally 11</b>	<b>0.74%</b>	<b>0.81%</b>
<b>Trade Ally 12</b>	<b>0.63%</b>	<b>0.57%</b>
<b>Trade Ally 13</b>	<b>0.60%</b>	<b>0.70%</b>
<b>Trade Ally 14</b>	<b>0.58%</b>	<b>0.40%</b>
<b>Trade Ally 15</b>	<b>0.56%</b>	<b>0.38%</b>
<b>Trade Ally 16</b>	<b>0.52%</b>	<b>0.59%</b>
<b>Trade Ally 17</b>	<b>0.52%</b>	<b>0.25%</b>
<b>Trade Ally 18</b>	<b>0.42%</b>	<b>0.47%</b>
<b>Trade Ally 19</b>	<b>0.39%</b>	<b>0.45%</b>

The Small Business Solutions Program had a filed savings target of 15,663 MWh for the 2021 program year. Small Business Solutions achieved 21,201 MWh in evaluated energy savings, which is 135% of the 2021 MWh savings goal. 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.

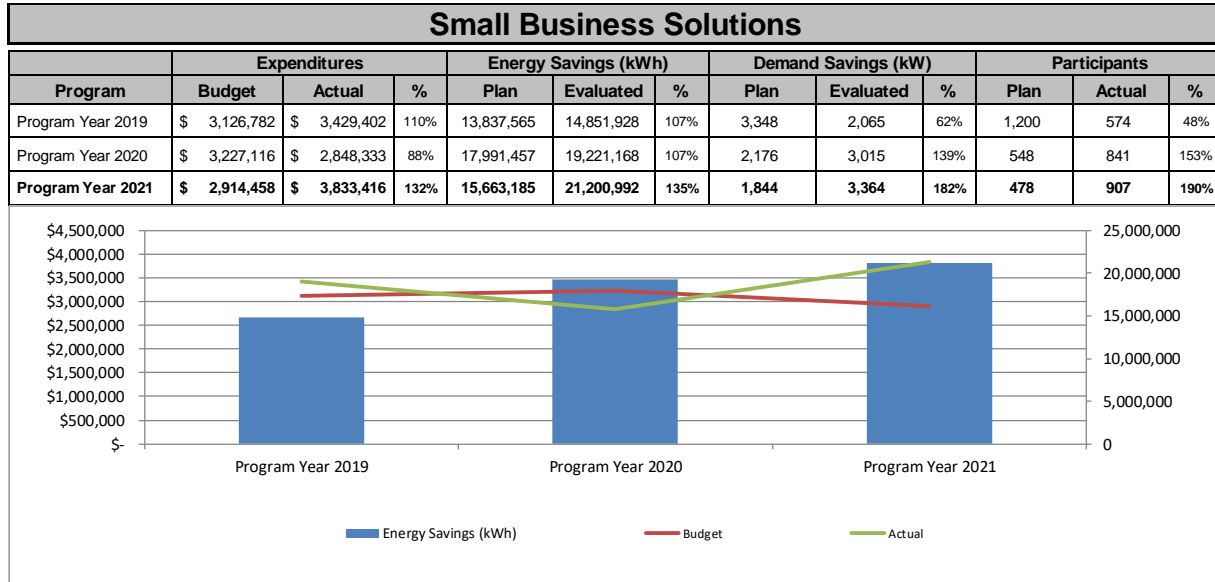
Figure 2.7.2.4  
Small Business Solutions Measure Mix (2021 kWh)



### 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 59 recruitment and training events in the 2021 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 in the above table. Implementation staff also estimated unique Small Business Solutions Program participants with multiple participating account numbers for reporting to be approximately 907.

## 2.7.5 Program Challenges and Opportunities

With market saturation increasing in 2021, 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 2021. 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 2021.

Impacts from COVID-19 were realized across the Entergy Arkansas portfolio of Entergy Solutions commercial programs in 2021. Program staff had challenges going onsite to health care and other facilities that had implemented access restrictions. This development affected the ability to conduct project verification and challenged QA/QC and EM&V processes to find ways to provide contactless inspections and data logging/audits. Some projects were cancelled or experienced major delays due to these facility restrictions and/or COVID-19 outbreaks making each project susceptible to unstable forecasting. Loss of capital expenditures for energy efficiency improvements along with limited material availability and shipment delays caused projects to be further delayed and/or cancelled. For example, as lower wattage fixtures became readily unavailable, some projects had to substitute for high wattage product causing reduced project savings. Outreach and community events were also cancelled.

Program staff navigated facility access restrictions to implement virtual assessment options through virtual tools and applications designed for contactless QA/QC activities and outreach efforts. Marketing efforts shifted to those facilities that remained open to circumvent participation barriers caused by COVID-19. Program staff worked with customers and the Trade Ally Network to install direct measures in available facilities at little to no additional cost. Contactless giveaway events were organized.

## 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.

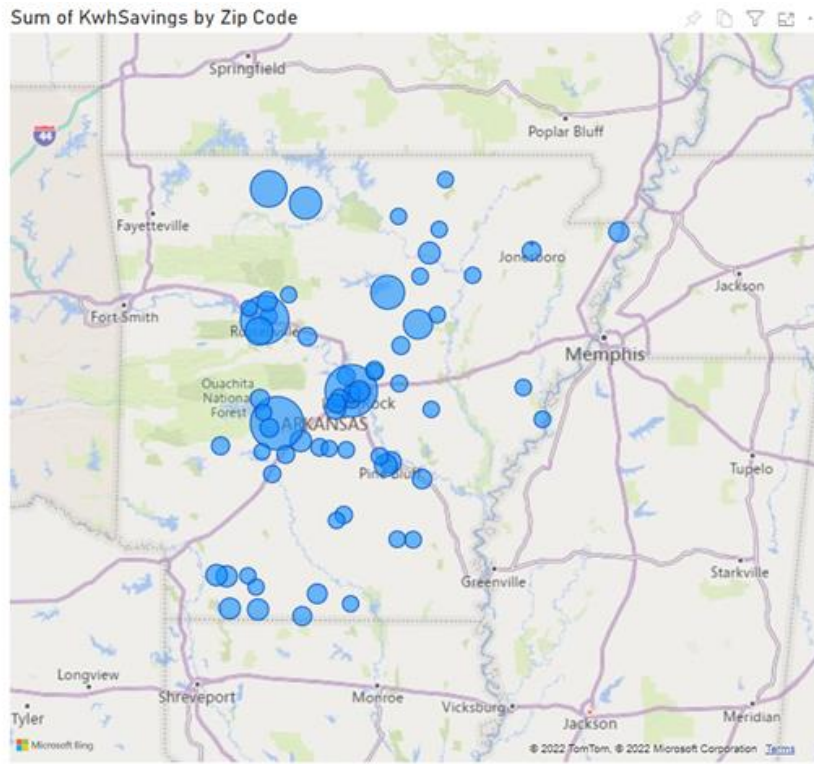
### 2.8.2 Program Highlights

- Public Institutions Solutions achieved 20,235 MWh in energy savings, which is 92% of the 2021 kWh savings goal.
- 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).



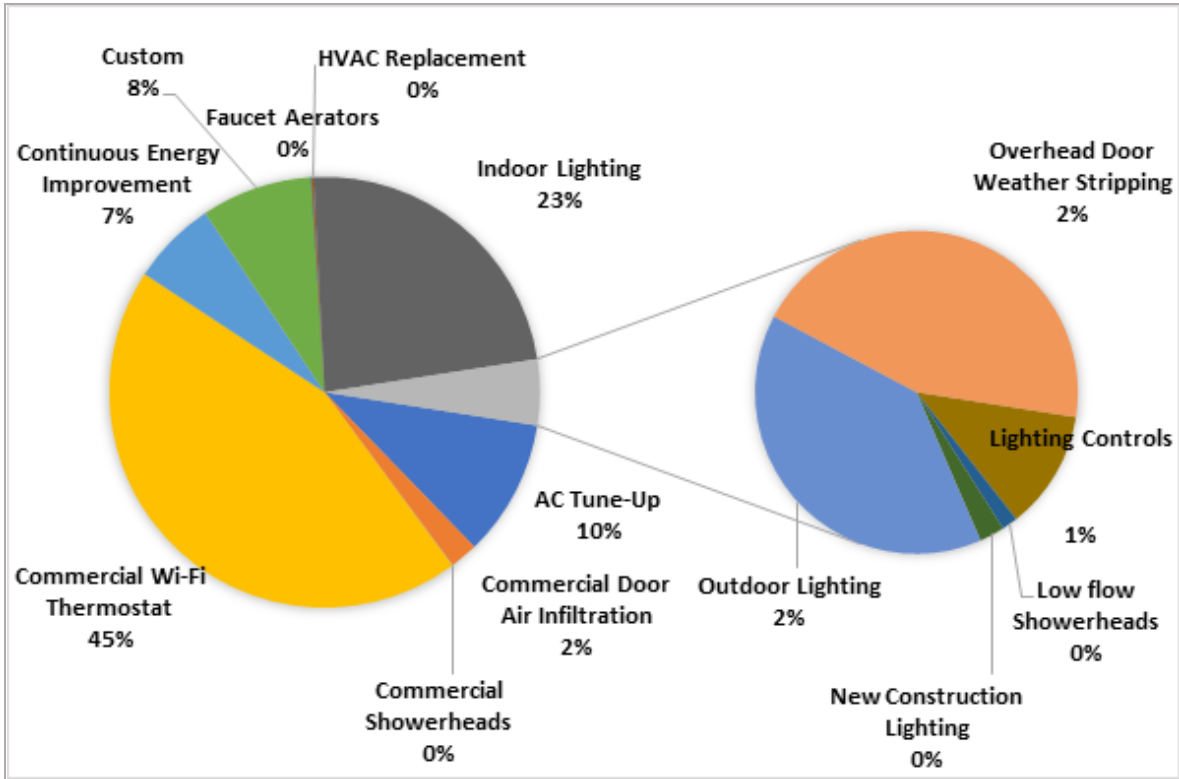
Figure 2.8.2.1

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



- Benchmarking and Energy Master Planning - The Public Institutions Solutions Program benchmarked 37 buildings 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 (2021 kWh)

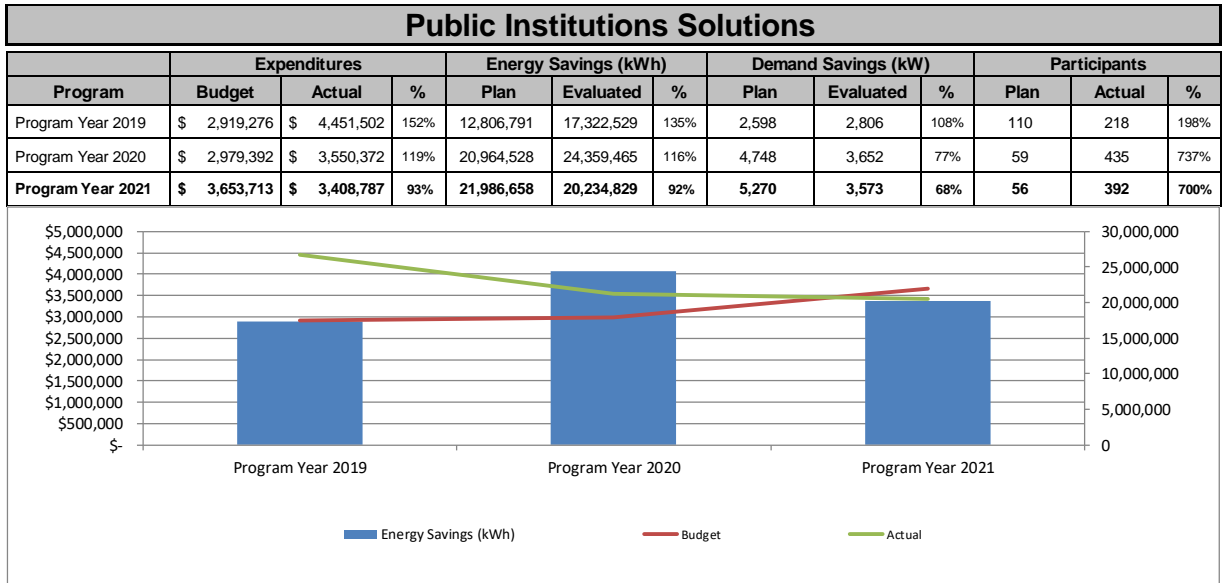


### 2.8.3 Program Budget, Savings and Participants

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 2021, the Public Institutions Solutions Program conducted Energy Master Planning Workshops for two customers and benchmarked 37 buildings. 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 in the above table. Implementation staff also estimated unique participants with multiple participating account numbers for reporting to be approximately 392.

#### 2.8.5 Program Challenges and Opportunities

The 2021 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 2021. Plans are currently underway to identify additional behavioral

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

Impacts from COVID-19 were realized across the Entergy Arkansas Public Institutions Solutions Program in 2021. Program staff had some challenges going onsite in some facilities, but many educational institutions allowed trade allies to work on-site due to campus closures. Outreach and community events were cancelled. Program staff navigated facility access restrictions to implement virtual assessment options through virtual tools and applications designed for contactless QA/QC activities and outreach efforts. Marketing efforts shifted to those facilities that remained open to circumvent participation barriers due to COVID-19. Program staff worked quickly with customers and the Trade Ally Network to install direct measures in available facilities at little to no additional cost. Contactless giveaway events were organized with employees of organizations.

#### 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 educations. 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 13,426 gross MWh in 2021 with a 100% realization rate and a net-to-gross ratio of 1.00, resulting in 13,426 MWh net energy savings.
  - Achieved 2.1 gross MW and 2.1 net MW savings in 2021 with a realization rate of 100%.
- A total of 8,251 measures were incentivized for 28 unique participants. In 2021, 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 2021 MWh savings. Trade ally outreach generated 57.14% of program participation totals, farmer-to-farmer referrals generated 39.29% of program participation and the Entergy Solutions website generated 3.57% of program participation. See Figure 2.9.2.2 for a geospatial map of farms that participated in the Agricultural Program in 2021.

Figure 2.9.2.1 Referrals 2021

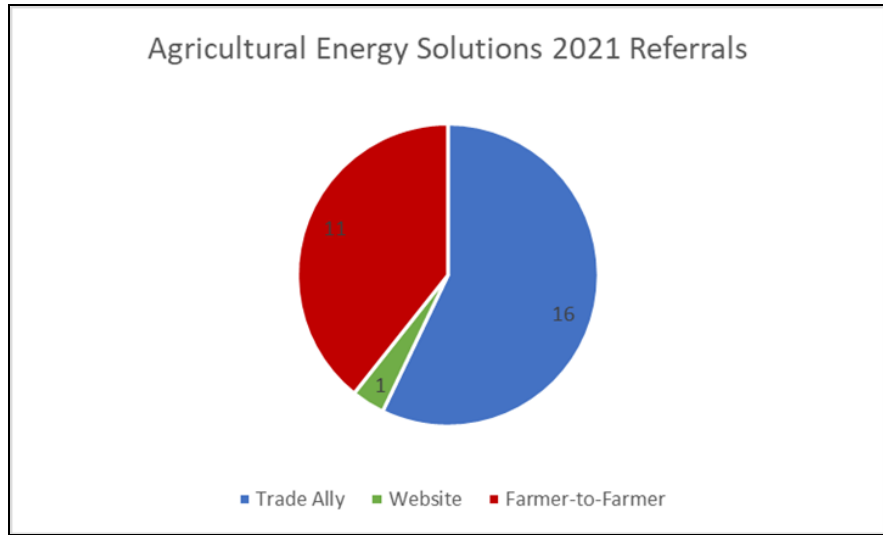
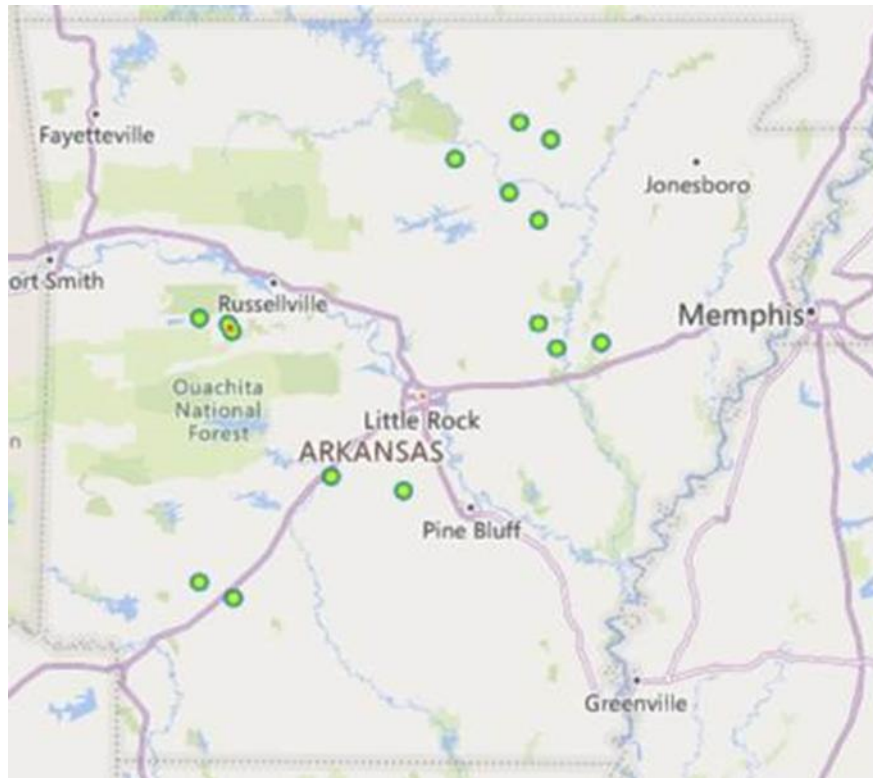


Figure 2.9.2.2 Geospatial Map 2021

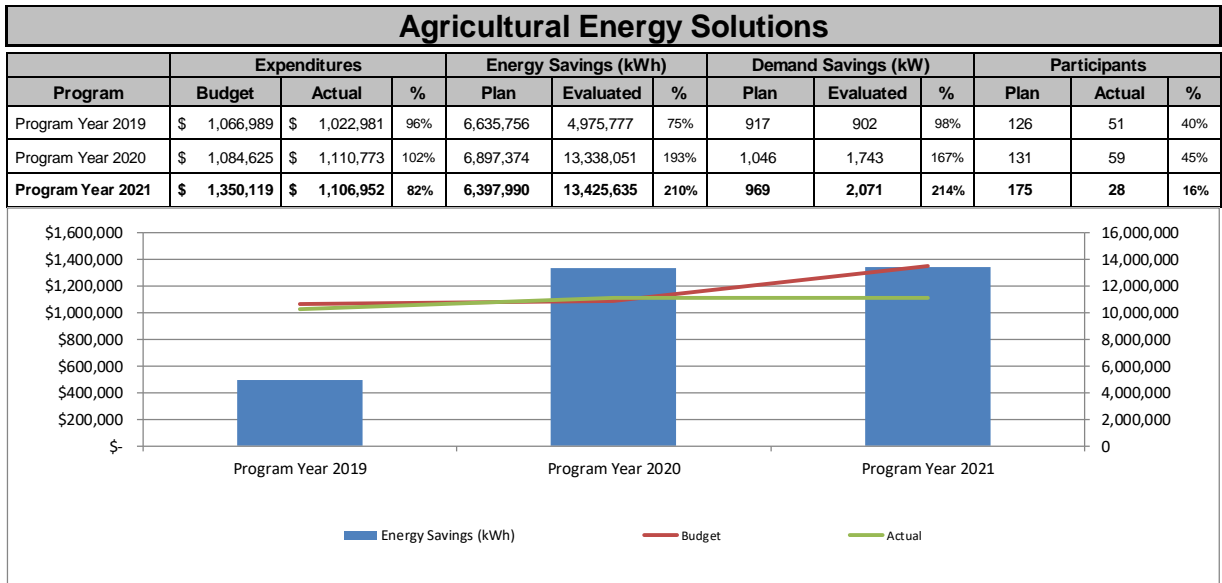


- In 2021, 28 applications were received. All 28 applications participated in Quality Control (QA/QC) with a pass rate of 100%. This consisted of 28 pre inspections and 28 post inspections. In 2021, Arkansas experienced historic flooding which severely impacted participation and completion of projects that were planned for the program year. This was the main contributor that prevented the program from achieving its MWh goal. Participation increased once flooding subsided and a large portion of savings slated to be captured in PY 2020 were captured in PY 2021.

### 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) that are agricultural business; and
- Large General Service (LGS) that are 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:

- Follow the guidance in Appendix F of the TRM, Table F4 for determining exterior lighting power density in the calculation methodology for new construction exterior lighting.

#### 2.9.6 Planned or Proposed Changes to Program and Budget

The Agricultural Energy Solutions Program will decrease its net energy savings goal by approximately 450 MWh in 2022. The incentive budget will increase by \$69,265 due a planned increase in non-lighting measure participation.

## *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

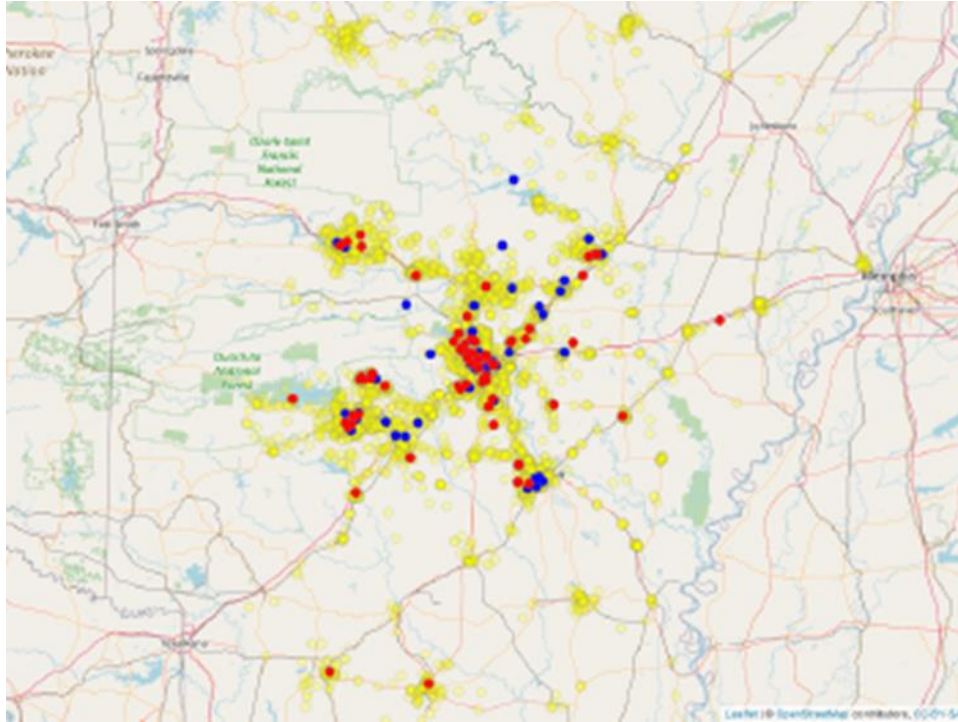
2021 was a very successful year for the Summer Advantage Program and included the following highlights:

- Demand savings results provided a 15-minute maximum of 18.3 MW of estimated net demand response load reduction during control season.
- In the 2021 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 1.03 kW/device. This reduction corresponds to the actual reduction as was obtained from the MISO baseline with weather adjustment method. This leads to 18.3 MW net demand response reduction based on the total installed end points of 17,455 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.
- Deployment was completed of the Itron CENTRON Monitoring and Verification system which 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:

Map 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 2021 Summer Advantage population installations, while the red (50% Curtailment strategy) and blue (75% Curtailment Strategy) circles represent the M&V sites.

Map 2.10.2  
Summer Advantage Participants



#### Independent Evaluator Reports

##### KEY FINDINGS:

- The 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 PY 2021, the Summer Advantage Direct Load Control program achieved 18.3 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 101.9 percent.

#### EM&V RECOMMENDATIONS:

- Consider estimating kWh savings for the Summer Advantage Program.
  - *Resolution:* Itron is using the contractually defined kW Factor measurement value: Demand Reduction stated in kilowatts (“kW”) per installed Control Device for End-use Equipment during the 15-minute interval with the greatest Demand Reduction under all M&V events.
- Summer Advantage does not have a kWh goal, but the EM&V team estimated a range of kWh savings from negative to positive across all events called during PY 2021. Program implementation calculation of kWh savings could yield improvements in the robustness of kWh savings models and inform any process improvements that could be needed to address snapback.

#### 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.
- Properties qualify for our Stranded Asset Recovery Program when devices have been installed under a previous resident but are no longer active due to the previous resident moving and a new owner taking over the equipment. These customers will receive an opt-out letter with information on how to unenroll from 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 2019	\$ 3,021,748	\$ 3,389,811	112%	0	0	-	32,000	17,572	55%	22,184	21,966	99%
Program Year 2020	\$ 2,996,660	\$ 2,655,984	89%	0	0	-	32,144	12,134	38%	19,720	19,946	101%
Program Year 2021	\$ 3,600,907	\$ 2,699,590	75%	0	0	-	30,536	18,328	60%	18,734	17,455	93%

Program Events & Training:

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

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

## Program Savings:

For the 2021 curtailment season, Entergy Arkansas called a total of three curtailment events including one test event on June 3. The results are shown in Table 2.7.3.2 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 1.03 kW/device. This reduction corresponds to the actual reduction as was obtained from the MISO baseline with weather adjustment method. This leads to 18.3 MW net demand response reduction based on the total installed end points of 17,455 throughout the Entergy Arkansas service area.

Table 2.10.3.2 - Summary of Curtailment Events

Date	Start Time (CDT)	End Time (CDT)	Temp (°F)	SMA Adjustment Factor*	Max Hourly SMA Adjustment Method Reduction (kW)	Max Hourly Weather Adjustment Reduction (kW)
06/03/21	14:00	15:00	81	1.01	0.26	0.32
06/18/21	14:00	16:00	90	1.54	0.60	0.66
07/29/21	14:00	15:00	95	1.20	0.88	1.03

\*SMA adjustment factor is limited to 80%-120% if it exceeds those bounds.

### 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

Since 2017, the implementation of this program has been reduced to basic O&M status without actively marketing for the replacement of lost endpoint. There will be a possible increase to



cost effectiveness of the current Summer Advantage Program by using Entergy AMI data for M&V load calculations in 2023.

#### 2.10.6 Planned or Proposed Changes to Program and Budget

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 3,725 gross MWh savings in 2021 with a 98.8% realization rate and a net-to-gross ratio of 87.4%; this resulted in 3,216 MWh net energy savings.

- For the 2021 curtailment season, there were a total of seven curtailment events for the total population; this includes a test event on June 1. The curtailment strategies used were temperature rises up to four degrees and a pre-cool of negative two degrees.

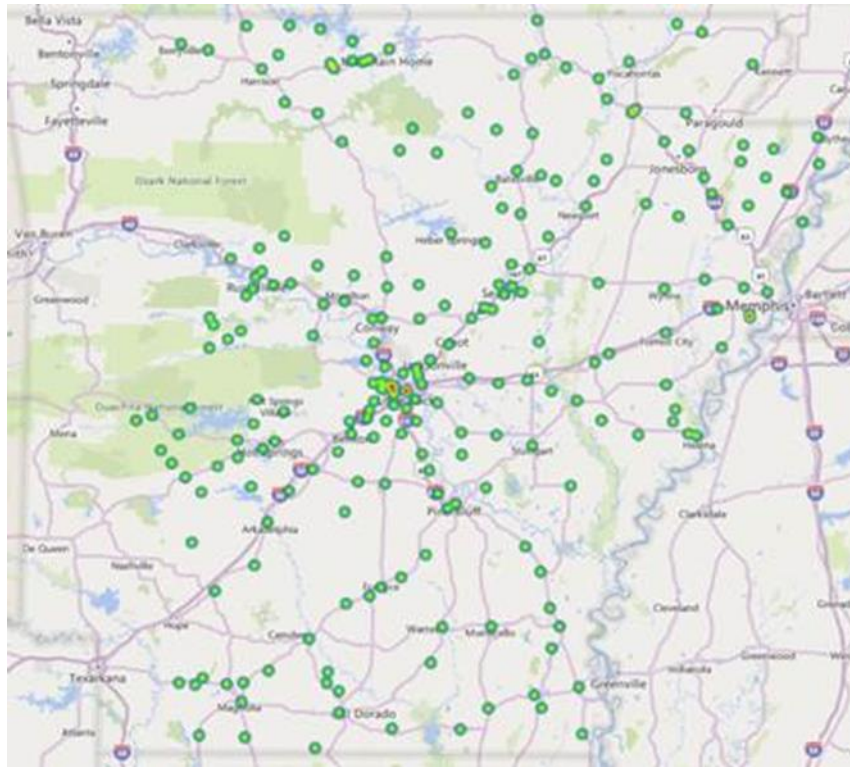
Further event details can be found in figure 2.11.2.1.

Figure 2.11.2.1

<b>Date</b>	<b>Start time (CST)</b>	<b>End time (CST)</b>	<b>Participating thermostats</b>	<b>Event type</b>
<b>06/03/2021</b>	<b>13:00</b>	<b>14:00</b>	<b>2,024</b>	<b>Test event</b>
<b>06/18/2021</b>	<b>14:00</b>	<b>16:00</b>	<b>2,098</b>	<b>Normal event</b>
<b>07/29/2021</b>	<b>14:00</b>	<b>15:00</b>	<b>2,468</b>	<b>Normal event</b>
<b>08/10/2021</b>	<b>15:00</b>	<b>16:00</b>	<b>2,409</b>	<b>Normal event</b>
<b>08/12/2021</b>	<b>15:00</b>	<b>16:00</b>	<b>2,527</b>	<b>Normal event</b>
<b>08/24/2021</b>	<b>13:00</b>	<b>15:00</b>	<b>2,651</b>	<b>Normal event</b>
<b>08/26/2021</b>	<b>14:00</b>	<b>16:00</b>	<b>2,802</b>	<b>Normal event</b>

- In 2021, the Smart Direct Load Control Pilot Program implemented successful marketing efforts, such as emails, and media campaigns.
- Of the 2,346 total newly enrolled thermostats (2,231 unique participants) in 2021, 809 projects (27%) went through the program's field QA/QC process.
- There were 151 M&V Devices installed. These devices will be used to validate the load reduction for each conservation event.
- In 2021, there were 3,632 enrolled thermostats. This includes enrollments from the 2020 and 2021 program year. Figure 2.11.2.2 represents new customer participating locations within Entergy Arkansas service territory.

Figure 2.11.2.2



Detailed 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 [enteryarkansas.com/thermostat](http://enteryarkansas.com/thermostat).

Customers that qualify for a no-additional-cost installation may choose between receiving a professionally installed thermostat or a direct-ship self-install 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 up to \$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.

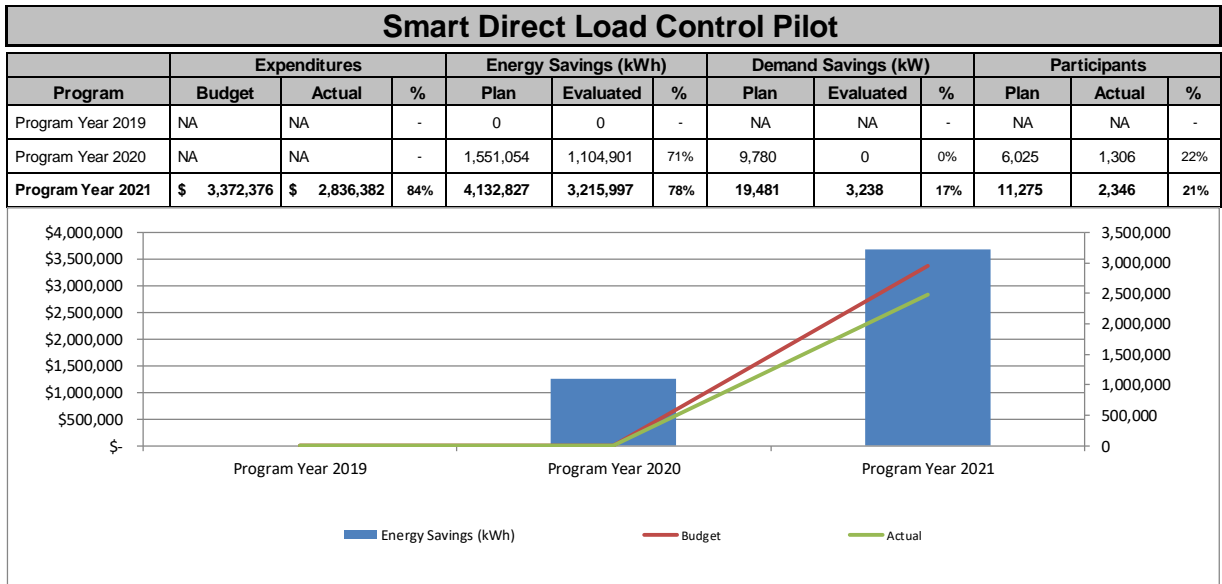
Conservation periods will occur from June 1 through Sept. 30 on non-holiday weekdays (Monday-Friday), noon to 7 p.m. Central Standard Time. Conservation periods will last approximately four hours in any single day and occur for no more than three consecutive days in any one program season (June to September). 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<sub>33</sub> 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 2021 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 2022.

EM&V Recommendations:

- Provide data on opt-outs, by event.
- Estimate demand savings after each event during the season.

#### 2.11.6 Planned or Proposed Changes to Program and Budget

For 2021, the program will increase its annual MWh savings by 840 MWh. The program's implementation and incentive budget will increase to account for the increased planned MWh savings.

## 2.12 Agricultural Irrigation Load Control Program

### 2.12.1 Program Description

Entergy Arkansas' Agricultural Irrigation Load Control 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 2021 is the twelfth year of the Agricultural Irrigation Load Control Program plan. The 2021 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.<sup>18</sup> 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 the 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
*Incentive void if customer actions interfere with event. Minimum of 64 run-time hours is required during summer months to receive incentive.									

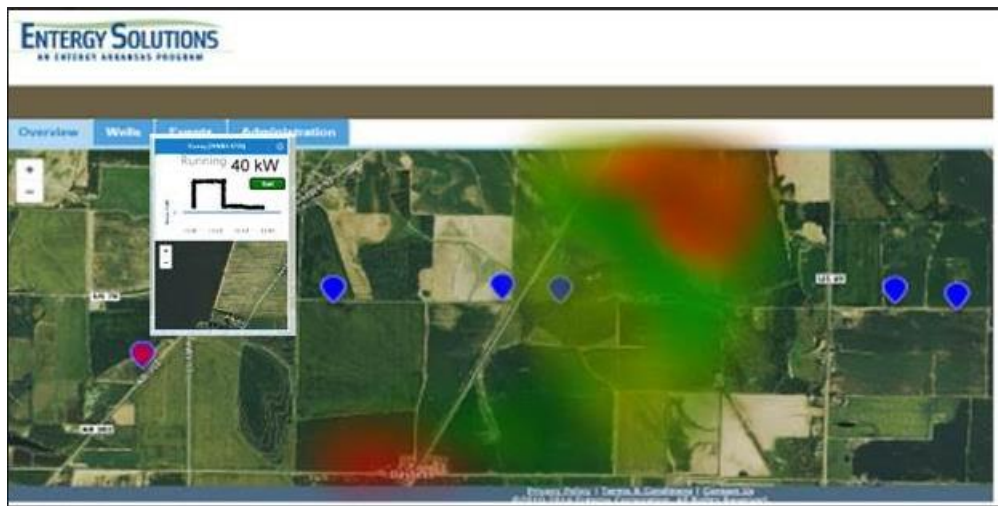
<sup>18</sup> BPL Global, LLC does business as Connected Energy.



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



176 new pump installations and 175 LTE device conversions were completed in 2021. In addition to the 2021 installations and LTE conversions, Connected Energy maintained and managed over 3,300 previously installed well locations from 2014 through 2020. In 2021, the Agricultural Irrigation Load Control Program was registered for an eighth year as a Midcontinent Independent System Operator Load Modifying Resource. The 2021 Agricultural Irrigation Load Control Program demand reduction target was 44.1 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 2021 plan of 176 new installations and 175 LTE device conversions.
- Software: Entergy Arkansas successfully executed 4 irrigation load management events in 2021 utilizing the Connected Energy-hosted CNRG-Demand Management and Farmer Portal solutions as the sole operating system.
- Maintenance: Connected Energy completed 114 field maintenance actions to ensure that the overall system performed as required.
- Technology: Connected Energy continued to integrate 4G/LTE Verizon Wireless communications during all new installation, conversion, and maintenance activities in 2021 due to the anticipated retirement of the Verizon 3G network by 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

Agricultural Irrigation Load Control												
Program	Expenditures			Energy Savings (kWh)			Demand Savings (kW)			Participants		
	Budget	Actual	%	Plan	Evaluated	%	Plan	Evaluated	%	Plan	Actual	%
Program Year 2019	\$ 3,182,606	\$ 3,423,836	108%	0	0	-	36,000	11,690	32%	1,271	1,403	110%
Program Year 2020	\$ 3,272,606	\$ 3,096,751	95%	0	0	-	36,608	18,661	51%	1,372	1,743	127%
Program Year 2021	\$ 3,793,765	\$ 3,532,255	93%	0	0	-	44,132	22,320	51%	1,654	1,166	70%

Year	Budget	Actual	Energy Savings (kWh)
2019	3,182,606	3,423,836	0
2020	3,272,606	3,096,751	0
2021	3,793,765	3,532,255	0

#### Program Events & Training:

- Connected Energy continued to participate in irrigation and farming events in 2021 including the Arkansas Soil and Water Education Conference (virtual) in January 2021.
- AILC device installation and maintenance training was provided to our installation subcontractors on April 21, 2021 and May 3, 2021. 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.
- An Agricultural Irrigation Load Control program training overview was updated and presented virtually to Entergy Arkansas regional service centers in 2021 via WebEx

(due to COVID-19 restrictions) and included a general history of the program to include yearly device deployment numbers, program participant benefits and incentives, and system operation/curtailment use cases. Additional topics of review included AILC device installation and field bypass procedures and the INIL ticket reporting processes. During this training, a general history of the Entergy Arkansas' Agricultural Irrigation Load Control Program was presented to update Entergy Arkansas field personnel with information pertaining to the program device deployment numbers, participant benefits, incentives, system operation and curtailment use cases.

- Additional topics covered included Agricultural Irrigation Load Control device installation, bypass procedures, field trouble communications and reporting processes. This information was delivered to aid and guide field personnel on appropriate actions should they encounter Agricultural Irrigation Load Control field equipment.

#### Program Savings:

There were no deemed savings in this program because it is a load control program. On July 8, 2021, a peak load of 24.51 MW was available on the system for curtailment, representing a load increase of 9.13% over 2020.

On Aug. 11, 2021, an evaluated interrupted load of 22.3 MW was curtailed with 1,143 wells reporting as curtailable with 99.2% (total base of 1,152 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 2021 evaluations.

In PY 2021, the AILC program responded to four load control events totaling 5 curtailment hours. The first of the events was a test event (June 3), used to verify equipment operability and verify M&V data collections, while the other 3 events occurring on June 18, July 29 and August 11 were used to reduce loads during the event hour. A total of five event hours occurred. The June 3, July 29, and August 11 events were each one hour in duration while the June 18 event lasted 2 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.<sup>19</sup>

#### 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 with an Entergy Arkansas retiree 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 9.13% between 2020 and 2021.
- AILC farmer renewal accounts made up the majority of new seasonal enrollments in 2021.
- Some AILC program participants misplace or delay depositing seasonal incentive checks beyond the 90-Day timeframe after which the checks may become void and have to be reissued.
- Face to Face events with program stakeholders remained a challenge during 2021 due to the COVID-19 pandemic.
- Warm and dry weather conditions during June 2021 increased irrigation pumping and system load resulting in a cost overrun for planned AILC program incentives in 2021 for the 2<sup>nd</sup> consecutive year.
- No COVID-19 related hardware delays are anticipated in 2022. We will continue to follow the CDC guidelines for the prevention of the spread of COVID-19 through the use of masks, social distancing and proper hand washing with our deployed field staffing.
- Sunsetting of Verizon Wireless 3G network by December 31, 2022 increases the need for additional LTE device conversions in 2022 and 2023 to ensure maximum curtailable

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<sup>19</sup> PY2021 Agricultural Irrigation Load Control Program Impact Evaluation Results, Tetra Tech, 15 Jan 2022.

load.

Program Outlook for Continuation, Expansion, Reduction or Termination:

2022 recruiting: Connected Energy will continue to concentrate on capturing new pump enrollments in 2022 from existing program participants and the prioritization of larger motor well pump locations during new program enrollments 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 during 2022 and 2023 will include the LTE device conversion of all remaining Verizon 3G devices due to the planned sunsetting of Verizon wireless 3G network by 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.
- For more information about this program please see the EEA report as filed by the Arkansas Energy Office on April 29, 2022 in Docket No. 07-083-TF.

## 3.0 Supplemental Requirements

### *3.1 Staffing*

The 2021 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, they bring knowledge and experience in customer service, market planning, product development, construction and transmission project experience, transmission planning, accounting 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. The staff includes a certified energy auditor that also holds his 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, 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 2021 SARP tabular report.



## EXTERNAL TRAININGS

Event No.	Start Date	Class
1.	1/3/2021	Retail Store Training
2.	1/3/2021	One on One Meetings
3.	1/27/2021	Arkansas Soil and Water Education Conference (Virtual)
4.	1/31/2021	Smart DLC Training
5.	2/1/2021	Retail Store Training
6.	2/2/2021	Comm Trade Ally Trainings
7.	2/2/2021	One on One Meetings
8.	2/9/2021	LIS TA Training
9.	2/12/2021	Trade Ally
10.	2/15/2021	Trade Ally
11.	2/16/2021	LIS H&S Training
12.	2/18/2021	Trade Ally
13.	2/18/2021	HES/LIS/MA/MF/SDLC Customer Service Training
14.	2/19/2021	LIS H&S Training
15.	2/19/2021	LIS H&S Training
16.	2/23/2021	Trade Ally
17.	2/24/2021	HES/LIS/MA/MF Field Tool Training
18.	2/25/2021	LIS H&S Training
19.	3/1/2021	Retail Store Training
20.	3/1/2021	One on One Meetings
21.	3/1/2021	LIS H&S Training
22.	3/1/2021	LIS H&S Training
23.	3/2/2021	Trade Ally
24.	3/2/2021	Trade Ally
25.	3/2/2021	Comm Trade Ally Trainings
26.	3/3/2021	Trade Ally
27.	3/3/2021	Trade Ally
28.	3/3/2021	LIS H&S Training
29.	3/4/2021	LIS Field tool training
30.	3/5/2021	LIS H&S Training
31.	3/8/2021	LIS H&S Training
32.	3/8/2021	LIS H&S Training
33.	3/9/2021	Trade Ally
34.	3/9/2021	LIS H&S Training
35.	3/9/2021	Energy Efficiency 101
36.	3/10/2021	Trade Ally
37.	3/10/2021	LIS H&S Training
38.	3/12/2021	LIS H&S Training

39.	3/12/2021	LIS H&S Training
40.	3/16/2021	Trade Ally
41.	3/16/2021	Energy Efficiency 101
42.	3/17/2021	Trade Ally
43.	3/22/2021	Darryl McCauley
44.	3/24/2021	Utility Program Services
45.	3/25/2021	Trade Ally
46.	3/25/2021	Trade Ally
47.	3/26/2021	Trade Ally
48.	3/30/2021	Trade Ally
49.	3/30/2021	Trade Ally
50.	3/31/2021	One on One Meetings - Trade Ally Training
51.	4/1/2021	Retail Store Training
52.	4/1/2021	One on One Meetings
53.	4/2/2021	Comm Trade Ally Trainings
54.	4/2/2021	LIS TA Training & H&S Training
55.	4/5/2021	LIS H&S Training
56.	4/7/2021	HES/LIS/MA/MF Field Tool Training
57.	4/7/2021	Seasonal AILC program update to Entergy NE and SE Service Centers
58.	4/14/2021	Trade Ally
59.	4/16/2021	Trade Ally
60.	4/16/2021	Home Energy Solutions Field tool Training
61.	4/21/2021	AILC Field Operations - Device Installation, maintenance, troubleshooting, safety
62.	4/28/2021	Trade Ally
63.	5/1/2021	Retail Store Training
64.	5/1/2021	One on One Meetings
65.	5/2/2021	Comm Trade Ally Trainings
66.	5/3/2021	AILC Field Operations - Device Installation, maintenance, troubleshooting, safety
67.	5/11/2021	Trade Ally
68.	5/13/2021	Trade Ally
69.	5/13/2021	Trade Ally
70.	5/18/2021	Trade Ally
71.	6/1/2021	Retail Store Training
72.	6/1/2021	One on One Meetings
73.	6/1/2021	One on One Meetings - Trade Ally Training
74.	6/2/2021	Comm Trade Ally Trainings
75.	6/4/2021	HES/LIS/MA/MF Field Tool Training
76.	6/10/2021	Trade Ally
77.	6/10/2021	Trade Ally
78.	6/11/2021	Trade Ally
79.	6/17/2021	Trade Ally
80.	6/18/2021	Trade Ally

81.	6/28/2021	Trade Ally
82.	6/30/2021	Trade Ally
83.	6/30/2021	HES/LIS/MA/MF Field Tool Training
84.	7/1/2021	Trade Ally
85.	7/1/2021	Retail Store Training
86.	7/1/2021	One on One Meetings
87.	7/2/2021	Comm Trade Ally Trainings
88.	7/6/2021	HVAC Professionals CE
89.	7/15/2021	Trade Ally
90.	7/20/2021	Trade Ally
91.	8/1/2021	Retail Store Training
92.	8/1/2021	One on One Meetings
93.	8/1/2021	One on One Meetings - Trade Ally Training
94.	8/2/2021	Comm Trade Ally Trainings
95.	8/4/2021	Trade Ally
96.	8/12/2021	Trade Ally
97.	8/18/2021	Trade Ally
98.	8/19/2021	Customer Service Training
99.	8/26/2021	Trade Ally
100.	8/27/2021	Trade Ally
101.	9/1/2021	Trade Ally
102.	9/1/2021	Retail Store Training
103.	9/1/2021	Comm Trade Ally Trainings
104.	9/1/2021	One on One Meetings
105.	9/1/2021	One on One Meetings - Trade Ally Training
106.	9/8/2021	Trade Ally
107.	9/14/2021	Robert Irby, Trade Ally
108.	9/14/2021	CLEAResult Energy Forum
109.	9/14/2021	HES/LIS/MA/MF/SDLC Customer Service Training
110.	9/16/2021	HES/LIS/MA/MF/SDLC Customer Service Training
111.	9/17/2021	Trade Ally
112.	9/20/2021	Trade Ally
113.	9/28/2021	Trade Ally
114.	9/28/2021	Trade Ally
115.	9/29/2021	International Mechanical Code Updates
116.	10/1/2021	Retail Store Training
117.	10/1/2021	One on One Meetings
118.	10/1/2021	HES/LIS/MA/MF Field Tool Training
119.	10/13/2021	Trade Ally
120.	10/13/2021	Trade Ally
121.	10/15/2021	Trade Ally
122.	10/15/2021	Trade Ally
123.	10/21/2021	Trade Ally
124.	10/26/2021	Trade Ally

125.	10/27/2021	2021 AILC Lessons Learned Meeting
126.	10/29/2021	Trade Ally
127.	11/1/2021	Retail Store Training
128.	11/1/2021	One on One Meetings
129.	11/2/2021	Comm Trade Ally Trainings
130.	11/12/2021	Trade Ally
131.	11/18/2021	Trade Ally
132.	11/30/2021	Trade Ally
133.	11/30/2021	Trade Ally
134.	12/1/2021	Retail Store Training
135.	12/1/2021	One on One Meetings
136.	12/7/2021	Trade Ally
137.	12/13/2021	Trade Ally
138.	12/16/2021	2022 Trade Ally Kick off
139.	12/16/2021	HES/LIS/MA/MF/SDLC Customer Service Training
140.	12/16/2021	HES/LIS/MA/MF Field Tool Training
<b>TOTAL: 140 Trainings</b>		

## INTERNAL TRAININGS

Event No.	Start Date	Class
1.	1/2/2021	FERC Standards of Conduct and Affiliate Restrictions Training
2.	1/2/2021	Email Security
3.	1/2/2021	Non-Nuc Contract Manager Module 1
4.	1/12/2021	ENERGY STAR Partner Spotlight
5.	1/22/2021	Virtual Tools - Stream 101
6.	2/3/2022	2021 State Transportation Electrification Scorecard
7.	2/4/2022	ENERGY STAR webinar
8.	2/26/2022	ENERGY STAR HPWH training
9.	3/1/2021	AESP
10.	3/8/2021	Phishing training 2019 Nov Credential Phishing Training
11.	3/8/2021	Avoid Credential Emails Video
12.	3/8/2021	Introduction to Continuous Improvement
13.	3/10/2021	Anticompetitive Behavior
14.	3/22/2021	Developing a Continuous Improvement Mindset
15.	3/22/2021	Pandemic Awareness
16.	3/27/2021	Phishing 2020 Feb Link Training
17.	3/31/2021	S_Invoice_Verifier_Acknowledge
18.	3/31/2021	Course Code Invoice Verifier WBT FIN
19.	4/16/2021	BPI Healthy Housing Principles Exam
20.	5/4/2021	Smart Meters and EE

21.	5/4/2021	Smart Meters and EE
22.	5/4/2021	URL Training
23.	5/4/2021	Workplace Violence Prevention
24.	5/5/2021	Managing Energy Records
25.	5/19/2021	Introduction to Customer Centricity
26.	5/19/2021	Code of Entegrity Acknowledgement Process
27.	5/28/2021	Discrimination and Harassment Prevention
28.	5/28/2021	Incident Response 101
29.	6/1/2021	General Ethics
30.	6/8/2021	Contractor Safety Management 1
31.	6/10/2021	Procurement
32.	7/13/2021	Understanding the Building Envelope Systems Impact on Energy Consumption
33.	7/13/2021	Understanding the Building Envelope Systems Impact on Energy Consumption
34.	7/13/2021	Leveraging the Continuous Improvement Toolkit
35.	7/13/2021	Heat Exhaustion Prevention
36.	7/26/2021	Energy Star Smart Thermostats
37.	7/27/2021	Corporate Risk Control Standards
38.	8/23/2021	S-Supply Chain_Diversity_CBT_2020
39.	8/23/2021	COVID-19 Exposure Control Guidelines
40.	8/23/2021	AirsWeb SCL Update
41.	8/24/2021	Bloodborne Pathogens
42.	8/26/2021	SCL Model
43.	9/8/2021	Hazard Communications
44.	9/9/2021	S-CIP-013_CBT
45.	9/9/2021	Insider Threat Awareness
46.	9/9/2021	Compliance Culture Training
47.	9/9/2021	Navigating PDCA in the Workplace
48.	9/9/2021	HUMM 1: How Utilities Make Money Overview
49.	9/9/2021	HUMM 2: How a Competitive Company Makes Money
50.	9/9/2021	HUMM 3: How and Why Utilities are Regulated
51.	9/9/2021	HUMM 4: Business Basics for Regulated Utilities
52.	9/10/2021	HUMM 5: Ratemaking
53.	9/10/2021	HUMM 6: Earnings
54.	9/11/2021	GRID MOD 101
55.	9/20/2021	Certified Energy Manager Training
56.	9/21/2021	Energy Thought Summit
57.	9/21/2021	Energy Thought Summit
58.	9/21/2021	Energy Thought Summit
59.	9/22/2021	Workflow Overview Video
60.	9/22/2021	GRID MOD 102
61.	9/22/2021	Non-Nuc Contract Manager Module 2
62.	9/23/2021	GRID MOD 102

63.	9/28/2021	ENERGY STAR 2022 Product Promotions Kick-off
64.	9/29/2021	Maximo Application Tour
65.	10/11/2021	Building Energy Professional
66.	10/13/2021	ENERGY STAR Home Upgrade: An Overview
67.	10/14/2021	AAEA conference
68.	10/18/2021	ACAAA Conference
69.	10/19/2021	Logistics 101
70.	10/19/2022	AEE World Conference
71.	10/26/2021	Stop Initiative Training Refresher
72.	11/8/2021	ENERGY STAR Partner meetings
73.	11/9/2021	ENERGY STAR Partner meetings
74.	11/9/2021	Excel Pivot Tables and Charts
75.	11/10/2021	ENERGY STAR Partner meetings
76.	11/11/2021	ENERGY STAR Partner meetings
77.	11/13/2021	Protection of Information
78.	11/23/2021	Basic Code Block Training
79.	12/1/2021	Heat Pump Water Heater training
80.	12/1/2021	BPI Building Analyst Training
<b>Total: 80 Trainings</b>		

### 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**  
**2021 PROGRAM YEAR**  
**April 29, 2022**

**Appendix A**

EM&V Report for Entergy Arkansas, LLC Annual Report



# Evaluation Report—Program Year 2021



April 29, 2022



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## ACKNOWLEDGEMENTS

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We want to acknowledge the many individuals who contributed to the evaluation, measurement, and verification (EM&V) of the program year 2021. 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 Santiago Asimbaya, Beau Blankenship, Heather Hendrickson, Denice Jeter, and Gabe Munoz. 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, 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	Residential sector, demand response and non-energy benefits lead
	Kendra Mueller	Commercial sector lead
	Carrie Koenig	Process and net-to-gross lead
	Katie Jakober and Holly Farah	Program leads
	Theresa Holmes	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	Design Lights 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
PTAC	Packaged Terminal Air Conditioners
PTHP	Packaged Terminal Heat Pumps



Acronym/abbreviation	Term
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) 2021 (PY2021), 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 285,765 megawatt-hours (MWh) and demand reduction target of 150 megawatts (MW)<sup>1</sup>;
- 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)<sup>2</sup>; and
- deliver the consistent weatherization approach (CWA) through its residential programs.

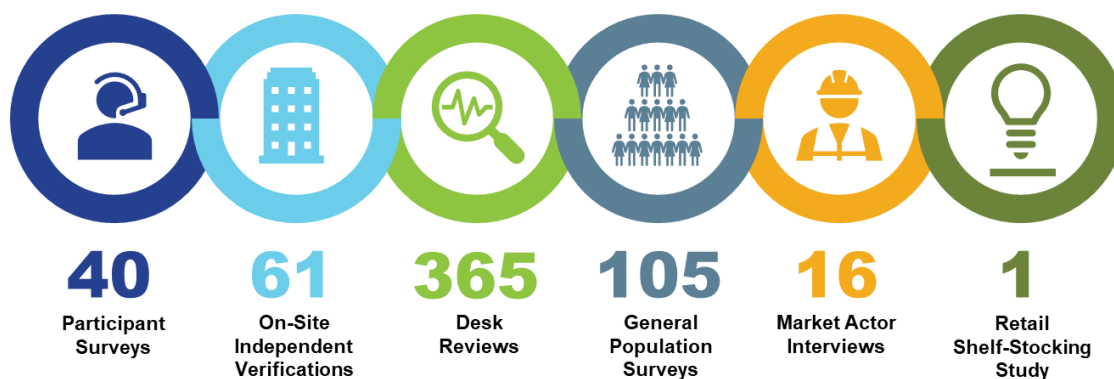
EAL selected an independent, third-party evaluation contractor under APSC Rules for Conservation and Energy Efficiency Programs (C&EE Rules). EAL selected Tetra Tech as its evaluation, measurement, and verification (EM&V) contractor. The PY2021 EAL evaluation included impact and process analyses specified in the APSC rules and follows the Arkansas Technical Reference Manual (TRM) Version 8.2 Volume 1 protocols and savings algorithms. Figure highlights the primary evaluation activities. The independent evaluation monitor (IEM) reviews and provides feedback on Tetra Tech's evaluation plans.

The PY2021 Evaluation Plan<sup>3</sup> 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 365 desk reviews and 61 on-sites. 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  $\pm 10$  percent (the reader is referred to the Technical Appendix for precision calculations by the program). Only three programs had process evaluations completed for this evaluation period. A total of 40 participant surveys and 105 general population surveys were completed to support those efforts. The EM&V's 16 completed market actor interviews exceeded the planning target of 15. Also included in this evaluation year was a retailer shelf-stocking study where the EM&V team visited 13 different stores to assess lighting prices and options.

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

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

<sup>3</sup> Entergy Arkansas, LLC Program Year 2021 Evaluation Plan, Tetra Tech, August 2021.

**Figure 1. Highlights of the PY2021 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 8.2 is correctly applied to calculate savings<sup>4</sup> 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  $\pm 10$  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–PY2022 program cycle 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 estimates<sup>5</sup>;
- provide ongoing technical reviews and guidance to implementers and EAL up-front;
- calculate portfolio non-energy benefits (NEB); and
- conduct EM&V research to inform possible updates for the next version of the TRM.

<sup>4</sup> 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.

<sup>5</sup> For detailed desk review and on-site results, the reader is referred to the Technical Appendix to this report.

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 review throughout the program year, including biweekly implementation contractor status meetings;
- conduct a comprehensive process evaluation for every program once over the three-year PY2020–PY2022 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 PY2021 portfolio.

**Table 1. Summary of Evaluation, Measurement, and Verification Activities for EAL PY2021 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 <sup>6</sup>
Home Energy Solutions	Deemed from prior research	Program staff interviews (2) Material review	Census	50	5	None
Energy Solutions for Multifamily	Deemed from prior research, supported by PY2021 process evaluation research	Program staff interviews (2) Material review Participant surveys (20) Market actor interviews (5)	Census	29	3	None

<sup>6</sup> 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 <sup>6</sup>
Energy Solutions for Manufactured Homes	Deemed from prior research, supported by PY2021 process evaluation research	Program staff interviews (2) Material review Participant surveys (20) Market actor interviews (6)	Census	21	3	None
Low-Income Solutions	Primary research with program participants	None	Census	30	4	None
Point of Purchase Solutions	Deemed from prior research, supported by PY2021 process evaluation research	Program staff interviews (2) Materials review General population surveys (105) Market actor interviews (5) Shelving study (13 stores)	Census	100	None	None
Large Commercial & Industrial Solutions <sup>7</sup>	Deemed from prior research	Program staff interviews (2) Materials review	Census	70	21	31
Small Business Solutions	Deemed from prior research	Program staff interviews (2) Materials review	Census	25	10	None
Public Institutions Solutions	Deemed from prior research	Program staff interviews (2) Materials review	Census	30	15	7
Agricultural Energy Solutions	Deemed from prior research	Program staff interviews (2) Materials review	Census	10	6 ride-alongs	None

<sup>7</sup> Large C&I 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 <sup>6</sup>
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	Census	None	None	Census

## 1.1 KEY FINDINGS AND RECOMMENDATIONS

EAL exceeded its portfolio energy goals, achieving 103 percent of its filed goal and 133 percent of APSC targets. EAL fell short of its demand goals, meeting 61 percent of the demand goal. The performance difference between energy savings and demand goals is similar to last year; it is driven both by the demand response and energy efficiency programs not meeting their planning demand reductions. Investigations into better aligning energy savings and demand savings continue per a recommendation from the 2019 and 2020 evaluations. The measure-level analysis in the Technical Appendix provides additional insight into the kilowatt-hour and kilowatt performance differences.

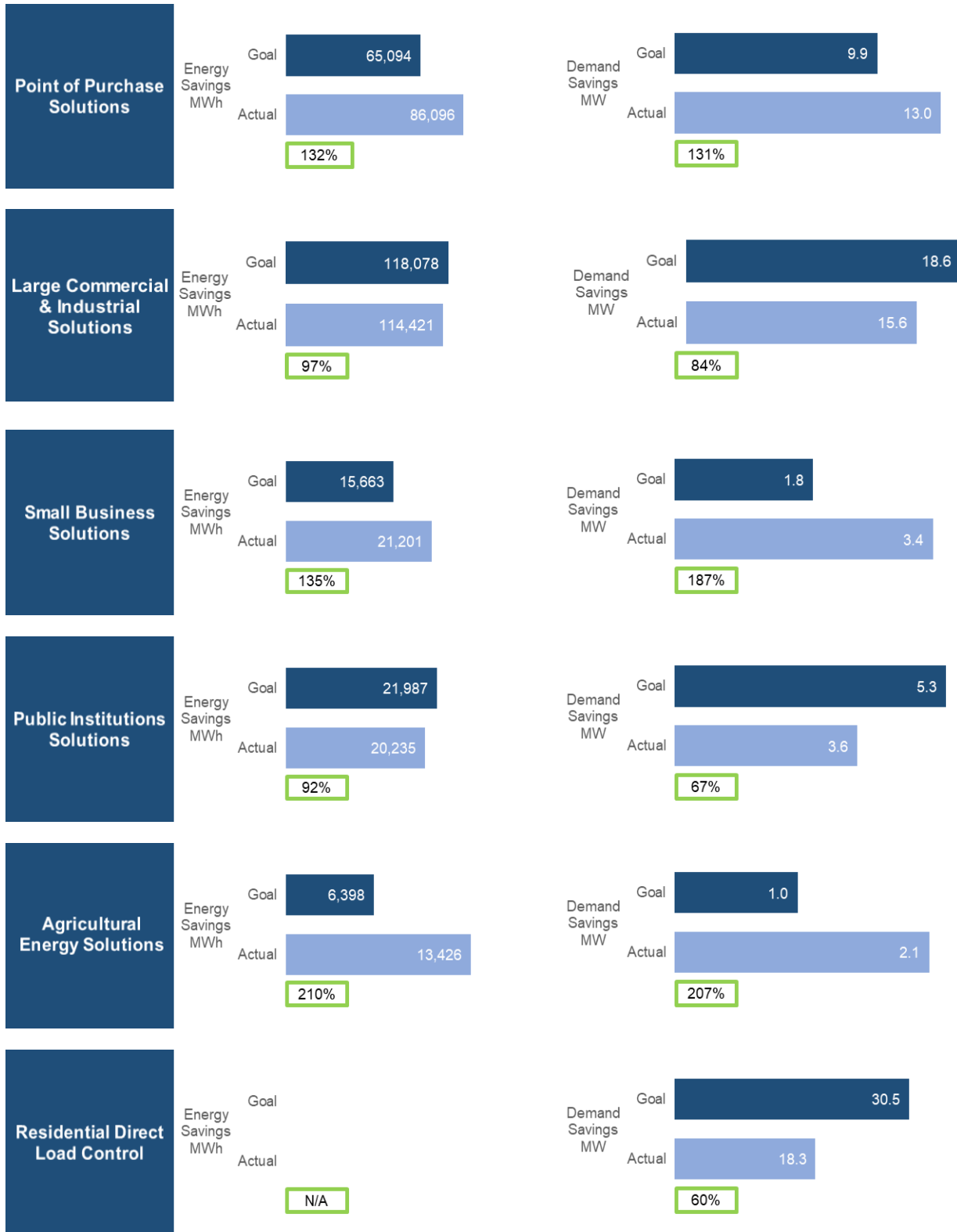
Individual program performance relative to program savings and demand goals varied. Five of the nine programs<sup>8</sup> achieved their megawatt-hour savings goals, while three programs with energy savings goals still performed well, especially given the COVID-19 pandemic context. These three programs met more than 90 percent of energy savings goals, whereas the Energy Solutions for Multifamily program only met 60 percent of its goal. EAL, the program implementer, and the EM&V team have discussed this shortfall and increased energy savings for next year. Four of the 11 programs achieved their megawatt goals. While two programs met 80 percent or more of the demand savings goal, five met less than 80 percent of the demand savings goal. The Smart Direct Load Control pilot is still gaining momentum, meeting 71 percent of its energy savings and 17 percent of its demand reduction goals. The Agricultural Energy Solutions program was the highest performer across energy savings and demand reductions relative to program goals due to a few large new construction projects.

<sup>8</sup> Residential Direct Load Control and Agricultural Irrigation Load Control programs had no megawatt-hour savings goals.

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

**Figure 2. EAL PY2021 Achieved Savings Relative to Program Goals—Overall and by Program**







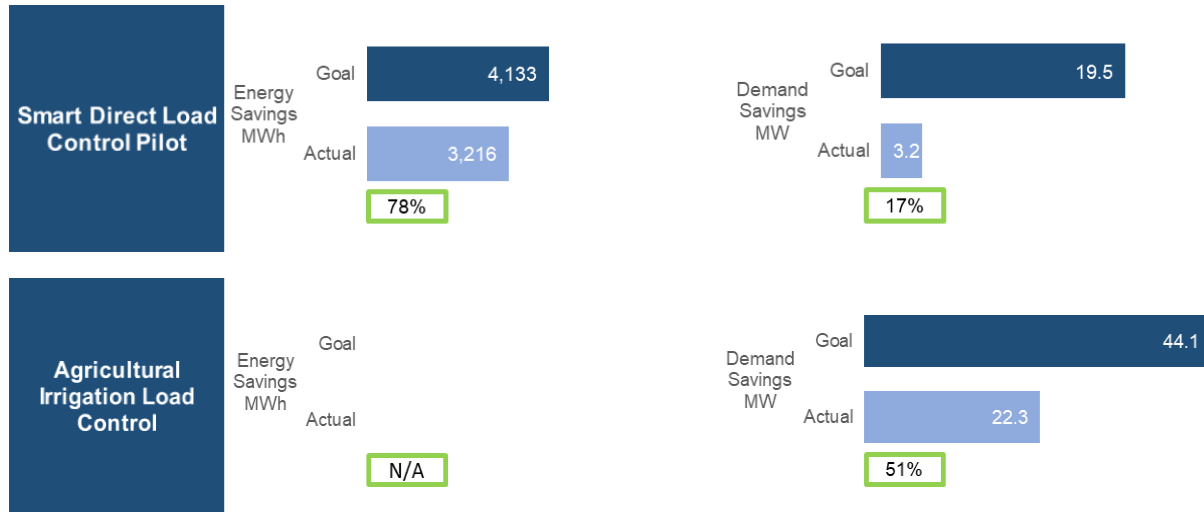
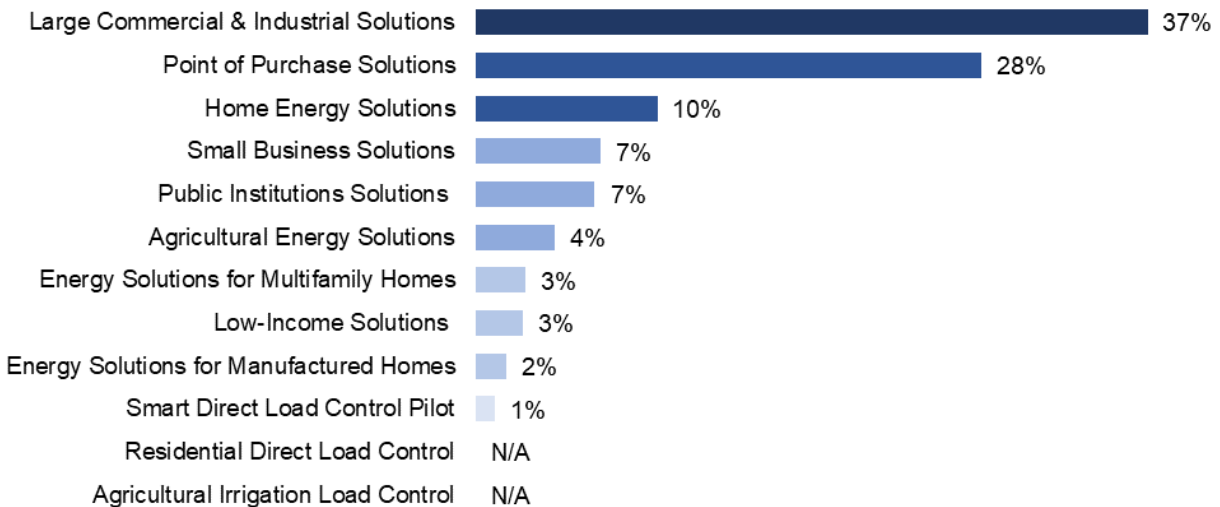


Figure 3 shows each programs’ contribution toward the total portfolio's net energy savings. Large C&I Solutions and Point of Purchase Solutions are the two most significant contributors toward energy savings goals, contributing over one-third (37 percent) and almost a quarter (28 percent) of total portfolio 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).

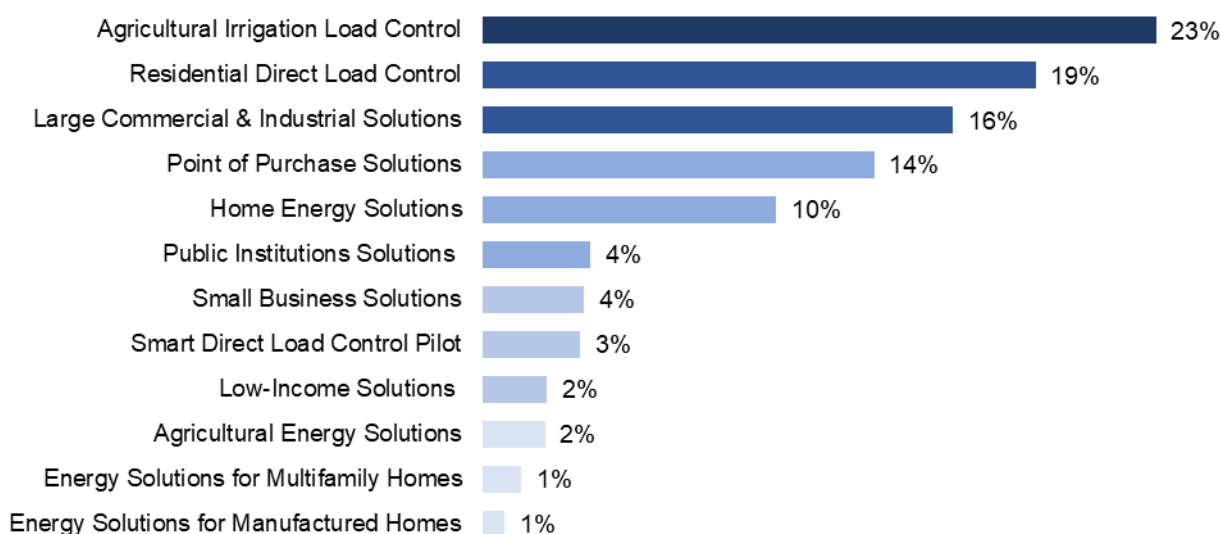
**Figure 3. EAL PY2021 Program Contribution to Total Portfolio Kilowatt-Hour Energy Savings\***



\*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 Residential Direct Load Control programs were the most significant contributors to net demand savings, accounting for 23 percent and 19 percent of kilowatt savings, respectively. EAL's Large C&I Solutions program was the third-highest contributor at 16 percent kilowatt savings.

**Figure 4. EAL PY2021 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 were somewhat higher than claimed energy savings with an overall portfolio gross realization rate of 102 percent for energy savings and demand reductions, detailed in Table 2. Program-level gross realization rates ranged from 98 to 108 percent for energy savings and 97 to 118 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 95 percent. The Point of Purchase Solutions program had the lowest NTG ratio at 81 percent due to the transforming lighting market and the evolving industry standards. Home Energy Solutions, Large C&I, and Small Business 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 PY2021 Gross Savings and Realization Rates<sup>9</sup>**

Program	Reported kWh	Evaluated kWh	Gross realization rate (kWh)	Reported kW	Evaluated kW	Gross realization rate (kW)	NTG (kWh)
Home Energy Solutions	30,287,029	29,682,663	98.0%	9,585	9,323	97.3%	104%
Energy Solutions for Multifamily Homes	8,355,831	8,444,079	101.1%	1,228	1,293	105.3%	100%
Energy Solutions for Manufactured Homes	4,774,374	5,114,435	107.1%	754	751	99.7%	100%
Low-Income Solutions	8,050,286	8,033,917	99.8%	2,153	2,151	99.9%	100%
Point of Purchase Solutions	98,606,382	106,592,925	108.1%	14,801	16,392	110.7%	81%
Large Commercial & Industrial Solutions	110,052,025	110,140,571	100.1%	15,073	14,990	99.5%	104%
Small Business Solutions	20,973,600	20,713,542	98.8%	3,317	3,290	99.2%	102%
Public Institutions Solutions	21,678,204	21,316,442	98.3%	3,703	3,751	101.3%	95%
Agricultural Energy Solutions	13,425,635	13,425,635	100.0%	2,071	2,071	100.0%	100%
Residential Direct Load Control	-	-	N/A	17,979	18,328	101.9%	100%
Smart Direct Load Control Pilot	3,724,632	3,679,587	98.8%	3,238	3,238	100.0%	87%
Agricultural Irrigation Load Control	-	-	N/A	22,303	22,320	100.1%	100%
<b>Total portfolio</b>	<b>319,927,997</b>	<b>327,143,794</b>	<b>102.3%</b>	<b>96,205</b>	<b>97,897</b>	<b>101.8%</b>	<b>95%</b>

\* 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, demonstrating EAL's continuous improvement in its program design and delivery processes, tracking system, documentation, and savings tools, building on its prior program success to effectively launch the new program cycle even amid a pandemic. 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 to 95 percent in PY2021. 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.

<sup>9</sup> Results are rounded to the nearest whole number.

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, as the new program cycle launched, 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 PY2021 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 PY2021 evaluation. EAL's status in completing PY2020 evaluation recommendations is also included. As mentioned above, a continuing portfolio-level recommendation better aligns energy savings and demand savings goals. The reader is referred to the Technical Appendix for recommendations for TRM updates from the EAL EM&V research.

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

<b>Program summary</b>	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 CWA.
<b>Key findings</b>	<ul style="list-style-type: none"> <li>• The program's gross evaluated savings were slightly lower than reported energy savings and demand savings with realization rates of 98.0 percent and 97.3 percent (megawatt-hour and megawatt, respectively).</li> <li>• The program performed well, exceeding the energy goal (achieving 114 percent) and nearly achieving the demand goal (94 percent).</li> </ul>
<b>PY2020 impact recommendations</b>	<ul style="list-style-type: none"> <li>• Continue developing an efficient, transparent, and straightforward method for selecting weather stations. <ul style="list-style-type: none"> <li>○ <i>Continuing.</i></li> </ul> </li> <li>• For duct sealing projects, consistently evaluate savings using actual units, if available, rather than default TRM baselines. <ul style="list-style-type: none"> <li>○ <i>In progress.</i></li> </ul> </li> <li>• Ensure contractors are consistently submitting essential savings project documentation. <ul style="list-style-type: none"> <li>○ <i>Continuing.</i></li> </ul> </li> </ul>
<b>PY2020 process recommendations</b>	<ul style="list-style-type: none"> <li>• Investigate ways to improve rebate processing times for contractors. <ul style="list-style-type: none"> <li>○ <i>In Progress.</i></li> </ul> </li> <li>• Consider expanding eligible direct-install vendors. <ul style="list-style-type: none"> <li>○ <i>Continuing.</i></li> </ul> </li> </ul>

<b>PY2021 impact recommendations</b>	<ul style="list-style-type: none"> <li>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.</li> <li>Continue to collect actual efficiencies for HVAC systems for duct sealing projects, if available, rather than TRM baselines.</li> <li>Ensure contractors are consistently submitting key savings project documentation.</li> </ul>
<b>PY2021 process recommendations</b>	<ul style="list-style-type: none"> <li>Increase customer service training for contractors.</li> <li>Consider a ±10 percent QA/QC threshold for ceiling insulation square footage.</li> </ul>

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

<b>Program summary</b>	<p>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 envelope and weatherization measures, including <i>AC tune-ups, air infiltration, and duct sealing</i>.</p>
<b>Key findings</b>	<ul style="list-style-type: none"> <li>Both energy-saving and demand-savings realization rates were higher than reported by the implementor at 101.1 percent and 105.3 percent (megawatt-hour and megawatt, respectively).</li> <li>The program is fell short of energy and demand savings goals, achieving 60 percent of the planning energy goal and 24 percent of the planning demand goal.</li> </ul>
<b>PY2020 impact recommendations</b>	<ul style="list-style-type: none"> <li>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"> <li><i>Continuing.</i></li> </ul> </li> <li>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"> <li><i>Continuing.</i></li> </ul> </li> <li>Ensure that all documentation is legible and that critical parameters, such as model number, are identifiable.                             <ul style="list-style-type: none"> <li><i>Continuing.</i></li> </ul> </li> </ul>
<b>PY2020 process recommendations</b>	<ul style="list-style-type: none"> <li>Consider revising demand savings goals to align energy and demand savings goals better.                             <ul style="list-style-type: none"> <li><i>In Progress.</i></li> </ul> </li> <li>Work with the evaluator to determine a QA/QC threshold for blower door testing variance.                             <ul style="list-style-type: none"> <li><i>In Progress.</i></li> </ul> </li> <li>Explore opportunities to expand projects in common areas                             <ul style="list-style-type: none"> <li><i>Continuing.</i></li> </ul> </li> </ul>

<b>PY2021 impact recommendations</b>	<ul style="list-style-type: none"> <li>• 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.</li> <li>• Continue to accurately track cooling capacity in ArchEE for <i>duct sealing</i> measures since it is a key parameter in calculating savings.</li> <li>• Ensure all documentation is available and legible and key parameters, such as model number, insulation level, and flow rate, are identifiable.</li> </ul>
<b>PY2021 process recommendations</b>	<ul style="list-style-type: none"> <li>• Increase customer service training for contractors.</li> <li>• Work with the program implementer to ensure timely responses to trade allies.</li> <li>• 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.</li> </ul>

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

<b>Program summary</b>	<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 education services. The program has recruited and trained partnering contractors to provide complete turnkey program delivery services to this hard-to-reach customer segment.</p>
<b>Key findings</b>	<ul style="list-style-type: none"> <li>• The program's gross evaluated energy savings were greater than reported, while evaluated demand savings were slightly lower, resulting in realization rates of 107.1 percent and 99.7 percent (megawatt-hour and megawatt, respectively).</li> <li>• The program performed reasonably well against its planning goals, achieving 95 percent of the energy savings goal and 107 percent of the demand savings goal.</li> </ul>
<b>PY2020 impact recommendations</b>	<ul style="list-style-type: none"> <li>• 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"> <li>○ <i>Continuing.</i></li> </ul> </li> <li>• Ensure that all documentation is legible and that critical parameters, such as model number, are identifiable.             <ul style="list-style-type: none"> <li>○ <i>Continuing.</i></li> </ul> </li> </ul>
<b>PY2020 process recommendations</b>	<ul style="list-style-type: none"> <li>• Work with the evaluator to determine a QA/QC threshold for blower door testing variance.             <ul style="list-style-type: none"> <li>○ <i>In Progress.</i></li> </ul> </li> <li>• Develop strategies to implement ductless mini-splits in manufactured homes and similar housing types that show substantial savings opportunities. Coordinate with the IEM on claiming the increased savings beyond the TRM deemed savings.             <ul style="list-style-type: none"> <li>○ <i>In Progress.</i></li> </ul> </li> </ul>

<p><b>PY2021 impact recommendations</b></p>	<ul style="list-style-type: none"> <li>• Continue to accurately track cooling capacity in ArchEE for <i>duct sealing</i> measures since it is a key parameter in calculating savings.</li> <li>• Ensure all documentation is available and legible and key parameters, such as model number, are identifiable.</li> <li>• Increase the internal QA/QC process on the <i>duct sealing</i> measure for all heating types to capture all cooling and heating variables.</li> </ul>
<p><b>PY2021 process recommendations</b></p>	<ul style="list-style-type: none"> <li>• Increase customer service training for contractors regarding communication.</li> <li>• Ensure replaced equipment, such as incandescents, are removed and disposed of properly.</li> <li>• 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.</li> <li>• Ensure trade allies are aware of the database and process to check on customer eligibility.</li> </ul>

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

<p><b>Program summary</b></p>	<p>The Low-Income Solutions program targets eligible low-income households and customers age 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, 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.</p>
<p><b>Key findings</b></p>	<ul style="list-style-type: none"> <li>• The program's evaluated savings were slightly lower than reported energy and demand savings, resulting in 99.8 and 99.2 percent realization rates for energy and demand savings, respectively.</li> <li>• During site visits, the EM&amp;V team verified that the sampled measures were installed and operating as intended, except for one instance of an unplugged <i>advanced power strip</i>.</li> <li>• 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 102.0 percent of the energy savings goal and 74.0 percent of the demand savings goal.</li> <li>• Overall, customers stated they were <i>satisfied</i> with the program during site visits and indicated they would not have had this work done without the program. Some said they felt a significant difference in their bills or comfort level.</li> </ul>

<p><b>PY2020 impact recommendations</b></p>	<ul style="list-style-type: none"> <li>• 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"> <li>○ <i>Continuing.</i></li> </ul> </li> <li>• 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"> <li>○ <i>Complete.</i></li> </ul> </li> </ul>
<p><b>PY2020 process recommendations</b></p>	<ul style="list-style-type: none"> <li>• 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"> <li>○ <i>Complete.</i></li> </ul> </li> </ul>
<p><b>PY2021 impact recommendations</b></p>	<ul style="list-style-type: none"> <li>• Ensure contractors consistently submit key savings project documentation such as condenser nameplate, advanced power strip location, heating seasonal performance factor (HSPF), light bulbs installed and removed.</li> <li>• 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 given to the customer to install.</li> <li>• Continue standardizing <i>MeasureDescription</i> for prescriptive health and safety measures to track measure accomplishments in the tracking database.</li> <li>• Increase customer service training for contractors regarding communication.</li> <li>• Ensure to remove and properly dispose of replaced equipment, such as incandescent bulbs.</li> </ul>
<p><b>PY2021 process recommendations</b></p>	<ul style="list-style-type: none"> <li>• None.</li> </ul>

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

<p><b>Program summary</b></p>	<p>EAL's midstream and upstream programs merged into the comprehensive Point of Purchase Solutions (POPS) 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 the customer because there is no application process. There is no out-of-pocket cost for the customer to receive an incentive because of the reduced-price at the point of sale. Cooperation with distributors and opening clear communication channels is critical for promoting measures incentivized through midstream channels.</p>
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<p><b>Key findings</b></p>	<ul style="list-style-type: none"> <li>• The POPS program evaluated savings resulted in higher demand and energy savings (110.7 percent kW and 108.1 percent kWh realization rates) than those calculated by the program implementer. These results are driven by the EM&amp;V team's adjustments, with the primary adjustments coming from recalculating residential <i>upstream lighting</i> measures using commercial methodologies.</li> <li>• The NTG ratio remains the lowest of EAL programs primarily due to <i>upstream lighting</i> NTG. The overall program resulted in 80.8 percent for energy savings and 79.2 percent for demand savings.</li> <li>• The program exceeded planning goals, achieving 132 percent and 131 percent of energy and demand savings goals, respectively.</li> </ul>
<p><b>PY2020 impact recommendations</b></p>	<ul style="list-style-type: none"> <li>• Update the program tracking data formats and details to improve data organization, transparency, and consistency. <ul style="list-style-type: none"> <li>◦ <i>Continuing</i></li> </ul> </li> <li>• Increase QA/QC and clarity of program tracking data to reduce errors across program participants. <ul style="list-style-type: none"> <li>◦ <i>Continuing.</i></li> </ul> </li> <li>• Increase QA/QC in data entry to reduce errors in transferring invoice data to the tracking system. <ul style="list-style-type: none"> <li>◦ <i>Continuing.</i></li> </ul> </li> </ul>
<p><b>PY2020 process recommendations</b></p>	<ul style="list-style-type: none"> <li>• No recommendations were provided from limited process evaluation activities. The combination of the two programs appears to be working well.</li> </ul>
<p><b>PY2021 impact recommendations</b></p>	<ul style="list-style-type: none"> <li>• Organize the project documentation so inspection information, participant agreements, and invoices are easily cross-referenced.</li> <li>• Update the program tracking data formats and details to improve data organization, transparency, and consistency.</li> <li>• Increase QA/QC and clarity of program tracking data to reduce errors.</li> <li>• Explore strategies to increase participation among participating dollar stores.</li> </ul>
<p><b>PY2021 process recommendations</b></p>	<ul style="list-style-type: none"> <li>• Consider expanding participation in grocery stores.</li> <li>• Increase decorative and other specialty lighting options in participating stores.</li> <li>• Continue promoting the program through big box stores.</li> <li>• Discuss additional implementation strategies among EAL and the program implementer to increase the program's net savings.</li> <li>• Increase marketing efforts to residential customers to improve program awareness.</li> </ul>

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

<b>Program summary</b>	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.
<b>Key findings</b>	<ul style="list-style-type: none"> <li>• Overall, the LCI program evaluated savings resulted in lower demand savings (99.5 percent kW realization rate) and higher energy savings (100.1 percent kWh realization rate) than those calculated by the program implementer.</li> <li>• The program fell short of its planning goals for PY2021, achieving 97 percent of the energy savings goal and 84 percent of the demand savings goal.</li> <li>• The Early Engagement Protocol, first adopted in late 2018 and revised for 2021, led to a successful collaboration between the evaluator and the implementer on large and complex projects. Twenty-five projects were reviewed during the year, with 8 subsequently selected for desk reviews; no savings adjustments resulted from the desk reviews.</li> <li>• <i>Lighting</i> represented a smaller portion of savings than in previous program years, with <i>continuous energy improvement</i> measures exceeding <i>lighting</i> to become the predominant measure.</li> </ul>
<b>PY2020 impact recommendations</b>	<ul style="list-style-type: none"> <li>• Work collaboratively with the EM&amp;V team to revise the Continuous Energy Improvement M&amp;V Plan to address peak demand concerns. <ul style="list-style-type: none"> <li>○ <i>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.</i></li> </ul> </li> <li>• Ensure that the implementer's site inspection results are appropriately accounted for in project savings. <ul style="list-style-type: none"> <li>○ <i>Complete. Adjustments resulting from not revising savings for on-site inspections decreased in PY2021, with the notable exception of some direct-install weather stripping measures.</i></li> </ul> </li> <li>• 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"> <li>○ <i>In Progress. Multiple tune-up measures with systematic errors incorrectly calculated energy or demand savings based on the tracked system heating and cooling parameters.</i></li> </ul> </li> <li>• 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></li> </ul>

	<p>projects when controls, such as timers or lighting control systems, make the AOH estimate certain.</p> <ul style="list-style-type: none"> <li>○ <i>Complete.</i></li> </ul>
<b>PY2020 process recommendations</b>	<ul style="list-style-type: none"> <li>● To better estimate annual reported savings for large custom projects, continue to seek the EM&amp;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"> <li>○ <i>Continuing.</i></li> </ul> </li> <li>● Ensure program staff respond to customer and trade ally requests promptly. <ul style="list-style-type: none"> <li>○ <i>Continuing.</i></li> </ul> </li> <li>● Consider establishing a process to collect customer email addresses for outreach purposes. <ul style="list-style-type: none"> <li>○ <i>In Progress.</i></li> </ul> </li> </ul>
<b>PY2021 impact recommendations</b>	<ul style="list-style-type: none"> <li>● Review savings algorithms for <i>commercial Wi-Fi thermostat</i> measures to ensure consistency.</li> </ul>
<b>PY2021 process recommendations</b>	<ul style="list-style-type: none"> <li>● Increase QA/QC on peak demand estimates for custom projects.</li> </ul>

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

<b>Program summary</b>	<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>
<b>Key findings</b>	<ul style="list-style-type: none"> <li>● The Small Business Solutions program's evaluated energy and demand savings were lower (98.8 percent kWh and 99.2 percent kW realization rates) than the program implementer's savings.</li> <li>● Adjustments to program savings were driven by systematic calculation errors for <i>tune-up</i> projects and a building type adjustment for a <i>lighting</i> project. More minor contributors included adjustments to post-installation fixture wattages, installed quantities observed during site visits, and heating interactive effects factors for <i>lighting</i>.</li> <li>● The program exceeded its planning goals, achieving 133.9 percent of the energy savings goal and 184.3 percent of the demand savings goal.</li> </ul>

<b>PY2020 impact recommendations</b>	<ul style="list-style-type: none"> <li>• Increase QA/QC of the tracking database to ensure that all information from project documentation is captured accurately.                             <ul style="list-style-type: none"> <li>○ <i>Complete.</i></li> </ul> </li> <li>• Consider increasing post-inspections of completed projects.                             <ul style="list-style-type: none"> <li>○ <i>Reviewed and rejected. The implementer chose not to increase post-inspections in PY2021.</i></li> </ul> </li> <li>• Review savings algorithms for <i>exterior lighting</i> with existing controls.                             <ul style="list-style-type: none"> <li>○ <i>Complete.</i></li> </ul> </li> <li>• Review <i>tune-up</i> measure tracking data and algorithms.                             <ul style="list-style-type: none"> <li>○ <i>In Progress. Multiple tune-up measures with systematic errors incorrectly calculated energy or demand savings based on the tracked system heating and cooling parameters.</i></li> </ul> </li> </ul>
<b>PY2020 process recommendations</b>	<ul style="list-style-type: none"> <li>• The program appears to be operating as intended.</li> </ul>
<b>PY2021 impact recommendations</b>	<ul style="list-style-type: none"> <li>• Review savings algorithms for <i>Wi-Fi thermostat</i> measures to ensure consistency.</li> <li>• Review <i>lighting control</i> measure tracking data for potential errors in algorithms.</li> </ul>
<b>PY2021 process recommendations</b>	<ul style="list-style-type: none"> <li>• 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.</li> </ul>

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

<b>Program summary</b>	<p>This program targets specific commercial markets to improve public entities' facilities by educating and integrating energy efficiency into their short- and long-term planning, budgeting, and operational practices. The program accomplishes this by providing (1) technical assistance; (2) energy performance benchmarking; (3) energy master planning; and (4) identifying, assessing, and implementing energy-efficient technologies.</p>
<b>Key findings</b>	<ul style="list-style-type: none"> <li>• Overall, the Public Institutions Solutions program evaluated savings resulting in higher demand savings (101.3 percent kW realization rate) and lower energy savings (98.3 percent kWh realization rate) than those calculated by the program implementer.</li> <li>• The program fell short of its planning goals for PY2021, achieving 92 percent of the energy savings goal and 67 percent of the demand savings goal.</li> <li>• The <i>tune-up</i> measures remained the most significant measure category for participation and savings in PY2021, with <i>lighting</i> as the second most significant. These two measure categories accounted for approximately 80 percent of reported and evaluated energy and demand savings.</li> </ul>

<b>PY2020 impact recommendations</b>	<ul style="list-style-type: none"> <li>• Work collaboratively with the EM&amp;V team to revise the Continuous Energy Improvement M&amp;V Plan to address peak demand concerns.                             <ul style="list-style-type: none"> <li>○ <i>Continuing.</i> 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.</li> </ul> </li> <li>• Collect detailed AOH documentation to support custom AOH values for non-deemed lighting projects.                             <ul style="list-style-type: none"> <li>○ <i>Complete.</i> The program documentation around custom AOH increased in PY2021, and there were fewer adjustments made to the evaluated savings than in previous program years.</li> </ul> </li> </ul>
<b>PY2020 process recommendations</b>	<ul style="list-style-type: none"> <li>• Increase QA/QC efforts of the tune-up measure database to ensure savings are being calculated correctly and for the appropriate equipment type.                             <ul style="list-style-type: none"> <li>○ <i>In Progress.</i> Multiple tune-up measures with systematic errors incorrectly calculated energy or demand savings based on the tracked system heating and cooling parameters.</li> </ul> </li> </ul>
<b>PY2021 impact recommendations</b>	<ul style="list-style-type: none"> <li>• Review savings algorithms for commercial Wi-Fi thermostat measures to ensure consistency.</li> </ul>
<b>PY2021 process recommendations</b>	<ul style="list-style-type: none"> <li>• Increase QA/QC of data recorded from direct-install projects and entered into ArchEE for savings to improve consistency.</li> </ul>

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

<b>Program summary</b>	<p>This program offers a combination of farm audits, custom and prescriptive incentives, and education to agricultural suppliers. The program has focused on poultry farm lighting projects, although it has expanded to include irrigation pump measures.</p>
<b>Key findings</b>	<ul style="list-style-type: none"> <li>• The program's evaluated savings resulted in identical energy and demand savings (100.0 percent MWh and MW realization rates) to those calculated by the program implementer.</li> <li>• The PY2021 realization rates represent an improvement over PY2020 realization rates of 100.2 and 99.4 percent.</li> <li>• The program has far exceeded the energy and demand goals, achieving 210 and 207 percent, respectively, of planning goals.</li> </ul>

<b>PY2020 impact recommendations</b>	<ul style="list-style-type: none"> <li>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"> <li><i>Continuing</i>.</li> </ul> </li> <li>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"> <li><i>Continuing</i>.</li> </ul> </li> </ul>
<b>PY2020 process recommendations</b>	<ul style="list-style-type: none"> <li>Consider increasing documentation for custom projects to verify new building types, AOH, and lighting end-use. <ul style="list-style-type: none"> <li><i>Continuing</i>.</li> </ul> </li> </ul>
<b>PY2021 impact recommendations</b>	<ul style="list-style-type: none"> <li>Define additional measure descriptions to ArchEE to clarify measure type as the program expands with new measure offerings beyond <i>lighting</i>.</li> </ul>
<b>PY2021 process recommendations</b>	<ul style="list-style-type: none"> <li>Continue to work collaboratively with the EM&amp;V team and seek review of large custom projects.</li> </ul>

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

<b>Program summary</b>	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.
<b>Key findings</b>	<ul style="list-style-type: none"> <li>The program achieved 18.3 MW in gross demand savings, approximately 60 percent of the planning goal.</li> <li>The evaluation team closely matched savings calculations provided by the program implementer, resulting in a realization rate of 101.9 percent.</li> </ul>
<b>PY2020 impact recommendations</b>	<ul style="list-style-type: none"> <li>Calculate program savings using the highest current program year event instead of a previous year's event. <ul style="list-style-type: none"> <li><i>Complete</i>.</li> </ul> </li> </ul>
<b>PY2020 process recommendations</b>	<ul style="list-style-type: none"> <li>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"> <li><i>In Progress</i>.</li> </ul> </li> </ul>
<b>PY2021 impact recommendations</b>	<ul style="list-style-type: none"> <li>Consider estimating kilowatt-hour savings for the Residential DLC program.</li> </ul>
<b>PY2021 process recommendations</b>	<ul style="list-style-type: none"> <li>There are no process recommendations in PY2021. The program appears to be operating as intended</li> </ul>

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

<b>Program summary</b>	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 smart thermostats or the opportunity to enroll an existing smart thermostat to participate in demand-response events during the load control season.
<b>Key findings</b>	<ul style="list-style-type: none"> <li>• Realization rates for energy savings were 100 percent for smart thermostats installed in residential applications and 96.6 percent for commercial applications.</li> <li>• Energy savings were only claimed (correctly) for new participants in the SDLC pilot that received a rebated thermostat through the SDLC pilot.</li> <li>• On July 29, 2021, demand savings peaked with an estimated load reduction of 3.2 MW.</li> </ul>
<b>PY2020 impact recommendations</b>	<ul style="list-style-type: none"> <li>• Install sufficient M&amp;V devices to estimate demand savings in future years accurately. <ul style="list-style-type: none"> <li>○ <i>Review and rejected as potentially unneeded. If air conditioner runtime is collected from the program population, a M&amp;V sample is unnecessary.</i></li> </ul> </li> <li>• Update energy savings methodology for commercial thermostats. <ul style="list-style-type: none"> <li>○ <i>Continuing. Both the implementor and EM&amp;V team monitor this as more commercial thermostats join the program to provide sufficient data.</i></li> </ul> </li> </ul>
<b>PY2020 process recommendations</b>	<ul style="list-style-type: none"> <li>• 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"> <li>○ <i>Complete.</i></li> </ul> </li> </ul>
<b>PY2021 impact recommendations</b>	<ul style="list-style-type: none"> <li>• Estimate demand savings after each event during the season.</li> </ul>
<b>PY2021 process recommendations</b>	<ul style="list-style-type: none"> <li>• Consider tracking opt-outs, by event.</li> </ul>

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

<b>Program summary</b>	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.
<b>Key findings</b>	<ul style="list-style-type: none"> <li>• The AIRC program evaluated savings were marginally higher than the savings calculated by the program implementer, Connected Energy (realization rate of 100.1 percent). The approach taken by Connected Energy and the EM&amp;V team uses the Midcontinent Independent System Operator (MISO) <i>symmetric multiplicative adjustment (SMA) baseline calculation</i>, which is appropriate for registering savings with MISO.</li> <li>• The program fell short of its PY2021 planning goal, reaching 51.0 percent of its demand savings.</li> </ul>
<b>PY2020 impact recommendations</b>	<ul style="list-style-type: none"> <li>• No impact recommendations were provided in PY2020.</li> </ul>
<b>PY2020 process recommendations</b>	<ul style="list-style-type: none"> <li>• Streamline the evaluation process by providing MISO with a savings report earlier in the analysis process. <ul style="list-style-type: none"> <li>○ <i>In Progress.</i></li> </ul> </li> </ul>
<b>PY2021 impact recommendations</b>	<ul style="list-style-type: none"> <li>• No impact recommendations were provided in PY2021.</li> </ul>
<b>PY2021 process recommendations</b>	<ul style="list-style-type: none"> <li>• Streamline the evaluation process by providing a MISO savings report with 15-minute-level data.</li> </ul>



## 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. 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) 2021 (PY2021). 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 PY2021 EAL evaluation included impact and process analyses specified in the APSC rules and followed the Arkansas Technical Reference Manual (TRM) Version 8.2 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 discusses the overall portfolio results. Sections 4 through 15 detail the EM&V results for each program, including specific discussions of evaluation methodologies. Section 16 details the consistent weatherization approach (CWA) results and participation in Act 1102 categories across residential programs based on PY2021 and prior process evaluation results. Finally, Section 17 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 PY2021 was to:

- verify program tracking data and correctly apply the Arkansas TRM to the applicable program year to calculate savings following TRM 8.2 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 8.2 Volume 1, Protocol F; and
  - provide complete documentation and transparency of all evaluated savings estimates, and, where relevant, comparison with TRM 8.2 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 8.2 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 8.2 Volume 1, Protocols B1, B2, and B3. We used the impact evaluations to calculate realization rates, determined by dividing evaluated savings by EAL tracked savings.

PY2021 impact evaluation activities primarily included a combination of the tracking system and desk reviews, metered data analysis, commercial on-sites, and residential independent verification<sup>10</sup> under TRM 8.2 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 8.2 Volume 1, Protocol D). These considerations identified high-priority programs such as the Large Commercial & Industrial Solutions program, where more rigorous impact evaluation activities are beneficial. Sampling strategies for PY2021 followed TRM 8.2 Volume 1, Protocol B4.

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<sup>10</sup> Due to the COVID-19 pandemic, independent verification through telephone surveys was used in lieu of residential on-site M&V.

While implementing the impact evaluations, we addressed and minimized issues that could introduce potential bias and uncertainty. 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  $\pm 10$  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  $\pm 10$  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 evaluation following TRM 8.2 Volume 1, Protocol C;
- assess EAL's success in achieving the goals and objectives established in the APSC's comprehensiveness checklist;
- follow TRM 8.2 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 8.2 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 8.2 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 15 provides details on specific criteria that trigger a process evaluation.

**Table 15. TRM 8.1 Volume 1, Protocol C: Process Evaluation Guidance**

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

At a minimum, all programs received a limited process evaluation through program staff interviews and program documentation review. For PY2021, based on the TRM guidance summarized in the table above, the EM&V team identified the following three programs to receive full process evaluations (five received full process evaluations in PY2020, and the remaining programs are fairly stable and will receive full process evaluations in 2022):

- **Point of Purchase Solutions.** This program saw a combination of two previous upstream and midstream programs. Given the rapidly evolving market that this program serves, a general population survey and shelving study was completed for this process evaluation in addition to market actor interviews.
- **Energy Solutions for Manufactured Homes.** Program staff, participant, and market actor interviews were conducted for this program, who are effectively serving this hard-to-reach sector.
- **Energy Solutions for Multifamily Homes.** Program staff, participant, and market actor interviews were conducted for this program, which saw new challenges meeting goals in PY2021.

## 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 8.2 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 PY2021 evaluation plan<sup>11</sup> underpin the PY2021 results and reflect this prioritization process.

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<sup>11</sup> Entergy Arkansas, LLC Program Year 2021 Evaluation Plan, Tetra Tech, August 2021.

## 2.5 DATA COLLECTION ACTIVITIES

We used the data collection activities listed below to support the impact and process evaluations as relevant. All evaluation activities adhered to EM&V protocols, as defined in TRM 8.2 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 PY2021, 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-interrupt baseline days to validate impact estimates. The Residential Direct Load Control (DLC), Smart DLC pilot, and the Agricultural Irrigation Load Control (AIRC) programs serve as load modifying resources for the Midcontinent Independent System Operator (MISO). 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 operation<sup>12</sup>. 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 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 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.

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

- **Data logging and spot measurements.** The data logging discussion below includes our general approach to fieldwork supporting M&V projects and does not necessarily reflect each program's plan, which is only needed for measures and projects with higher uncertainty levels in savings.

For projects that operate mainly at a steady state, the EM&V team obtains spot measurements of critical parameters such as amps, kilowatts, temperatures, and flow rates. Examples of these projects may include constant speed fans and pumps or process heating or cooling systems that serve a constant load (EM&V Protocol D2: M&V Protocols, Option B - Retrofit Isolation: All Parameter Measurement).

We used a period of one to two weeks of data logging and trend data for projects that operate with significant fluctuations. These projects would include, for example, *compressed air, variable frequency drives, and controls* projects. We used logged data to determine run times and may have included interval metering, where the loads are recorded at specific intervals as they vary throughout the day or week (EM&V Protocol D2: M&V Protocols, Option B - Retrofit Isolation: All Parameter Measurement).



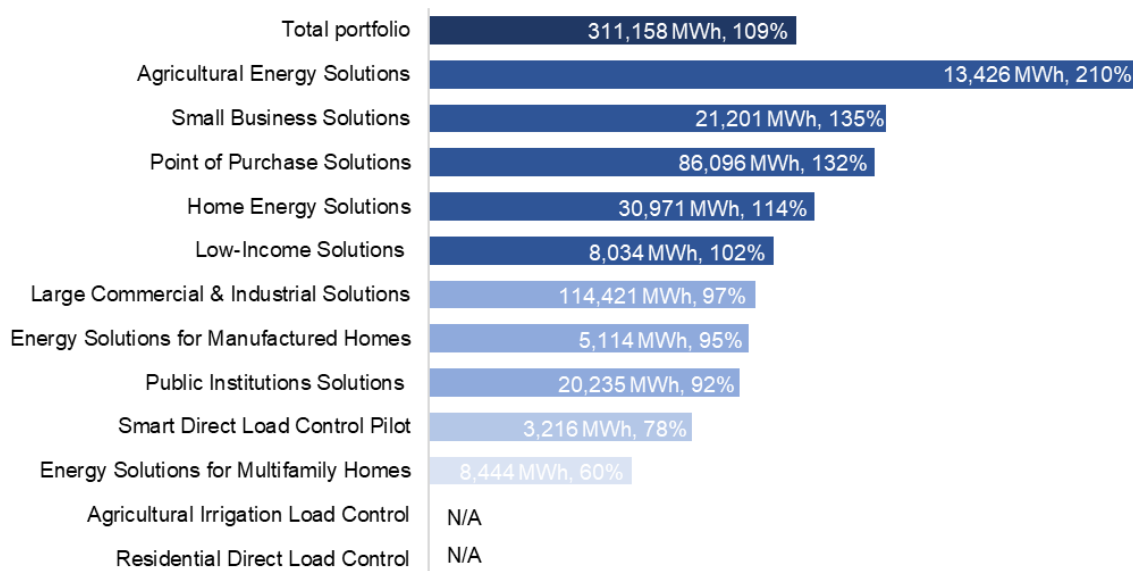
### 3.0 PORTFOLIO PERFORMANCE

In PY2021, Entergy Arkansas, LLC (EAL) offered a portfolio of 11 energy efficiency programs and one 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.

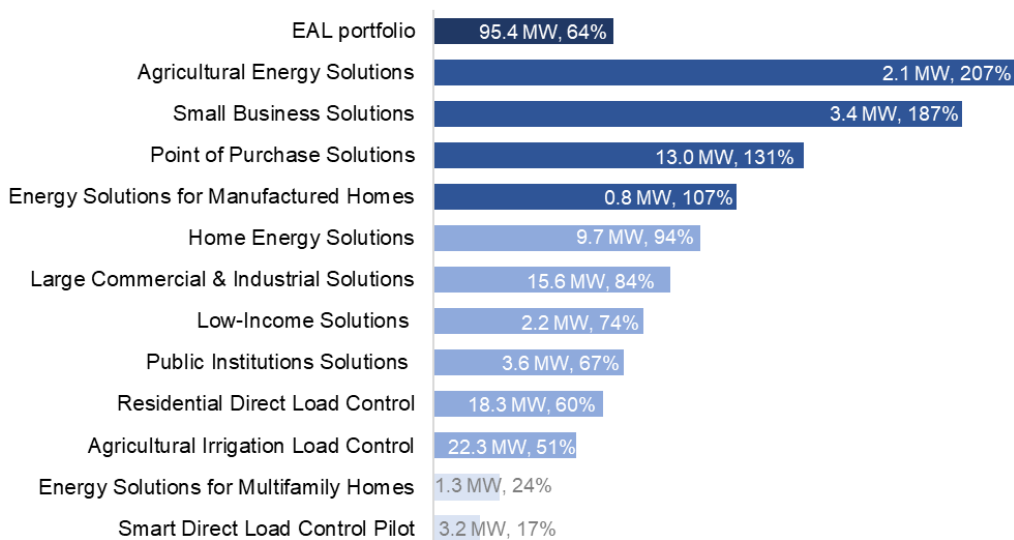
EAL exceeded its portfolio energy goals, achieving 109 percent (Figure ). EAL fell short of its demand goals, meeting 64 percent of the demand goal (Figure ). The performance difference between energy savings and demand goals is similar to last year and the year prior. A continuing recommendation is to investigate ways to better align energy savings and demand savings.

Individual program performance relative to program savings and demand goals varied. Five of the 12 programs<sup>13</sup> achieved their megawatt-hour savings goals; three other programs' energy savings goals came in just under their goal (between 92 percent and 97 percent). In contrast, 4 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, both above 200 percent.

**Figure 5. PY2021 Percentage of Net Energy Megawatt-Hour Savings Goals Achieved**



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

**Figure 6. PY2021 Percentage of Net Demand Megawatt Savings Goal Achieved<sup>14,15</sup>**

Overall, evaluated savings were somewhat higher than claimed energy savings, with an overall portfolio gross realization rate of 102 percent for energy savings and demand reductions. Program-level gross realization rates ranged from 98 to 107 percent for energy savings and 97 to 118 percent for demand savings. Table 16 shows the reported and evaluated energy savings for EAL's portfolio, sectors, and programs for PY2021.

**Table 16. EAL PY2021 Reported and Evaluated Energy Savings<sup>16</sup>**

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%	30,287,029	29,682,663	98.0%	104%	30,970,670
Energy Solutions for Multifamily Homes	3%	8,355,831	8,444,079	101.1%	100%	8,444,079

<sup>14</sup> 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.

<sup>15</sup> 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.

<sup>16</sup> Results rounded to the nearest whole number.

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)
Energy Solutions for Manufactured Homes	2%	4,774,374	5,114,435	107.1%	100%	5,114,435
Low-Income Solutions	3%	8,050,286	8,033,917	99.8%	100%	8,033,917
Point of Purchase Solutions	28%	98,606,382	106,592,925	108.1%	81%	86,096,313
Large Commercial & Industrial Solutions	37%	110,052,025	110,140,571	100.1%	104%	114,421,277
Small Business Solutions	7%	20,973,600	20,713,542	98.8%	102%	21,200,992
Public Institutions Solutions	7%	21,678,204	21,316,442	98.3%	95%	20,234,829
Agricultural Energy Solutions	4%	13,425,635	13,425,635	100.0%	100%	13,425,635
Residential Direct Load Control	0%	-	-	N/A	100%	-
Smart Direct Load Control Pilot	1%	3,724,632	3,679,587	98.8%	87%	3,215,997
Agricultural Irrigation Load Control	0%	-	-	N/A	100%	-
<b>Total portfolio</b>	<b>100%</b>	<b>319,927,997</b>	<b>327,143,794</b>	<b>102.3%</b>	<b>95%</b>	<b>311,158,143</b>

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

Table 17 shows the reported and evaluated demand savings for EAL's portfolio, sectors, and programs for PY2021.

**Table 17. EAL PY2021 Reported and Evaluated Demand Savings<sup>17</sup>**

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%	9,584.9	9,322.6	97.3%	104%	9,732.3
Energy Solutions for Multifamily Homes	1%	1,228.2	1,293.1	105.3%	100%	1,293.1
Energy Solutions for Manufactured Homes	1%	753.5	751.0	99.7%	100%	751.0
Low-Income Solutions	2%	2,153.4	2,151.5	99.9%	100%	2,151.5
Point of Purchase Solutions	14%	14,800.9	16,391.6	110.7%	79%	12,980.4
Large Commercial & Industrial Solutions	16%	15,072.6	14,989.7	99.5%	104%	15,579.7
Small Business Solutions	4%	3,317.0	3,289.8	99.2%	102%	3,363.7
Public Institutions Solutions	4%	3,703.3	3,750.8	101.3%	95%	3,572.6
Agricultural Energy Solutions	2%	2,071.5	2,071.5	100.0%	100%	2,071.5
Residential Direct Load Control	19%	17,979.0	18,328.0	101.9%	100%	18,328.0
Smart Direct Load Control Pilot	3%	3,237.8	3,237.8	100.0%	100%	3,237.8
Agricultural Irrigation Load Control	23%	22,303.0	22,320.0	100.1%	100%	22,320.0
<b>Total portfolio</b>	<b>100%</b>	<b>96,205.2</b>	<b>97,897.4</b>	<b>101.8%</b>	<b>97%</b>	<b>95,381.6</b>

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, commercial, and industrial (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 95 percent. The Point of Purchase Solutions (POPS) program had the lowest NTG ratio at 81 percent due to the transforming lighting market and the evolving industry standards. Home Energy Solutions, Small Business Solutions, and Large Commercial & 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 18 shows the NTG factor and source used in the net evaluated savings for EAL's PY2021 programs.

<sup>17</sup> Results are rounded to the nearest whole number.

**Table 18. PY2021 Net-to-Gross Summary**

<b>Program</b>	<b>NTG ratio (kWh)</b>	<b>Source</b>
Home Energy Solutions	104%	PY2020 EM&V research—participant surveys and market actor interviews, supported by PY2018 prior EM&V research
Energy Solutions for Multifamily Homes	100%	PY2017 EM&V research—participant surveys and market actor interviews
Energy Solutions for Manufactured Homes	100%	PY2017 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	81%	PY2018 EM&V research—participant surveys and market actor interviews
Large Commercial & Industrial Solutions	104%	PY2020 EM&V research—participant surveys and market actor interviews
Small Business Solutions	102%	PY2019 EM&V research—participant surveys and market actor interviews
Public Institutions Solutions	95%	PY2019 EM&V research—participant surveys and market actor interviews
Agricultural Energy Solutions	100%	PY2019 EM&V research— participant surveys and market actor interviews
Residential Direct Load Control	100%	Stipulated at an NTG ratio of 100 percent as industry standard practice
Smart Direct Load Control Pilot	87%	PY2019 EM&V research— participant surveys and market actor interviews
Agricultural Irrigation Load Control	100%	Stipulated at an NTG ratio of 100 percent as industry standard practice
<b>Total</b>	<b>95%</b>	

### 3.1 COMPREHENSIVENESS CHECKLIST

The EM&V effort includes an annual review of the Arkansas Public Service Commission's (APSC) Comprehensiveness Checklist to assess portfolio performance against the checklist's seven factors. From the EM&V team's assessment, EAL met the Commission's Comprehensiveness Checklist's objectives in PY2021.

#### 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 and in response to the COVID-19 pandemic, 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, adapting to the COVID-19 pandemic. EAL and its implementation contractors sought out various speaking opportunities during prior program years, participated in community events, and conducted in-person visits to target markets. Due to the COVID-19 pandemic, remote outreach efforts increased through 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 in the Low-Income Solutions program even though its first year of implementation coincided with the COVID-19 pandemic.
- 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. The program implementer provided trade ally training and support for contractors to perform residential HVAC tune-ups during the COVID-19 pandemic. Not all customers were comfortable having a contractor in their home as required by other services.

- 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-PY2021 process evaluations with participants found very high satisfaction with EAL programs.
- Program staff dedicated marketing and outreach across all of EAL's territory. 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 in PY2020. Online purchasing tools expanded in PY2020 allowed 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.
- 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.

## 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 COVID-19 pandemic challenges continue to be a challenge in PY2021. Maintaining program momentum for ongoing programs and rolling out new programs during the COVID-19 pandemic was a specific obstacle in PY2020. Research indicated this continued in PY2021 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.** Program and implementation staff reported that they had enough budget to cover program implementation in PY2021. EAL achieved its energy savings goals at a portfolio level but fell short of demand reduction targets while spending 84 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 PY2021, EAL revised the approved budget within the APSC's budget flexibility guidelines and moved budgeted dollars from underachieving programs to programs seeing more positive market acceptance, detailed in Table 19. The flexibility allowed EAL to reallocate funding to newer programs and programs disproportionately impacted by the COVID-19 pandemic. EAL made the following adjustments in PY2021:

**Table 19. PY2021 Budgets by Program (\$1,000s) (Initial vs. Revised vs. Actual)**

Program	Initial budget	Revised budget	Actual spend
Home Energy Solutions	\$11,303	\$11,276	\$10,175
Multifamily Homes	\$2,650	\$2,639	\$2,231
Manufactured Homes	\$1,261	\$1,263	\$1,357
Low-Income Solutions	\$4,958	\$4,942	\$3,653
Point of Purchase Solutions	\$7,889	\$7,275	\$7,885
Large Commercial & Industrial Solutions	\$21,779	\$23,218	\$15,956
Small Business Solutions	\$2,581	\$2,914	\$3,833
Public Institutions Solutions	\$3,806	\$3,654	\$3,409
Agricultural Energy Solutions	\$1,353	\$1,350	\$1,107
Residential Direct Load Control Pilot	\$3,548	\$3,601	\$2,700
Smart Direct Load Control	\$4,005	\$3,372	\$2,836
Agricultural Irrigation Load Control	\$3,918	\$3,794	\$3,532
Energy Efficiency Arkansas	\$303	\$287	\$85
<b>Total</b>	<b>\$69,354</b>	<b>\$69,585</b>	<b>\$58,759</b>



### Comprehensiveness Factor 3

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

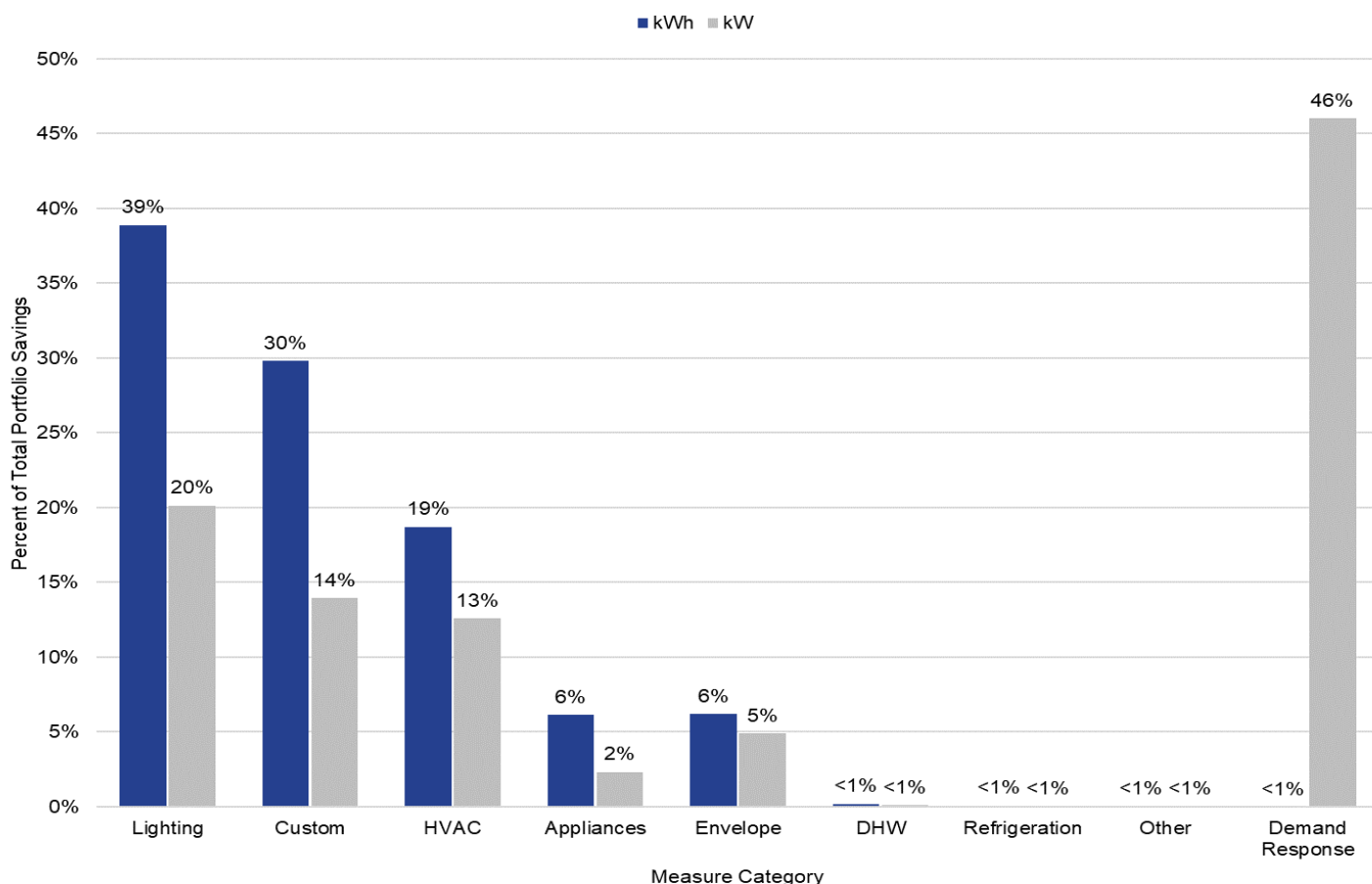
The EM&V team assessed this factor through tracking system data analysis and interviews with EAL program managers and program implementers. While *lighting*, which comprised 39 percent of portfolio kilowatt-hour savings, is still the predominant end-use (as found with energy efficiency programs throughout the country), there are substantial savings in other major end-uses. These end-uses included residential HVAC and commercial projects involving custom heating and cooling, which combined to contribute 48 percent of portfolio savings.

- 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 is now delivering over half its savings through custom offerings tailored to customer needs. Public Institutions Solutions has over half of their savings through *HVAC* measures.

For the first time, *lighting* represented less than 40 percent of portfolio savings as EAL continued to address all end-uses with custom (30 percent), HVAC (18 percent), and appliances (7 percent) as the next three end-uses contributing the most to energy savings. EAL continues to expand new measures such as mini-splits and works closely with commercial customers to identify custom-efficient solutions to their energy needs. *Envelope* measures continued to be available to residential customers through the Home Energy Solutions program, the Energy Solutions for Manufactured Homes and Energy Solutions for Multifamily Homes program offerings, and the Low-Income Solutions program. Public Institutions Solutions program offerings increased savings from *HVAC* to over half of the program savings. At the same time, Small Business Solutions, which had increased savings beyond *lighting* before the COVID-19 pandemic, reverted to the majority of savings coming from *lighting* as there have been more challenges recently serving this sector. The Smart Direct Load Control pilot added to EAL's portfolio in PY2020 continues to build momentum to supplement demand savings achieved through the Residential Direct Load Control program and expand access to and use of this newer technology. The Smart Direct Load Control pilot also is actively trying to expand to small businesses. The Agricultural Irrigation Load Control program provides commercial kilowatt savings that increased from last year.

Figure 7 provides details on the end-uses for the PY2021 portfolio.

**Figure 7. Percentage of Total Portfolio Gross Savings by End-Use**



#### 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 similarly to Comprehensive Factor 3 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 PY2021 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 half of savings coming from *HVAC* measures in addition to about a 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. Of particular note, given the challenges faced by many households during the COVID-19 pandemic, EAL partnered with food banks and other organizations that serve low-income households to deliver efficient products through the Point of Purchase Solutions program.
- **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. For the participating distributors who were considered inactive in the past year, implementors called all of them and provided additional training and tools.

Table 20 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 half of savings and demand reductions are delivered to thousands of residential customers.

**Table 20. Distribution of Participating Customers by Program and Sector**

Program	Participating customers <sup>18</sup>	Percentage of sector served	Percentage of portfolio
<b>Residential</b>			
Home Energy Solutions	8,271	6%	6%
Low-Income Solutions	2,231	2%	2%
Energy Solutions for Manufactured Homes	612	0%	0%
Energy Solutions for Multifamily Homes	1,669	1%	1%
Point of Purchase Solutions—Residential Lighting and Appliances	91,907	71%	71%
Residential Direct Load Control	17,455	14%	14%
Smart Direct Load Control Pilot—Residential	2,200	2%	2%
<b>Subtotal: Residential</b>	<b>123,842</b>	<b>100%</b>	<b>97%</b>
<b>Commercial</b>			
Point of Purchase Solutions—Commercial Midstream Lighting	553	13%	0%
Large C&I Solutions	483	11%	0%
Small Business Solutions	907	21%	1%
Public Institutions Solutions	392	9%	0%
Agricultural Energy Solutions	28	1%	0%
Agricultural Irrigation Load Control	1,166	43%	1%
Smart Direct Load Control Pilot—Commercial	146	3%	0%
<b>Subtotal: Commercial</b>	<b>4,366</b>	<b>100%</b>	<b>3%</b>
<b>TOTAL</b>	<b>128,208</b>	<b>--</b>	<b>100%</b>

<sup>18</sup> 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.

## 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 challenge of lower avoided costs that has persisted, coupled with the challenges of the COVID-19 pandemic. EAL also reported strategies to maximize net benefits, which they effectively achieve based on a portfolio-level NTG ratio of 95 percent in PY2021, which increased from the PY2020 portfolio NTG ratio of 90 percent and PY2019 portfolio NTG ratio of 88 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 the energy efficiency 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. NTG ratios across programs and measures range from a low of 60 percent to a high of 104 percent. EAL and its implementation contractors actively discuss strategies to increase net savings from measures with lower NTG ratios, such as *LEDs*. Efforts were successful in PY2021 to target this measure to low-income segments through partnerships with organizations such as food banks and serving this sector through the new Low-Income Solutions program. The PY2020 LCI NTG research also showed higher NTG values for custom projects, which have continued to increase under this program in PY2021, positively affecting the NTG ratio.
- Strategies are used to keep programs cost-effective.** EAL reported that *lighting* helps keep programs cost-effective while pursuing other comprehensive end-uses of electricity. 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 PY2021 EM&V plan<sup>19</sup>.** Following EAL's review and approval, the EM&V team sent a draft EM&V Plan to the IEM in June 2021. 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 August 2021.
- **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.

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<sup>19</sup> Entergy Arkansas, LLC Program Year 2021 Evaluation Plan, Tetra Tech, August 2021.

## 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 PY2021, 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 21 below summarizes the Home Energy Solutions evaluation activities.

**Table 21. Home Energy 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 <sup>20</sup>
Deemed from prior research	Program staff interviews (2) Material review	Census	50	5	None

### 4.1 KEY FINDINGS

In PY2021, the Home Energy Solutions program achieved 29,683 MWh in gross energy savings and 9.3 MW in gross demand savings, as shown in Table 22. The Home Energy Solutions program's gross evaluated savings were slightly lower than reported energy savings and demand savings, resulting in realization rates of 98.0 percent MWh and 97.3 percent MW. The program exceeded the energy goal, achieving 114 percent, and nearly achieved the demand goal, achieving 94 percent. The EM&V team's adjustments drive these results during the tracking system review, project-level engineering desk reviews, and on-site verifications.

<sup>20</sup> 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 22. Home Energy Solutions—Reported, Evaluated, and Net Savings**

Energy/demand savings	Reported savings	Evaluated savings	Realization rate	NTG ratio <sup>21</sup>	Net savings	Program contribution to portfolio savings
Energy savings (MWh)	30,287	29,683	98.0%	104.3%	30,971	10.0%
Demand savings (MW)	9.6	9.3	97.3%	104.3%	9.7	10.2%

**Table 23. Home Energy Solutions—Goals vs. Achieved**

Program	Savings	Goal	Actual	Percentage achieved
Home Energy Solutions	Energy savings (MWh)	27,136	30,971	114%
	Demand savings (MW)	10.3	9.7	94%

## 4.2 RECOMMENDATIONS

The EM&V team identified five recommendations, shown in Table 24, for EAL's consideration from the evaluation activities.

**Table 24. Home Energy Solutions—PY2021 Recommendations**

Type	Recommendation	Key finding
Impact	<b>Recommendation 1:</b> 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—heat pump</i> measure evaluation resulted in realization rates of 97.2 percent and 97.0 percent for energy and demand savings, respectively, due to discrepancies in tracked data such as cubic feet per minute and efficiency. The <i>duct sealing—electric cooling</i> measure resulted in realization rates of 101.2 percent and 101.2 percent for energy and demand savings, respectively, due to discrepancies in efficiency.
Impact	<b>Recommendation 2:</b> Continue to collect actual efficiencies for HVAC systems for duct sealing projects, if available, rather than technical reference manual (TRM) baselines.	The EM&V team identified instances where HVAC system efficiencies were available, but TRM defaults were used. Additional QA/QC of HVAC model numbers could help identify those discrepancies.

<sup>21</sup> Based on PY2020 process evaluation.



Type	Recommendation	Key finding
Impact	<b>Recommendation 3:</b> 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.
Process	<b>Recommendation 4:</b> Increase customer service training for contractors.	During the site visits, many customers expressed there wasn't sufficient communication with the contractors; in some cases, customers indicated they are still waiting for follow-ups from contractors who are waiting on materials (i.e., insulation) to complete project work. Ongoing supply chain and staffing issues from the COVID-19 pandemic may partially be causing this finding.
Process	<b>Recommendation 5:</b> Consider a $\pm 10$ percent QA/QC threshold for ceiling insulation square footage.	In cases where the reported square footage differs from the square footage listed in county records or other online sources such as Zillow, using a $\pm 10$ percent threshold for adjustment during QA/QC will help mitigate risk. The EM&V team did not adjust savings for ceiling insulation projects based on square footage variance in PY2021.

## 4.3 METHODOLOGY

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

### 4.3.1 Impact Evaluation

The evaluated savings results, established at the project level, are based on savings calculations and adjustments made during the tracking system review and 50 engineering desk reviews. Final evaluated savings account for the tracking system review and desk review level adjustments for all measure categories.

#### 4.3.1.1 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 TRM 8.2 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 8.2, and (3) assess the tracking system's ability to support QA/QC activities, including future evaluation needs.

### 4.3.1.2 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, PY2021 participant records were assigned measure categories, and the EM&V team created a sample of 50 participants for desk reviews. Participants receiving non-direct-install measures (i.e., envelope and HVAC projects) were prioritized and selected from the data extract. Table 25 provides details on sampled savings by measure category for the program.

**Table 25. Home Energy Solutions—Summary of Sampled Savings by Measure Category<sup>22</sup>**

Measure category	Reported kWh	Sampled kWh	Percentage kWh sampled	Reported kW	Sampled kW	Percentage kW sampled
Appliances	719,716	2,774	0.4%	85.4	0.3	0.4%
Domestic hot water	96,320	1,606	1.7%	10.0	0.2	1.7%
Envelope	5,074,812	47,967	0.9%	2814.9	25.1	0.9%
HVAC	18,903,250	169,912	0.9%	5120.6	45.7	0.9%
Lighting	1,127,497	5,305	0.5%	175.2	0.8	0.5%
<b>Total</b>	<b>25,921,594</b>	<b>227,564</b>	<b>0.9%</b>	<b>8,206.2</b>	<b>72.1</b>	<b>0.9%</b>

### 4.3.1.3 On-Site Verification

Five projects received on-site verifications to examine whether participating trade allies' measurements were replicable and to verify the installation of incented measures. Due to the COVID-19 pandemic, 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 26 details the five projects that received on-site verification in PY2021.

<sup>22</sup> Reported savings totals are based on the tracking system at the time of the sample request. This data extract was obtained on October 1, 2021.

**Table 26. 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	6,864	2.3
HVAC	5	16,557	4.7
Lighting	4	826	0.1
<b>Total</b>	<b>5</b>	<b>25,256</b>	<b>7.3</b>

## 4.4 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 level and program level based on the EM&V activities.

### 4.4.1 Tracking System Review

The overall Home Energy Solutions program evaluated tracking system savings resulted in identical savings (100 percent kW and kWh 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 27.

**Table 27. 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	832,980	98.8	832,979	98.8	100.0%	100.0%
Domestic hot water	108,512	11.3	108,512	11.3	100.0%	100.0%
Envelope	5,875,037	3,264.8	5,875,037	3,264.8	100.0%	100.0%
HVAC	22,113,183	5,999.2	22,113,183	5,999.2	100.0%	100.0%
Lighting	1,357,317	210.8	1,357,317	210.9	100.0%	100.0%
<b>Total</b>	<b>30,287,029</b>	<b>9,585</b>	<b>30,287,029</b>	<b>9,585</b>	<b>100.0%</b>	<b>100.0%</b>

### 4.4.2 Desk Review Results

The EM&V team conducted desk reviews of 50 projects to compare values recorded on project documentation with those available in the tracking system. Some discrepancies were found, but desk reviews produced similar results to the reported savings—the sites that received desk reviews reported 227,564 kWh in energy savings and 72.1 kW in demand savings. Desk review findings from projects that did not receive 100 percent realization rates are detailed below.

- **JobId: EAHEPS1546977182.** The project included duct sealing on a heat pump system and reported a pre-improvement duct leakage rate of 620 CFM. However, the photos provided in the documentation showed a pre-improvement duct leakage rate of 509 CFM. The project also reported a heating seasonal performance factor of 8, and a seasonal energy efficiency rating of 13. However, the EM&V found efficiencies of 8.5 HSPF and 14.5 SEER. Adjusting for these factors resulted in project-level realization rates of 67.6 percent and 65.3 percent for energy and demand savings, respectively.
- **JobId: EAHEPS1546871596.** 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 installed equipment's heating efficiency to be 9.5 HSPF. The documentation did not include a specification sheet or other documentation indicating a 7.7 HSPF. The reported SEER value was verified. The heating efficiency adjustment resulted in an overall project-level realization rate of 91.5 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 HSPF was reviewed and adjusted to 8.9 HSPF, resulting in an overall project-level realization rate of 95.1 percent and 100.0 percent for energy and demand savings, respectively.
- **JobId: EAHEPS1546719739.** The project included duct sealing on a heat pump system. The system's reported heating and cooling efficiencies were 7.7 HSPF and 12 SEER, respectively; however, the EM&V team found the installed equipment's cooling efficiency to be 13 SEER. The documentation did not include a specification sheet or other documentation indicating a 7.7 HSPF and could not verify using the model number. The cooling efficiency adjustment resulted in an overall project-level realization rate of 98.0 percent and 94.1 percent for energy and demand savings, respectively.
- **JobId: EAHEPS1546699501.** The project included duct sealing on an electric AC unit with a gas furnace system. The reported cooling efficiency of the system was 12 SEER; however, the EM&V team found the installed equipment's cooling efficiency to be 10 SEER. The cooling efficiency adjustment resulted in an overall project-level realization rate of 115.6 percent and 113.9 percent for energy and demand savings, respectively.
- **JobId: EAHEPS1547551641.** The project included duct sealing on a heat pump system. The reported heating efficiency of the system was 8.2 HSPF; however, the EM&V team found the equipment's heating efficiency to be 10 HSPF. The documentation did not include a specification sheet or other documentation indicating an 8.2 HSPF. The reported SEER value was verified. The heating efficiency adjustment resulted in an overall project-level realization rate of 91.4 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 HSPF was reviewed and adjusted to 9.3 HSPF, resulting in an overall project-level realization rate of 94.4 percent and 100.0 percent for energy and demand savings, respectively.

- **JobIds: EAHEPS1546697506 and EAHEPS1546697046.** The project included air sealing, heat pump duct sealing, LEDs, and a smart strip across multiple *JobIDs*. The reported cooling efficiency of the system was 11.5 SEER; however, the EM&V team found the equipment's cooling efficiency to be 14 SEER. The reported savings for LEDs were calculated using the electric resistance factors rather than the heat pump factors. The EM&V team also found that the smart strip was not in use and adjusted savings accordingly. The project-level realization rates are 91.5 percent and 86.5 percent for energy and demand savings, respectively.
- **JobId: EAHEPS1547558736.** The project included duct sealing on an electric AC unit with a gas furnace system. The reported cooling efficiency of the AC system was 15 SEER; however, the EM&V team found the equipment's cooling efficiency to be 11 SEER. The cooling efficiency adjustment resulted in an overall project-level realization rate of 136.4 percent for both energy and demand savings.
- **JobId: EAHEPS1547317138.** The project included air sealing, heat pump duct sealing, LEDs, low-flow showerheads and faucet aerators, and a smart strip. The reported heating efficiency of the system was 8 HSPF; however, the EM&V team found the installed equipment's heating efficiency to be 7.7 HSPF. The faucet aerator flow rate was reported in the tracking data as 1.5 gallons per minute (GPM); however, The EM&V team found that the aerator was 1 GPM on the invoice. The EM&V team adjusted savings for these measures, resulting in the overall project-level realization rates of 102.1 percent and 100.1 percent for energy and demand savings, respectively. However, additional documentation was provided by the implementer after the evaluation interim results were published. These projects were reviewed and adjusted to 1.5 GPM, resulting in overall project-level realization rates of 101.9 percent and 100.0 percent for energy and demand savings, respectively.
- **JobId: EAHEPS1546905612.** The project included 2,775 square feet of installed ceiling insulation with a pre-retrofit R-value of 7; however, using Building Performance Institute guidance for ceiling insulation, the existing batt insulation appears to be R-10. The EM&V team also found the square footage of the home to be 2,711 square feet, according to online searches of the home address. Using a ten percent allowance, the EM&V team evaluated savings using the reported square footage of 2,775 square feet. The adjusted baseline R-value resulted in project-level realization rates of 62.1 percent and 64.4 percent for energy and demand savings, respectively.
- **JobId: EAHEPS1547238904.** The project included 2,065 square feet of installed ceiling insulation with a pre-retrofit R-value of 2; however, using BPI guidance for ceiling insulation, the existing batt insulation appears to be R-5. The adjustment to the baseline R-value resulted in project-level realization rates are 71.5 percent and 66.8 percent for energy and demand savings, respectively.
- **JobId: EAHEPS1547363498 and EAHEPS1547274491.** The project included duct sealing, LEDs, and installation of a smart strip across multiple *JobIDs*. The EM&V team found that the smart strip was installed in an office space rather than the reported entertainment center and adjusted savings accordingly. The project-level realization rates are 90.7 percent and 97.3 percent for energy and demand savings, respectively.

More generally, the EM&V team found that for some projects, the documentation lacked key information such as ceiling insulation square footage, documents supporting HSPF, location of power strips, or photos too small or difficult to read. In some cases, the EM&V team found discrepancies likely due to rounding.

Overall, program-level realization based on desk reviews was 98.1 percent and 97.3 percent for energy and demand savings, respectively, due to the adjustments discussed above. See Table 28.

**Table 28. 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	5,085	5,041	0.8	0.8	99.1%	100.0%
Air infiltration	20,711	20,710	6.6	6.6	100.0%	100.0%
Ceiling insulation	27,256	25,629	18.5	16.9	94.0%	91.1%
Duct sealing—AC with resistance heat (tested)	22,420	22,420	2.1	2.1	100.0%	100.0%
Duct sealing—electric cooling (tested)	48,014	48,578	26.4	26.7	101.2%	101.2%
Duct sealing—heat pump (tested)	99,479	96,679	17.2	16.7	97.2%	97.0%
LED bulbs candelabra 4 W (indoor)	220	220	0.0	0.0	100.0%	100.1%
Low-flow faucet aerator	168	168	0.0	0.0	100.0%	100.0%
Low-flow showerheads	1,437	1,437	0.1	0.1	100.0%	100.0%
Smart strip (direct install)	2,774	2,352	0.3	0.3	84.8%	84.2%
<b>Total</b>	<b>227,564</b>	<b>223,235</b>	<b>72.1</b>	<b>70.2</b>	<b>98.1%</b>	<b>97.3%</b>

#### 4.4.3 On-Site Verification Results

Five projects received on-site verifications to examine whether participating trade allies' measurements were replicable and to verify the installation of incented measures. Due to the COVID-19 pandemic, 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 98.8 percent and 100.5 percent for energy and demand savings, respectively, as detailed in Table 29.

**Table 29. 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	587	0.1	0.1	58.2%	56.7%
Envelope	6,864	6,864	2.3	2.3	100.0%	100.0%
HVAC	16,557	16,725	4.7	4.8	101.0%	101.9%
Lighting	826	782	0.1	0.1	94.7%	100.0%
<b>Total</b>	<b>25,256</b>	<b>24,959</b>	<b>7.3</b>	<b>7.3</b>	<b>98.8%</b>	<b>100.5%</b>

## 4.5 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 98.0 percent for energy savings and 97.3 percent for demand savings. Table 30 shows the final savings.

**Table 30. 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	1,045,661	163.2	1,036,630	163.2	99.1%	100.0%	Desk review, on-site verification, and tracking system review
Air conditioner tune-up—manifold measurement	485,193	267.3	485,193	267.3	100.0%	100.0%	Tracking system review
Air infiltration	2,307,817	731.6	2,307,732	731.5	100.0%	100.0%	Desk review, on-site verification, and tracking system review
Ceiling insulation	3,567,221	2,533.2	3,354,283	2,307.4	94.0%	91.1%	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	
Duct replacement—electric resistance	2,711	0.2	2,711	0.2	100.0%	100.0%	Tracking system review
Duct replacement—heat pump	38,749	6.7	38,749	6.7	100.0%	100.0%	Tracking system review
Duct sealing—AC with resistance heat (tested)	2,948,068	284.4	2,948,068	284.4	100.0%	100.0%	Desk review and tracking system review
Duct sealing—electric cooling (tested)	6,160,290	3,352.7	6,232,647	3,392.1	101.2%	101.2%	Desk review, on-site verification, and tracking system review
Duct sealing—heat pump (tested)	11,654,279	1,990.4	11,326,303	1,930.1	97.2%	97.0%	Desk review, on-site verification, and tracking system review
LED (retail): Outdoor, general purpose, all wattages	2,000	-	2,000	-	100.0%	N/A	Tracking system review
LED bulbs BR30 8 W (indoor)	94,157	15.1	94,157	15.1	100.0%	100.0%	Tracking system review
LED bulbs BR30 8 W (outdoor)	7,664	-	7,664	-	100.0%	N/A	Tracking system review
LED bulbs candelabra 4 W (indoor)	207,596	32.5	207,596	32.6	100.0%	100.1%	Desk review and tracking system review
LED bulbs candelabra 4 W (outdoor)	239	-	239	-	100.0%	N/A	Tracking system review
Low-flow faucet aerator	15,914	1.7	15,916	1.7	100.0%	100.0%	Desk review and tracking system review
Low-flow showerheads	92,598	9.6	92,582	9.6	100.0%	100.0%	Desk review and tracking system review
Residential heat pump tune-up	657,373	97.6	657,373	97.6	100.0%	100.0%	Tracking system review
Smart strip (direct install)	832,980	98.8	706,300	83.3	84.8%	84.2%	Desk review, on-site verification, and tracking system review
Smart thermostats	166,522	-	166,522	-	100.0%	N/A	Tracking system review
<b>Total</b>	<b>30,287,029</b>	<b>9,584.9</b>	<b>29,682,663</b>	<b>9,322.6</b>	<b>98.0%</b>	<b>97.3%</b>	

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



## 4.6 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.

## 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 PY2021, 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 29 projects, and on-site measurement and verification (M&V) of 3 projects. In addition, the net-to-gross (NTG) ratio was updated based on process evaluation research activities, which included 20 participant surveys and five market actor interviews. Table 31 details the evaluation activities completed for the program in PY2021.

**Table 31. Multifamily 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 <sup>23</sup>
Estimated from PY2021 process evaluation research	Program staff interviews (2) Material review Participant surveys (20) Market actor interviews (5)	Census	29	3	None

### 5.1 KEY FINDINGS

In PY2021, the Multifamily Homes program achieved 8,444 MWh in gross energy savings and 1.3 MW in gross demand savings, as shown in Table 32. The Multifamily Homes program's gross savings were slightly greater than reported energy savings and demand savings, resulting in realization rates of 101.1 percent and 105.3 percent (megawatt-hours and megawatts, respectively). The program achieved 60 percent of target energy savings and 24 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.

<sup>23</sup> 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 32. Multifamily 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)	8,356	8,444	101.1%	100.0%	8,444	2.7%
Demand savings (MW)	1.2	1.3	105.3%	100.0%	1.3	1.4%

**Table 33. Multifamily Homes—Goals vs. Achieved**

Program	Savings	Goal	Actual	Percentage achieved
Energy Solutions for Multifamily Homes	Energy savings (MWh)	14,010	8,444	60%
	Demand savings (MW)	5.5	1.3	24%

## 5.2 RECOMMENDATIONS

The EM&V team identified six recommendations, shown in Table 34, for EAL’s consideration from the evaluation activities.

**Table 34. Multifamily Homes—PY2021 Recommendations**

Type	Recommendation	Key finding
Impact	<b>Recommendation 1:</b> 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</i> measure evaluation resulted in realization rates of 87.3 percent and 88.3 percent for energy and demand savings, respectively, due to discrepancies in tracked data such as cubic feet per minute (CFM) and efficiency. The <i>duct sealing with resistance heat</i> measure resulted in realization rates of 100.8 percent for energy and demand savings, due to discrepancies in CFM.
Impact	<b>Recommendation 2:</b> Continue to accurately track cooling capacity in ArchEE for <i>duct sealing</i> measures since it is a key parameter in calculating savings.	Cooling capacity is used to calculate the pre-leakage cap for the <i>duct sealing</i> measure; it was tracked for most projects, but there were minor discrepancies regarding capacity for some projects.
Impact	<b>Recommendation 3:</b> Ensure all documentation is available and legible and key parameters, such as model number, insulation level, and flow rate, are identifiable.	In some cases, the EM&V team found that the HVAC equipment nameplate photo or existing ceiling insulation ruler photo was illegible or not included. In those cases, capacity and efficiency or existing R-value could not be verified. Care should also be taken in documenting aerator flow rates.

Type	Recommendation	Key finding
Process	<b>Recommendation 4:</b> Increase customer service training for contractors.	During the site visits, many customers expressed there wasn't sufficient communication with the contractors; in some cases, customers indicated they are still waiting for follow-ups from contractors who are waiting on materials (i.e., insulation) to complete project work. Ongoing supply chain and staffing issues from the pandemic may partially be causing this finding.
Process	<b>Recommendation 5:</b> Work with the program implementer to ensure timely responses to trade allies.	While feedback on the implementation contractor was primarily positive, a couple of the trade allies felt there could be better communication from the program implementer and more timely responses to questions. As mentioned above, ongoing pandemic staffing issues may be partially responsible for this finding.
Process	<b>Recommendation 6:</b> 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.	Market actors did not clearly understand how quarterly allocations worked, impacting how much outreach they were willing to do.

## 5.3 METHODOLOGY

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

### 5.3.1 Impact Evaluation

To assess program impacts, the EM&V team conducted a census tracking system review, desk reviews on a randomly selected sample of 29 projects, and on-site M&V of 3 projects. Below we overview the evaluation and sampling methodology.

#### 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) 8.2 (TRM 8.2) 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 8.2. 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

The EM&V team conducted desk reviews of 29 projects selected from PY2021 participant records to compare values recorded on project documentation with those available in the tracking system. 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.

Participants implementing envelope and HVAC projects were prioritized and selected from the data extract. Table 35 provides details on sampled savings by measure category for the program.

**Table 35. Multifamily Homes—Summary of Sampled Savings by Measure Category**

Measure category	Reported kWh <sup>24</sup>	Sampled kWh	Percentage kWh sampled	Reported kW	Sampled kW	Percentage kW sampled
Appliances	53,122	504	0.9%	6.3	0.1	1.0%
Domestic hot water	55,834	1,150	2.1%	5.8	0.1	2.1%
Envelope	1,106,795	35,003	3.2%	198.9	4.5	2.3%
HVAC	5,580,231	138,022	2.5%	701.0	16.7	2.4%
Lighting	131,965	2,072	1.6%	22.5	0.4	1.8%
<b>Total</b>	<b>6,927,947</b>	<b>176,752</b>	<b>2.6%</b>	<b>934.5</b>	<b>21.9</b>	<b>2.3%</b>

### 5.3.1.3 On-Site M&V

Three projects received on-site verifications to examine whether participating trade allies' measurements were replicable and to verify the installation of incented measures. Due to the COVID-19 pandemic, 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 36 details the three projects that received on-site verification in PY2021.

**Table 36. Multifamily Homes—Summary of Sampled Savings by Measure Category**

Measure category	Number of sites	Reported kWh	Reported kW
Domestic hot water	1	34	0.0
Envelope	1	125	0.0
HVAC	3	10,490	1.6
Lighting	1	174	0.0
<b>Total</b>	<b>3</b>	<b>10,823</b>	<b>1.7</b>

<sup>24</sup> Reported data as of time of sampling, October 1, 2021.

### 5.3.2 Process Evaluation

To understand the program processes, the evaluation team conducted interviews with program participants and market actors. Below is an overview of the evaluation and sampling methodology.

#### 5.3.2.1 Participant Interviews

The participant survey was used to inform the NTG analyses and process evaluations, based on the TRM 8.2 EM&V Protocols guidance. The sample frame for the participant survey included residents and landlords who had installed at least one measure through the program between January 2020 and June 2021. If unique participants installed more than one measure under the program, we asked them about two of their installed measures. The survey included a series of questions to estimate free-ridership and participant spillover for the NTG evaluations. The survey included a series of questions exploring whether participants installed program-discounted energy-efficient upgrades (e.g., *air sealing, duct sealing, AC tune-ups, and direct-install* measures) and the importance of program discounts on those decisions. To help inform the process evaluations, we used the participant survey to investigate sources of awareness and preferred methods of communication, participation experiences, program satisfaction, and demographics or firmographics.

Complexes (e.g., units on the same street) were randomly sampled and sent to the implementation contractor to identify the most appropriate tenant or property manager to contact for the complex. Sampled participants were contacted and confirmed they were knowledgeable about the decision to conduct upgrades through the program.

The sample frame for the Multifamily Homes program participants consisted of a random sample of different participation periods as outlined in the table below to estimate both spillover and free-ridership from the program. The EM&V team worked with the implementation contractor to identify the appropriate respondent for each complex. The table below summarizes the number of records in the final survey sample frame.

**Table 37. Multifamily Homes—Participant Survey Sample Frame Summary**

Participation period	Count of participants in population*	Reported (ex-ante) kWh	Sampled cases	Estimated completed surveys**
01/01/2020 – 06/30/2020	146	931,649	30	6
07/01/2020 – 12/31/2020	198	1,727,979	32	7
0/01/2021 – 06/30/2021	179	1,599,369	28	7
<b>Total</b>	<b>523</b>	<b>4,258,997</b>	<b>90</b>	<b>20</b>

The participant survey was implemented with the EM&V team's in-house Survey Research Center (SRC) staff. Calling began September 30, 2021, and ended October 21, 2021; the EM&V team completed a total of 20 surveys. Table 38 shows the participant survey response rate.

**Table 38. Multifamily Homes—Participant Survey Response Rate**

<b>Disposition</b>	<b>Overall</b>
<b>Starting sample</b>	<b>90</b>
Work not completed	2
<b>Eligible sample</b>	<b>88</b>
Does not recall participating	1
Decision-maker not available	12
Refusal	8
Incompletes (partial surveys)	2
Language barrier	0
Bad number	11
Attempted but not completed	34
<b>Completed</b>	<b>20</b>
<b>Response rate</b>	
<b>Response rate (completed/eligible sample)</b>	<b>20.4%</b>

### 5.3.2.2 Market Actor Interviews

The market actor interviews were used to inform the process evaluation and assess program influence for the Multifamily Homes program. The EM&V team interviewed five market actors who participated in the program during PY2021; eligible market actors were contacted via email and phone calls. Phone interviews were conducted between September 16, 2021, and October 18, 2021. Several of the market actors completed projects for multiple programs.

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 market actor interviews explored (1) outreach and understanding of program eligibility, (2) interactions with EAL and ICF, (3) program satisfaction, (4) program attribution indicators, and (5) the impact of the COVID-19 pandemic.

Interviews were completed with a variety of market actors based on the number of projects they had completed.

**Table 39. Market Actor Interviews by Activity Level**

<b>Number of projects</b>	<b>Completes</b>
Small (1–5 accounts)	1
Medium (6–59 accounts)	2
Large (60–559 accounts)	2
<b>Total</b>	<b>5</b>

## 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 nearly identical savings (99.9 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 40. Multifamily Homes—PY2021 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	79,441	11.0	79,441	11.0	100.0%	100.0%
Domestic hot water	58,635	6.1	58,635	6.1	100.0%	100.0%
Envelope	1,285,970	250.6	1,285,970	250.6	100.0%	100.0%
HVAC	6,760,399	930.6	6,757,031	930.0	100.0%	99.9%
Lighting	171,386	29.9	171,386	29.9	100.0%	100.0%
<b>Total</b>	<b>8,355,831</b>	<b>1,228.2</b>	<b>8,352,463</b>	<b>1,227.7</b>	<b>100.0%</b>	<b>100.0%</b>

### Duct Sealing

- **Joblds: EAMFPS1546646646 and EAMFPS1546316978.** The *Change in CFM* column in ArchEE does not calculate the difference in *CFM<sub>pre</sub>* and *CFM<sub>post</sub>* in accordance with the CFM cap resulting in a discrepancy in savings.

### 5.4.2 Desk Review Results

The EM&V team conducted desk reviews of 29 projects to compare values recorded on project documentation with those available in the tracking system. Desk reviews produced similar results to the reported savings in most cases—the sites that received desk reviews reported 176,752 kWh in energy savings, and the EM&V team evaluated 176,292 kWh. Desk review findings from projects that did not receive 100 percent realization rates are detailed below.

- **Jobld: EAMFPS1546519716.** The project included air sealing, duct sealing, ceiling insulation, and LEDs in a multifamily building with a central heat pump. The EM&V team found the installed equipment's heating efficiency to have a nominal heating seasonal performance factor (HSPF) of 9.5, and the tracked heating efficiency was 7.7 HSPF. The documentation did not include a specification sheet or other documentation



indicating a 7.7 HSPF. The heating efficiency adjustment resulted in an overall realization rate of 94.5 percent and 100.0 percent for energy and demand savings, respectively.

- **JobId: EAMFPS1547016003.** The project reported a tune-up of a one-ton air conditioner (AC) for a multifamily unit. The EM&V team found that the AC system was a two-ton system based on the specification sheet for the model number documented. Adjusting the capacity resulted in project realization rates of 202.5 percent for both energy and demand savings.
- **JobId: EAMFPS1546899124.** The project included duct sealing in a multifamily home with a central AC and electric resistance furnace. The reported capacity was 1.5 tons, which limited the pre-retrofit leakage to the maximum allowed by the TRM, 240 CFM. However, the EM&V team found that it was a two-ton system, which would increase the leakage allowance to 320 CFM. Because the tested pre-retrofit leakage rate was lower than the maximum leakage for a two-ton system, the EM&V team calculated savings using the tested leakage rate. The adjustment in pre-retrofit CFM resulted in an overall realization rate of 115.9 percent for both energy and demand savings.
- **JobIds: EAMFPS1547313161 and EAMFPS1547313519.** These projects included air sealing and duct sealing for two units in a multifamily building with a central heat pump. The reported pre-retrofit duct leakage for both units was 320 CFM, the maximum pre-retrofit duct leakage allowed by the TRM for a two-ton system. However, the EM&V team found that both units had a 1.5-ton system, which would limit the duct leakage allowance to 240 CFM. The EM&V team calculated savings using the maximum pre-retrofit duct leakage rate for a 1.5-ton unit. The adjustment in pre-retrofit CFM resulted in an overall realization rate of 51.5 percent and 51.9 percent for energy and demand savings, respectively, for EAMFPS1547313161 and 69.3 percent and 69.4 percent for energy and demand savings, respectively, for EAMFPS1547313519.
- **JobIds: EAMFPS1546598139, EAMFPS1546657961, and EAMFPS1546553877.** These projects each had faucet aerators directly installed. Each faucet aerator flow rate was reported in the tracking data as 1.5 gallons per minute (GPM). However, the aerators were noted to be 1 GPM on the invoice. The EM&V team adjusted savings for these measures, which resulted in the overall desk review realization rates of 141 percent realization rates for both energy and demand savings. However, additional documentation was provided by the implementer after the evaluation interim results were published. These projects were reviewed and adjusted to 1.5 GPM, resulting in 100.0 percent realization rates for both energy and demand for all projects.

Overall, program-level realization based on desk reviews was 99.7 percent and 101.5 percent for energy and demand savings, respectively, due to the adjustments discussed above. See Table 41.

**Table 41. Multifamily Homes—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	2,072	2,072	0.4	0.4	100.0%	100.0%
Air conditioner tune-up—manifold measurement	2,096	3,195	1.2	1.8	152.5%	152.5%
Air infiltration	27,232	27,232	2.6	2.6	100.0%	100.0%
Ceiling insulation	7,772	7,772	1.9	1.9	100.0%	100.0%
Duct sealing—AC with resistance heat (tested)	116,606	117,502	12.3	12.4	100.8%	100.8%
Duct sealing—heat pump (tested)	19,320	16,865	3.3	2.9	87.3%	88.3%
Low-flow faucet aerator	264	263	0.0	0.0	99.9%	99.9%
Low-flow showerheads	887	887	0.1	0.1	100.0%	100.0%
Smart strip (direct install)	504	504	0.1	0.1	100.0%	100.0%
<b>Grand total</b>	<b>176,752</b>	<b>176,292</b>	<b>21.9</b>	<b>22.2</b>	<b>99.7%</b>	<b>101.5%</b>

### 5.4.3 On-Site Verification Results

Three projects received on-site verifications to examine whether participating trade allies' measurements were replicable and to verify the installation of incented measures. Due to the COVID-19 pandemic, the EM&V team did not perform testing but rather made process observations and verified measure installation. One scheduled site was verified through a phone interview at the customer's request due to COVID-19. 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 42.

**Table 42. Multifamily Homes—On-Site Verification Results**

Measure category	Reported savings (kWh)	Evaluated savings (kWh)	Reported savings (kW)	Evaluated savings (kW)	Energy realization rate	Demand Realization rate
Domestic hot water	33.6	33.6	0.00	0.00	100.0%	100.0%
Envelope	125.2	125.2	0.02	0.02	100.0%	100.0%
HVAC	10,490.3	10,490.3	1.60	1.60	100.0%	100.0%
Lighting	173.6	173.6	0.03	0.03	100.0%	100.0%
<b>Total</b>	<b>10,822.7</b>	<b>10,822.7</b>	<b>1.66</b>	<b>1.66</b>	<b>100.0%</b>	<b>100.0%</b>

## 5.5 DETAILED PROCESS EVALUATION RESULTS

The process evaluation activities included participant and market actor interviews. We present detailed process results from the interviews below, followed by detailed NTG results.

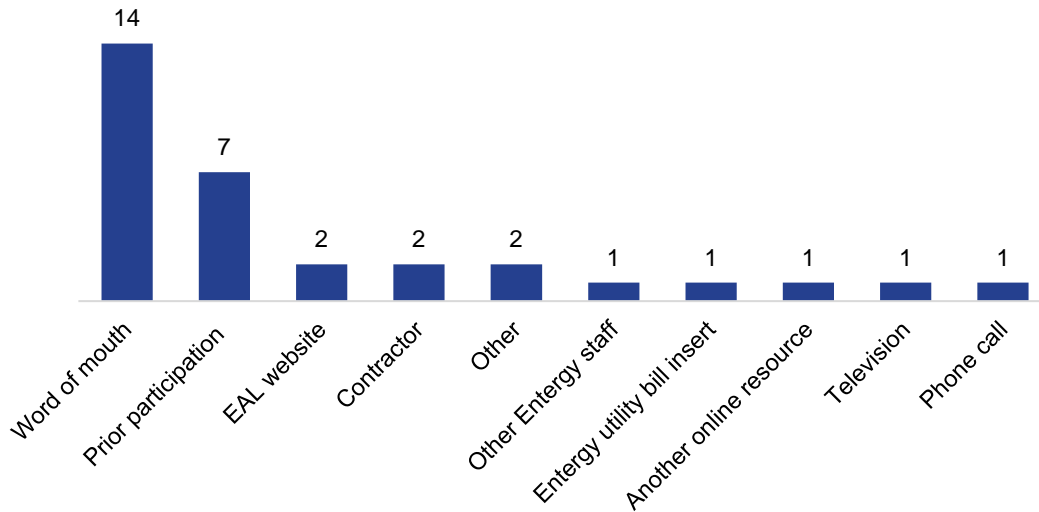
### 5.5.1 Participant Survey

The EM&V team conducted 20 telephone surveys representing 35 distinct projects with recent program participants for the participant interviews. Participants surveyed included both individual residents and managers who organized program participation across multifamily complexes. 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.

#### 5.5.1.1 Program Marketing

Respondents most commonly reported learning about the Multifamily Homes program through word of mouth (14 of 20 respondents); the next most frequently mentioned sources were from prior participation in an EAL program (7 respondents), followed by the EAL website and a contractor (2 respondents each). Figure 8 shows how participants learned about the Multifamily Homes program.

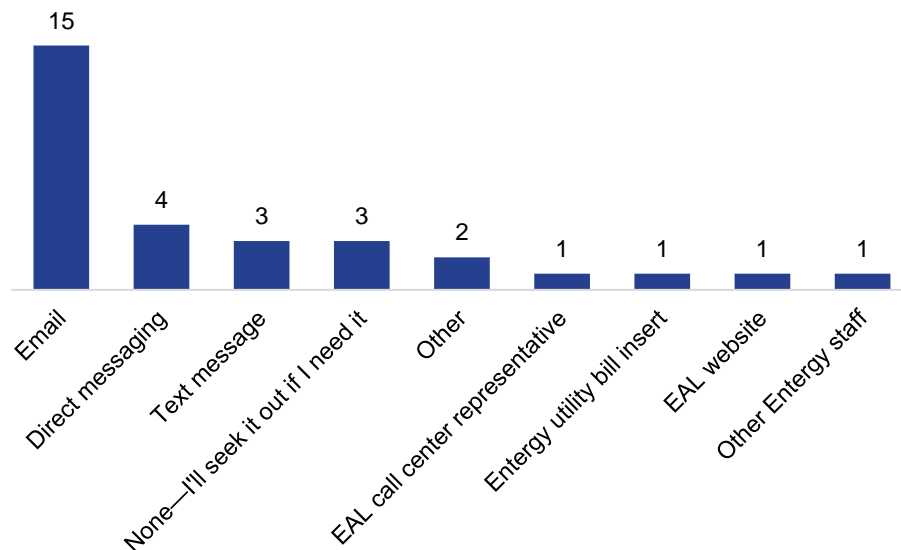
**Figure 8. How Participants Learned about EAL’s Multifamily Homes Program (n=20)**



\*Multiple responses were allowed.  
 \*\*Don't know and refused responses excluded.

In addition to how they learned about the program, respondents were also asked how they would prefer to receive information about EAL’s energy efficiency programs in the future. Unlike how they heard about the program, respondents indicated they preferred to hear about it through email (15 of 20 respondents); other common responses included direct messaging (4 respondents) and text message (3 respondents). Three respondents indicated that they did not want to be sent information; if they were going to participate or find information, they would look for it. Participants’ preferred ways of learning about energy efficiency programs are detailed in Figure 9.

**Figure 9. How Participants Prefer to Receive Information about EAL’s Programs (n=20)**



\*Multiple responses were allowed.

### 5.5.1.2 Participant Experience

As far as how long respondents indicated they had to wait before a contractor came to their property, 5 respondents (out of 16) waited less than one week. Another five respondents reported waiting between one to two weeks. Four respondents waited two to four weeks, and two respondents waited more than four weeks for the contractor to complete the upgrades they received through the program.

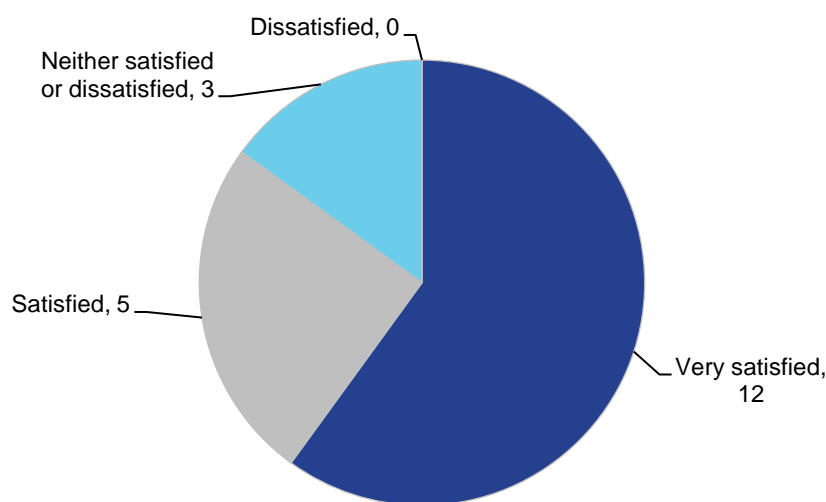
Two respondents reported experiencing obstacles or barriers while in the program. One respondent had a poor experience with their first provider and had to get a new one after reaching out to Entergy; the second respondent said it was difficult to find contractors.

Almost all respondents (15 of 17) reported making all of the energy efficiency improvements recommended by the program. The remaining two respondents mentioned making some of the recommended improvements. These respondents provided reasons such as *being too busy* and *the upgrades being too costly* for not making all of the recommended improvements at this time.

### 5.5.1.3 Participant Satisfaction

Overall, participants rated their satisfaction with the program highly. Eighty-five percent of participants said they were either *very satisfied* or *satisfied* with the Multifamily Homes program overall (12 and 5 respondents, respectively, of 20 respondents). Three respondents indicated they were *neither satisfied nor dissatisfied* with the program, and no interviewed participants said they were *dissatisfied*.

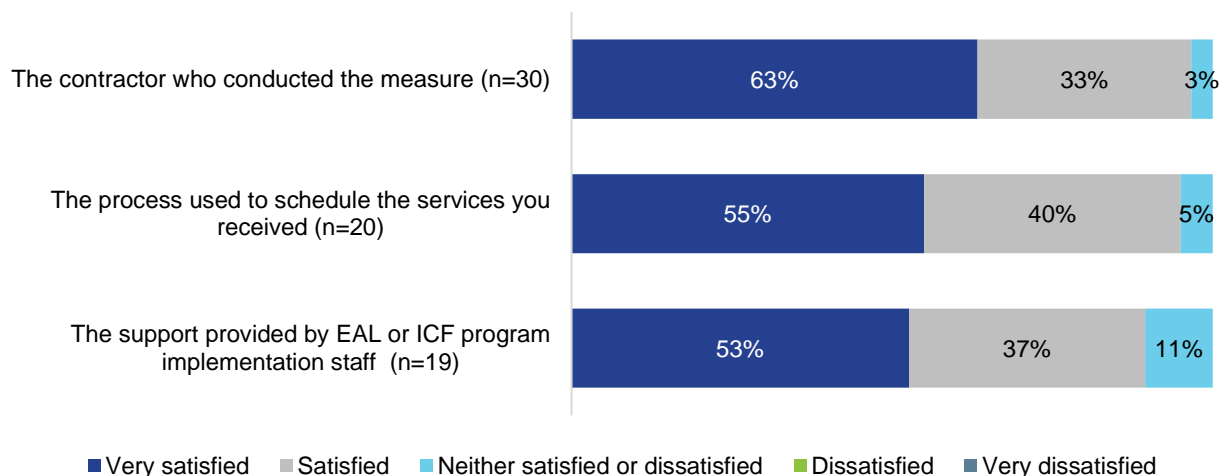
**Figure 10. Participant Satisfaction with Multifamily Homes Program (n=20)**



Respondents who were less than *very satisfied* with the program were asked if there was anything Entergy could have done to improve their experience in the program. One respondent indicated Entergy could improve their experience with the program by bringing back the previous implementer of the program.

Figure 11 shows satisfaction ratings relating to specific aspects of participants' experiences with the program, including the contractor who installed program measures, the process used to schedule the services received by participants, and the support provided by Entergy or implementation staff. Like overall program satisfaction, ratings were high across all specific program aspects, with over one-half of respondents saying they were *very satisfied* with each aspect (10 respondents).

**Figure 11. Participant Satisfaction with Multifamily Homes Program Aspects**



\*Don't know and refused responses are excluded.

Another indicator of program satisfaction is customers' propensity to recommend the program to others. All participants surveyed (19 respondents) said that they would recommend Entergy's Multifamily Homes program to others if provided the opportunity. Unprompted, two respondents indicated they had already recommended the program to others.

Participants' overall satisfaction with the program was also seen in their satisfaction with Entergy as their electric provider. Of the 20 respondents, 13 reported being either *very satisfied* or *satisfied* with Entergy (5 and 8 respondents, respectively). Three respondents indicated they were *neither satisfied nor dissatisfied*, three respondents indicated they were *dissatisfied*, and one respondent reported being *very dissatisfied*.

#### 5.5.1.4 COVID-19 Impact

The survey included a few questions to understand the effects of COVID-19. When asked about any obstacles in making energy efficiency improvements, 11 of the 20 respondents felt they had no obstacles. Obstacles mentioned included access to apartments or units (3 respondents), the availability of equipment and cost of labor (2 respondents), and being around others because of COVID-19 (1 respondent). The remaining respondents did not respond.

Two respondents had safety concerns with external contractors conducting work in homes or buildings. These respondents felt that wearing masks and testing would help ease those concerns.

We also asked survey respondents about their interest in the program offering virtual assistance where a program team member would talk with them over a secure video application to discuss and review energy-saving opportunities. Most respondents were *not at all interested* in the offering (12 of 19 respondents); six respondents were *somewhat interested*, and one respondent was *very interested*.

### 5.5.1.5 Respondent Profiles

Respondents of the Multifamily Homes program were a mix of tenants and property managers (7 and 13 respondents, respectively). Tenant respondents represented all age groups, with most participants being 55 and older (5 of 7 respondents). Nearly one-half of respondents (4 of 7) reported earning less than \$25,000 in 2020, and over one-half of respondents (4 of 7) had completed at least some college-level courses. The average household size among participants surveyed was 1.9 full-time residents, with all households ranging from one to three members.

Property manager respondents were responsible for, on average, almost 27 different sites or locations and were responsible for an average of 114 units. Seven of the 12 property manager respondents indicated all of their units participated in the Energy program. The remaining property managers estimated between 7 and 67 percent of their units participated in the program. Reasons for not all units participating varied for each; three units didn't qualify, one hasn't had time, one didn't know about the program, and one required tenant approval.

As property managers consider making energy-saving improvements, four respondents (of 13) indicated challenges. Two respondents felt costs were a challenge, one was getting tenants to provide the necessary information, and one was finding the correct equipment.

All but one respondent described themselves as at least "somewhat knowledgeable" about different ways to save energy in the home, and one respondent said they were "not at all knowledgeable." Seven respondents indicated their knowledge of the different ways you can save energy in your home increased since participating in the program. The remaining (13) said it had stayed the same. In the last two years, most respondents (12 of 19) said saving energy in the home has become more important, while the remaining (7 respondents) said it stayed the same.

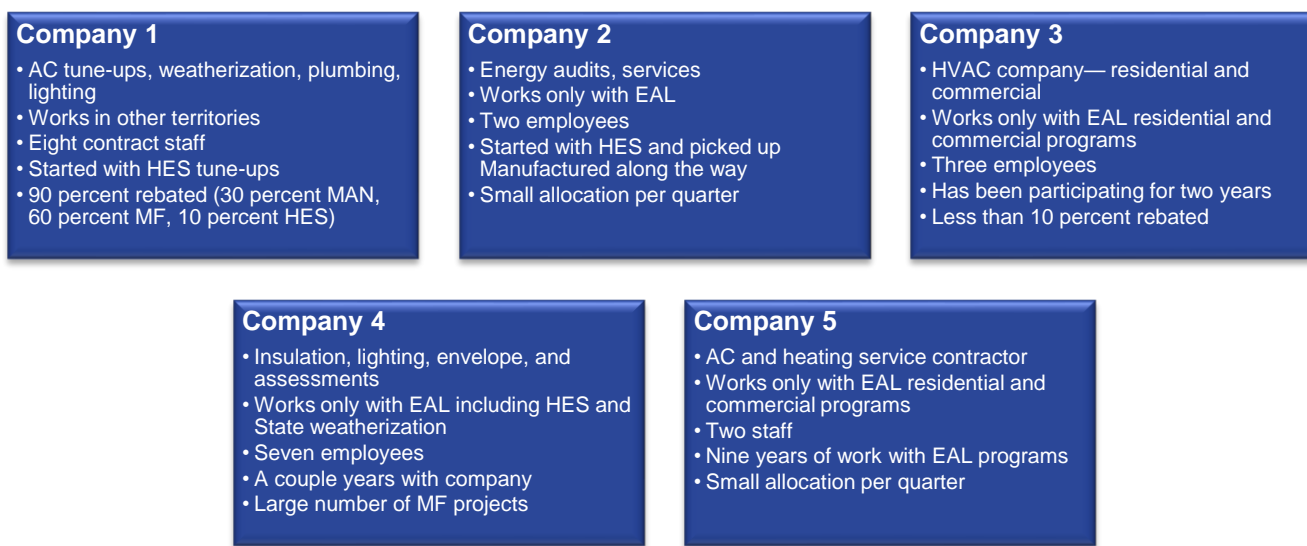
### 5.5.2 Market Actor Interviews

Next, we present detailed process findings from participating market actor interviews.

We mainly talked with business owners who were familiar with the work their company did through the Multifamily Homes program. All five of the companies were small businesses with fewer than ten employees.

Four companies work almost exclusively with EAL programs; the fifth company also works with other utility programs or in other states. A few of these companies survive on energy efficiency program work and heavily market the relationship with EAL programs on their websites.

**Figure 12. Characterization of Market Actor Companies Interviewed**



HES: Home Energy Solutions  
 MAN: Manufactured Homes  
 MF: Multifamily Homes

### 5.5.2.1 Program Marketing

The market actors working on projects through the Multifamily Homes program all reach out to customers to increase participation. They mentioned that a few customers had seen emails; one uses a quick 30-second ad that generates interest; another calls neighbors and friends of participants; three companies mention EAL or utility programs on their websites. Customers can also find market actors on the EAL website.

All the market actors we spoke with said they had difficulty identifying eligible customers. When they identify potential program customers, a few of them take the extra step of sending the potential participants to ICF to confirm eligibility, especially for large complexes. While waiting for ICF to check customer eligibility can delay project work, market actors mentioned it is a lesson learned to ensure they receive payment for the work.

Four of the five contractors we spoke with felt it would be very helpful to have a master list from either EAL or ICF. While a few mentioned that they thought ICF might be working on such a list, nothing was yet available. Contractors suggested key elements of the list might be identifying eligible customers and screening for previous participation or information on their last participation date.



### 5.5.2.2 Quarterly Allocation

The five market actor respondents discussed their quarterly allocations or allotment for the Multifamily Homes program; none of them were clear on how the allocations are determined, though. ICF may intend for the process to be that market actors submit to the pipeline, then compare that pipeline to actuals for a few rounds to get eventual quarterly allocations to be able to balance work. However, this is not how the market actors understand the process.

Market actors said they wait each quarter to understand their next allocation amount, making planning for and recruiting more projects challenging. They are reaching out to customers to motivate them to participate but must balance that with allocation for the quarter. Contractors do not know how much outreach to do because they do not know how much funding they will be allocated. In some cases, it means contractors have to put projects on hold, but most property managers understand how the process works and are not concerned about waiting a bit.

At least one market actor said they continue to decrease their work through the program because of the uncertainty around the quarterly allocations. A couple of other market actors would like to increase their work through the program but are constrained by their allocations.

In addition, market actors explained to us that the allocations cover both installation work and materials ordered from a particular vendor. One market actor explained that ICF had instructed them to acquire all their direct install measures through Greenlite; they are unsure why this is required. One market actor, in particular, has had issues with invoicing from Greenlite that has impacted their allocation.

### 5.5.2.3 Program Satisfaction and Recommendations

We asked contractors about their overall satisfaction with the Multifamily Homes program using the following scale: *very satisfied*, *satisfied*, *neither satisfied nor dissatisfied*, *dissatisfied*, or *very dissatisfied*.

Two market actors said they were *very satisfied*, two were *satisfied*, and two were *dissatisfied* with the program overall. Feedback on the support from ICF was mostly positive, although a couple of the market actors mentioned delayed responses from ICF, and one said ICF failed to pay them.

*We had an excellent experience with ICF. They are thorough and responsive.*

*It has been a good experience.*

*Payments are timely and ICF answers our questions.*

*The requirements are clear, and it is easy to get answers.*

*ICF is a nice group to work with.*

*The tracking process needs to work better.*

*If I complete a project, I should get paid for it.*

Most of the comments from market actors revolved around the administrative process, including application and project data entry. Two market actors indicated they have talked with ICF directly regarding their suggested improvements.

*It takes a bit of effort for the application process, lots of man-hours.  
It is the nature of the program, though, but they could make it easier for less money.*

*We somehow need to control the amount of paperwork.  
It can take an hour for paperwork in the office after 1.5 hours in the field.*

*We've had issues entering project data into the website portal in areas with  
poor internet. The entry is time-consuming.*

Market actors reported that they had heard no complaints from customers about the services or direct-install measures. Most customers are very happy to have received the services and equipment for free. The one measure that market actors indicated they do not use very often is the *low-flow showerheads* due to either customer preferences or their feelings about the quality of the measure.

#### **5.5.2.4 Free-Ridership Feedback**

To support the NTG analysis completed with program participants, we were interested in the possible impacts of the Multifamily Homes program on market actor business activities. We asked them if their company would have completed any of the projects—similar to those eligible for the program—if the program rebates were not available. Three of the five contractors reported that it is challenging to find a decision-maker for Multifamily Homes projects, but their experience with property owners and managers is that energy efficiency is not where they choose to spend their money. It is the program incentive and assistance that motivates energy efficiency projects.

#### **5.5.2.5 COVID-19 Experience**

We asked contractors to characterize their experience with COVID-19 over the past year and any expected impacts on their business in the next six months. The three contractors who responded were following COVID-19 safety protocols and had vaccinated staff to try and ensure customers were comfortable with them entering homes. A couple of contractors experienced shutdowns with other programs, and marketing costs have increased for programs still operating as customers were hesitant to have someone in their homes. One contractor mentioned COVID-19 affecting the availability of property management staff to assist them on-site, resulting in access to fewer units than typical.

Contractors expect to see the hesitancy issues improve in the next six months, although staffing issues may not improve. Three contractors mentioned increasing concern over difficulty getting materials they need and increasing prices if they can procure what they need.

## 5.6 NET-TO-GROSS RESULTS

This section presents an overview of the NTG methodology followed by the detailed NTG results.

### 5.6.1 Net-to-Gross Methodology

The EM&V team assessed NTG via self-reports through the participant customer surveys based on the guidance outlined in Protocol F of the TRM 8.2. Also consistent with Protocol F, the participant survey results were triangulated with the trade ally interviews, which also reported a high program influence level in customers receiving audits and installing energy-efficient equipment.

The sample frame for the survey consisted of customers who installed energy-saving upgrades for qualifying measures. Free-ridership was asked of the most recent program participants. 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 2020–June 2020).

In total, 23 participant projects were surveyed on free-ridership, and 12 participant surveys were surveyed on spillover based on their date of participation. Table 43 summarizes the number of participants in the sample and the number who completed surveys by participation period.

**Table 43. Summary of Multifamily Homes Participant Survey Respondents by Participation Period**

Participation period	Completed surveys	Completed projects	Survey questions		
			Free-ridership	Spillover	Process
01/01/2020 – 06/30/2020	7	12		✓	✓
07/01/2020 – 12/31/2020	5	8	✓	✓	✓
01/01/2021 – 6/30/2021	8	15	✓		✓
<b>Total</b>	<b>20</b>	<b>35</b>			

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 (zero percent free-ridership) in their responses to these decision-making questions. Table 44 below shows the survey questions used to classify free riders.

**Table 44. Self-Report Free-Ridership Survey Questions**

Survey question	Response options
FR2. Before learning about the <PROGRAM>, were you already planning to purchase and install the <MEASURE> in <YEAR>?	01 Yes
	02 No
	88 Don't know
	99 Refused
FR3. If the program had not been available, would your budget have accommodated the full cost of the <MEASURE>?	01 Yes
	02 No
	88 Don't know
	99 Refused
FR4. If the assistance from the program had not been available, would you still have purchased the <MEASURE>, or would you have done something different?	01 Same <i>[SKIP TO FR7]</i>
	02 Different
	88 Don't know
	99 Refused
FR5. <i>[ASK IF FR4 &lt;&gt; 1]</i> Would you have purchased any <MEASURE_TYPE> at all?*	01 Yes
	02 No
	88 Don't know
	99 Refused
FR6. <i>[ASK IF FR5 = 1]</i> 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. <i>[ASK IF FR4 = 1 OR FR5 = 1]</i> If the assistance from the program had not been available, when would you have conducted the <MEASURE>? Would you have conducted 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

\*Question missing from the PY2021 survey.

We used the same criteria to classify free-riders for consistency and comparability across all program evaluations. 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).
- The budget would have accommodated the project's full cost in the absence of the program rebate (FR3 = 1).
- 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, how influential that recommendation was on their decision, and how influential the program incentive and other program assistance were in installing the efficient measure.

To assess spillover, the survey asked about recent installations of any additional energy-efficient improvements since program participation was made *without* EAL's financial assistance. Respondents were then asked how important their experience in the Multifamily Homes program was on their decision to install these additional improvements.

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:

$$NTG \text{ Ratio} = 1 - \text{Free-Ridership} + \text{Spillover}$$

## 5.6.2 Detailed Net-to-Gross Results

The participant survey yielded an overall NTG ratio of 100 percent, including free-ridership and spillover. No free-ridership was observed, and while there was evidence of spillover, there was not enough information available to calculate results quantitatively. This finding is supported by interviews conducted with trade allies; all trade allies responded that customers would not install upgrades without the program and project incentives. Their services in EAL's territory are entirely dependent on the program. Table 45 below summarizes the NTG results.

**Table 45. Summary of Net-to-Gross Results**

Free-ridership	Spillover	NTG
0.0%	0.0%	100.0%

### 5.6.2.1 Free-Ridership

Feedback from participants suggests that the program was influential in participants' decision to install energy-efficient measures, resulting in no free-ridership detected. Twenty-one out of 23 respondent projects (91 percent) said they were *not* planning to purchase and install their rebated energy efficiency measures in the same year before learning about the program. Also, 81 percent of respondents said their budget would *not* have accommodated the upgrades' full cost had the program rebate not been available (18 of 22 projects). Only one participant said they would have purchased the exact same upgrade in the absence of the program. Table 46 presents free-ridership results.

**Table 46. Free-Ridership Results**

Surveyed (n)	Free-ridership
23	0.0%

### 5.6.2.2 Spillover

Two out of 12 respondents assessed for spillover reported installing additional energy-efficient equipment. However, due to the limited information provided, no attributable spillover savings could be calculated; therefore, spillover was 0.0 percent. The measures mentioned were *HVAC equipment, new doors, and foam sealing*. Additional information needed to calculate spillover would be the specific HVAC equipment installed (the respondent could not provide the specifications or the quantity), sealed equipment, and how much was done. Table 47 presents the spillover results from the participant survey.

**Table 47. Participant Spillover Results**

Surveyed (n)	Spillover
12	0.0%

## 5.7 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 independent verifications were incorporated into realization rates, ultimately resulting in 101.1 percent for energy savings and 105.3 percent for demand savings.

**Table 48. Multifamily 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	112,190	20.7	112,190	20.7	100.0%	100.0%	Desk review, on-site verification, and tracking system review
Air conditioner tune-up—manifold measurement	259,101	142.4	395,043	217.1	152.5%	152.5%	Desk review, on-site verification, and tracking system review
Air infiltration	932,821	99.0	932,821	99.0	100.0%	100.0%	Desk review, on-site verification, and tracking system review
Ceiling insulation	353,149	151.7	353,149	151.7	100.0%	100.0%	Desk review, on-site verification, and tracking system review
Duct sealing—AC with resistance heat (tested)	5,631,607	580.9	5,671,479	585.1	100.7%	100.7%	Desk review, on-site verification, and tracking system review
Duct sealing—electric cooling (tested)	126,625	69.0	126,625	69.0	100.0%	100.0%	Desk review and tracking system review
Duct sealing—heat pump (tested)	689,174	119.7	601,619	105.7	87.3%	88.3%	Desk review, on-site verification, and tracking system review
LED (retail): Outdoor, general purpose, all wattages	115	-	115	-	100.0%	N/A	Tracking system review
LED bulbs BR30 8 W (indoor)	5,775	1.1	5,775	1.1	100.0%	100.0%	Tracking system review
LED bulbs BR30 8 W (outdoor)	168	-	168	-	100.0%	N/A	Tracking system review
LED bulbs candelabra 4 W (indoor)	10,055	1.6	10,055	1.6	100.0%	100.0%	Tracking system review
Lighting measures	43,082	6.5	43,082	6.5	100.0%	100.0%	Tracking system review
Low-flow faucet aerator	14,861	1.5	14,853	1.5	99.9%	99.9%	Desk review, on-site verification, and tracking system review
Low-flow showerheads	43,774	4.6	43,771	4.6	100.0%	100.0%	Desk review, on-site verification, and tracking system review
Non-Residential ENERGY STAR® pool pumps	9,935	2.8	9,935	2.8	100.0%	100.0%	Tracking system review

Measure	Reported savings		Evaluated savings		Realization rate		EM&V source
	kWh	kW	kWh	kW	kWh	kW	
Residential heat pump tune-up	53,892	18.7	53,892	18.7	100.0%	100.0%	Desk review and tracking system review
Smart strip (direct install)	69,506	8.2	69,506	8.2	100.0%	100.0%	Desk review and tracking system review
<b>Total</b>	<b>8,355,831</b>	<b>1,228.2</b>	<b>8,444,079</b>	<b>1,293.1</b>	<b>101.1%</b>	<b>105.3%</b>	

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

## 5.8 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 PY2021, 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 21 projects and on-site verifications of three projects. In addition, the net-to-gross (NTG) ratio was updated through process evaluation research, which included 20 participant surveys and six market actor interviews. Table 49 details the evaluation activities completed for the program in PY2021.

**Table 49. 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 <sup>25</sup>
Updated in PY2021 from process evaluation research	Program staff interviews (2) Material review Participant surveys (20) Market actor interviews (6)	Census	21	3	None

### 6.1 KEY FINDINGS

In PY2021, the Manufactured Homes program has achieved 5,114 MWh in gross energy savings and 0.8 MW in gross demand savings, as shown in Table 50. 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 107.1 percent and 99.7 percent (megawatt-hour and megawatt, respectively). The program exceeded the demand goal, achieving 107 percent, and nearly achieved the energy 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.

<sup>25</sup> 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 50. 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)	4,774	5,114	107.1%	100.0%	5,114	1.6%
Demand savings (MW)	0.8	0.8	99.7%	100.0%	0.8	0.8%

**Table 51. Manufactured Homes—Goals vs. Achieved**

Program	Savings	Goal	Actual	Percentage achieved
Energy Solutions for Manufactured Homes	Energy savings (MWh)	5,403	5,114	95%
	Demand savings (MW)	0.7	0.8	107%

## 6.2 RECOMMENDATIONS

The EM&V team identified seven recommendations, shown in Table 52, for EAL's consideration from the evaluation activities.

**Table 52. Manufactured Homes—PY2021 Recommendations**

Type	Recommendation	Key finding
Impact	<b>Recommendation 1:</b> Continue to accurately track cooling capacity in ArchEE for <i>duct sealing</i> measures since it is a key parameter in calculating savings.	Cooling capacity is used to calculate the pre-leakage cap for the <i>duct-sealing</i> measure. It was tracked for most projects, but there were minor discrepancies regarding capacity for some projects.
Impact	<b>Recommendation 2:</b> Ensure all documentation is available and legible and key parameters, such as model number, are identifiable.	In several cases, the EM&V team found that the HVAC equipment nameplate photo was illegible or not included. In those cases, capacity and efficiency could not be verified. If documentation is illegible or not included, the inputs should revert to the TRM defaults.
Impact	<b>Recommendation 3:</b> Increase the internal quality assurance/quality control (QA/QC) process on the <i>duct sealing</i> measure for all heating types to capture all cooling and heating variables.	The <i>duct sealing—heat pump</i> measure evaluation resulted in realization rates of 143.2 percent and 100.0 percent for energy and demand savings, respectively, due to discrepancies tracked data such as heating type. The <i>duct sealing with electric AC and gas heat</i> measure resulted in realization rates of 97.8 percent and 97.8 percent for energy and demand savings, respectively, due to discrepancies in efficiency.

Type	Recommendation	Key finding
Process	<b>Recommendation 4:</b> Increase customer service training for contractors regarding communication.	During the site visits, the EM&V team found that many customers felt there wasn't sufficient communication with the contractors; in some cases, customers are still waiting for follow-ups from contractors on supply delays for projects. As mentioned above, this may be affected by increased turnover due to the COVID-19 pandemic staffing issues.
Process	<b>Recommendation 5:</b> Ensure replaced equipment, such as incandescents, are removed and properly disposed of.	During the site visits, the EM&V team found that, in some cases, the old light bulbs were left behind with the customer instead of removed. This could result in those light bulbs remaining in use.
Process	<b>Recommendation 6:</b> 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.	Market actors did not clearly understand how quarterly allocations worked, impacting how much outreach they were willing to do.
Process	<b>Recommendation 7:</b> Ensure trade allies are aware of the database and process to check on customer eligibility.	Trade allies mentioned that finding manufactured homes eligible for the program can be difficult. When they identify a home and send confirmation to the program implementer, there is a delay in response, making it difficult to be responsive to customers.

## 6.3 METHODOLOGY

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

### 6.3.1 Impact Evaluation

To assess program impacts, the EM&V team conducted a census tracking system review, desk reviews on a randomly-selected sample of 21 projects, and on-site verifications of three projects. Below we overview the evaluation and sampling methodology.

#### 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 Arkansas Technical Reference Manual (TRM) 8.2 (TRM 8.2) 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 8.2. 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

The EM&V team conducted desk reviews of 21 projects selected from PY2021 participant records to compare values recorded on project documentation with those available in the tracking system. 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.

Participants implementing envelope and HVAC projects were prioritized and selected from the data extract. Table 53 below characterizes the PY2021 sample selected for desk reviews.

**Table 53. Manufactured Homes—Summary of Desk Review Sampled Savings by Measure Category**

Measure category	Reported kWh <sup>26</sup>	Sampled kWh	Percentage kWh sampled	Reported kW	Sampled kW	Percentage kW sampled
Appliances	51,439	2,774	5.4%	6.1	0.3	5.4%
Domestic hot water	32,582	769	2.4%	3.4	0.1	2.4%
Envelope	344,242	20,137	5.8%	46.2	2.6	5.6%
HVAC	3,697,868	202,406	5.5%	594.0	27.7	4.7%
Lighting	60,971	4,034	6.6%	10.8	0.7	6.8%
<b>Total</b>	<b>4,187,102</b>	<b>230,119</b>	<b>5.5%</b>	<b>660.5</b>	<b>31.4</b>	<b>4.8%</b>

### 6.3.1.3 Independent Verifications

Three projects received on-site verifications to examine whether participating trade allies' measurements were replicable and to verify the installation of incented measures. Due to the COVID-19 pandemic, 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 54 provides detail on the five sites that received on-site verification in PY2021.

**Table 54. Manufactured Homes—Summary of Independent Verification Sampled Savings by Measure Category**

Measure category	Number of sites	Reported kWh	Reported kW
Appliances	1	252	0.0
Envelope	2	2,236	0.3

<sup>26</sup> Reported data as of time of sampling, October 1, 2021.

Measure category	Number of sites	Reported kWh	Reported kW
HVAC	3	17,912	3.2
Lighting	2	327	0.1
<b>Total</b>	<b>3</b>	<b>20,726</b>	<b>3.6</b>

### 6.3.2 Process Evaluation

To understand the program processes, the evaluation team conducted interviews with program participants and market actors. Below is an overview of the evaluation and sampling methodology.

#### 6.3.2.1 Participant Interviews

The participant survey was used to inform the NTG analyses and process evaluations, based on the EM&V Protocols guidance in TRM 8.2. The sample frame for the participant survey included residents and property managers who had installed at least one measure through the program between January 2020 and June 2021. If unique participants installed more than one measure under the program, we asked them about two of their installed measures. The survey included a series of questions to estimate free-ridership and participant spillover for the NTG evaluations. The questions included exploring whether participants installed program-discounted energy-efficient upgrades (e.g., *air sealing*, *duct sealing*, *AC tune-ups*, and *direct install* measures) and the importance of program discounts on those decisions. To help inform the process evaluations, we used the participant survey to investigate sources of awareness and preferred methods of communication, participation experiences, program satisfaction, and demographics.

Complexes (e.g., units on the same street) were randomly sampled and sent to the implementation contractor to identify the most appropriate tenant or property manager to contact for the complex. Sampled participants were contacted and confirmed they were knowledgeable about the decision to conduct upgrades through the program.

The sample frame for the Manufactured Homes program participants consisted of a random sample across different participation periods, as shown below, in order to best estimate spillover and free-ridership. The EM&V team worked with the implementation contractor to identify the appropriate respondent for each complex. The table below summarizes the number of records in the final survey sample frame.

**Table 55. Manufactured Homes Participant Survey Sample Frame Summary**

Participation period	Count of participants in population*	Reported (ex-ante) kWh	Sampled cases	Estimated completed surveys**
01/01/2020 – 06/30/2020	255	1,642,830	33	6
07/01/2020 – 12/31/2020	303	2,616,613	29	7
01/01/2021 – 06/30/2021	276	2,403,345	25	7
<b>Total</b>	<b>834</b>	<b>6,662,788</b>	<b>87</b>	<b>20</b>

The participant survey was implemented with the EM&V team's in-house Survey Research Center (SRC) staff. Calling began September 30, 2021, and ended October 21, 2021, and the EM&V team completed a total of 20 surveys. Table 56 shows the participant survey response rate.

**Table 56. Manufactured Homes Participant Survey Response Rate**

Disposition	Overall
<b>Eligible sample</b>	<b>87</b>
Does not recall participating	1
Refusal	10
Incompletes (partial surveys)	4
Language barrier	1
Bad number	15
Attempted but not completed	36
<b>Completed</b>	<b>20</b>
<b>Response rate</b>	
<b>Response rate (completed/eligible sample)</b>	<b>21.1%</b>

### 6.3.2.2 Market Actor Interviews

The market actor interviews were used to inform the process evaluation and assess program influence for the Manufactured Homes program. The EM&V team interviewed six market actors who participated in the program during PY2021; we reached out to eligible market actors using email and phone calls. Phone interviews were conducted between September 16, 2021, and October 18, 2021. Several of the market actors completed projects for multiple programs.

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 market actor interviews explored (1) outreach and understanding of program eligibility, (2) interactions with Entergy and ICF, (3) program satisfaction, (4) program attribution indicators, and (5) the impact of the COVID-19 pandemic.

We completed interviews with a variety of market actors based on the number of projects they had completed.

**Table 57. Market Actor Interviews by Activity Level**

Number of projects	Completes
Small (1–5 accounts)	2
Medium (6–59 accounts)	2
Large (60–149 accounts)	2
<b>Total</b>	<b>6</b>

## 6.4 DETAILED IMPACT EVALUATION RESULTS

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

### 6.4.1 Tracking System Review

Overall, the Manufactured Homes program evaluated tracking system review resulted in nearly 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 58. Manufactured Homes—PY2021 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	59,088	7.0	59,088	7.0	100.0%	100.0%
Domestic hot water	39,731	4.1	39,731	4.1	100.0%	100.0%
Envelope	387,214	52.7	387,214	52.7	100.0%	100.0%
HVAC	4,215,603	676.9	4,215,552	676.9	100.0%	100.0%
Lighting	72,739	12.8	72,739	12.8	100.0%	100.0%
<b>Total</b>	<b>4,774,374</b>	<b>753.5</b>	<b>4,774,323</b>	<b>753.5</b>	<b>100.0%</b>	<b>100.0%</b>

### Duct Sealing

- **JobId: EAMHPS1546686220.** The *Change in CFM* column in ArchEE does not calculate the difference in *CFM<sub>pre</sub>* and *CFM<sub>post</sub>* in accordance with the CFM cap resulting in a slight discrepancy in savings.

### 6.4.2 Desk Review Results

The EM&V team conducted desk reviews of 21 projects to compare values recorded on project documentation with those available in the tracking system. Desk reviews produced similar results to the reported savings—the sites that received desk reviews reported 230,119 kWh in energy savings, and the EM&V team evaluated 249,501 kWh. Desk review findings from projects that did not receive 100 percent realization rates are detailed below.

- **JobIds: EAMHPS1546588709 and EAMHPS1547076797.** These projects each had faucet aerators directly installed. Each faucet aerator flow rate was reported in the tracking data as 1.5 gallons per minute (GPM); however, the aerators were noted to be 1 GPM on the invoice. The EM&V team adjusted savings for these measures, which resulted in the overall desk review realization rates of 144.4 percent for both energy and demand savings. However, additional documentation was provided by the implementer after the evaluation interim results were published. These projects were

reviewed and adjusted to 1.5 GPM, resulting in 100.0 percent realization rates for both energy and demand.

- **JobIds: EAMHPS1546733191 and EAMHPS1546713972.** This project reported duct sealing, air sealing, and LEDs across multiple *JobIds* in a manufactured home with a heat pump system. The EM&V team found in the documentation that the heating system was an electric resistance furnace rather than a heat pump. The EM&V team adjusted the heating type for savings which affected savings for all three measure types resulting in project-level realization rates of 181.5 and 100.0 percent for energy and demand savings, respectively.
- **JobId: EAMHPS1547265744.** This project reported duct sealing, air sealing, and LEDs across multiple *JobIDs* in a manufactured home with a heat pump system. The EM&V team found in the documentation that the heating system was an electric resistance furnace rather than a heat pump. The EM&V team adjusted the heating type for savings which affected savings for all three measure types resulting in project-level realization rates of 199.0 and 100.0 percent for energy and demand savings, respectively.
- **JobId: EAMHPS1547093284.** This project reported duct sealing of an electric AC and gas furnace in a manufactured home. The documentation included a photo of the condenser nameplate; however, it was faded to the point of being illegible. The EM&V team could not read the model number to verify the seasonal energy efficiency ratio and reverted to the default SEER value of 11.5 as stipulated by TRM 8.2. This adjustment resulted in realization rates of 87.0 percent for both energy and demand savings.

Overall, program-level realization based on desk reviews was 108.4 percent and 99.6 percent for energy and demand savings, respectively, due to the adjustments discussed above. See Table 59.

**Table 59. 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	3,620	0.6	3,542	0.6	97.8%	100.0%
Air infiltration	20,137	2.6	21,736	2.6	107.9%	100.0%
Duct sealing—AC with resistance heat (retested)	149,974	14.7	149,974	14.7	100.0%	100.0%
Duct sealing—electric cooling (tested)	10,518	5.8	10,289	5.7	97.8%	97.8%
Duct sealing—heat pump (tested)	41,913	7.2	60,004	7.2	143.2%	100.0%
LED bulbs candelabra 4 W (indoor)	414	0.1	414	0.1	100.0%	100.1%
Low-flow faucet aerator	194	0.0	193	0.0	99.9%	99.8%



Measure	Reported savings (kWh)	Reported savings (kW)	Evaluated savings (kWh)	Evaluated savings (kW)	Energy realization rate	Demand realization rate
Low-flow showerheads	575	0.1	575	0.1	100.0%	100.0%
Smart strip (direct install)	2,774	0.3	2,774	0.3	100.0%	100.0%
<b>Total</b>	<b>230,119</b>	<b>31.4</b>	<b>249,501</b>	<b>31.3</b>	<b>108.4%</b>	<b>99.6%</b>

### 6.4.3 On-Site Verifications

Three projects received on-site verifications to examine whether participating trade allies' measurements were replicable and to verify the installation of incented measures. Due to the COVID-19 pandemic, 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 60.

**Table 60. 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	252	0.0	252	0.0	100.0%	100.0%
Envelope	2,236	0.3	2,236	0.3	100.0%	100.0%
HVAC	17,912	3.2	17,912	3.2	100.0%	100.0%
Lighting	327	0.1	327	0.1	100.0%	100.0%
<b>Total</b>	<b>20,726</b>	<b>3.6</b>	<b>20,726</b>	<b>3.6</b>	<b>100.0%</b>	<b>100.0%</b>

## 6.5 DETAILED PROCESS EVALUATION RESULTS

The process evaluation included interviews with participants, market actors, and program staff. Program staff interviews focused on discussing the PY2021 program design and delivery and evaluation recommendations presented in the sections above. Below, we present detailed results from the participant and market actor interviews.

### 6.5.1 Participant Interviews

As part of the PY2021 process evaluation for the program, the EM&V team conducted 20 telephone interviews representing 36 distinct projects with recent program participants. Participants surveyed included individual residents or property managers who organized program participation across manufactured homes communities. The participant survey investigated sources of awareness and preferred methods of communication, participation experiences, decision-making, program satisfaction, customer demographics, and impacts of COVID-19. 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.

#### 6.5.1.1 Participant Demographics

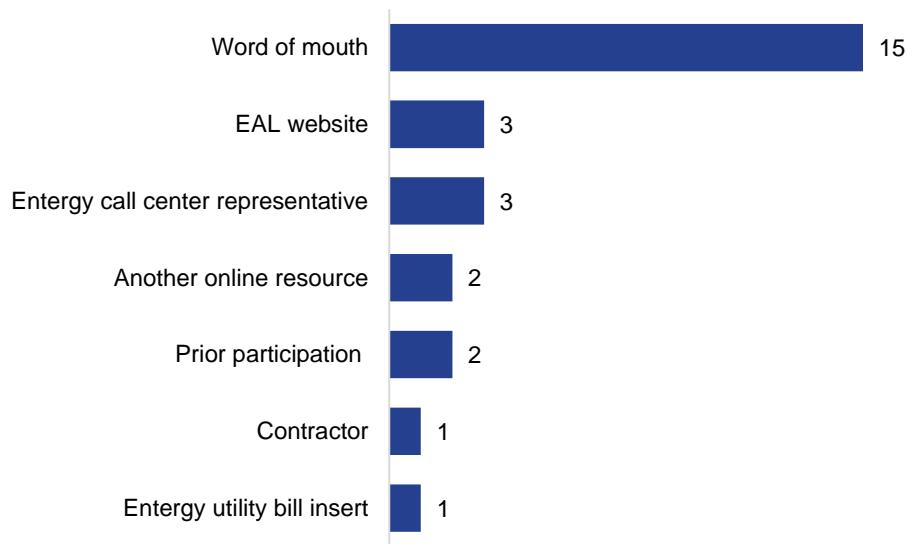
Respondents comprised all age groups, with most participants being relatively evenly in age groups of 45 and over (15 of 20 respondents). Over one-half of respondents (8 of 13) reported earning less than \$50,000 in 2020; nine respondents had completed at least some college-level courses or more; and an additional six respondents reported attending a vocational or technical school. The average household size among participants surveyed was 3.0 full-time residents, ranging from one to six people in the household.

All but one respondent described themselves as at least *somewhat knowledgeable* about different ways to save energy in the home. One respondent said they were *not at all knowledgeable* about the different ways you can save energy in the home. Ten respondents indicated their knowledge of the different ways you can save energy in your home increased since participating in the program. The remaining nine respondents said it had stayed the same. In the last two years, 16 of 18 respondents said savings energy in the home has become more important, while one said it was less important and one said it stayed the same.

#### 6.5.1.2 Program Marketing

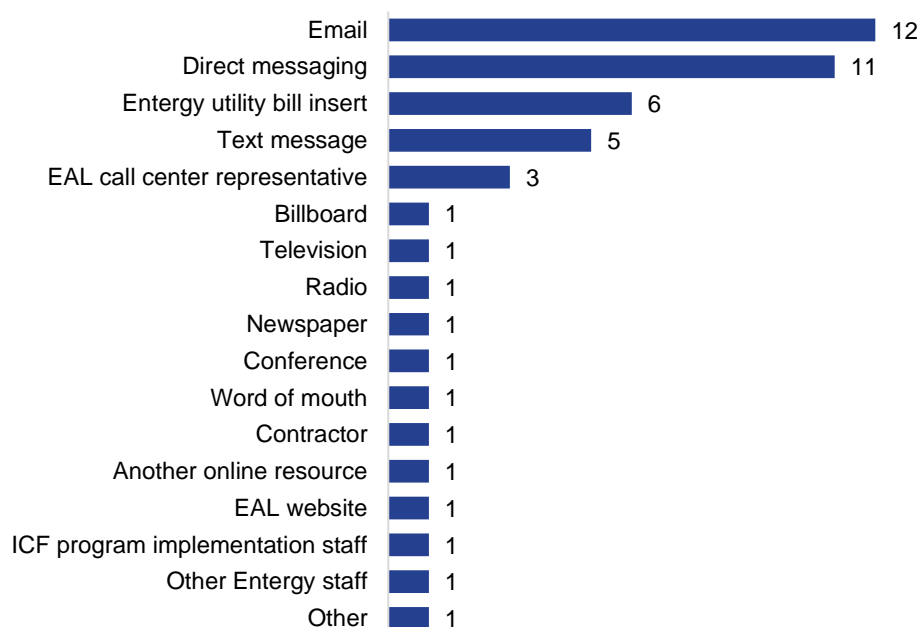
Respondents most commonly reported learning about the Manufactured Homes program through friends, family members, or co-workers (15 of 20 respondents, 75 percent). The next most frequently mentioned sources were from the Entergy call center and EAL website (3 respondents each), another online research (2 respondents), and from prior participation (2 respondents). Figure 13 illustrates how participants learned about the Manufactured Homes program.

**Figure 13. How Participants Learned about EAL’s Manufactured Homes Program (n=20)**



\*Multiple responses were allowed  
 \*\*Don't know and refused responses excluded.

In addition to how they learned about the program, respondents were asked how they would prefer to receive information about EAL’s energy efficiency programs in the future. The most frequently mentioned preferred method was email (12 of 20 respondents, 60 percent) followed by direct messaging (11 respondents). The following most preferred channels were from EAL’s utility bill insert (6 respondents), text message (5 respondents), and from an EAL call center representative (3 respondents). Participants’ preferred ways of learning about energy efficiency programs are detailed in Figure 14.

**Figure 14. How Participants Prefer to Receive Information about EAL’s Programs (n=20)**

\*Multiple responses were allowed.

### 6.5.1.3 Participant Experience

As far as how long respondents indicated they had to wait before a contractor came to their property, respondent feedback was mixed. Six respondents each (out of 19 respondents) reported waiting less than one week, one to two weeks, and two to four weeks; one respondent waited more than four weeks for the contractor to complete the upgrades they received through the program.

Participation in the program was straightforward, with all but one respondent reporting experiencing no obstacles or barriers while participating in the program. The one respondent who had problems indicated that the work had not gotten completed as the reason for their response.

Over one-half of respondents (8 of 15) reported making all of the energy efficiency improvements recommended by the program. Six respondents mentioned making some of the recommended improvements, and one respondent indicated they had done none. Of the seven respondents who did not make all of the recommended improvements, five said the upgrades were too costly as the reason for not completing them. Other reasons included being too busy and having an issue with the recommended equipment (one respondent each).

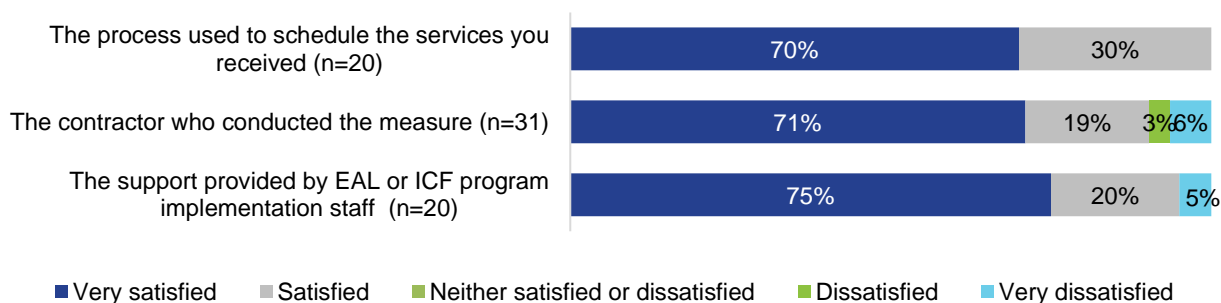
### 6.5.1.4 Participant Satisfaction

Participants rated their satisfaction with the program overall highly. Ninety-five percent of participants said they were either *very satisfied* or *satisfied* with the Manufactured Homes program overall (14 and 5 respondents, respectively). Only one participant said they were *dissatisfied* with the program. This respondent felt that some corners were cut and indicated that “if you are going to do something, do it right.” This respondent also mentioned wanting to make sure work was done.

Those who indicated they were *satisfied* with the program were asked if there was anything EAL could have done to improve their experience in the program. All but one respondent (four of five respondents) indicated there was nothing EAL could improve. The one respondent indicated some air leakage under the floor was not sealed well.

Figure 15 shows satisfaction ratings relating to specific aspects of participants’ experiences with the program, including the process used to schedule the services received by participants, the contractor who installed program measures, and the support provided by EAL or ICF program implementation staff. Similar to overall program satisfaction, satisfaction ratings were high across all specific program aspects, with the majority of respondents saying they were *very satisfied* with each element.

**Figure 15. Participant Satisfaction with Manufactured Homes Program Aspects**



\*Don't know and refused responses are excluded.

Another indicator of program satisfaction is customers’ propensity to recommend the program to others. All surveyed participants said they would recommend EAL’s Manufactured Homes program to others if provided the opportunity. Unprompted, six respondents indicated they had already recommended the program to others.

Participants’ overall satisfaction with the program was also seen in their satisfaction with EAL as their electric provider. Eighty percent reported being either *very satisfied* or *satisfied* with EAL (seven and nine respondents, respectively). Two respondents indicated they were *neither satisfied nor dissatisfied*, and two respondents indicated they were *dissatisfied*.

### 6.5.1.5 COVID-19 Impact

The survey included a few questions to understand the effects of COVID-19. When asked about any obstacles in making energy efficiency improvements, 11 of the 20 respondents felt they had no obstacles; the next most mentioned obstacle was the cost of rising prices and equipment (six respondents). Two respondents mentioned the need for proper cleaning protocols, wearing masks, and distancing as obstacles. The remaining respondents did not respond.

We also asked survey respondents about their interest in the program offering virtual assistance, where a program team member would talk with them over a secure video application to discuss and review energy-saving opportunities. About one-half of the respondents were interested, one respondent being *very interested* and ten respondents being *somewhat interested*. Nine respondents indicated they were *not at all interested*. On the flip side, no respondents had concerns when asked if they had any safety concerns about external contractors conducting work in the home or building.

### 6.5.2 Market Actor Interviews

Next, we present detailed process findings from participating market actor interviews.

We talked mostly with business owners who were familiar with the work their company did through the Manufactured Homes program. Five of the six companies were small businesses with fewer than ten employees. Three of the companies work almost exclusively with EAL programs; the other three also work with other utility programs or in other states. A few of these companies survive on energy efficiency program work and heavily market the relationship with EAL programs on their websites.

**Figure 16. Characterization of Market Actor Companies Interviewed**



HES: Home Energy Solutions  
 MAN: Manufactured Homes  
 MF: Multifamily Homes

### 6.5.2.1 Program Marketing

The market actors working on projects through the Manufactured Homes program all reach out to customers to increase participation. They mentioned that a few customers had seen emails; one uses a quick 30-second ad that generates interest, one uses Facebook ads and tax appraisals, another also calls neighbors and friends of participants, and another collaborates with realtors. Three companies mention the EAL or utility programs on their websites. Customers can also find market actors on the EAL website.

All the market actors we spoke with said they had difficulty identifying eligible customers. While mobile home parks are relatively straightforward to find, individual manufactured homes can be harder to locate, spread out with long drive times in between.

When they identify potential program customers, a few of them take the extra step of sending the potential participants to ICF to confirm eligibility. While waiting for ICF to check customer eligibility can delay project work, market actors mentioned it is a lesson learned to ensure they receive payment for the work.

Four of the six contractors we spoke with felt it would be very helpful to have a master list from either EAL or ICF. While a few mentioned that they thought ICF might be working on such a list, nothing was yet available. Contractors suggested key elements of the list might be identifying eligible customers, screening for previous participation or information on their last participation date, and identifying sites that are billed more than \$.10 per square foot monthly.

### 6.5.2.2 Quarterly Allocation

The six market actor respondents discussed their quarterly allocations or allotment for the Manufactured Homes program; none of them were clear on how the allocations are determined, though. ICF may intend for the process to be that market actors submit to the pipeline, then compare that pipeline to actuals for a few rounds to get eventual quarterly allocations to be able to balance work. However, this is not how the market actors understand the process.

Market actors said they wait each quarter to understand their next allocation amount, making planning for and recruiting more projects challenging. They are reaching out to customers to motivate them to participate but must balance that with allocation for the quarter. Contractors do not know how much outreach to do because they do not know how much funding they will be allocated. At least one market actor said they continue to decrease their work through the program because of the uncertainty around the quarterly allocations. A couple of other market actors would like to increase their work through the program but are constrained by their allocations.

In addition, market actors explained to us that the allocations cover both installation work and materials ordered from a particular vendor. One market actor explained that ICF had instructed them to acquire all their direct install measures through Greenlite; they are unsure why this is required. In particular, one market actor had issues with invoicing from Greenlite that has impacted their allocation.

### 6.5.2.3 Program Satisfaction and Recommendations

We asked contractors about their overall satisfaction with the Manufactured Homes program using the following scale: *very satisfied*, *satisfied*, *neither satisfied nor dissatisfied*, *dissatisfied*, or *very dissatisfied*.

Two market actors said they were *very satisfied*, three were *satisfied*, and one was *dissatisfied* with the program overall. Feedback on the support from ICF was mostly positive, although a couple of the market actors mentioned delayed responses from ICF.

*We had an excellent experience with ICF. They are thorough and responsive.*

*It has been a good experience.*

*Payments are timely and ICF answers our questions.*

*The requirements are clear, and it is easy to get answers.*

*ICF is a nice group to work with.*

Most of the comments from market actors revolved around the administrative process, including application and project data entry. Two market actors indicated they have talked with ICF directly regarding their suggested improvements.

*It takes a bit of effort for the application process, lots of man-hours.*

*It is the nature of the program, though, but they could make it easier for less money.*

*We somehow need to control the amount of paperwork.*

*It can take an hour for paperwork in the office after 1.5 hours in the field.*

*We've had issues entering project data into the website portal in areas with poor internet. The entry is time-consuming.*

*It is time-intensive, but the report to the homeowner is pretty general.*

*There seems to be a lot of data needed, but I get it for the most part.*

Market actors reported that they had heard no complaints from customers about the services or direct-install measures. Most customers are very happy to have received the services and equipment for free. The one measure that market actors indicated they do not use very often is the *low-flow showerheads* due to either customer preferences or their feelings about the quality of the measure. One market actor found it difficult to procure mobile home measures other than the direct-install measures available through the program.



### 6.5.2.4 Free-Ridership Feedback

To support the NTG analysis completed with program participants, we were interested in the possible impacts of the Manufactured Homes program on market actor business activities. We asked them if their company would have completed any of the projects—similar to those eligible for the program—if the program rebates were not available. All five contractors reported that a very small proportion, if any, of the participants would complete the same work that was received through the Manufactured Homes program on their own if the program was not available. Contractors described the manufactured and mobile homes market as a mostly low-income group of customers who do not have the extra funds for energy efficiency projects. A couple of the contractors are trying to coordinate health and safety, weatherization, and efficiency rebates to do as much work as possible for customers.

### 6.5.2.5 COVID-19 Experience

We asked contractors to characterize their experience with COVID-19 over the past year and any expected impacts on their business in the next six months. All the contractors followed COVID-19 safety protocols, and most had vaccinated staff to try and ensure customers were comfortable with them entering homes. A couple of contractors experienced shutdowns with other programs, and marketing costs have increased for programs still operating as customers were hesitant to have someone in their homes. Staff out sick was also a challenge for a couple of contractors during the past year.

Contractors expect to see the hesitancy issues improve in the next six months. However, three of the contractors mentioned increasing concern over difficulty getting materials they need and increasing prices if they can procure what they need.

## 6.6 NET-TO-GROSS RESULTS

This section presents an overview of the NTG methodology followed by the detailed NTG results.

### 6.6.1 Net-to-Gross Methodology

The EM&V team assessed NTG via self-reports through the participant customer surveys based on the guidance outlined in Protocol F of the TRM 8.2. Also consistent with Protocol F, the participant survey results were triangulated with the trade ally interviews, which also reported a high program influence level in customers receiving audits and installing energy-efficient equipment.

The sample frame for the survey consisted of customers who installed energy-saving upgrades for qualifying measures. Free-ridership was asked of the most recent program participants. 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 2020–June 2020).

In total, 19 participant projects were surveyed on free-ridership, and 15<sup>27</sup> participant surveys were surveyed on spillover based on their date of participation. Table 61 summarizes the number of participants in the sample and the number who completed surveys by participation period.

**Table 61. Summary of Manufactured Homes Participant Survey Respondents by Participation Period**

Participation period	Completed surveys	Completed projects	Survey questions		
			Free-ridership	Spillover	Process
01/01/2020 – 06/30/2020	9	16		✓	✓
07/01/2020 – 12/31/2020	8	13	✓	✓	✓
01/01/2021 – 06/30/2021	3	6	✓		✓
<b>Total</b>	<b>20</b>	<b>36</b>			

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 (zero percent free-ridership) in their responses to these decision-making questions. Table 62 below shows the survey questions used to classify free riders.

**Table 62. Self-Report Free-Ridership Survey Questions**

Survey question	Response options
FR2. Before learning about the <PROGRAM>, were you already planning to purchase and install the <MEASURE> in <YEAR>?	01 Yes
	02 No
	88 Don't know
	99 Refused
FR3. If the program had not been available, would your budget have accommodated the full cost of the <MEASURE>?	01 Yes
	02 No
	88 Don't know
	99 Refused
FR4. If the assistance from the program had not been available, would you still have purchased the <MEASURE>, or would you have done something different?	01 Same [SKIP TO FR7]
	02 Different
	88 Don't know
	99 Refused

<sup>27</sup> Two respondents were mistakenly skipped out of the spillover question battery.

Survey question	Response options
FR5. [ASK IF FR4 <> 1] Would you have purchased any <MEASURE_TYPE> 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 assistance from the program had not been available, when would you have conducted the <MEASURE>? Would you have conducted 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

\*Question missing from the PY2021 survey.

We used the same criteria to classify free-riders for consistency and comparability across all program evaluations. 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).
- The budget would have accommodated the project's full cost in the absence of the program rebate (FR3 = 1).
- 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, how influential that recommendation was on their decision, and how influential the program incentive and other program assistance were in installing the efficient measure.

To assess spillover, we asked respondents about recent installations of any additional energy-efficient improvements since program participation was made *without* EAL's financial assistance. Respondents were then asked how important their experience in the Manufactured Homes program was on their decision to install these additional improvements.

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:

$$NTG \text{ Ratio} = 1 - \text{Free-Ridership} + \text{Spillover}$$

## 6.6.2 Detailed Net-to-Gross Results

The participant survey yielded an overall NTG ratio of 100 percent, including free-ridership and spillover. One free rider was observed, but this customer indicated EAL's program was *very important* in them doing the project at the time they did. This respondent also mentioned that their contractor was also *very important* in the project. Therefore, the evaluation team omitted the free-ridership for this customer. Also, while there was evidence of spillover, there was not enough information to calculate results quantitatively. This finding is supported by interviews conducted with trade allies; all trade allies responded that customers would not request audits or install upgrades without the program and project incentives. Their services in EAL's territory are entirely dependent on the program. Table 63 below summarizes NTG results.

**Table 63. Summary of Net-to-Gross Results**

Free-ridership	Spillover	NTG
0.0%	0.0%	100.0%

### 6.6.2.1 Free-Ridership

Feedback from participants suggests that the program was influential in participants' decision to install energy-efficient measures, resulting in no free-ridership detected. Fourteen out of 19 respondent projects (74 percent) said they were *not* planning to purchase and install their rebated energy efficiency measures in the same year before learning about the program. Also, 82 percent of respondents said their budget would *not* have accommodated the upgrades' full cost had the program rebate not been available (18 of 22). Only two participants said they would have purchased the exact same upgrade in the absence of the program. Table 64 presents free-ridership results.

**Table 64. Free-Ridership Results**

Surveyed (n)	Free-ridership
19	0.0%

### 6.6.2.2 Spillover

Eight out of 15 respondents assessed for spillover reported installing additional energy-efficient equipment. However, due to the limited information, no attributable spillover savings could be calculated; therefore, spillover was 0.0 percent. The measures mentioned were a furnace, sealing around windows, replacing the glass pane in windows, oil heaters, air filters, ceiling fan, AC mini split inverter, and other HVAC equipment. Additional information needed to calculate spillover would be the specific type of HVAC equipment, equipment size, and detailed equipment specifications. Table 65 presents the spillover results from the participant survey.

**Table 65. Participant Spillover Results**

Surveyed (n)	Spillover
15	0.0%

## 6.7 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 107.1 percent and 99.7 percent for energy and demand savings, respectively.

**Table 66. 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	65,573	11.6	64,157	11.6	97.8%	100.0%	Desk review, on-site verification, and tracking system review
Air conditioner tune-up—manifold measurement	250,221	136.1	250,221	136.1	100.0%	100.0%	Tracking system review
Air infiltration	387,214	52.7	417,956	52.6	107.9%	100.0%	Desk review, on-site verification, and tracking system review
Duct sealing—AC with resistance heat (tested)	2,982,232	295.3	2,982,232	295.3	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	
Duct sealing—electric cooling (tested)	217,902	116.2	213,143	113.6	97.8%	97.8%	Desk review, on-site verification, and tracking system review
Duct sealing—heat pump (tested)	731,089	124.5	1,046,654	124.5	143.2%	100.0%	Desk review, on-site verification, and tracking system review
Duct sealing electric resistance no cooling (tested)	8,942	-	8,891	-	100.0%	N/A	Desk review and tracking system review
LED (retail): Outdoor, general purpose, all wattages	76	-	76	-	100.0%	N/A	Tracking system review
LED bulbs BR30 8 W (indoor)	350	0.1	350	0.1	100.0%	100.0%	Tracking system review
LED bulbs BR30 8 W (outdoor)	36	-	36	-	100.0%	N/A	Tracking system review
LED bulbs candelabra 4 W (indoor)	6,704	1.2	6,704	1.2	100.0%	100.1%	Desk review and tracking system review
Low-flow faucet aerator	5,662	0.6	5,656	0.6	99.9%	99.8%	Desk review and tracking system review
Low-flow showerheads	34,069	3.5	34,054	3.5	100.0%	100.0%	Desk review and tracking system review
Residential heat pump tune-up	19,506	4.9	19,506	4.9	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)	59,088	7.0	59,088	7.0	100.0%	100.0%	Desk review, on-site verification, and tracking system review
Smart thermostats	5,710	-	5,710	-	100.0%	N/A	Tracking system review
<b>Total</b>	<b>4,774,374</b>	<b>753.5</b>	<b>5,114,435</b>	<b>751.0</b>	<b>107.1%</b>	<b>99.7%</b>	

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

## 6.8 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 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 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*, *kitchen and bathroom 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*, *smart thermostats*, and *heat pump and AC tune-ups*.

In PY2021, the program incentivized *ceiling insulation installation*, *air infiltration*, and *duct sealing*, while providing direct installation of *faucet aerators*, *low-flow showerheads*, *advanced power strips*, *advanced thermostats*, and lighting measures 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 30 sites, and on-site data collection for four sites. On-site data collection included physical verification of the installed measures. The net-to-gross (NTG) values were based on process evaluation research conducted for PY2020, including participant and market actor surveys. The surveys and interviews focused on understanding if the program was operating as expected and gauging the program's influence and satisfaction levels.

**Table 67. Low-Income Solutions—Data Collection and Evaluation Activities**

NTG approach	Process evaluation activities	Gross impact evaluation completes			
		Tracking system review	Desk reviews	On-site data collection	Metered data analysis <sup>28</sup>
Deemed from prior research	Program staff interviews (2) Materials review	Census	30	4	None

<sup>28</sup> This column refers to EAL customer meter data provided to the EM&V team instead of primary metered data collected as part of on-site measurement and verification (M&V).



## 7.1 KEY FINDINGS

In PY2021, the Low-Income Solutions program has achieved 8,034 MWh in gross energy savings and 2.2 MW in gross demand savings, as shown in Table 68. The program exceeded the energy goal, achieving 102 percent, but fell short of the demand goal, achieving 74 percent.

**Table 68. Low-Income Solutions—Reported, Evaluated, and Net Savings**

Energy/demand savings	Reported savings	Evaluated savings	Realization rate	NTG ratio <sup>29</sup>	Net savings	Program contribution to portfolio savings
Energy savings (MWh)	8,050	8,034	99.8%	100.0%	8,034	2.6%
Demand savings (MW)	2.2	2.2	99.9%	100.0%	2.2	2.3%

**Table 69. Low-Income Solutions—Goals vs. Achieved**

Program	Savings	Goal	Actual	Percentage achieved
Low-Income Solutions	Energy savings (MWh)	7,863	8,034	102%
	Demand savings (MW)	2.9	2.2	74%

## 7.2 RECOMMENDATIONS

During the evaluation activities, the EM&V team identified five recommendations for EAL's consideration (Table 70).

**Table 70. Low-Income Solutions—PY2021 Recommendations**

Type	Recommendation	Key finding
Impact	<b>Recommendation 1:</b> 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 condenser nameplate, advanced power strip location, Heating Seasonal Performance Factor (HSPF), quantity and type of light bulbs installed, and removed. Requiring contractors to submit all documentation necessary to replicate savings is critical to improving quality assurance/quality control (QA/QC) processes.

<sup>29</sup> NTG ratio is based on PY2020 program evaluation research.

Type	Recommendation	Key finding
Impact	<b>Recommendation 2:</b> Ensure direct-install measures such as LEDs, <i>advanced power strips</i> , <i>low-flow showerheads</i> , and <i>faucet aerators</i> are installed by the contractor rather than given to the customer to install.	Direct-install measures left with the customer can potentially be left out of service. For example, advanced power strips could be confusing for the average customer to install, and this could be particularly true for the 65+ age group. During a site visit, the EM&V team discovered that the power strip left with an elderly customer was never installed since the customer was not sure how to use it.
Process	<b>Recommendation 3:</b> Continue standardizing <i>Measure Description</i> for prescriptive <i>health and safety</i> measures to track what the measure accomplished in the tracking database.	While the tracking database reports when a <i>health and safety</i> measure is installed, it does not specify what measure type or actions took place. Although some are custom, there are a number of prescriptive measures that would benefit from a descriptive measure name. Tracking prescriptive measure descriptions would help continuously improve QA/QC processes. ICF has started working on this process in PY2021.
Process	<b>Recommendation 4:</b> Increase customer service training for contractors regarding communication.	During the site visits, the EM&V team found that many customers felt there wasn't sufficient communication with the contractors. In some cases, customers are still waiting for follow-ups from contractors on supply delays for projects. As mentioned previously, this may be affected by increased turnover due to pandemic staffing issues.
Process	<b>Recommendation 5:</b> Ensure to remove and properly dispose of replaced equipment, such as incandescent bulbs.	During the site visits, the EM&V team found that, in some cases, the old light bulbs were left behind with the customer instead of being removed. Not properly disposing of replaced light bulbs could result in those light bulbs remaining in use.

## 7.3 METHODOLOGY

This section presents an overview of the impact evaluation methodologies.

### 7.3.1 Impact Evaluation

To assess program impacts, the EM&V team conducted a census tracking system review, desk reviews on a randomly selected sample of 30 sites, and on-site verifications of 4 sites. Below, we overview the evaluation and sampling methodology.

### 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 began using the Arkansas Technical Reference Manual (TRM) 8.2 (TRM 8.2) 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 8.2. Third, it assessed the tracking system's ability to support QA/QC, including future evaluation needs.

We reviewed the ArchEE tracking system, which supplied (1) all participant and claimed savings and (2) many of the inputs needed to verify savings calculations to check for systemic errors across a participant census.

### 7.3.1.2 Desk Reviews

The EM&V team conducted desk reviews of 30 sites selected from PY2021 participant records to compare values recorded on project documentation with those available in the tracking system. 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 the program's tracking system.

We prioritized participants implementing *envelope* and *HVAC* projects and selected from the data extract. Table 71 characterizes the PY2021 sample selected for desk reviews.

**Table 71. Low-Income Solutions—Summary of Sampled Savings by Measure Category**

Measure category	Reported kWh	Sampled kWh	Percentage kWh sampled	Reported kW	Sampled kW
Appliances	197,216	3,026	1.5%	23.5	0.4
Domestic hot water	37,377	1,098	2.9%	3.9	0.1
Envelope	2,391,311	34,479	1.4%	816.8	11.0
HVAC	5,152,874	84,385	1.6%	1,266.6	19.8
Lighting	271,508	3,441	1.3%	42.7	0.5
<b>Total</b>	<b>8,050,286</b>	<b>126,430</b>	<b>1.6%</b>	<b>2,153.4</b>	<b>31.8</b>

### 7.3.1.3 On-Site Verification

Four projects received on-site verifications to examine whether participating trade allies' measurements were replicable and to verify the installation of incented measures. Due to the COVID-19 pandemic, the EM&V team did not perform testing but rather made process observations and verified measure installation.

## 7.4 DETAILED IMPACT EVALUATION RESULTS

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

### 7.4.1 Tracking System Review

Overall, the review of the Low-Income Solutions program's tracking system resulted in savings equal to those calculated by the program implementer. The realization rates were 100 percent for both energy and demand savings. The EM&V team found that the *Change in CFM* column in ArchEE does not calculate the difference in *CFM<sub>pre</sub>* and *CFM<sub>post</sub>* in accordance with the CFM cap. However, the savings were accurately estimated using the capped *CFM<sub>pre</sub>*, when applicable.

Table 72 provides savings estimates by measure category.

**Table 72. 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
HVAC	5,152,874	23.5	5,152,874	23.5	100.0%	100.0%
Envelope	2,391,311	3.9	2,391,311	3.9	100.0%	100.0%
Lighting	271,508	816.8	271,508	816.8	100.0%	100.0%
Appliances	197,216	1,266.6	197,216	1,266.6	100.0%	100.0%
Domestic hot water	37,377	42.7	37,377	42.7	100.0%	100.0%
<b>Total</b>	<b>8,050,286</b>	<b>2,153.4</b>	<b>8,050,286</b>	<b>2,153.4</b>	<b>100.0%</b>	<b>100.0%</b>

### 7.4.2 Desk Review Results

The EM&V team conducted desk reviews of 30 projects to compare values recorded on project documentation with those available in the tracking system. The EM&V team found one discrepancy during the site visits, but desk reviews produced similar results to the reported savings -the sites that received desk reviews reported 126,430 kWh in energy savings and 31.8 kW in demand savings. Desk review findings from projects that did not receive 100 percent realization rates are detailed below.

- JobID: EALIPS1547125042.** The project reported *duct sealing*, *LEDs*, and an *advanced power strip* installed in an entertainment system. EM&V team found that the *advanced power strip* was not directly installed but rather left with the customer. The customer indicated they did not install the *advanced power strip* because they did not know how it worked. The EM&V team adjusted the savings accordingly, resulting in site-level realization rates of 86.7 percent and 96.7 percent for energy and demand savings, respectively.

More generally, the EM&V team found that for some projects, the documentation lacked key information such as condenser nameplate, documents supporting HSPF, location of *advanced power strips*, the number of LEDs replaced and removed, or photos too small or difficult to read.

**Table 73. Low-Income Solutions—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	3,441	0.5	3,441	0.5	100.0%	100.0%
Air conditioner tune-up—manifold measurement	1,490	0.7	1,490	0.7	100.0%	100.0%
Air infiltration	15,992	2.8	15,992	2.8	100.0%	100.0%
Ceiling insulation	18,487	8.2	18,487	8.2	100.0%	100.0%
Duct sealing—AC with resistance heat (tested)	23,569	2.3	23,569	2.3	100.0%	100.0%
Duct sealing—electric cooling (tested)	18,518	9.9	18,518	9.9	100.0%	100.0%
Duct sealing—heat pump (tested)	40,699	6.8	40,699	6.8	100.0%	100.0%
Low-flow faucet aerator	199	0.0	199	0.0	100.0%	100.0%
Low-flow showerheads	899	0.1	899	0.1	100.0%	100.0%
Advanced power strip (direct install)	3,026	0.4	2,774	0.3	91.7%	91.7%
Smart thermostats	109	0.0	109	0.0	100.0%	100.0%
<b>Total</b>	<b>126,430</b>	<b>31.8</b>	<b>126,178</b>	<b>31.7</b>	<b>99.8%</b>	<b>99.9%</b>

### 7.4.3 On-Site Verifications

Four projects received on-site verifications to examine whether participating trade allies' measurements were replicable and to verify the installation of incented measures. Due to the COVID-19 pandemic, 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 on-site. Details from the adjustments made based on on-site data were rolled into the desk review project-level results in the previous section.

While on-site, the EM&V team gathered qualitative feedback from customers on their experience with the program. Overall, customers stated they were *satisfied* with the program and indicated they would not have had this work done without the program. Some said 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.

Adjustments made based on on-site findings are detailed below. Overall, program-level realization rates based on on-site visits were 97.8 percent and 99.3 percent for energy savings and demand savings, respectively, as detailed in Table 74.

**Table 74. Low-Income Solutions—On-Site Verification Results**

Measure category	Reported savings (kWh)	Reported savings (kW)	Evaluated savings (kWh)	Evaluated savings (kW)	kWh realization rate	kW realization rate
Appliances	504	0.1	252	0.0	50.0%	50.0%
Envelope	5,856	1.6	5,856	1.6	100.0%	100.0%
HVAC	4,658	2.6	4,658	2.6	100.0%	100.0%
Lighting	575	0.1	575	0.1	100.0%	100.0%
<b>Total</b>	<b>11,593</b>	<b>4.3</b>	<b>11,341</b>	<b>4.3</b>	<b>97.8%</b>	<b>99.3%</b>

## 7.5 OVERALL SAVINGS ESTIMATES

The EM&V team used the desk reviews and on-site verifications to calculate the program-level realization rates. Program realization rates indicate that the Low-Income Solutions program achieved nearly identical energy and demand savings. The adjustments based on desk reviews or on-site verifications ultimately resulted in 98.9 percent and 99.9 percent realization rates for energy savings and demand savings, respectively.

**Table 75. Low-Income Solutions—Weighted Desk Review and On-Site 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	233,478	37.3	233,478	37.3	100.0%	100.0%	Desk review, on-site verification, and tracking system review
Air conditioner tune-up—manifold measurement	128,993	66.9	128,993	66.9	100.0%	100.0%	Desk review, on-site verification, and tracking system review
Air infiltration	944,494	180.0	944,494	180.0	100.0%	100.0%	Desk review, on-site verification, and tracking system review
Ceiling insulation	1,446,817	636.8	1,446,817	636.8	100.0%	100.0%	Desk review, on-site verification, and tracking system review
Duct sealing—AC with resistance heat (tested)	1,337,076	129.7	1,337,076	129.7	100.0%	100.0%	Desk review, on-site verification, and tracking system review
Duct sealing—electric cooling (tested)	1,207,516	652.8	1,207,516	652.8	100.0%	100.0%	Desk review and tracking system review
Duct sealing—heat pump (tested)	2,096,392	356.4	2,096,392	356.4	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	
Duct sealing electric resistance no cooling (tested)	3,290	-	3,290	-	100.0%	N/A	Tracking system review
LED (retail): Outdoor, general purpose, all wattages	1,982	-	1,982	-	100.0%	N/A	Tracking system review
LED bulbs BR30 8 W (indoor)	7,234	1.2	7,234	1.2	100.0%	100.0%	Tracking system review
LED bulbs BR30 8 W (outdoor)	2,171	-	2,171	-	100.0%	N/A	Tracking system review
LED bulbs candelabra 4 W (indoor)	26,643	4.2	26,643	4.2	100.0%	100.0%	Tracking system review
Low-flow faucet aerator	5,403	0.6	5,403	0.6	100.0%	100.0%	Desk review and tracking system review
Low-flow showerheads	31,974	3.3	31,974	3.3	100.0%	100.0%	Desk review and tracking system review
Residential heat pump tune-up	344,842	60.8	344,842	60.8	100.0%	100.0%	Desk review and tracking system review
Advanced power strip (direct install)	197,216	23.5	180,847	21.5	91.7%	91.7%	Desk review, on-site verification, and tracking system review
Smart thermostats	34,765	-	34,765	-	100.0%	N/A	Desk review and tracking system review
<b>Total</b>	<b>8,050,286</b>	<b>2,153.4</b>	<b>8,033,917</b>	<b>2,151.4</b>	<b>99.8%</b>	<b>99.9%</b>	

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

## 7.6 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.

## 8.0 POINT OF PURCHASE SOLUTIONS

Beginning in PY2020, Entergy Arkansas, LLC's (EAL) midstream and upstream programs merged into the comprehensive Point of Purchase Solutions (POPS) program. The program's objective is to provide fast, easy, energy efficiency solutions to residential and nonresidential customers where they shop. Discounts are offered for efficient lighting products and appliances. Two advantages of this program design are that (1) it can ramp up quickly and (2) there is no application process, so it is streamlined. Because the equipment price is reduced at the point of sale, there is no out-of-pocket cost for the customer to receive an incentive. Cooperation with distributors and opening clear communication channels is the key strategy for promoting measures incentivized through midstream channels. POPS also has a downstream rebate component contributing a small percentage of energy savings to the program.

As part of the PY2021 evaluation, the evaluation, measurement, and verification (EM&V) team conducted process, net-to-gross (NTG), and impact evaluations. The EM&V team conducted program staff and market actor interviews for the process and NTG evaluation, completed a general population survey, and implemented a shelving study. In support of the impact evaluation, the EM&V team reviewed 100 randomly-selected projects and performed a tracking system review.

**Table 76. PY2021 Point of Purchase 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 <sup>30</sup>
PY2021 research (general population surveys, market actor interviews, and shelving study) triangulated with PY2019 NTG research	Program staff interviews (2) General population surveys (105) Market actor interviews (5) Shelving study (13 stores)	Census	100	None	None

<sup>30</sup> 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 PY2021 program tracking data,<sup>31</sup> the POPS program reported implementing 771,274 lighting and appliance measures to 92,133 unique participants.<sup>32</sup> Table 77 provides the program's participation and reported savings by measure category. In PY2021, residential lighting projects provided the most savings for the program, approximately 68 percent of overall savings for the POPS program.

**Table 77. PY2021 Point of Purchase Solutions—Reported Participation, Measures, and Savings**

Measure category	Participants*	Quantity	Gross program savings (kWh)	Percentage of program savings (kWh)
Appliances	6,497	105,972	18,109,551	17.0%
Domestic Hot Water	44	44	58,407	0.1%
HVAC	1,511	1,519	1,741,355	1.6%
Commercial lighting	553	35,346	13,961,157	13.1%
Residential lighting	85,309	628,393	72,722,455	68.2%
<b>Total</b>	<b>92,133</b>	<b>771,274</b>	<b>106,592,925</b>	<b>100.0%</b>

\*Individual participants may install equipment from multiple measure categories.

In PY2021, the POPS program achieved 106,593 MWh in gross energy savings and 16.4 MW in gross demand savings, as shown in Table 78. The POPS program's evaluated savings resulted in higher demand and energy savings (110.7 percent kW and 108.1 percent kWh realization rates) than those calculated by the program implementer. These results are driven by the EM&V team's adjustments, with the primary adjustment recalculating 6.7 percent of upstream lighting sales using commercial methodologies.<sup>33</sup> The evaluation team applied NTG ratios for each sector measure resulting in an overall NTG ratio of 80.8 percent for energy savings and 79.2 percent for demand savings. The program exceeded planning goals, achieving 132 percent of energy and 131 percent of demand savings.

**Table 78. PY2021 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)	98,606	106,593	108.1%	80.8%	86,096	27.7%
Demand savings (MW)	14.8	16.4	110.7%	79.2%	13.0	13.6%

<sup>31</sup> The tracking system data extract is from January 26, 2022.

<sup>32</sup> We assume one participant per lighting package or advanced power strip.

<sup>33</sup> Arkansas TRM 8.2, Volume II, Page 200.

**Table 79. PY2021 Point of Purchase Solutions—Goals vs. Achieved**

Program	Savings	Goal	Actual	Percentage achieved
Point of Purchase Solutions	Energy savings (MWh)	65,094	86,096	132%
	Demand savings (MW)	9.9	13.0	131%

Due to the multiple delivery channels within the POPS program, the EM&V team provides the process and NTG evaluation results by channel rather than overall.

#### i. Commercial Midstream

Participating distributors reported high satisfaction with the program. All five distributors believed the current incentive levels were appropriate, and all five were very happy with CLEAResult, the program's implementer, specifically CLEAResult's program manager. Four of the five distributors expressed no concerns with the participation process; two specifically mentioned CLEAResult's online system as easy to use.

Interviews showed increased energy-efficient lighting adoption in the commercial sector, with increased stocking of more efficient lighting. Four of the five distributors said the percentage of their overall lighting sales categorized as energy-efficient was greater than 70 percent in PY2021, with two reporting 95 percent or higher. The other said it is not higher because several of their customers are schools, and they continue to use fluorescent or halogen bulbs.

While distributors showed an increase in energy-efficient lighting sales, they said their sales of energy-efficient lighting would have been unaffected absent the program. Reason one is customers continue to move to more efficient lighting options, and reason two is because distributors are only beginning to offer energy-efficient products. Two distributors said their sales would have been the same last year without the program. One said it would be lower by only one-half percent but added that they do not sell a lot in Arkansas. Two distributors said sales would have been lower, with one stating, *"The program makes them take the next step to the more efficient product due to the incentives."* Another said, *"[They] want to be all EE, but there are some customers that will not upgrade and want fluorescents."*

#### ii. Upstream

The shelf stocking study found that lighting products differed in availability across participating and nonparticipating stores. Still, participating stores offered more efficient lighting options than nonparticipating stores, indicating the program is influencing stocking practices. Nonparticipating stores carried more non-program ENERGY STAR<sup>®</sup>-certified and inefficient products of all lamp types and were more expensive than participating stores for equivalent non-program ENERGY STAR-certified products.

Visits to participating and nonparticipating stores also indicate the substantial potential to expand program reach and influence in stock within dollar stores. Dollar stores are abundant throughout EAL's territory and have few efficient lighting or discounted options. Grocery stores are a second opportunity to expand the program, offering a wide variety of lighting to increase efficient lighting options and discounts.

Most respondents from the general population survey (82 percent) said they were at least somewhat likely to purchase a screw-based light bulb for their home in the next 12 months. Of those respondents, almost all said they would choose LEDs (94 percent). Big box stores are the most likely place of equipment purchase, with over one-half of respondents saying they would likely purchase the equipment at Lowe’s (54 percent), Walmart (42 percent), and Home Depot (36 percent). The general population survey also indicates at least a short-term increase in LED prices as 44 percent of respondents believe the price of LEDs is higher now compared to about a year ago.

The general population survey also explored the perceptions of LED pricing. Forty-four percent of respondents believe the price of LEDs is higher now compared to about a year ago. Only 8 percent believed that the price was lower than a year ago; the other 48 percent thought the pricing was about the same.

### iii. Downstream

Downstream program awareness is low. Sixteen percent of the general population survey respondents knew about the mail-in rebates. Of those, 58 percent could not identify what measures were rebated, only that they exist. Survey respondents were even less aware of the online Marketplace (9 percent).

### iv. Net-to-Gross

Due to the multiple delivery channels within the POPS program, the EM&V team provided net-to-gross ratios (NTGRs) by channel rather than overall. Results by channel are shown in Table 80 below. For upstream lighting, the team recommends an NTGR of 53 percent for general population sales and 100 percent for low-income targeted sales, such as discount stores in low-income areas and giveaway events partnered with non-profit organizations such as foodbanks. Upstream room air conditioners and heat pump water heaters were added late in the year and were not included in the evaluation. The EM&V team recommends using an initial NTGR of 80 percent and performing a full NTG evaluation effort in PY2022 for these measures to adjust, if necessary. For commercial midstream, the team recommends 85 percent. While the downstream component contributes a very small percentage of program savings, they represent a variety of measures. Therefore, we recommend an NTGR by measure type, ranging from 75 to 88 percent, averaging 79 percent overall. Detailed results supporting these recommendations are found in the Net-to-Gross Results section.

**Table 80. PY2021 NTGRs Recommendations by Delivery Channel**

Delivery channel	NTG recommendation
Residential upstream – non-low-income	53%
Residential upstream – low-income	100%
Commercial midstream	85%
Residential downstream	79%*

\*This value is a weighted average across all appliances.

## 8.2 RECOMMENDATIONS

The EM&V team found new areas for program improvement. Specific recommendations to address these areas are described in Table 81.

**Table 81. Point of Purchase Solutions—PY2021 Recommendations**

Type	Recommendation	Key finding
Impact	<b>Recommendation 1:</b> Organize the project documentation so inspection information, participant agreements, and invoices are easily cross-referenced.	The EM&V process was delayed because the documentation received was in separate folders, which required a data reorganization process to conduct the desk review. Locating all the documentation for one site address or project number in a single folder or creating a mapping of each site to the location of all its documentation files would reduce inefficiencies associated with locating documentation across different folders.
Impact	<b>Recommendation 2:</b> Update the program tracking data formats and details to improve data organization, transparency, and consistency.	Correct the <i>MeasureDesc</i> column to reflect the measure description for the appropriate lighting type accurately. The <i>MeasureDesc</i> column currently identifies lighting using the descriptions <i>midstream: interior lamps</i> , <i>midstream: interior fixtures</i> , and <i>midstream: exterior fixtures</i> . However, the descriptions that identify the lighting installation types ( <i>LightInstall</i> ) were incorrectly identified for 71 exterior lighting measures (577 fixtures). Incorrect application of the measure descriptions did not impact savings calculations or require adjustments but impacted the apparent distribution of reported lighting types in the tracking system.
Impact	<b>Recommendation 3:</b> Increase quality assurance/quality control (QA/QC) and clarity of program tracking data to reduce errors.	With some discrepancies still observed because of the evaluation's tracking system review process, it is recommended that additional tracking system QA/QC checks are conducted. Also, adding key program input assumptions such as lighting type directly into the tracking system would allow for more detailed checks to be completed and a comprehensive QC review.
Impact/ process	<b>Recommendation 4:</b> Explore strategies to increase participation among participating dollar stores.	Dollar stores are common throughout EAL's territory, including low- to moderate-income neighborhoods. In visiting participating and nonparticipating stores, we found substantial potential to increase efficiency and discounted lighting options in dollar stores. In visiting other nonparticipating dollar stores, like Family Dollar, we found almost no efficient lighting options were available. We believe expanding offerings in participating stores and gaining the participation of other dollar store chains could increase the efficient bulbs offered in these markets. They also represent an opportunity to specifically reach the lower-income communities that would benefit from higher energy-efficient discounted lighting options. The general population survey found that low-income households are more likely to buy bulbs at dollar stores (15 percent of low-income customers compared to 2 percent of non-low-income).

Type	Recommendation	Key finding
Impact/ process	<b>Recommendation 5:</b> Consider expanding participation in grocery stores.	We visited grocery stores, including major chains like Kroger, as part of our nonparticipating store sample. We found grocery stores sell a considerable amount of lighting options, with about half of the stock being inefficient.
Impact/ process	<b>Recommendation 6:</b> Increase decorative and other specialty lighting options in participating stores.	Across all stores, we found less efficient options for decorative lighting. Furthermore, the inefficient options (i.e., incandescent) were often displayed more prominently than efficient decorative lighting options, including top-shelf displays.
Impact/ process	<b>Recommendation 7:</b> Continue promoting the program through big box stores.	Big box stores are most mentioned as likely places to purchase equipment in the next 12 months, according to results from the general population survey. Over one-half said they would likely purchase the equipment at Lowe's (54 percent). Walmart and Home Depot were the following two most mentioned locations, 42 percent and 36 percent, respectively. The shelf stocking study found these stores have a large selection of lighting to choose from and good signage demonstrating the program incentive.
Process	<b>Recommendation 8:</b> Discuss additional implementation strategies among EAL and the program implementer to increase the program's net savings.	Employing a combination of the previous recommendations to target upstream efficient bulbs may increase the program's influence and net savings. In addition, distributor interviews indicate schools' standard practice is not LEDs, and therefore specific strategies working with schools may increase net savings.
Process	<b>Recommendation 9:</b> Increase marketing efforts to residential customers to improve program awareness.	Results from the general population survey showed a very low awareness of EAL's mail-in rebate offerings (16 percent), of which 58 percent could not identify the rebated measures, only that rebates do exist. Fourteen percent were aware of retailer discounts, and only nine percent knew the online Marketplace.

## 8.3 METHODOLOGY

This section details the evaluation activities for both process and impact.

### 8.3.1 Process Evaluation

This section details the methodologies for the general population survey, market actor interviews, shelf stocking study, and NTG evaluation.

### 8.3.1.1 General Population Survey

The general population survey targeted a sample pulled from a list of EAL residential customers. The questions focused primarily on household lighting and appliances and customers' awareness, usage, and satisfaction with energy-efficient products offered. A total of 105 phone surveys were conducted with residential customers.

#### i. Sampling Methodology

The sample frame for the general population survey included all active accounts from Entergy Arkansas residential customers. The evaluation team pulled a download of EAL's residential customer billing repository on July 6, 2021.<sup>34</sup> The residential population included over 600,000 customers. Data on each customer consists of a premise number, account information, rate code information, contact information, meter information, and consumption data for 24 months.

The evaluation team reviewed the consumption data for the most recent twelve months of data. Any customers not having consumption data for all twelve months were filtered out. Across the customer population, 22,494 missed at least one month of data from the most recent twelve months and were removed from the sample.

The evaluation team also filtered the data based on rate code only to include AR\_RS, which represents residential customers. Table 82 shows the distribution of rate codes for the entire population.

**Table 82. Rate Code Frequencies for Entire Population**

Rate code	Count
AR_RS	600,435
AR_RS3	420
AR_RT	41
AR_RMT	30
AR_SGUSGE	6
AR_SG1	4
AR_FA	2
TN_L4	1
AR_RMT3	1
AR_RT3	1
AR_RW	1
<b>Total</b>	<b>600,942</b>

<sup>34</sup> File name "ccoaree\_o001\_20210703185023.dat" accessed through FileZilla on July 6, 2021.

Customer records were then filtered for extreme values for average kilowatt-hours consumption to represent the average residential customer's electricity use. The average of all customer consumption averages was 1,120 kWh. The standard deviation was 743. Customers with a standard deviation above or below the mean (average kWh consumption above 1,863 or below 377) were filtered out, dropping 148,119 cases.

**Table 83. Sample Filtering**

Filters	Number
Entire residential population	600,942
Customers with missing months of consumption data	22,494
Rate codes except for AR_RS	492
Extreme average kilowatt-hours consumption	148,119
Residential population for the general population survey	429,837

From the sample of 429,837, 670 customers were randomly selected to include in the sample frame. With an assumed response rate of 15 percent, the expected number of completes was 100. A total of 105 surveys were completed; the average survey length was 16.5 minutes.

**Table 84. PY2021 General Population Survey Response Rate**

Disposition	Overall
<b>Sample</b>	<b>670</b>
Business/residential line	0
Not a utility customer	2
Affiliated with utility	0
<b>Eligible sample</b>	<b>668</b>
Does not recall participating	7
Ineligible—address not primary	17
Refusal	69
Incompletes (partial surveys)	2
Language barrier	7
Bad number	125
Called out	0
Not completed	336
Completed	105
<b>Response rate</b>	
<b>Response rate (completed/eligible sample)</b>	<b>15.7%</b>

### 8.3.1.2 Market Actor Interviews

The market actor interviews were used to inform the process evaluation and support NTG analysis. The EM&V team interviewed five midstream distributors that participated in the program during PY2021. Eligible distributors were initially contacted to schedule the interviews via email on October 11, 2021. Interviews were conducted between October 13, 2021, and October 29, 2021.

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 distributor interviews explored (1) sales of LED bulbs and fixtures and variable frequency drives (VFD), (2) program interactions, (3) program satisfaction, (4) the impact of the COVID-19 pandemic, and (5) program attribution indicators. As an additional approach to inform free-ridership, distributors were also asked to estimate what their PY2021 sales of program-qualifying services would have been absent from the program.

### 8.3.1.3 Net-to-Gross Approach

For the upstream component, the EM&V team triangulated results from the PY2021 shelf-stocking study and general population survey with PY2019 retailer interviews and sales information. NTG for the midstream measures was calculated using data collected from interviews with distributors. Due to the small savings contributions from downstream measures, benchmarking was used to inform the NTG ratio recommendation.

#### i. Upstream Measures

For the upstream component of the program, the EM&V team triangulated results from the PY2019 retailer interviews, the shelf-stocking study, and the general population survey. Results from each effort informed the recommended NTG ratio. For the shelf-stocking study, free-ridership was calculated using shelf-stocking data collected on-site by the team using the following equation:

$$\text{Freeridership} = 100\% - \text{percentage difference between counts of program} \\ \text{– eligible products in participating and non – participating stores}$$

Free-ridership was weighted at the store level according to overall bulb-type count across participating and nonparticipating stores; results were then averaged.

#### ii. Midstream Measures

For midstream, the EM&V team conducted interviews with distributors. As an alternate approach to assessing free-ridership, distributors were asked to estimate the change in their PY2021 sales of program-qualifying equipment had the program discounts not been available. Where estimates were provided, the EM&V team calculated a free-ridership estimate using the following equation:

$$\text{Freeridership} = 100\% - \text{percentage decline in sales in absence of program}$$

Individual distributor free-ridership rates were weighted by their respective gross energy savings to arrive at an average overall program free-ridership rate.



### iii. Downstream Measures

Due to the small savings contributions from downstream measures, benchmarking was used to inform the NTG ratio recommendation.

## 8.3.2 Impact Evaluation

The evaluated savings results are based on savings calculations and adjustments made during the tracking system review and 30 engineering desk reviews; savings adjustments were made at the project level. Final evaluated savings account for the tracking system review and desk-review-level adjustments for all measure categories.

### 8.3.2.1 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 Arkansas Technical Reference Manual (TRM) 8.2 to reference 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. 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: it (1) identified any initial high-level tracking system concerns; (2) verified whether the savings estimates in the tracking system are consistent with the savings algorithms' results as outlined in TRM 8.2; and (3) 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 for the most part, all measure-level data for prescriptive-based measures—was used to check for systemic errors across a census of participants.

### 8.3.2.2 Review of Top Savings Lighting Measures

In addition to conducting the tracking system review, the EM&V team identified the 70 light bulbs responsible for the highest portion of program savings to verify ENERGY STAR status. The 70 largest saving bulbs correspond with over 86 percent of total program 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.

### 8.3.2.3 Desk Reviews

The engineering desk reviews included inspecting the available project documentation and emphasized key parameters for the deemed savings protocols from TRM 8.2 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 8.2 algorithms and compared to the reported savings.

The engineering desk reviews also showed consistent TRM 8.2 and commercial midstream lighting methodology protocols across all measures. The EM&V team found more minor needs for adjustments to specific projects, described in detail in section 8.3.2.3.

For all programs, the EM&V team use a consistent definition for the number of measures and participants:

- A *measure* is the number of unique measures (obtained by using the ArchEE database field *InstalledMeasureID*), which is also equal to the frequency of the variable *MeasureDesc*.
- A *participant* is a unique account (obtained using the ArchEE database field *AccountNumber*).

Sampling for the 30 desk reviews was conducted via stratified random sampling on kilowatt-hours savings at the project level. Stratification was performed according to the measure type and sector; only commercial lighting was sampled, with desk reviews using data from Q1, Q2, and Q3. This sampling design ensured that EM&V team had enough time to address any issues observed in the field during the first half of PY2021, ensuring any issues observed during this period could be reconciled ahead of year-end reporting of the POPS program.

**Table 85. POPS Program Data Collection—Target Completes and Sample Table**

Program	Quarter	Sample	Desk reviews
Point of Purchase Solutions program	Q1	10	10
Point of Purchase Solutions program	Q2	10	10
Point of Purchase Solutions program	Q3	10	10
<b>PY2021 Total</b>		<b>30</b>	<b>30</b>

### 8.3.2.4 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 PY2021 program manual, the data tracking system, and the savings workbook.

### 8.3.2.5 Shelf-Stocking Study

The shelf-stocking study had two objectives: 1) inform the update of LED NTG, in conjunction with residential customer surveys, and 2) provide informative data for the independent evaluation monitor (IEM) and Parties Working Collaborative (PWC) to consider TRM 9.0 updates for LEDs. The EM&V team visited 13 stores, 10 participating, and 3 nonparticipating stores located in EAL's territory.

The study examined the availability and pricing of program LED products and similar non-program LED products for comparison. The EM&V team also assessed in-store promotional materials and displays. The study results provided information on how program products fit into the overall lighting market in selected participating and nonparticipating stores. The EM&V team analyzed the data to answer the following researchable questions:

- Are program products readily available and identifiable on store shelves?
- Are there direct alternatives to program products, whether efficient or inefficient?
- How do prices of program products compare to similar non-program products?

#### i. Shelf-Stocking Study Data Collection Form

The EM&V team used the data collection form to gather store-level and product-level information. The store-level information includes general information about the layout of lighting products and signage in the store. We collected qualitative information on whether program signage is easily identifiable in the lighting section, supported by photo documentation. This report includes some examples, with more photo documentation available upon request. In addition, we collected information on the display of lighting products. The completed data collection forms from the study are provided as a separate appendix to this report in spreadsheet form.

Considering the researchable questions mentioned previously, we gathered the following data points at the store level:

- Are program signs present in participating stores?
- Do program signs allow customers to identify program-discounted products?
- Is there a clear grouping of products, such as technology (LED, incandescent) or style (general service, globe)?
- Collect qualitative comments on product presentation and availability not captured by product-level data collection.

As discussed in the Bulb Selection section (Section iii) below, we collected product-level information for a pre-determined list of product types. We attempted to find a program-qualifying bulb for each product type selected, a non-program ENERGY STAR equivalent, an efficient non-ENERGY STAR equivalent, and a non-efficient equivalent. Equivalence was based on the product having the same style as the program product and falling within the same lumen range. To allow direct comparisons, we attempted to match additional characteristics, particularly color temperature and the number of bulbs in the package. The data collection form was completed for up to ten selected bulb types per store. We gathered the following data points at a product level:

- Does the store carry an ENERGY STAR-rated, efficient non-ENERGY STAR, and non-efficient alternative to program products?
- Product characteristics to ensure similarity of the program and alternative products:
  - bulb technology (LED, CFL, halogen, incandescent),
  - bulb style (general service, 3-way, globe, decorative, reflector),
  - lumens,
  - wattage,
  - color temperature, and
  - dimmable.
- Where are program products displayed (high/middle/low shelves, end cap, or standalone display)?
- Number of bulbs per package
- Price and discount information:
  - non-discounted price (or only price if no discount shown),
  - discounted price (if multiple prices are posted), and
  - source of discount, if applicable and shown.
- Notes on unique product characteristics, presentation, or pricing information

## ii. Store Selection

The EM&V team visited 13 stores, ten participating and three nonparticipating stores located in EAL's territory. The EM&V team used a purposive sampling approach, selecting stores based on geography, store type, and program sales. While the purpose of the sample design is to represent participating stores generally, it is important to note it is not a scientific sample that can be extrapolated to the program population.

Given the primary goal to gather information on stores' stocking and pricing of lighting products, in reviewing the store list, we identified three characteristics that we believe might affect stocking and pricing practices: the type of store, the location of the store, and annual program sales. Different stores have different products available, both lighting and otherwise, and might have different target customer bases. Store location also affects customer base and purchasing behaviors, and stores will stock and price products to match customers and behaviors. In

addition, stores were selected that sold close to the median number of bulbs for each store type to best represent “typical” stores in terms of program participation.

Participating stores were categorized into three types: big box, discount/neighborhood retail, and home improvement/DIY. These categories were based on assumptions that certain stores have different stocking practices. For example, stores with a national presence may often stock all stores similarly aside from seasonal items. Larger stores with more shelf space are more likely to stock a greater variety of lighting products. In contrast, smaller stores may have more control over stocking practices.

Nonparticipating stores were selected based on comparability to program stores sampled geographically. The identified nonparticipating stores included Kroger, Family Dollar, and Tractor Supply. For efficiency, participating and nonparticipating stores were in Little Rock and within a two-hour drive radius of Little Rock. Little Rock was chosen because it has the largest population in EAL’s territory. Table 86 shows the number of participating stores from program data sorted into each store type.

**Table 86. Categorized Participating Store Types and Counts**

Store type	Participating stores	Description
Big box	57	National chain retail store with a large quantity and variety of goods and larger store footprints. These include Walmart, Sam’s Club, and grocery stores.
Discount/neighborhood retail	185	National discount and thrift chain retail store with generally a smaller and more specific range of goods and services, including Dollar General and Dollar Tree. Walgreens was also included in this category as a smaller neighborhood store.
Home improvement/DIY	35	National home improvement retail chain with a large quantity and variety of goods. These include Home Depot, Lowe’s, True Value, and Ace Hardware.

Table 87 shows the targeted and actual number of store visits by category.

**Table 87. Store visit targets by category**

Store category	Target store visits	Actual store visits
Big box/retail	3	3
Discount/neighborhood retail	3	3
Home improvement/DIY	3	4
Nonparticipating	3	3
<b>Total</b>	<b>12</b>	<b>13</b>

### iii. Bulb Selection

Many of the participating stores have extensive lighting products available, and it was prohibitive to attempt to collect detailed information on all these products. The EM&V team used program tracking data to select products to review in-store before visiting and attempted to find comparable non-program products while there.

The EM&V team prepared data collection forms for each store before the store visit. We collected information on up to ten of the following types of bulbs: general service, decorative, globe, and reflector. For example, planning a visit to a particular store, we prepared a form with sampled product types such as the following level of detail:

- General service A-shape 60 W equivalent (800–1099 lumens)
- General service A-shape 100 W equivalent (1600–1999 lumens)
- Reflector R30 45 W equivalent (450–499 lumens)
- Decorative 15 W equivalent (90–149 lumens)

The data collection form was designed to gather information about the program and non-program products to compare product availability and pricing. We consolidated the information gathered at each store, maintaining store characteristics described in the Store Selection section (Section ii) but removed individual store identifying information. The key metrics reported from this study are comparisons of pricing and availability of program and non-program products for the various bulbs selected in advance of the field data collection. We report results by store type (big box, discount/neighborhood retail, home improvement/DIY, and nonparticipating).

We also compared these results with responses about availability and pricing from the residential customer surveys and retailer interviews. Comparing the price data collected in stores with price sensitivity metrics from the residential customer survey provided feedback to the program on the appropriateness of incentive levels.

This section details the methodologies for the general population survey, market actor interviews, shelf-stocking study, and NTG evaluation.

## 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. After performing evaluation savings calculations, the EM&V team found the most discrepancies during the project-level engineering desk reviews, as detailed in Section 8.4.3.

Overall, the POPS program tracking system review produced nearly identical savings (100 percent kWh and 100 percent kW realization rates) to those calculated by the program implementer. The program's only measure that did not achieve a realization rate of 100 percent was *residential lighting* because 6.7 percent of residential lighting fixtures were recalculated using commercial savings methodologies, per section 2.5.1 (Lighting Efficiency) of TRM 8.2

**Table 88. PY2021 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
Appliances	19,909,313	2,040.2	19,909,313	2,040.2	100.0%	100.0%
Residential lighting	64,742,274	10,526.2	72,722,455	12,115.5	112.3%	115.1%
Commercial lighting	13,954,795	2,164.1	13,958,042	2,164.8	100.0%	100.0%
<b>Total</b>	<b>98,606,382</b>	<b>14,800.9</b>	<b>106,589,811</b>	<b>16,390.9</b>	<b>108.1%</b>	<b>110.7%</b>

**Table 89. PY2021 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 <sup>35</sup>
Advanced power strips—retail	17,693,510	2,008.2	17,693,510	2,008.2	100.0%	100.0%
Efficient hot water heater	58,407	5.1	58,407	5.1	100.0%	100.0%
ENERGY STAR dehumidifiers	4,398	1.0	4,398	1.0	100.0%	100.0%
ENERGY STAR freezers	258	0.0	258	0.0	100.0%	100.0%
ENERGY STAR room air cleaners	73,370	8.4	73,370	8.4	100.0%	100.0%
ENERGY STAR window AC	14,794	17.4	14,794	17.4	100.0%	100.0%
Hard-wired LED fixtures: indoor, all wattages	1,658,953	269.7	1,939,787	325.7	116.9%	120.7%
Hard-wired LED fixtures: outdoor, all wattages	685	-	835	-	121.9%	N/A
LED (retail): indoor reflector	8,388,830	1,363.9	9,877,084	1,660.3	117.7%	121.7%
LED (retail): indoor, all wattages	53,931,512	8,768.6	60,142,455	10,005.6	111.5%	114.1%
LED (indoor omni or decorative)	762,295	123.9	762,295	123.9	100.0%	100.0%
Midstream: exterior fixtures	6,771,548	1,119.4	6,771,548	1,119.4	100.0%	100.0%

<sup>35</sup> 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.

Measure	Ex-ante savings		Ex-post savings		Realization rate	
	kWh	kW	kWh	kW	kWh	kW <sup>35</sup>
Midstream: interior fixtures	5,595,078	725.0	5,598,632	725.8	100.1%	100.1%
Midstream: interior lamps	1,588,169	319.7	1,587,862	319.6	100.0%	100.0%
Pool pumps	338,015	70.5	338,015	70.5	100.0%	100.0%
Smart thermostats	1,726,561	-	1,726,561	-	100.0%	N/A
<b>Total</b>	<b>98,606,383</b>	<b>14,800.8</b>	<b>106,589,811</b>	<b>16,390.9</b>	<b>108.1%</b>	<b>110.7%</b>

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

### 8.4.1.1 Appliances

- **Advanced power strips.** No issues.
- **Pool pumps.** No issues.
- **Air purifiers.** No issues.
- **Dehumidifiers.** No issues.
- **Smart thermostats.** No issues.

### 8.4.1.2 Lighting

- **Residential LEDs.** No issues.

### 8.4.1.3 Commercial Midstream Lighting Program

Due to the commercial midstream bulbs' unique nature compared to residential use, the POPS program's commercial section is discussed separately in greater detail. PY2021 saw continued improvements in the data's consistency in the tracking database and proper application of savings algorithms. However, several *interior fixture* installations applied an incorrect in-service rate (ISR) to the fixtures.

The overall Commercial Midstream Lighting program evaluated tracking system savings resulted in nearly identical savings (100 percent kW and 100 percent kWh realization rates) to those calculated by the program implementer. The one savings adjustment made is discussed below.



**Table 90. PY2021 Midstream Lighting—Tracking System Energy Savings and Realization Rates, by Measure Category**

Measure description	Ex-ante savings		Ex-post savings		Realization rate	
	kWh	kW	kWh	kW	kWh	kW
Interior lamps	1,588,169	319.7	1,587,862	319.6	100.0%	100.0%
Interior fixtures	5,595,078	725.0	5,598,632	725.8	100.1%	100.1%
Exterior fixtures	6,771,548	1,119.4	6,771,548	1,119.4	100.0%	100.0%
<b>Total evaluated</b>	<b>13,954,795</b>	<b>2,164</b>	<b>13,958,042</b>	<b>2,165</b>	<b>100.0%</b>	<b>100.0%</b>

#### 8.4.1.4 Interior Lamps

- No issues.

#### 8.4.1.5 Interior Fixtures

A few interior fixtures applied an incorrect ISR of 98 percent to the installed fixtures, resulting in ex-ante savings slightly lower than ex-post savings estimates.

#### 8.4.1.6 Exterior Fixtures

- No issues.

### 8.4.2 Review of Top-Savings Lighting Measures

As mentioned in the Methodology section (Section 8.3), the EM&V team identified the 70 light bulbs responsible for the highest portion of program savings to verify ENERGY STAR status, representing over 86 percent of total program lighting savings. Using extracts from the ENERGY STAR website, the EM&V team then confirmed ENERGY STAR certification, using the *installationcontractor* field in ArchEE to match the ENERGY STAR measure-identification code.

Next, the EM&V team compared bulb wattages in ArchEE with wattages provided in the ENERGY STAR datasets to confirm inputs. The objective was to calculate a per-bulb watt rate using ArchEE data and ENERGY STAR to see if the results matched. If values did not match, additional research would need to be performed using the model ID to verify the correct wattage value. The EM&V team found no discrepancies between wattage values assigned to each measure.

### 8.4.3 Desk Reviews

As noted earlier, the PY2021 POPS program impact evaluation efforts included an engineering analysis for a sample of 30 commercial projects; desk reviews for 29 projects did not require any significant savings adjustments. Table 91 provides project-level realization rates for the 30 Commercial Midstream Lighting projects reviewed during the evaluation. Each participant was assigned a project number in the first column, using the account number for anonymity. A detailed description of the project with a realization rate adjustment follows.

**Table 91. Commercial Midstream Lighting—PY2021 Desk Review Results by Project**

Project number	Reported savings		Evaluated savings		Realization rate	
	kWh	kW	kWh	kW	kWh	kW <sup>36</sup>
1	42,384	8.3	42,476	8.4	100.2%	100.2%
2	7,982	1.6	14,187	2.8	177.7%	177.7%
3	1,574	0.3	1,575	0.3	100.0%	100.0%
4	1,040	0.2	1,040	0.2	100.0%	100.0%
5	2,447	-	2,447	-	100.0%	N/A
6	524	0.1	524	0.1	100.0%	100.0%
7	5,037	1.0	5,037	1.0	100.0%	100.0%
8	3,696	0.7	3,708	0.7	100.3%	100.3%
9	107	0.0	107	0.0	100.0%	100.0%
10	4,818	1.0	4,818	1.0	100.0%	100.0%
11	18,170	3.6	18,170	3.6	100.0%	100.0%
12	12,773	2.6	12,774	2.6	100.0%	100.0%
13	7,953	1.6	7,954	1.6	100.0%	100.0%
14	2,651	0.5	2,651	0.5	100.0%	100.0%
15	3,223	0.7	3,223	0.7	100.0%	100.0%
16	14,601	3.0	14,602	3.0	100.0%	100.0%
17	13,287	-	13,287	-	100.4%	N/A
18	15,271	3.0	15,271	3.0	100.0%	100.0%
19	1,496	0.3	1,496	0.3	100.0%	100.0%
20	2,651	0.5	2,651	0.5	100.0%	100.0%
21	12,511	2.5	12,512	2.5	100.0%	100.0%
22	22,311	4.5	22,313	4.5	100.0%	100.0%
23	22,907	4.5	22,907	4.5	100.0%	100.0%

<sup>36</sup> Not all projects reported demand savings. In these cases, no realization rate was applicable. In these instances, the kilowatt realization rate field is marked with a dash.

Project number	Reported savings		Evaluated savings		Realization rate	
	kWh	kW	kWh	kW	kWh	kW <sup>36</sup>
24	667	0.1	667	0.1	100.0%	100.0%
25	1,193	-	1,193	-	100.0%	N/A
26	2,995	0.6	2,995	0.6	100.0%	100.0%
27	671	0.1	671	0.1	100.0%	100.0%
28	3,149	0.6	3,149	0.6	100.0%	100.0%
29	7,718	1.6	7,718	1.6	100.0%	100.0%
30	2,816	-	2,816	-	100.0%	N/A
<b>Total</b>	<b>238,624</b>	<b>43.7</b>	<b>244,986</b>	<b>45.0</b>	<b>102.7%</b>	<b>102.8%</b>

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

To incorporate the desk review findings and adjustments to savings into the census tracking system review, the EM&V team first applied the findings from Table 92 directly to each project's tracking data. As is discussed in length below, the findings from this desk review do not represent a systemic shortage of savings in the full program. The remaining desk reviews were used to calculate realization rates by measure type; these desk review realization rates were applied to the census population by measure type. Results are presented in Table 92.

**Table 92. 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	100,304	15.9	100,443	15.9	100.1%	100.1%
Midstream: interior fixtures	85,580	17.2	91,800	18.4	107.3%	107.1%
Midstream: interior lamps	52,740	10.7	52,743	10.7	100.0%	100.0%
<b>Total</b>	<b>238,624</b>	<b>43.7</b>	<b>244,986</b>	<b>45.0</b>	<b>102.7%</b>	<b>102.8%</b>

Details of the project-based savings adjustments are provided below by participant number and EM&V Participant ID:

- **Project 1—Job ID 16777111.** Minor adjustments were made.
  - A slight adjustment was made to the reported savings, likely due to the rounding of key input parameters.
  - This project was erroneously tracked as an exterior fixture despite reporting demand savings. The EM&V team recategorized this project as an interior fixture and moved its evaluated savings to the *interior fixture* category.

- **Project 2—Job ID 17020202.** One adjustment was made.
  - Reported savings were calculated assuming the installation of nine low-bay fixtures between 7,500 and 11,999 lumens. However, in a review of project documentation, the fixtures installed output 12,390 lumens. Adjusted savings on this project resulted in a substantial increase in savings, resulting in an energy realization rate of 170 percent.
- **Project 8—Job ID 17340115.** Minor adjustments were made.
  - A slight adjustment was made to the reported savings, likely due to the rounding of key input parameters.
- **Project 17—Job ID 202106040017499000.** Minor adjustments were made.
  - A slight adjustment was made to the reported savings, likely due to the rounding of key input parameters.
- **Project 18—Job ID 202106040017499000.**
  - This project was erroneously tracked as an exterior fixture despite reporting demand savings. The EM&V team recategorized this project as an interior fixture and moved its evaluated savings to the *interior fixture* category.

#### 8.4.4 Documentation Review

To understand the Commercial Midstream Lighting 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 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 PY2021, so the 2020 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 8.2. The implementer no longer maintains this QPL.
- PY2021 program manual for the POPS program, available on the POPS program website.

The EM&V team found a few minor issues in its review of documentation, including:

- a few addresses differ 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,
- emails were not included in the tracking system data in a few cases,

- one project did not have a participation agreement, and
- the quantity of lights for one project differed between the documentation and the tracking system.

#### 8.4.4.1 Program Website Review

Information found on the residential POPS program websites includes general descriptions of the program, a comprehensive list of eligible lighting and appliance products, along with their incentive discounts provided by the program. A copy of the program manual was easily found on the website, along with a list of participating retailers, a link to the Entergy Arkansas Marketplace, and a rebate application form for each measure. The participating retailer list includes the retailer's name, store number, and complete address.

Information found on the commercial POPS program websites includes general descriptions of the program (such as who is eligible and how participation works), a comprehensive list of eligible lighting products, along with their incentive discounts provided by the program. A copy of the program manual and participation agreement was easily found on the website, along with a list of participating distributors. The participating distributor list includes the distributor company name, address, phone number, and contact email address, with the ability to search by city/state and equipment or service type.

#### 8.4.5 Shelf-Stocking Study

The shelving study included 13 stores throughout EAL's territory (10 participating and 3 nonparticipating stores). The EM&V team collected detailed information on 157 bulbs. Below are the results of this effort.

EAL effectively discounts program bulbs to make efficient LED bulbs attractive to customers when considering the upfront price. Across all lighting categories, EAL's discounted program bulbs are at a minimum 19.9 percent less expensive than non-program LED bulbs on a per-bulb basis when factoring in bulbs from both participating and nonparticipating stores.

Nonparticipating stores were more expensive than participating stores for equivalent non-program ENERGY STAR-certified products but had similar prices to participating stores for less-efficient products. Table 93 compares the average price per lamp by category and efficiency between the program and non-program bulbs. This comparison shows that EAL discounts result in lower costs for ENERGY STAR product prices.

**Table 93. Comparison of Program and Non-program LED Bulbs by Bulb Type**

Bulb type	Program LED bulbs		Non-program LED bulbs	
	Quantity	Average price per bulb	Quantity	Average price per bulb
Decorative	11	\$1.86	9	\$3.99
General service	27	\$1.83	27	\$2.71
Globe	9	\$2.23	7	\$4.78
Reflector	14	\$3.60	16	\$4.49
Three-way	1	\$5.44	1	\$12.94

Program bulbs are cheaper across those same lighting categories than LED bulbs at nonparticipating stores. Further, program LED bulbs are in most cases (exception of the globe) cheaper on average than any bulb technology (LED, incandescent, halogen) at nonparticipating stores (Table 94).

**Table 94. Comparison of Program LEDs, Non-Program LEDs, and Non-Program Non-LED Bulbs by Bulb Type**

Bulb type	Program LED bulbs		Non-participant non-program LED bulbs		Non-participant non-program Non-LED, incandescent, halogen bulbs	
	Quantity	Average price per bulb	Quantity	Average price per bulb	Quantity	Average price per bulb
Decorative	11	\$1.86	1	\$5.00	2	\$3.00
General service	27	\$1.83	14	\$2.68	20	\$2.36
Globe	9	\$2.23	1	\$2.80	2	\$2.20
Reflector	14	\$3.60	7	\$4.18	10	\$3.82
Three-way	1	\$5.44	0	N/A	0	N/A

The EM&V team found that lighting products differed in their availability across participating and nonparticipating stores. Participating stores offered more efficient lighting options than nonparticipating stores indicating the program influenced stocking practices. One sampled Sam's Club stocks primarily EAL-discounted bulbs. Of participating stores included in the shelving study, the program is likely to have the least influence on WalMart given the prevalence of their store brand Great Value line of LEDs. In contrast, nonparticipating stores carried more non-program ENERGY STAR-certified and inefficient products of all lamp types. Nonparticipating stores carried non-ENERGY STAR-certified efficient general service lamps, but we generally did not find efficient non-ENERGY STAR-certified specialty lamps.

Visits to participating and nonparticipating stores indicate the potential to expand program reach and influence in stock within dollar stores. Dollar stores are abundant throughout EAL's territory and have few efficient lighting or discounted options. Grocery stores are a second opportunity to expand the program, offering a wide variety of lighting to increase efficient lighting options and discounts.



Source of picture: Tetra Tech, June 2021, nonparticipating Family Dollar, Hot Springs area

Most stores offer several less efficient, non-ENERGY STAR LEDs and halogen and incandescent alternatives. Decorative bulbs, in general, had more inefficient options than efficient options, offering another possibility to expand program influence.

Program signage varied across participating stores, from missing prices and discount information to well-displayed discount and price comparisons. Home Depot and Lowes had the most effective signage among the participating stores, clearly labeling that the bulbs are discounted by EAL, showing both the regular and discounted prices.

Barriers to LEDs are still common based on observation of shopper behavior. One shopper selected his incandescent, stating, “you can’t beat the old-fashioned bulbs.” Other shoppers were heard considering color, size, and shape instead of the efficiency level of the lighting.

The results from this study will be triangulated anecdotally with the general population survey results and any planned program changes to determine potential updates to the program’s NTG for LEDs.



Source of picture: Tetra Tech, June 2021, participating Home Depot in South Little Rock

#### 8.4.5.1 Program Documentation Review

The EM&V team received several program-related documents. Documents that were key to understanding the program and participation processes included the program manual, Participation Agreement, and marketing materials available on the website. Documents that were key to understanding the program savings methodologies and savings calculations include the (1) program manual, (2) tracking system data, and (3) 2020 EAL Midstream Lighting Savings workbook (2020 EAL POPS Commercial Lighting Savings EMV 07312020.xlsx).

The 2020 EAL Midstream Lighting Savings workbook, which was not changed for PY2021, listed key assumptions for the program and contained a list of qualified products last updated July 31, 2020. These key assumptions include the base case wattage, annual operating hours (AOH), coincidence factor (CF), interactive effects factor (IEF), and ISR. CLEARResult no longer maintains the Commercial Midstream Lighting QPL. The EM&V team independently verified the key lighting attributes of installed lighting, including the retrofit wattage and lighting type, by referencing the Design Lights Consortium (DLC) and ENERGY STAR databases.

## 8.5 DETAILED PROCESS EVALUATION RESULTS

The following section details the results from the general population survey, distributor interviews, shelf-stocking study, and NTG evaluation.

### 8.5.1 General Population Survey

As part of the PY2021 evaluation for the program, the EM&V team conducted 105 telephone surveys with EAL residential customers (general population survey). The general population survey focused primarily on household lighting and appliances and customers' awareness, usage, and satisfaction with energy-efficient products offered.

#### 8.5.1.1 Respondent Characteristics

Respondents of the general population survey were most likely to live alone in a single-family home they own and are 45 years of age or older. Of the 105 respondents, the average number of people in the household was slightly over two (2.2 people). Thirty percent had only one individual living in the home. Most respondents were 45 years of age or older (68 percent), and most owned a single-family home (71 percent and 70 percent, respectively). More than one-half of respondents had an annual household income above the federal poverty level (FPL) based on household size (62 percent).

**Table 95. General Population Survey—Respondent Characteristics**

Respondent characteristic		Mean/ percentage
Type of home	A single-family house detached from any other house	69.5%
	A single-family house attached to one or more houses	3.8%
	In a building with 2, 3, or 4 units	6.7%
	In a building with 5 or more units	9.5%
	A manufactured home	10.5%
	<b>Respondents (n)</b>	<b>105</b>
Household size	Mean number of residents	2.3
	<b>Respondents (n)</b>	<b>105</b>



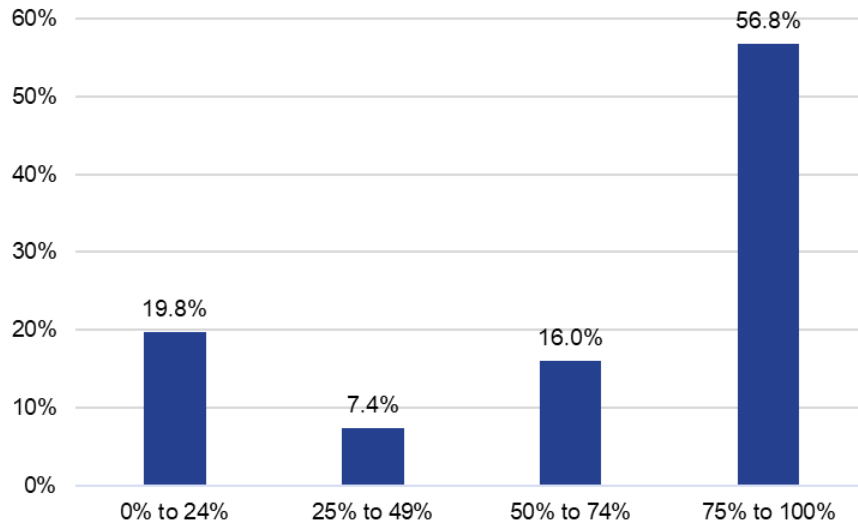
Respondent characteristic		Mean/ percentage
Own or rent	Own/buying	71.4%
	Rent/lease	26.7%
	Occupied without payment or rent	1.9%
	<b>Respondents (n)</b>	<b>105</b>
Respondent age	18–24	4.8%
	25–34	11.4%
	35–44	16.2%
	45–54	15.2%
	55–64	21.0%
	65 or older	31.4%
	<b>Respondents (n)</b>	<b>105</b>
2020 annual household income (relative to FPL and number of household members)	Less than FPL	38.0%
	Greater than FPL	62.0%
	<b>Respondents (n)</b>	<b>92</b>

Source: Participant Survey Question E3, E4, D1, D2, D4  
*Don't know* and *refused* responses are excluded.

### 8.5.1.2 Awareness of Energy-Efficient Lighting Types

We asked survey respondents how familiar they are with LED light bulbs that screw into regular light sockets, using a scale of *not at all familiar*, *somewhat familiar*, *very familiar*, and *extremely familiar*. Over one-half of survey respondents said they were *very* or *extremely familiar* (56 percent) with LEDs. Eighty-three percent of those familiar with LEDs said they had used LEDs in their home at some point. Over one-half of respondents who have ever used an LED in their home said that the current saturation of LEDs is between 75 percent to 100 percent of all their lighting. Twenty percent said less than 25 percent of their home's lighting is LEDs. Figure 17 below shows the percentage of lighting in the home.

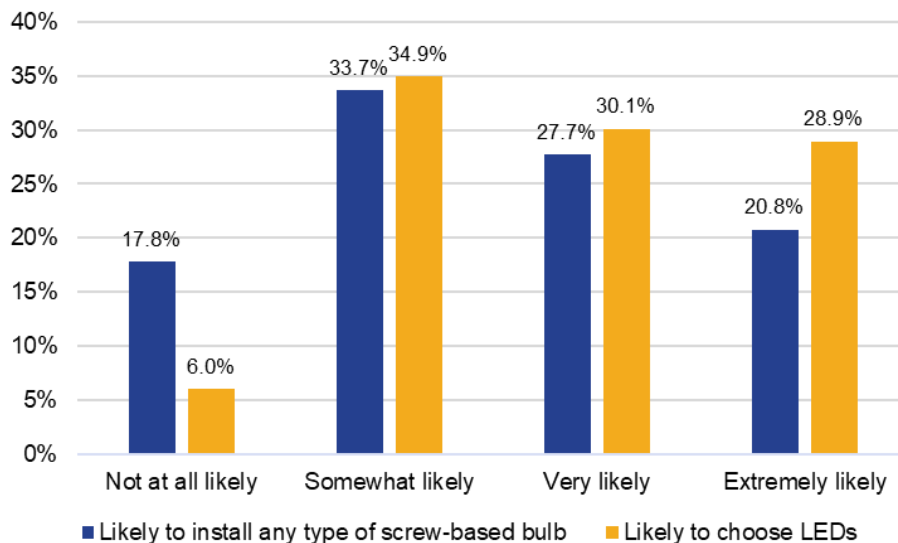
**Figure 17. Percentage of Lighting in the Home That is LED (n=81)**



Source: General Population Survey Question U2.

Most survey respondents (82 percent) said they were at least *somewhat likely* to purchase a screw-based light bulb for their home in the next 12 months, using a scale of *not at all likely*, *somewhat likely*, *very likely*, and *extremely likely*. Of those respondents, almost all said they would choose LEDs (94 percent).

**Figure 18. Likelihood of Installing any Screw-In Based Bulb in the Next 12 months, and Likelihood to Choose LEDs (n=83)**



Source: General Population Survey Question L1, L2.

The survey explored the perceptions of LED pricing. Forty-four percent of respondents believe the price of LEDs is higher now compared to about a year ago. Only eight percent believed that the price was lower than a year ago. The other 48 percent thought the pricing was about the same.

The average price participants said the cost of the LED bulb would start to get expensive enough where it was not out of the question to purchase but would have to give it some thought is \$7.94 per bulb. The average price at which the LED would be so expensive they would not consider buying it is \$13.45. The LED bulb price participants felt would be a great buy for the money was \$3.82. Respondents were asked how likely they are to purchase an LED for their home in the next 12 months, if the price was between their perceived bargain price and the price they consider to be too high. Using a scale of *not at all likely*, *somewhat likely*, *very likely*, and *extremely likely*, no respondents said they were *not at all likely* to purchase if the price was within that range. Forty-nine percent said they would be *very likely*, and 40 percent said they were *extremely likely* to purchase.

**Table 96. Average LED prices participants would consider high, too high, and a great buy**

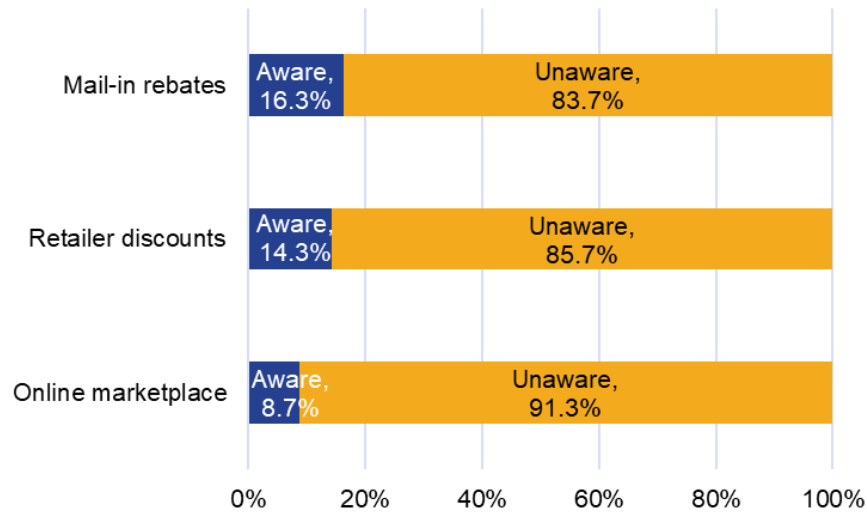
	Price LED Bulb is Starting to get Expensive, so That it is Not Out of the Question, but Would Have to Give Some Thought to Buying it	Price LED Bulb is so Expensive That Would Not Consider Buying it	Price LED Bulb Would be a Bargain; a Great Buy for the Money
Mean	\$7.94	\$13.45	\$3.82
N	48	65	67

Source: General Population Survey Question L3, L4, L5.

### 8.5.1.3 EAL Programs

Survey participants were asked about their awareness of EAL mail-in rebates, retailer discounts, and the online Marketplace. Figure 19 below shows that awareness is low for all three aspects. Respondents were most aware of the mail-in rebates (16 percent) and least aware of the online Marketplace (9 percent). Ten of the 17 respondents who said they were aware of mail-in rebates could not identify the rebated measures, only that rebates exist. The other seven mentioned rebate awareness for pool pumps, smart thermostats, freezers, heat pump water heaters, room air conditioners, air sealing, and ceiling insulation.

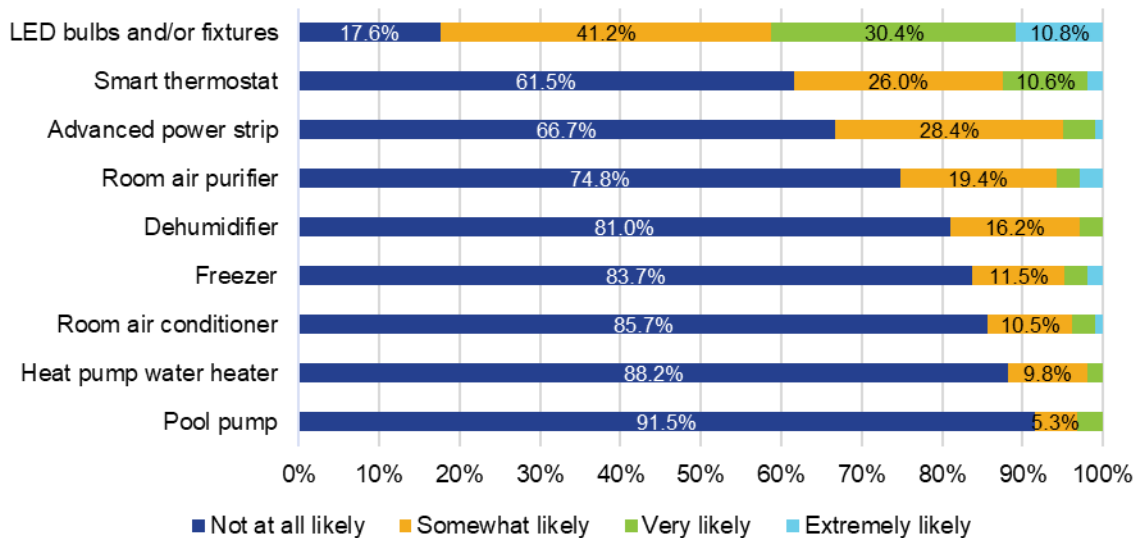
**Figure 19. Awareness of EAL Mail-In Rebates, Retailer Discounts, and Online Marketplace (n=104)**



Source: General Population Survey Question P1, P2, P3.

The survey asked customers how likely they would purchase program-eligible equipment in the next 12 months. Customers were most likely to purchase LED bulbs and fixtures in the next 12 months, with 82 percent saying they were at least *somewhat likely*, using a score of *not at all likely*, *somewhat likely*, *very likely*, and *extremely likely*. Smart thermostats and advanced power strips were the next most likely purchases, with 39 percent and 33 percent, respectively, being at least *somewhat likely*. Figure 20 shows the likelihood of purchasing program-eligible equipment.

**Figure 20. Likelihood of Purchasing Equipment in the Next 12 Months (n=105)**



Values <3 percent have been suppressed for visualization purposes.  
Source: General Population Survey Question LK1.

For customers who said they were at least *somewhat likely* to purchase program-eligible equipment in the next 12 months, most mentioned a big box store as their likely place of purchase. Over one-half said they would likely purchase the equipment at Lowe's (54 percent). Walmart and Home Depot were the next two-most-mentioned locations, 42 percent and 36 percent, respectively. Table 97 shows all locations mentioned.

**Table 97. Where Respondent is Likely to Purchase Equipment for their Home in the Next 12 Months (n=92)**

Likely place of purchase	Percentage
Lowe's	54.3%
Walmart	42.4%
Home Depot	35.9%
Online (e.g., Amazon)	11.4%
A local hardware store	10.9%
Entergy Arkansas's Online Marketplace	7.6%
Ace Hardware	4.3%
Dollar General	3.3%
Family Dollar	3.3%
A local grocery store	3.3%
Walgreens	2.2%
Batteries Plus Bulbs	1.1%

Source: General Population Survey Question LK2.

#### 8.5.1.4 Purchases and Decision-Making

The following section discusses LED and advanced power strip purchases in the past 12 months, including where purchases were made and what information was available at the time of purchase.

Table 98 shows that 64 percent of respondents have purchased LED bulbs or fixtures in the past year, and 12 percent have purchased advanced power strips. Walmart, Lowe's, and Home Depot were the most-mentioned places of purchase for the LED bulbs and fixtures (46 percent, 40 percent, and 20 percent, respectively). Most advanced power strip purchases were made at Walmart (62 percent). Table 98 includes all the stores listed on EAL's website for participating retailers. Respondents mentioned roughly one-half of the listed stores as places of purchase.

**Table 98. LED and Advanced Power Strips Purchases and Store Locations from Past 12 Months**

Question		LED bulbs or fixtures	Advanced power strip
Purchased in the past 12 months		64.4%	12.4%
<b>Respondents (n)</b>		<b>105</b>	<b>105</b>
Where purchased <sup>37</sup>	Walmart	46.2%	61.5%
	Lowe's	40.0%	23.1%
	Home Depot	20.0%	15.4%
	Dollar General	9.2%	0.0%
	Ace Hardware	4.6%	0.0%
	A local grocery store	4.6%	0.0%
	Family Dollar	3.1%	0.0%
	Sam's Club	3.1%	0.0%
	A local hardware store	3.1%	0.0%
	Dollar Tree	1.5%	0.0%
	Walgreens	1.5%	0.0%
	Entergy Arkansas' online Marketplace	0.0%	0.0%
	Batteries Plus Bulbs	0.0%	0.0%
	Bottom Dollar	0.0%	0.0%
	Goodwill	0.0%	0.0%
	Keathley-Patterson Searcy	0.0%	0.0%
	Salvation Army	0.0%	0.0%
	Vinson Electric Supply	0.0%	0.0%
	Wholesale Electric Supply	0.0%	0.0%
	Elliott Electric Supply	0.0%	0.0%
Habitat Restore	0.0%	0.0%	
True Value	0.0%	0.0%	
<b>Respondents (n)</b>		<b>65</b>	<b>13</b>

Source: General Population Survey Question B0, B2.  
Responses of *don't know* and *refused* have been excluded.

All LED, LED fixtures, and advanced power strips purchased were installed, and almost all were installed in the respondent's home; 95 percent for LEDs and fixtures and 85 percent for advanced power strips. The remaining respondents said they installed the equipment in their home and a business.

Respondents were asked what the new LEDs replaced. Just over one-half said they replaced burned-out incandescent bulbs (52 percent). Thirty-nine percent replaced working incandescent bulbs. Just over one-third replaced burned-out LEDs (36 percent). Only two percent replaced LEDs that were still operating. Table 99 shows the details of the LED purchases.

<sup>37</sup> All retailers shown are participating retail locations listed on EAL's website as of October 26, 2021.

**Table 99. Installation of LED Purchases**

LED Installation	Percent
Replaced incandescent that was burned out	51.6%
Replaced incandescent that was still operating	39.1%
Replaced LEDs that were burned out	35.9%
Replaced CFLs that were burned out	21.9%
Was a new installation	20.3%
Replaced CFLs that were still operating	12.5%
Replaced LEDs that were still operating	1.6%
<b>Respondents (n)</b>	<b>64</b>

Source: General Population Survey Question B16.

Responses of *don't know* and *refused* have been excluded. Multiple responses were allowed.

The survey also asked recent purchasers of LEDs, LED fixtures, and advanced power strips about the information made available near the products. For LEDs and LED fixtures, 22 percent of respondents said they recalled seeing a price discount. Only eight percent of advanced power strip purchasers said the same. When asked if they recalled seeing signs, displays, or materials near the products that provided information about their characteristics or energy use, just over one-half of LED purchasers said yes (54 percent). Seventeen percent of advanced power strip purchasers recalled seeing this information. The rated usefulness of the information varied for LED purchases. It did not affect the purchasing decision for the advanced power strip purchasers.

**Table 100. Purchasing Information Provided for LEDs and Advanced Power Strips from Past 12 Months**

Question	LED bulbs or fixtures	Advanced power strip
Recall seeing a price discount	22.4%	8.3%
<b>Respondents (n)</b>	<b>58</b>	<b>12</b>
Recall seeing any informational signs, displays, or other materials	54.1%	16.7%
<b>Respondents (n)</b>	<b>61</b>	<b>12</b>
Recall seeing EAL signs or stickers	19.0%	15.4%
<b>Respondents (n)</b>	<b>63</b>	<b>13</b>
Usefulness of the EAL information provided	It was useful and helped to decide which product to buy	35.7%
	It was useful, but it didn't affect the purchase decision	28.6%
	It wasn't particularly useful, or didn't pay attention to it	35.7%
<b>Respondents (n)</b>	<b>14</b>	<b>2</b>

Source: General Population Survey Question B0, B2, B5, B7, and B9.

Responses of *don't know* and *refused* have been excluded.

A list of information customers might look for when shopping for light bulbs was read to respondents to determine what they look for when shopping for light bulbs. We asked respondents which aspect is most important in selecting a light bulb. Price is most frequently mentioned (26 percent). The next most important aspect mentioned was brightness (24 percent), followed by wattage (21 percent). Where respondents mentioned more than one important aspect, the next most important aspect, excluding price, is brightness (35 percent). Table 101 shows the breakdown of results for all mentioned aspects.

**Table 101. Most Important Aspects When Shopping for LEDs or LED Fixtures**

Bulb aspect	Most Important aspect	Other than price, the most important aspect
Price	26.0%	N/A
Lumens or brightness of the bulb	24.0%	17.4%
Wattage	21.0%	34.8%
How many years it is expected to last	11.0%	17.4%
Color appearance, temperature, or rendition	8.0%	8.7%
ENERGY STAR label	3.0%	0.0%
Wattage equivalency	3.0%	13.0%
Shape	2.0%	8.7%
<b>Respondents (n)</b>	<b>100</b>	<b>23</b>

Source: General Population Survey Question B17, B17a, and B17b.  
Responses of *don't know* and *refused* have been excluded.

### 8.5.1.5 Communication

The most mentioned preferred method of communication from EAL about their programs is through email (51 percent), followed by various types of mailings including bill inserts (29 percent), separate mailing (14 percent), and brochures (12 percent). Text messaging and phone calls were also mentioned (12 percent and 11 percent, respectively), and only 2 percent said they would prefer to receive EAL program-related information through EAL's website. Only nine percent of all respondents said they had visited EAL's website to find information on energy-efficient products.

**Table 102. Preferred Method of Communication**

Communication method	Percentage
Email	51.4%
Bill inserts	28.6%
Separate mailing	14.3%
Brochure	12.4%
Text message	12.4%
Phone call	10.5%
EAL's website	1.9%
<b>Respondents (n)</b>	<b>105</b>

Source: General Population Survey Question C1.



## 8.5.2 Market Actor Interviews

Next, we present detailed process findings from participating midstream distributor interviews. The interviews were used to inform the process evaluation and support NTG analysis. They explored (1) sales of LED bulbs and fixtures and VFDs, (2) program interactions, (3) program satisfaction, (4) the impact of the COVID-19 pandemic, and (5) program attribution indicators.

### 8.5.2.1 Distributor Characterization

The number of distributors participating in the Commercial Midstream program at the end of the second quarter was 22. The EM&V team completed in-depth interviews with five. Their program participation is provided below, along with the overall Q1 and Q2 program totals. A generic number was used in place of the distributor name for anonymity.

**Table 103. PY2021 Distributor Characterization**

Distributor	Project count	Measure count	Incentive total	Program savings (kWh)
1	26	1,211	7,294	215,475
2	6	126	156	15,301
3	16	371	5,264	98,207
4	4	84	5,170	209,255
5	1	10	200	2,141
<b>Total</b>	<b>53</b>	<b>1,802</b>	<b>18,084</b>	<b>540,379</b>
<b>Q1/Q2 program totals</b>	<b>418</b>	<b>12,097</b>	<b>149,557</b>	<b>4,209,497</b>

The distributors described their company, target customer, and the types of products and services they provide. One distributor works solely with industrial companies, factories, and hospitals selling lighting and VFDs. The second distributor only sells products online and offers other equipment such as HVAC and lighting. Their target customers are contractors, hotel lodging, industrial facilities, office buildings, and some residential homes. The third distributor is an electrical and communications company focusing on contractors who provide services for utilities, hospitals, industrial and large commercial facilities, and schools. The fourth is an electrical distributor targeting contractors, such as electricians. The fifth distributor only sells lighting to primarily large commercial and industrial facilities. None of the distributors sell to companies for resale, although three do have store fronts to sell directly to the public. Only two of the five distributors said they sell VFDs.

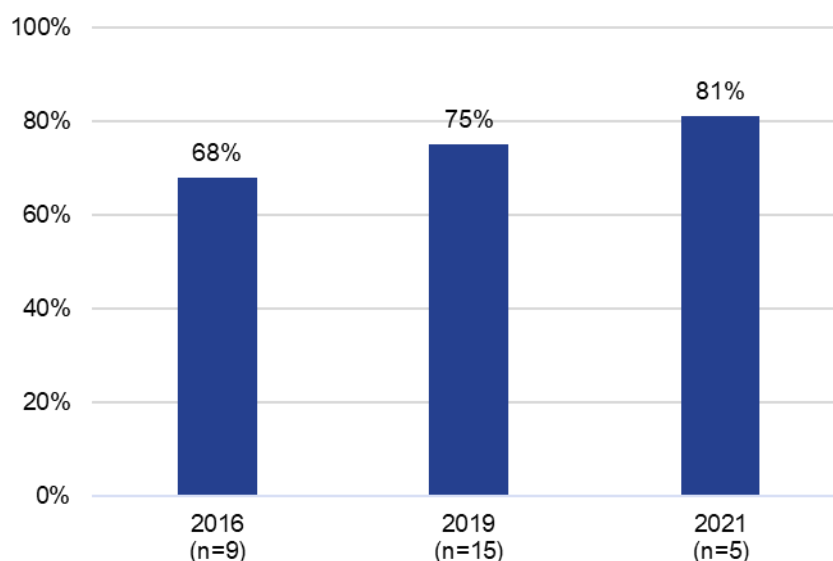
### 8.5.2.2 LED Stocking and Sales Trends

Four of the five distributors said the percentage of their overall lighting sales categorized as energy-efficient was greater than 70 percent in PY2021, with two reporting 95 percent or higher. The one distributor who reported 60 percent said it is not higher because several of their customers are schools, and they continue to use fluorescent or halogen bulbs. One distributor said the 15 percent of sales they do not consider energy-efficient include CFLs, linear fluorescent lamps (LFLs), and non-efficient high intensity discharge (HID) lamps and fixtures. They reported zero sales of incandescents or halogens. Table 104 below shows the percentage of energy-efficient lighting sales by the distributor.

**Table 104. Estimated Percentage of Overall Lighting Sales Considered Energy-Efficient by Distributor**

Distributor	Percentage of sales categorized as energy efficient
1	95%
2	70%
3	60%
4	85%
5	96%
<b>Average</b>	<b>81%</b>

Four of five distributors were also interviewed during the PY2019 evaluation; those four reported an increase of energy-efficient lighting sales between 5 and 23 percent from PY2019. Figure 21 shows the average overall lighting sales considered energy-efficient by the evaluation year. Sales of energy-efficient lighting increased each year: by seven percent from PY2016 to PY2019 and by an additional six percent from PY2019 to PY2021. These results show an increase in energy-efficient lighting adoption by distributors and customers, consistent with known market effects as LED product costs continue to decrease and less efficient lighting is starting to be phased out.

**Figure 21. Average Percentage of Lighting Sales Considered Energy Efficient by Evaluation Year**

Distributors reported their sales of energy-efficient lighting would have primarily been unaffected absent the program as customers continue to move to more efficient lighting options and because they are only beginning to offer energy-efficient products. Two distributors said their sales would have been the same last year without the program; one said it would be lower by only one-half percent but added that they do not sell a lot in Arkansas. Two distributors said sales would have been lower, with one stating, *“The program makes them take the next step to the more efficient product due to the incentives.”* Another said, *“[They] want to be all EE, but there are some customers that will not upgrade and want fluorescents.”*

According to the distributors, the main barrier to customers purchasing energy-efficient lighting is budget. Some are just not ready or willing to upgrade from fluorescents and halogens, primarily hospitals and schools for two distributors. All five distributors believed the current incentive levels are appropriate, one adding, *“...especially with the continued decrease in LED prices in general”*. One distributor said they would like to see more incentives offered in the larger lumen outdoor category, and another said their biggest seller, MR-16s, is not program eligible.

### 8.5.2.3 Program Communication

All five distributors were very happy with CLEAResult, the program implementer, specifically CLEAResult’s program manager, who is their primary point of contact. All said they have not had any issues with CLEAResult and said all questions had been addressed promptly. One distributor did add that CLEAResult showed up at one of their customer’s locations a couple of times, not knowing they were already working with them. CLEAResult had questioned what was being done and made other recommendations which became awkward between the distributor and customer. Advance notification of the site visit would ensure they are on the same page.

### 8.5.2.4 Process of Participation

Distributors were asked about the participation process for themselves and their customers and any areas of concern or working particularly well. To initiate program participation, three of the five distributors have sales staff that go on-site to assess and identify areas for energy-efficient improvements. The other two use in-house staff to assist customers with orders online or over the phone. All five said they encourage products within the program when working with customers.

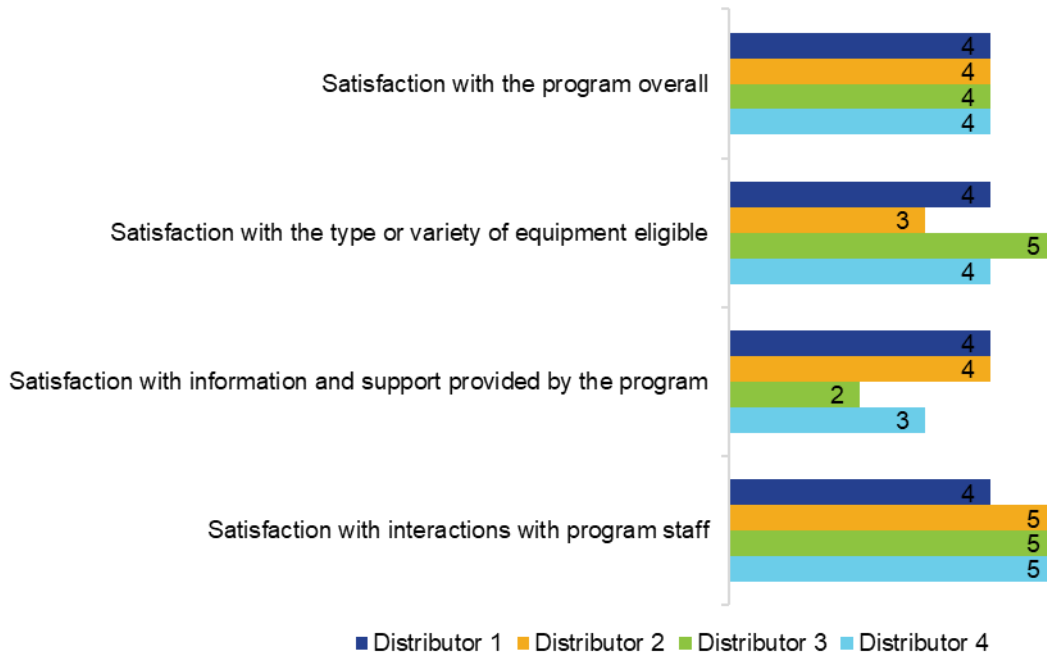
Four of the five distributors expressed no concerns with the process of participation. One of the four described the process, “[we] have a customer call with a lighting project, the first thing the sales rep should do is verify they are an Entergy customer; if so, look at the scope of the job to see if CLEAResult would be a good fit, if so, we sign an agreement then try to find approved products. Then we know the incentive. Then we need to do the internal process. We have to set up customer IDs and create invoices that show the sales price and discount applied.” One distributor said they have their reporting system specifically designed to handle utility programs and file and claim rebates. They said the process was straightforward. Two more distributors said they have staff dedicated to handling the administrative process, and they have not heard of any issues. Two specifically mentioned CLEAResult’s online system as being easy to use. Only one distributor felt the process was difficult, but only because they felt it was a lot of work for the smaller projects they tend to have. For large commercial and industrial projects, they said they go through the LCI program.

### 8.5.2.5 Program Satisfaction and Recommendations

Distributors reported high satisfaction with the program overall. Four of the five distributors were asked to rate their satisfaction using the following scale: 1 being *very dissatisfied*, 2 being *dissatisfied*, 3 being *neither satisfied nor dissatisfied*, 4 being *satisfied*, or 5 being *very satisfied*. All four distributors gave the program overall a score of 4, *satisfied*. Their interactions with CLEAResult, specifically the program manager, were the main driver of their program satisfaction. Three of the four rated them a 5, *very satisfied*, and one distributor rated them a 4, *satisfied*. One distributor added, “[program manager] is wonderful and works hard.”

The lowest ratings were for the information and support received from the program. One distributor rated 2 *dissatisfied* because they felt the dashboard could be easier to use. More specifically, they would like the dashboard to inform them of where they are in the process to help walk sales representatives through the steps. Currently, the dashboard does not tell you where your issues are, only that it was rejected; however, CLEAResult has begun implementing a monthly summary report sent to distributors listing the status and items with issues. They then require the assistance of program staff to identify the issue and resolve it. A second distributor rated 3, *neither satisfied nor dissatisfied* because they would like additional training for contractors and their counter staff to help increase rebate sales. They recommended a short 15-minute training. See Figure 22 for additional satisfaction results for program aspects.

**Figure 22. Satisfaction Ratings with Program Aspects and Program Overall**  
 (On a Scale of 1 to 5, Where 1 = Very Dissatisfied, 2 = Dissatisfied, 3 = Neither Satisfied nor Dissatisfied, 4 = Satisfied, 5 = Very Satisfied)



In addition to the recommendation to offer a short training for contractors and counter staff, one other recommendation for improving the program’s design and operations was to make incentivizing VFDs easier. Adding more customers would get them that if it were easier. The other three distributors had no recommendations for program improvements.

**8.5.2.6 Any COVID-19-Related or Equipment Distribution Issues**

Four of the five distributors were asked if they have experienced COVID-19 or equipment distribution-related issues in the past year; two of the four said they have. The third distributor said they were unaffected by distribution issues because they had a sufficient supply before the shipping backlog occurred. The fourth said they were completely unaffected and that sales were higher than ever.

Of the two distributors reporting shipping and receiving delays, one said they began stocking up in-house on some items they know will sell a lot of. Despite the delays, it was not affecting the products customers were choosing; customers waited for the product they wanted rather than selecting another option. The second distributor said some products had been back-ordered for a year. Customers will then either choose another product or find another distributor.

Both distributors reported experiencing issues with the required installation timeframe from the time of purchase. One reason was because of the effect COVID-19 had on operating hours, and both said the products were not arriving in time to meet the requirement. One distributor said they needed to contact the program implementer to explain the situation and get an extension when delays occurred. The second distributor reported that customers operating with reduced hours due to the pandemic made it challenging to get the equipment installed in time; some have had to work overtime to meet that requirement. To help mitigate that issue, the distributor would recommend that customers split the order so they only purchase what they can install on time and then place another order.

### 8.5.3 Net-to-Gross Results

Due to the multiple delivery channels within the POPS program, the EM&V team provides NTGRs by channel rather than overall. The program has residential upstream, commercial midstream, and residential downstream components.

Table 105 below shows the results of the NTG research. For upstream, the team recommends an NTGR of 53 percent for general population sales and 100 percent for low-income targeted sales, such as discount stores in low-income areas and giveaway events partnered with non-profit organizations such as food banks. For commercial midstream, the team recommends 85 percent. While the downstream component contributes a very small percentage of program savings, they represent a variety of measures. Therefore, we recommend an NTGR by measure type, ranging from 68 to 88 percent, averaging 79 percent overall. Detailed results supporting these recommendations are found in the remainder of this section.



Source: Tetra Tech, June 2021, nonparticipating Kroger, Hot Springs area

**Table 105. PY2021 NTGRs Recommendations by Delivery Channel**

Delivery channel	NTG recommendation
Residential upstream—non-low-income	53%
Residential upstream—low-income	100%
Commercial midstream	85%
Residential downstream	79%

### 8.5.3.1 Upstream Measures

NTG ratios for LED upstream lighting programs are challenging to estimate primarily because consumers receive LED discounts automatically without providing any account or contact information, leaving evaluators with fewer opportunities to determine how much the program influenced LED purchases. The EM&V team triangulated results from PY2019 retailer interviews, benchmarking information, a new PY2021 in-store in-depth stocking study, coupled with a residential general population survey to recommend a NTGR.

Based on the collective results of the evaluation activities, the team recommends an NTGR of 53 percent for general population sales and 100 percent for low-income targeted sales, such as discount stores in low-income areas and giveaways partnered with non-profit organizations such as food banks. Table 106 below shows the free-ridership and NTG result estimates by analysis activity.

**Table 106. LED Free-Ridership and NTG Result Estimates**

Method	NTG
PY2019 retailer NTG (along with a price elasticity analysis and tracking of program promotional sales data)	61%
Shelving study	59%
PY2019 benchmarking average	39%
<b>Final recommendation—Upstream Low-Income</b>	<b>100%</b>
<b>Final recommendation—Upstream Non-Low-Income</b>	<b>53%</b>

The following sections detail the NTG result estimates by evaluation activity.

#### i. PY2019 Retailer Interviews

In PY2019, the EM&V team found that the program had a varying influence on the retail sales of program-qualifying LEDs, representing more than 75 percent of program savings. After weighting by the gross kilowatt-hour savings attributable to each retail store in PY2019, interviewees estimated that their sales of program-qualifying LEDs would have declined by 56 percent overall absent the program. Each store's savings weighted results to calculate a weighted free-ridership ratio of 66 percent. Combining the results with a benchmarked spillover estimate of eight percent resulted in a final NTG ratio of 42 percent.

LEDs made up most of the shelf space devoted to lighting as the demand for LEDs has grown over the years. Five of the 15 retailers interviewed reported that 90 percent or more of their shelf space is devoted to LEDs. Five additional retailers said LEDs take up about two-thirds of their lighting shelf space, and the remaining three retailers said LEDs comprised between 50 and 60 percent of lighting shelf space. When asked if the amount of shelf space devoted to the different bulb types has changed over the prior year, approximately two-thirds of respondents (9 of 15) said they have, citing reasons such as increased market demand for LEDs.

A decrease in the LED NTG ratio from 2017 to 2019 indicated that some LED market transformation occurred in Arkansas. As discussed in the PY2021 shelf stocking study and residential general population survey, results suggest that market transformation has stalled out, at least temporarily, due to the pandemic and related issues. The benchmarking research of NTG ratios across the country also indicates market transformation. Retailers said LED sales would have been the same or higher because prices have leveled off, and people only buy them when a bulb needs to be replaced. One retailer that had 100 percent free-ridership calculated said, *‘Most people come in to buy lighting and do not pay attention to the signs. They have something already in mind for what they need’*.

Table 107 below shows the PY2019 retailer survey NTG results by retailer type. While dollar stores had the highest free-ridership compared to other retail, grocery, and DIY stores (86 percent) in the retailer interviews, these reports are inconsistent with what was found in the PY2021 shelf stocking study and program participation data. Findings from the shelf stocking study confirm that dollar stores, despite their abundance throughout EAL’s territory, have fewer efficient lighting or discounted options; most of their offerings are inefficient. This finding is further confirmed in EAL’s program data, which shows that program-qualifying bulbs quickly sell out. As the program manager states, *“we can’t keep them in stock in dollar stores.”* The EM&V team believes the discount/neighborhood retailer interview responses are misleading because, according to their responses, with or without the program, they seek discounted prices to accommodate their shopper demographic: low-income customers. To calculate free-ridership, we ask them to estimate how much lower sales of energy-efficient lighting would have been absent the program. Their free-ridership is high because they do not offer many energy-efficient items, and what they do offer is the cheapest energy-efficient lighting products they can find. The program has not historically driven those product selections.

**Table 107. LED Free-Ridership and NTG Result Estimates by Retailer Type**

Retailer type	Count of interviews	Free-ridership	Spillover*	NTG ratio
Dollar/discount	7	86%	8%	22%
Retail/health/grocery (includes Walmart)	6	33%	8%	75%
Hardware/DIY	3	30%	8%	78%
<b>Overall (weighted<sup>38</sup>)</b>	<b>16</b>	<b>66%</b>	<b>8%</b>	<b>42%</b>

\*Results from PY2019 benchmarking were used to apply spillover.

## ii. Shelf-Stocking Study

The shelf stocking study results provided information on how program products fit into the overall lighting market in selected participating and nonparticipating stores, along with program influences on-shelf stock of program-eligible bulbs. The study found that participating stores offered more efficient lighting options than nonparticipating stores indicating the program influenced stocking practices.

<sup>38</sup> For the PY2019 retailer survey sampling, the top 15 percent program savings contributors were selected. Results were weighted by each retailer’s total savings against the program’s overall savings.



To quantify the program's influence on stocking practices and inform NTG, the team looked at the available stock of program-eligible products between participating and non-participating stores. The study found participating stores carried three times more program-eligible products than nonparticipating stores indicating that the program does influence the stocking practices of retail stores. To calculate free-ridership, we used the difference in counts of available program-eligible products between participating and non-participating stores using the following equation:

$$\text{Freeridership} = 100\% - \text{percentage difference between counts of program} \\ \text{– eligible products in participating and non – participating stores}$$

Free-ridership was weighted by the total number of program-eligible products between participating and nonparticipating stores to arrive at an average program free-ridership ratio of 49 percent. After applying the eight percent spillover identified during the PY2019 benchmarking effort, the NTG ratio is 59 percent.

**Table 108. LED Free-Ridership and NTG Result Estimates**

Measure	Participating stores	Nonparticipating stores	Weighted free-ridership	Spillover*	NTG results
Count of program-eligible LED products	61	23	49%	8%	59%

\*Results from the PY2019 upstream benchmarking were used to apply spillover.

### iii. General Population Survey

The general population survey results showed that Walmart, Lowes, and Home Depot accounted for almost all mentioned LED purchases in the past year. Per the shelf stocking study, Home Depot and Lowes had the largest selection of efficient and inefficient bulbs coupled with the most effective program signage, clearly labeling that the bulbs are discounted by EAL and showing both the regular and discounted prices.

Forty-four percent of respondents believe the price of LEDs is higher now than about a year ago, suggesting market transformation has at least partially stalled out between 2019 and 2020, if not been somewhat negatively affected due to pandemic and supply chain issues. Only eight percent believed that the price was lower than a year ago; the other 48 percent thought the pricing was about the same. Most survey respondents (82 percent) said they were at least *somewhat likely* to install a screw-based light bulb in their home in the next 12 months, using a scale of not at all likely, *somewhat likely*, *very likely*, and *extremely likely*. Low-income and non-low-income results were broken out, showing little variation (85 percent and 82 percent, respectively). Of those respondents, almost all said they were at least *somewhat likely* to choose LEDs (94 percent) despite 44 percent of respondents believing the price of LEDs has increased, showing customers have a strong preference for LEDs. Comparing non-low-income and low-income customers, we found low-income respondents were a little more likely than non-low-income respondents to choose LEDs (97 percent and 93 percent, respectively).

For customers who said they were at least *somewhat likely* to purchase program-eligible equipment in the next 12 months, most mentioned a big box store as their likely purchase place for low-income and non-low-income respondents. Over one-half of non-low-income respondents said they would likely purchase the equipment at Lowe's (61 percent). Home Depot and Walmart followed as the two-most-mentioned locations for non-low-income respondents, 39 percent and 33 percent, respectively. Walmart was the most likely place of purchase for low-income-identified respondents (56 percent), followed by Lowe's and Home Depot (47 percent

and 31 percent, respectively). Table 109 also shows low-income respondents were slightly more likely to purchase their lighting from Family Dollar and Dollar General stores than non-low-income respondents. Almost a fifth of low-income respondents report they are likely to purchase at Dollar General or Family Dollar compared to only two percent of non-low-income respondents.

**Table 109. Where Respondent is Likely to Purchase Equipment for their Home in the Next 12 Months by Income Qualification (n=92)**

Place of purchase	Non-low income	Low-income
Lowe's	60.8%	46.9%
Home Depot	39.2%	31.3%
Walmart	33.3%	56.3%
Online (e.g., Amazon)	17.8%	8.6%
EAL's online Marketplace	13.7%	0.0%
A local hardware store	11.8%	3.1%
Ace Hardware	5.9%	3.1%
A local grocery store	3.9%	3.1%
Best Buy	3.5%	0.0%
Dollar General	2.0%	6.3%
Walgreens	2.0%	3.1%
Batteries Plus Bulbs	2.0%	0.0%
Family Dollar	0.0%	9.4%

Source: General Population Survey Question LK2.

Respondents who have purchased LEDs within the past 12 months (64 percent of all respondents) were asked what the new LEDs replaced. Just under one-half of non-low-income respondents said they replaced burned-out LEDs (47 percent), whereas more than half of low-income respondents replaced burned-out incandescent bulbs (55 percent). Few respondents replaced LEDs or CFLs that were still working. Table 110 shows the details of the LED purchases.

**Table 110. Purpose of Installation of LED Purchases by Income Category**

Purpose of purchased LED	Non-low income	Low-income
Replaced LEDs that were burned out	47.1%	28.6%
Replaced incandescent that was burned out	41.2%	54.8%
Replaced incandescent that was still operating	23.5%	42.9%
Replaced CFLs that were burned out	17.6%	26.2%
Was a new installation	17.6%	21.4%
Replaced CFLs that were still operating	5.9%	14.3%
Replaced LEDs that were still operating	0.0%	2.4%
<b>Respondents (n)</b>	<b>42</b>	<b>17</b>

Source: General Population Survey Question LK2.

The average price participants said the cost of the LED bulb would start to get expensive enough where it was not out of the question to purchase but would have to give it some thought is \$7.94 per bulb. The average price at which the LED would be so expensive they would not consider buying it is \$13.45. The LED bulb price participants felt would be a great buy for the money was \$3.82. Currently, except for three-way bulbs, all program bulbs are under this price.

#### iv. PY2019 Program Benchmarking

The benchmarking research from PY2019 supports the reasonableness of the EM&V team's NTG recommendation of 53 percent. The EM&V team looked at NTG results from ten utility programs with updated research in either program year 2018 or 2019. NTG results ranged between 19 percent and 67 percent, averaging 39 percent. Table 111 below shows the results from the PY2019 benchmarking effort.

**Table 111. PY2019 LED Upstream Lighting Program NTG Benchmarking**

Utility	State	Year	NTG ratio	Program details	Program details
Southwest Electric Power Company (SWEPCO) Arkansas	AR	2018	67%	Lighting and Appliances retailer program	Price elasticity model found 33.1 percent free-ridership, recommended NTG ratio higher as spillover included
Massachusetts Program Administrators (PA)	MA	2019	35%	PAs, EEAC consultants, and evaluators reviewed and discussed retrospective and prospective NTG estimates	Prospective results recommended an NTG of 30 percent in PY2020 and 25 percent in PY2021
PECO Energy Company	PA	2019	51%	Lighting, Appliances, and HVAC program (standard LEDs)	Free-ridership for standard LEDs is 53 percent, with a spillover ratio of 4 percent
PECO Energy Company	PA	2019	46%	Lighting, Appliances, and HVAC program (specialty LEDs)	Free-ridership for specialty LEDs is 58 percent, with a spillover ratio of 4 percent
Duquesne Light Company	PA	2018	43%	Energy Efficient Products program (standard and specialty LEDs)	Also had a free kit component (eight bulbs), estimated an installation rate of 75 percent
FirstEnergy Met-Ed	PA	2019	32%	Energy Efficient Products program (retailer survey)	Including results from a general population survey, NTG is 29 percent

Utility	State	Year	NTG ratio	Program details	Program details
FirstEnergy West Penn Power	PA	2019	19%	Energy Efficient Products program (retailer survey)	Including results from a general population survey, NTG is 23 percent
FirstEnergy Penn Power	PA	2019	21%	Energy Efficient Products program (retailer survey)	Including results from a general population survey, NTG is 26 percent

### 8.5.3.2 Commercial Midstream Measures

The EM&V team recommends an NTG ratio of 85 percent for the Commercial Midstream component based on distributor interviews triangulated with prior year participant survey results and benchmarking research. The NTGR was 90 percent in PY2016, PY2017, and PY2018. In PY2019, the participant survey was the sole driver of the PY2019 NTGR recommendation, which was 100 percent used to deem the PY2020 NTGR. The distributor interviews conducted in PY2021 do indicate some level of market transformation. The EM&V team believes an NTGR of 85 percent aligns the program's NTGR according to distributor feedback, market saturation, and NTGRs from other Commercial Midstream programs.

#### i. Distributor Interviews

According to the distributors we spoke with as part of the PY2021 evaluation, the Midstream Lighting program is decreasing in its effectiveness of increasing the sales of energy-efficient lighting, primarily due to the increased saturation of energy-efficient lighting in the market and the continued decrease in pricing. Distributors reported their sales of energy-efficient lighting would have primarily been unaffected absent the program as customers continue to move to more efficient lighting options and because they are beginning only to offer energy-efficient products.

#### ii. PY2019 Participant Survey

The PY2019 participant surveys included a series of questions about their decision to purchase program-discounted lighting to estimate free-ridership from the customers' perspective. To be classified as a full-free-rider, respondents must have indicated all the following conditions:

- were already planning to purchase the high-efficiency lighting in the same year before learning about the program,
- the budget would have accommodated the total cost of the high-efficiency lighting in the absence of the program discounts, and
- would have purchased the same lighting efficiency within one year in the absence of the program.

The resulting NTG ratio was 100 percent. Free-ridership remained extremely low (0.3 percent). Only one participant said they would have completed their project absent of the program. In PY2017, only two of the ten participants interviewed met all three of these criteria. There was some evidence of spillover (three respondents mentioned HVAC and refrigeration equipment purchased outside of EAL programs). Therefore, the EM&V team felt confident that the spillover offset the small amount of free-ridership found.

In PY2017, as mentioned, only two of the ten participants interviewed responded accordingly to all three of these criteria and therefore would be classified as free riders. However, one of these two interviewees caveated their responses by saying that it would have been more challenging to convince their corporate office to purchase their lighting without the discount provided by the program.

Despite the high free-ridership for distributors, the EM&V team recommends the overall 85 percent NTGR to acknowledge the substantial influence participants report the program having on their decision to implement energy-efficient lighting projects.

### iii. Program Benchmarking

Due to the unavailability of the publicly reported NTGRs, program benchmarking for Commercial Midstream programs was limited. NTGRs ranged between 31 percent and 83 percent, with the majority between 74 percent and 83 percent, with an overall average of 73 percent. Again, considering the substantial influence participants reported, the EM&V team recommends an overall Commercial Midstream NTGR of 85 percent.

**Table 112. Commercial Midstream Program NTGR Benchmarking**

Program administrator	Program	Year	Measures	NTGR
DLC (PA)	Small/Medium Midstream Lighting	2019	Lighting	72%
ComEd (IL)	Business Instant Discounts	2019	LED HID	83%
ComEd (IL)	Business Instant Discounts	2019	LED lamps	83%
ComEd (IL)	Business Instant Discounts	2019	LED exit signs	80%
ComEd (IL)	Business Instant Discounts	2019	LED fixtures	80%
ComEd (IL)	Business Instant Discounts	2019	TLEDs	80%
DLC (PA)	Midstream Lighting	2019	Lighting	74%
DLC (PA)	Large Midstream Lighting	2019	Lighting	72%
Focus On Energy (WI)	Midstream Commercial and Industrial Lighting Initiative	2018	Lighting	31%
<b>Average</b>				<b>73%</b>

### 8.5.3.3 Downstream Measures

POPS' eligible downstream measures are ENERGY STAR *air purifiers*, *dehumidifiers*, *smart thermostats*, *pool pumps*, and *freezers*. To receive cash incentives from the program, customers must apply for incentives by completing and submitting a mail-in or online rebate application for each purchase and provide CLEAResult with supporting documentation.

Below in Table 113, the EM&V team provides recommended NTGRs by measure using the benchmarked results shown in Table 114. For *dehumidifiers*, the team recommends a downstream NTGR of 78 percent, and 84 percent and 88 percent for *smart thermostats* and *pool pumps*, respectively. In PY2020, NTG for *freezers* was 82 percent; however, benchmarking for *freezers* yielded an average of 54 percent NTG. The team recommends a *freezer* NTGR of 68 percent to consider the benchmarking. *Air purifiers* are relatively new to nationwide program offerings, so there is limited research on NTGRs. Until additional research is available or can be performed, the team recommends using the PY2020 results, which was 78 percent.

**Table 113. PY2021 Recommended NTGR for Downstream Appliance Rebates**

Measure	NTG recommendation
Dehumidifier <sup>39</sup>	78%
Smart thermostats <sup>40</sup>	84%
Pool pump	88%
Freezers <sup>41</sup>	68%
Air purifiers	78%
<b>Overall recommendation<sup>42</sup></b>	<b>79%</b>

Table 114 provides program benchmarked NTG results by measure. NTG ratios for the programs researched ranged from 19 percent to 100 percent. Excluding utility online Marketplace measures resulted in an overall average of 75 percent. This measure has limited research because it has only recently been adopted into appliance rebate programs.

**Table 114. Residential Downstream Appliance Rebate Program Benchmarking**

Program administrator	Program	Year	Measures	NTG
<b>Air purifiers</b>				
ComEd (IL)	ENERGY STAR Rebate	2019–2020	Air purifier	78%
<b>Dehumidifiers</b>				
PG&E (CA)	Emerging Technologies	2017	Dehumidifier (online Marketplace)	19%
ComEd (IL)	ENERGY STAR Rebate	2019–2020	Dehumidifiers	78%
<b>Freezers</b>				
Met-Ed (PA)	Energy Efficient Products	2020	Freezers (appliance rebates)	50%
Met-Ed (PA)	Energy Efficient Products	2019	Freezers (appliance rebates)	52%
Penelec (PA)	Energy Efficient Products	2020	Freezers (appliance rebates)	60%
Penelec (PA)	Energy Efficient Products	2019	Freezers (appliance rebates)	48%
Penn Power (PA)	Energy Efficient Products	2020	Freezers (appliance rebates)	56%
Penn Power (PA)	Energy Efficient Products	2019	Freezers (appliance rebates)	47%
West Penn Power (PA)	Energy Efficient Products	2020	Freezers (appliance rebates)	65%
West Penn Power (PA)	Energy Efficient Products	2019	Freezers (appliance rebates)	50%
PG&E (CA)	Emerging Technologies	2017	Freezers (online Marketplace)	19%
PECO (PA)	Residential Energy Efficiency	2017–2018	Lighting, Appliances, and HVAC	49%
ComEd (IL)	ENERGY STAR Rebate	2019–2020	Freezers	58%

<sup>39</sup> Excludes online Marketplace benchmarking results.

<sup>40</sup> Excludes online Marketplace benchmarking results.

<sup>41</sup> Excludes online Marketplace benchmarking results.

<sup>42</sup> Excludes online Marketplace benchmarking results.

Program administrator	Program	Year	Measures	NTG
<b>Pool pumps</b>				
ComEd (IL)	ENERGY STAR Rebate	2019–2020	Pool Pump	80%
PECO (PA)	Residential Energy Efficiency—Whole Home	2017–2018	Pool pump variable speed drive	100%
Vectren (IN)	Residential Prescriptive	2018	Pool pump variable speed drive	96%
<b>Smart thermostats</b>				
ComEd (IL)	Home Energy Assessments (SF Retrofit)	2019	Programmable thermostat	90%
ComEd (IL)	Multifamily Market Rate	2020	Programmable thermostat	85%
Focus on Energy (WI)	Home Performance with ENERGY STAR (Standard)	2018	Smart thermostat	72%
Focus on Energy (WI)	Retail Lighting and Appliance	2018	Smart thermostat	79%
SPS (NM)	Smart Thermostat Pilot	2019	Smart thermostat	100%
Vectren (IN)	Residential Prescriptive	2018	Smart thermostat	78%
ComEd (IL)	Home Energy Assessments (SF Retrofit)	2019	Smart thermostat	90%
NSG (IL)	Home Energy Jumpstart	2019	Smart thermostat	80%
NSG (IL)	Home Energy Jumpstart	2019	Smart thermostat	88%
PGL (IL)	Home Energy Jumpstart	2019	Smart thermostat	80%
PGL (IL)	Home Energy Jumpstart	2019	Smart thermostat	88%
Vectren (IN)	Home Energy Assessments 2.0	2018	Smart thermostat	76%
PG&E (CA)	Emerging Technologies	2017	Smart thermostat (online Marketplace)	55%
<b>Average<sup>43</sup></b>				<b>75%</b>

## 8.6 OVERALL SAVINGS ESTIMATES

The POPS program evaluated savings that resulted in slightly higher energy and demand savings (110.7 percent kW and 108.1 percent kWh 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 affected most by the recalculation of 6.7 percent of upstream lighting measures using commercial lighting savings methods. Final savings results and realization rates are presented in Table 115.

<sup>43</sup> Includes PY2020 EAL NTGRs in the overall average and excludes the online Marketplace benchmarking results.

**Table 115. Final Evaluated Energy Savings and Realization Rates, by Measure**

Measure category	Reported savings		Evaluated savings		Realization rate	
	kWh	kW	kWh	kW	kWh	kW <sup>44</sup>
Advanced power strips	17,693,510	2,008.2	17,693,510	2,008.2	100.0%	100.0%
Efficient hot water heater	58,407	5.1	58,407	5.1	100.0%	100.0%
ENERGY STAR dehumidifiers	4,398	1.0	4,398	1.0	100.0%	100.0%
ENERGY STAR freezers	258	-	258	-	100.0%	N/A
ENERGY STAR room air cleaners	73,370	8.4	73,370	8.4	100.0%	100.0%
ENERGY STAR window AC replacement	14,794	17.4	14,794	17.4	100.0%	100.0%
Hard-wired LED fixtures: indoor, all wattages	1,658,953	269.7	1,939,787	325.7	116.9%	120.7%
Hard-wired LED fixtures: outdoor, all wattages	685	-	835	-	121.9%	N/A
LED (retail): indoor reflector	8,388,830	1,363.9	9,877,084	1,660.3	117.7%	121.7%
LED (retail): indoor, all wattages	53,931,512	8,768.6	60,142,455	10,005.6	111.5%	114.1%
LED indoor omni or deco	762,295	123.9	762,295	123.9	100.0%	100.0%
Midstream: exterior fixtures	6,771,548	1,119.4	6,771,687	1,119.4	100.0%	100.0%
Midstream: interior fixtures	5,595,078	725.0	5,601,298	726.2	100.1%	100.2%
Midstream: interior lamps	1,588,169	319.7	1,588,172	319.7	100.0%	100.0%
Pool pumps	338,015	70.5	338,015	70.5	100.0%	100.0%
Smart thermostats	1,726,561	-	1,726,561	-	100.0%	N/A
<b>Total</b>	<b>98,606,383</b>	<b>14,801</b>	<b>106,592,926</b>	<b>16,392</b>	<b>108.1%</b>	<b>110.7%</b>

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

## 8.7 QUALITY CONTROL/QUALITY ASSURANCE PROCESSES

CLEAResult has developed a Quality Management Plan (QMP) for the POPS program, including QA and QC components. Distributor and product qualification and training are provided as an essential QA approach used to ensure quality from the start of the program and assure quality issues are not introduced further downstream in the process. QC inspections are used towards the end of projects to check the quality of the final installed product. The QA/QC process lasts through the project's duration and includes a feedback loop to ensure continuous program improvement.

<sup>44</sup> 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.



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 conducted sales and program training for distributor staff; the training was tailored to each distributor location and offered measures. Proper training of the employees who have direct interaction with customers can impact decision-making at the time of sale.

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. If a report is incomplete or inaccurate, it is returned for correction. Incentives are only paid once a complete and accurate sales report and invoice are received.

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 protocols developed were being followed and assessed any gaps or necessary changes. Each of CLEAResult'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, the company (e.g., customer name, company name, company address, phone number, email), and 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 for completing verification, then the contact information is captured to do so.

**Post-engineering approval and post-project review and closeout.** For Commercial Midstream Lighting, most of these steps are completed within CLEAResult'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. However, as can be found in *Recommendation #2*, the tracking system needs revision to include key updates or corrections identified during the evaluation.

The program tracking 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 to be complete and consistent, we also found it to contain multiple data assignment and calculation errors, which led to incorrect savings attributed to measures. *Recommendations #1* and *#2* would provide necessary updates to the tracking data formats and details to improve data organization, transparency, and consistency. Incorporating these recommendations would allow for implementation and evaluation ease to perform cursory reviews across the tracking system data (periodically and before finalizing at the end of the program year) and would likely catch many of these errors found during the evaluation efforts.

The EM&V team has identified a few improvements to CLEAResult's current QA/QC process:

- improve QA/QC checks to ensure projects are correctly imported from invoices to the tracking system,
- correct the *MeasureDesc* column to reflect the measure description for the appropriate lighting type accurately (this is a continued recommendation from PY2020), and
- 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).

## 9.0 LARGE C&I SOLUTIONS

The Large C&I Solutions (LCI) program offers nonresidential customers interested in implementing energy-efficient technologies. Eligible customers have a minimum peak demand of 100 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. There are no minimum energy savings needed for new construction projects to qualify for this program, but to receive the non-cash benefits, annual energy savings through the program must exceed 10,000 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, agricultural 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, weather stripping*), 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 project 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 25 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 116. Large C&I 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 <sup>45</sup>
Deemed from prior year research	Program staff interviews (2) Materials review	Census	25	70	21	31

## 9.1 KEY FINDINGS

Based on the PY2021 program tracking data, the LCI program incentivized energy efficiency measures to 483 unique participants<sup>46</sup> through 92 trade allies. Table 117 provides the program's claimed savings by measure category. The most considerable number of claimed participants (68 percent) was attributable to *lighting* measures, which accounted for 26 percent of claimed energy savings. The most significant energy savings were for *continuous energy improvement (CEI)* (38 percent) from 5 percent of the asserted participants. The third most significant measure category by energy savings was custom *other*, with 19 percent of claimed energy savings from 8 percent of the participants.

<sup>45</sup> 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).

<sup>46</sup> A unique participant is based on a single utility account number.

**Table 117. Large C&I Solutions—Reported Participation and Savings<sup>47</sup>**

Measure category	Trade allies	Participants <sup>48</sup>	Projects	Program savings (kWh)	Percentage of program savings (kWh)
Continuous energy improvement <sup>49</sup>	0	22	33	41,310,459	37.5%
Custom HVAC	6	8	10	7,594,858	6.9%
Custom other	22	38	58	21,186,072	19.3%
Domestic hot water <sup>49</sup>	0	14	14	160,811	0.1%
Envelope <sup>49</sup>	0	46	47	6,497,219	5.9%
HVAC	9	11	11	220,736	0.2%
Lighting	51	328	344	28,986,804	26.3%
Lighting—new construction	7	19	19	1,601,292	1.5%
Other	1	2	3	88,992	<0.1%
Refrigeration	1	12	12	213,563	0.2%
Tune-up	10	44	414	2,191,220	2.0%
<b>Total</b>	<b>92</b>	<b>483</b>	<b>933</b>	<b>110,052,025</b>	<b>100.0%</b>

In PY2021, the LCI program reported 110,052 MWh in gross energy savings and 15.1 MW in gross demand savings. Table 118 below shows the reported and evaluated savings across the program. The program fell short of achieving its planned energy and demand savings goals, reaching 97 percent of the annual energy and 84 percent of the annual demand savings goals.

**Table 118. Large C&I Solutions—Reported, Evaluated, and Net Savings**

Energy/demand savings	Reported savings	Evaluated savings	Realization rate	NTG ratio <sup>50</sup>	Net savings	Program contribution to portfolio savings
Energy savings (MWh)	110,052	110,141	100.1%	103.9%	114,421	36.8%
Demand savings (MW)	15.1	15.0	99.5%	103.9%	15.6	16.3%

<sup>47</sup> ArchEE extract dated January 18, 2022.

<sup>48</sup> 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.

<sup>49</sup> The implementer directly installed all measures.

<sup>50</sup> 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 ratios used at the measure level are 0.93 for the *tune-up* measures, and 0.9 for *commercial Wi-Fi thermostats* and *advance RTU controls-lite*.

**Table 119. Large C&I Solutions—Goals vs. Achieved**

Program	Savings	Goal	Actual	Percentage achieved
Large Commercial & Industrial Solutions	Energy savings (MWh)	118,078	114,421	97%
	Demand savings (MW)	18.6	15.6	84%

The LCI program's evaluated energy savings were slightly higher, and demand savings was slightly lower than the reported savings (100.1 percent kWh realization rate, 99.5 percent kW realization rate). 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 70 sampled accounts, as discussed above. *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 Design Lights Consortium (DLC) or ENERGY STAR® product IDs for all products sold through the program. The recommendations presented below for PY2021 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. For the second year, *tune-up* measures were included in the LCI program; they use different deemed NTG ratios of 90 percent for *Wi-Fi thermostats* and 93 percent for *tune-up* projects based on prior evaluation cycle research.

## 9.2 RECOMMENDATIONS

The EM&V team has identified key findings and recommendations for consideration by EAL (Table 120), which primarily focus on improving the realization rate in the following program year (PY) and increasing the transparency, accuracy, and evaluability of program savings in the future for the LCI program.

Table 120. Large C&amp;I Solutions—PY2021 Recommendations

Type	Recommendation	Key finding
Impact	<b>Recommendation 1:</b> Review savings algorithms for <i>commercial Wi-Fi thermostat</i> measures to ensure consistency.	<p>The EM&amp;V team found that projects with a reported <i>heat pump</i> heating fuel type incorrectly calculated demand savings. For 14 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>During the tracking system review, the EM&amp;V team also identified three projects where the reported fuel type was <i>electric AC with gas heat</i>, but savings were using deemed savings values for a <i>heat pump</i> unit.</p> <p>The EM&amp;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>
Impact	<b>Recommendation 2:</b> Increase QA/QC on peak demand estimates for custom projects.	<p>The EM&amp;V team found seven custom projects with calculation errors or methodology changes during the desk reviews. For three projects, the reported savings analysis omitted data or included formula errors leading to savings adjustments. These errors consisted of function ranges that did not include all values and a formula referencing a previously completed project value rather than the current project.</p> <p>Additionally, two projects had demand savings adjustments from the energy savings analysis. One project did not consider the downtime in the customer estimate that could occur in the peak period. The other project included all annual hours and did not consider downtime for holidays that was evident in the project data.</p> <p>The EM&amp;V team recommends increasing QA/QC procedures for the custom projects to limit calculation errors and peak demand adjustments in the future.</p>

## 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 21 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 PY2021 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*, *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 21 sampled accounts that also received desk reviews.

Table 121 shows the sample design and achieved sample sizes for the different data collection types employed for the impact evaluation effort.

**Table 121. LCI—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 <sup>51</sup>	Q1–Q2 Census	Q1–Q2 Census	N/A	48
Engineering desk review <sup>52</sup>	70	70	39	39
On-site M&V visit <sup>53</sup>	30	21	8	14
Tune-up measure data review	Census	Census	N/A	N/A

Most of the measures incentivized by the LCI program in PY2021 are currently included in the Arkansas Technical Reference Manual (TRM) Version 8.2 (TRM 8.2), Volume 2. Specific sections of TRM 8.2 associated with the savings developed for the LCI program measures are provided in Table 122. 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.

<sup>51</sup> ArchEE extract dated July 1, 2021. The count of prescriptive projects is the quantity of unique *JobId* numbers for the measure categories included in the Q1–Q2 tracking database review.

<sup>52</sup> Eight participants had both prescriptive and *custom* measures incentivized under the same *JobId*.

<sup>53</sup> 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 achieved on-sites fell short of the design due to a period of inclement weather, on-site personnel availability in early 2022, and participants opting out due to COVID-19 concerns. One participant had prescriptive and *custom* measures incentivized under the same *JobId*.



**Table 122. TRM 8.2 Prescriptive Algorithms Utilized by the LCI Program**

Measure category	TRM 8.2 section	TRM 8.2 measure name
Domestic hot water	3.3.2	Faucet aerators
	3.3.5	Low-flow showerheads
	3.8.11	Pre-rinse spray valves
Envelope	3.2.11	Commercial door air infiltration
HVAC	3.1.18	Unitary and split-system AC/HP equipment
	3.1.19	Air- or water-cooled chilling equipment (chillers)
Lighting	3.6.2	Lighting controls
	3.6.3	Lighting efficiency
Other	3.7.14	High-efficiency battery chargers
Refrigeration	3.4.1	Electronically commutated motors for refrigeration
	3.7.8	Door gaskets for walk-in and reach-in coolers and freezers
	3.7.10	Evaporator fan controls

*Air conditioner and heat pump tune-ups, overhead door weather stripping, and PTAC sealing* measures were also incentivized through the LCI program. *Overhead door weather stripping* and *PTAC sealing* measures do not strictly adhere to TRM 8.2; 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 monitoring and verification approach. A separate tracking system review was conducted for all *tune-up* measures across the three commercial programs.

**Table 123. Non-TRM Prescriptive Algorithms Utilized by the LCI 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 weather stripping
	Overhead door weather stripping 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 8.2-based algorithms. The tracking system data review began using the TRM 8.2 as a reference in our review of measure-level savings assumptions. Chapters of TRM 8.2 utilized for the tracking system review are described above in Table 122.

The EM&V team reviewed the tracking systems linkage to the TRM 8.2 deemed savings algorithms used to estimate savings. This review was completed across a census of the program measures at the end of Q2<sup>54</sup>. 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 8.2 used to estimate project savings. Third, it assessed the ability of the tracking system to support future evaluation needs.

**Table 124. PY2021 Q1–Q2 Tracking System Reported Energy Savings by Measure Category**

Measure	Reported savings	
	kW	kWh
Domestic hot water	2	31,673
Envelope	72	2,364,106
HVAC	22	52,770
Lighting	1,378	9,929,739
Lighting—new construction	188	835,594
Other	5	44,496
Refrigeration	2	19,020
<b>Total evaluated</b>	<b>1,668</b>	<b>13,245,724</b>
Tune-up and commercial Wi-Fi thermostat <sup>55</sup>	71	517,689
Custom HVAC <sup>56</sup>	122	658,882
Custom other <sup>56</sup>	1,003	8,693,129
<b>Total</b>	<b>2,867</b>	<b>23,147,097</b>

<sup>54</sup> Tracking data downloaded July 1, 2021.

<sup>55</sup> *Tune-up, advanced RTU controls-light, and commercial Wi-Fi thermostat* measures are evaluated through a separate tracking system and a M&V data review at the close of the program year.

<sup>56</sup> 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.

### 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 PY2018 through PY2020 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. 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 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.

In addition to the sub-strata for *lighting* projects, three sub-strata for *custom* projects were defined. The first sub-strata is for *CEI* projects. The other two sub-strata divide projects by whether they went through the *Early Engagement for High Profile Projects* protocol; if projects went through the protocol, they are referred to as *early review*; if they did not go through the review, they are referred to as *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*.

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 125 summarizes the result of the sampling for the LCI program.

**Table 125. Large C&I Solutions—Summary of Sampled Savings**

Sampling strata	Projects	Projects sampled <sup>57</sup>	Site Visits Sampled	Reported kWh	Reported kW
<b>Custom subtotal</b>	<b>101</b>	<b>39</b>	<b>8</b>	<b>32,695,937</b>	<b>5,590</b>
Continuous energy improvement	19	8	0	10,502,973	2,963
Early review	25	8	1	17,107,191	1,912
Other	57	23	7	5,085,774	714
<b>Lighting subtotal</b>	<b>363</b>	<b>26</b>	<b>9</b>	<b>5,853,417</b>	<b>706</b>
Deemed	335	20	4	2,450,726	319
Non-deemed	28	6	5	3,402,691	387
<b>Other subtotal</b>	<b>73</b>	<b>13</b>	<b>5</b>	<b>691,915</b>	<b>43</b>
<b>Total</b>	<b>550</b>	<b>70</b>	<b>21</b>	<b>39,241,269</b>	<b>6,338</b>

### 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. 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

<sup>57</sup> Eight sampled projects had measures in multiple categories.

- the calculation methods used for savings will deviate substantially from the methods outlined in the M&V plan.

During PY2021, the program implementer submitted 25 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. These *early reviews* represented 38,489 MWh of annual energy savings, representing 36 percent of the program savings.

Eight of these projects were subsequently selected for engineering desk reviews or site visits by the EM&V team, resulting in no savings adjustments. 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 *CEI* projects—where additional savings claims were made and the regression models had already been reviewed.

### 9.3.3 Evaluated Savings Methodology by Measure

The EM&V team referred to relevant sections in TRM 8.2, 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*<sup>58</sup>.

- Deemed savings measures are prescriptive measures from TRM 8.2 and use all or most of the default assumptions of the TRM 8.2 methodology, such as the baseline flow rate of a faucet aerator or the operating hours for *lighting* measures.
- Measured savings measures are either custom or prescriptive measures from TRM 8.2 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 8.2 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 8.2 that use site-specific information captured from the participant for key assumptions of the TRM 8.2 methodology; they are not based on metered or measured data such as self-reported hours of operation for *lighting* measures.

In addition, the program included a significant number of custom projects for which site-specific data was gathered and for which 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.

<sup>58</sup> 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*.

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 PY2021 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 8.2 (Sections 3.3.2, 3.3.5, and 3.8.11). 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 8.2 deemed values for all these parameters except for the post-retrofit faucet aerators' average flow rate, pre-rinse spray valves, and showerheads. Therefore, the EM&V team also used the TRM 8.2 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 8.2. 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 PY2021 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 8.2 (Section 3.2.11). 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 8.2 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 8.2 values for all key input parameters, and the site captured gap widths and lengths. The EM&V team verified the weather stripping 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 operating hours per year, 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 PY2021 included replace-on-burnout projects of unitary and split air conditioning and heat pumps, package terminal heat pumps, and occupancy-based PTAC/PTHP controls.

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 8.2 (Sections 3.1.14, 3.1.15, and 3.1.18). 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 8.2 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 8.2 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 operating hours per year 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 PY2021 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 8.2 (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) annual operating hours 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 8.2 deemed values for interactive effects factors, power adjustment factors, and annual operating hours 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 8.2 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 operating hours per year 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 Other Measures

*Other* measures in PY2021 included the installation of high-efficiency battery chargers.

The EM&V team analyzed the savings from these measures using the data for all key input variables needed for calculating energy and demand savings per the prescriptive algorithms of TRM 8.2 (Section 3.7.14). The key input variables of the baseline and post-retrofit battery charger include the (1) type of equipment, (2) pre- and post-wattage draw of the charging equipment when charging, (2) pre- and post-wattage draw of the charging equipment when idle, and (3) annual charging hours per charger.

For the *high-efficiency battery charger* measure, the claimed savings assumed the TRM 8.2 deemed values for wattage draw and operating hours based on the equipment phase-type (i.e., single-phase or three-phase). The site-captured details were used as the basis for the input values for the deemed algorithms. Therefore, the EM&V team also used TRM 8.2 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-installed equipment quantity and type during on-site visits and reviewed project-level charging hour estimates. The equipment type selections that guide the key input assumptions for kilowatt-hours and kilowatts per year were assessed during on-site visits or based on the information provided as part of project-level backup documentation.



### 9.3.3.6 Refrigeration Measures

Refrigeration measures in PY2021 included the retrofit of refrigerated areas with the installation of *refrigeration strip curtains*, *refrigeration door gaskets*, and *evaporator fan controls*.

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 8.2 (Sections 3.4.1, 3.7.8, and 3.7.10). These measures' energy and demand savings are deemed based on a few key variables of the existing unit size, type, and location. For the *anti-sweat heater controls*, the deemed savings are based on three main variables: (1) case type/temperature, (2) weather zone, and (3) size of the controlled door. For *refrigeration 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 *refrigeration 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 8.2 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 8.2 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 operating hours per year and CFs, were assessed during on-site visits or based on the information provided as part of project-level backup documentation.

For the *electronically-commutated motors (ECMs)*, the claimed savings assumed the TRM 8.2 deemed values for all these parameters except for the pre- and post-installation motor wattage. In contrast, other parameters were determined from site-specific data. If site-specific motor information was not available, the EM&V team used the default parameters from the TRM. The deemed building type selections, which guide the key input assumptions for operating hours per year and CFs, were assessed during on-site visits or based on the information provided as part of project-level backup documentation.

## 9.4 DETAILED IMPACT EVALUATION RESULTS

The LCI program's evaluated energy savings were slightly higher, and demand savings was slightly lower than the reported savings (100.1 percent kWh realization rate, 99.5 percent kW realization rate). During the desk review and site visit process, the EM&V team corrected lighting installed fixture types, quantities, and custom AOH estimates. For custom projects, the EM&V team adjusted calculation errors and peak demand savings methodologies. 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.

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:

- changes in therms penalty calculations which reduced the therms penalty,
- installed fixture type being different from the project documentation and site visit, and
- custom AOH adjustments from an interview of site personnel.

Corrections to *custom—other* projects that contributed to reduced savings were found to be primarily due to:

- calculation errors in the reported savings analysis, including data ranges not fully utilized and assumptions about operational thresholds, 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 126. 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 weather stripping	Envelope
Overhead door weather stripping 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
Water chilling equipment (air-cooled) —replace on burnout	HVAC

Measure description	Measure category
Water chilling equipment (water-cooled centrifugal) —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 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
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
NC—other linear fluorescents	Lighting-new construction
Outdoor—NC—LEDs	Lighting-new construction
Outdoor—NC—lighting project savings	Lighting-new construction
High-efficiency battery chargers	Other
Electronically commutated motors for refrigeration	Refrigeration
Evaporator fan controls	Refrigeration
Refrigeration door gaskets	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

Measure description	Measure category
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 127 below outlines the claimed number of program participants and the percentage of savings by measure category in PY2021. *CEI* was the dominant measure category in PY2021, accounting for 40 percent of claimed demand (kilowatt) savings and 38 percent of claimed energy (kilowatt-hour) savings.

**Table 127. PY2021 Reported LCI Participation and Savings by Measure Category**

Measure category	Participants <sup>59</sup>	Projects <sup>59</sup>	Program savings		Percentage of program savings	
			kW	kWh	kW	kWh
Continuous energy improvement	22	33	6,045	41,310,459	40.1%	37.5%
Custom HVAC	8	10	1,139	7,594,858	7.6%	6.9%
Custom other	38	58	2,567	21,186,072	17.0%	19.3%
Domestic hot water	14	14	36	160,811	0.2%	0.1%
Envelope	46	47	301	6,497,219	2.0%	5.9%
HVAC	11	11	53	220,736	0.4%	0.2%
Lighting	328	344	3,983	28,986,804	26.4%	26.3%
Lighting—new construction	19	19	340	1,601,292	2.3%	1.5%
Other	2	3	10	88,992	<0.1%	<0.1%
Refrigeration	12	12	24	213,563	0.2%	0.2%
Tune-up	44	414	574	2,191,220	3.8%	2.0%
<b>Total</b>	<b>483</b>	<b>933</b>	<b>15,073</b>	<b>110,052,025</b>	<b>100.0%</b>	<b>100.0%</b>

<sup>59</sup> 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 128 outlines the savings and percentage of savings by measure in PY2021. *CEI* was the dominant measure in PY2021 and accounted for 40 percent of claimed gross kilowatt savings and 38 percent of claimed gross kilowatt-hour savings. *LEDs* were the third most dominant measure with 18 percent of the kilowatt-hour savings and 23 percent of the program kilowatt savings. *Custom—non-heating and cooling* was the third most dominant measure in PY2021, accounting for 17 percent of claimed gross kilowatt and 19 percent of the claimed kilowatt-hour savings.

**Table 128. PY2021 Reported LCI Participation and Savings by Measure**

Measure	Program savings		Percentage of program savings	
	kW	kWh	kW	kWh
<b>Continuous energy improvement</b>				
Continuous energy improvement	6,045	41,310,459	40.1%	37.5%
<b>Custom HVAC</b>				
Custom—heating and cooling	1,139	7,594,858	7.6%	6.9%
<b>Custom other</b>				
Custom—non-heating and cooling	2,492	20,555,659	16.5%	18.7%
Variable frequency drives	75	630,413	0.5%	0.6%
<b>Domestic hot water</b>				
Commercial showerheads	3	39,171	<0.1%	<0.1%
Faucet aerators	31	108,354	0.2%	<0.1%
Pre-rinse spray valves	3	13,286	<0.1%	<0.1%
<b>Envelope</b>				
Commercial door air infiltration	121	4,020,394	0.8%	3.7%
Overhead door weather stripping	42	965,095	0.3%	0.9%
Overhead door weather stripping for refrigerated spaces	128	1,123,711	0.9%	1.0%
PTAC sealing	10	388,019	<0.1%	0.4%
<b>HVAC</b>				
Unitary AC equipment—unitary AC < 65000 btu/hr—replace on burnout	2	9,557	<0.1%	<0.1%
Unitary AC equipment—unitary AC => 65000 btu/hr—replace on burnout	22	95,016	0.1%	<0.1%
Unitary HP equipment—heat pump < 65000 btu/hr—replace on burnout	1	8,581	<0.1%	<0.1%
Water chilling equipment (air-cooled)—replace on burnout	22	48,451	0.1%	<0.1%
Water chilling equipment (water-cooled centrifugal)—replace on burnout	5	59,132	<0.1%	<0.1%

Measure	Program savings		Percentage of program savings	
	kW	kWh	kW	kWh
<b>Lighting<sup>60</sup></b>				
Halogens	6	35,959	<0.1%	<0.1%
HIDs	142	735,155	0.9%	0.7%
Integrated-ballast CFL	1	3,158	<0.1%	<0.1%
Integrated-ballast LED lamps	229	1,149,614	1.5%	1.0%
LEDs	3,403	20,229,005	22.6%	18.4%
Lighting controls	30	244,086	0.2%	0.2%
Magnetic ballast T5 or premium T8 retrofit of T12	22	138,943	0.1%	0.1%
Modular CFLs and CCFLs	0	0	0%	0%
Other linear fluorescents	114	895,858	0.8%	0.8%
Outdoor—halogens	0	21,638	0%	<0.1%
Outdoor—HIDs	0	42,134	0%	<0.1%
Outdoor—integrated-ballast CFLs	0	216	0%	<0.1%
Outdoor—integrated-ballast LED lamps	0	327,001	0%	0.3%
Outdoor—LEDs	35	5,161,171	0.2%	4.7%
Outdoor—magnetic ballast T5 or premium T8 retrofit of T12	0	2,725	0%	<0.1%
Outdoor—modular CFLs and CCFLs	0	140	0%	<0.1%
Outdoor—other linear fluorescents	0	0	0%	0%
<b>Lighting—new construction<sup>60</sup></b>				
NC—integrated-ballast LED lamps	0	0	0%	0%
NC—interior project savings	310	1,348,610	2.1%	1.2%
NC—LEDs	0	0	0%	0%
NC—lighting controls	29	107,620	0.2%	<0.1%
NC—other linear fluorescents	0	0	0%	0%
Outdoor—NC—LEDs	0	0	0%	0%
Outdoor—NC—lighting project savings	0	145,062	0%	0.1%
<b>Other</b>				
High-efficiency battery chargers	10	88,992	<0.1%	<0.1%

<sup>60</sup> 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
<b>Refrigeration</b>				
Electronically commutated motors for refrigeration	2	18,522	<0.1%	<0.1%
Evaporator fan controls	2	14,821	<0.1%	<0.1%
Refrigeration door gaskets	21	180,220	0.1%	0.2%
<b>Tune-ups</b>				
Advance RTU controls—lite	21	73,589	0.1%	<0.1%
Commercial AC post-test-out	43	105,911	0.3%	<0.1%
Commercial AC pre-clean	3	7,715	<0.1%	<0.1%
Commercial central air conditioner (tune-up)	373	874,308	2.5%	0.8%
Commercial heat pump (tune-up)	19	64,014	0.1%	<0.1%
Commercial HP post-test-out	2	7,617	<0.1%	<0.1%
Commercial HP pre-clean	0	1,693	<0.1%	<0.1%
Commercial Wi-Fi thermostat	112	1,056,373	0.7%	1.0%
<b>Total</b>	<b>15,073</b>	<b>110,052,025</b>	<b>100.0%</b>	<b>100.0%</b>

Table 129 shows the incentive structure for PY2021 compared to the previous program year. There were no changes to the incentives for PY2021 from PY2020.

**Table 129. PY2021 Large C&I Solutions Incentives**

Measure	PY2020 incentive <sup>61</sup>	PY2021 incentive <sup>62</sup>
<b>Directly Installed by CLEARResult</b>		
<b>Domestic hot water</b>		
Commercial showerheads	Full cost	Full cost
Faucet aerators	Full cost	Full cost
Pre-rinse spray valves	Full cost	Full cost
<b>Envelope</b>		
Commercial door air infiltration (i.e., weather stripping)	Full cost	Full cost

<sup>61</sup> Source: 2020 C&I Custom Program Manual.

<sup>62</sup> Source: 2021 C&I Custom Program Manual.

Measure			PY2020 incentive <sup>61</sup>	PY2021 incentive <sup>62</sup>
<b>Lighting</b>				
Integrated-ballast LED lamps			Full cost	Full cost
Outdoor—integrated-ballast LED lamps			Full cost	Full cost
<b>Installed by trade ally</b>				
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 <sup>63</sup>	1 measure	2 measures	3 measures	4+ measures
<b>PY2020 incentive<sup>61</sup></b>	\$0.14/kWh	\$0.15/kWh	\$0.16/kWh	\$0.18/kWh
<b>PY2021 incentive<sup>62</sup></b>	\$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 CLEAResult. The EM&V team received the following documentation related to the program:

- ArchEE data tracking system extract containing PY2021 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.*

<sup>63</sup> 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.



- The implementer directly installed *commercial door air infiltration* measures (e.g., *weather stripping, door sealing*). A Direct Install Report typically inventoried the device, quantity (by gap size), and new weather stripping 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., weather stripping, 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 November 10, 2017; and
  - PY2021 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 8.2-based algorithms and the final claimed values necessary for each measure. The tracking system data review began using TRM 8.2 as a reference in our review of measure-level savings assumptions. Chapters of TRM 8.2 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 8.2 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 8.2 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 (100.0 percent kW and 100.1 percent kWh 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 weather stripping*, and *tune-up* measures in the LCI program, all measures utilize TRM 8.2, Volume 2 deemed algorithms. The savings equations were confirmed consistent with TRM 8.2. As described above, the *overhead door weather stripping* and *tune-up* measures follow custom approaches developed from assumptions and methodologies in the TRM. The EM&V team confirmed the *overhead door weather stripping* 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 8.2, Volume 2 deemed savings assumptions, with two notable exceptions. The *overhead door weather stripping* measure uses extrapolated savings values based on the *commercial door air infiltration* measure in TRM 8.2. Also, some *lighting efficiency* measures use site-specific AOH instead of the deemed values in TRM 8.2 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 100.0 percent for both kilowatt and kilowatt-hour. Tracking review realization rates were precisely 100 percent for *envelope* and *HVAC* measures.

**Table 130. PY2021 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	2	31,673	2	31,660	100%	100%
Envelope	72	2,364,106	72	2,364,106	100%	100%
HVAC	22	52,770	22	52,769	100%	100%
Lighting	1,378	9,929,739	1,378	9,903,293	100%	100%
Lighting—new construction	188	835,594	189	836,106	100%	100%
Other	5	44,496	5	44,496	100%	100%
Refrigeration	2	19,020	2	19,020	100%	100%
<b>Total</b>	<b>1,668</b>	<b>13,245,724</b>	<b>1,668</b>	<b>13,219,790</b>	<b>100%</b>	<b>100%</b>

#### 9.4.2.2 Domestic Hot Water

- No issues were found. Minor savings differences occurred due to rounding.

#### 9.4.2.3 Envelope

- PRJ-2925166 reported *N/A* in the *TempDescription* field in ArchEE. The EM&V team determined that a temperature description of *normal* was used in the reported savings calculations. Also, the *WeatherZone* field indicated it was in Weather Zone 7, but the address and zip code show this facility is in Weather Zone 8. However, the reported savings used Weather Zone 8 deemed savings values for normal temperature. The EM&V team did not make a savings adjustment to this project but notes that a data tracking error was present.

#### 9.4.2.4 HVAC

- No issues were found. Minor savings differences occurred due to rounding.

#### 9.4.2.5 Lighting

- PRJ-2916371 included a quantity of five exterior fixture measures. Reported savings calculated a therms penalty for these measures, however since these are exterior fixtures, no interactive effects heating penalty should apply. The removal of the therms penalty results in a therms realization rate of zero percent for these projects, but they positively affected the overall therms savings.
- PRJ-2507748 included a quantity of 40 *lighting controls* measures was found to have no data in the *PreRetrofitControlType* field in ArchEE. The EM&V team replicated savings by adjusting the *PreRetrofitControlType* to *no controls measures*, which matched the reported savings.

- PRJ-2844676 totaling 80 *lighting controls* measures was found to be using an incorrect interactive effects factor for gas (IEFg) of approximately -0.055 used instead of the TRM deemed -0.008. Evaluated savings used the TRM default -0.008 therms penalty, which reduced the therms penalty for this project.
- PRJ-2844675 totaling 252 *lighting controls* measures was found to be using an incorrect interactive effects factor for gas (IEFg) of approximately -0.058 used instead of the TRM deemed -0.008. Evaluated savings used the TRM default -0.008 therms penalty, which reduced the therms penalty for this project.
- PRJ-2602051 included 58 *lighting controls* measures. These *lighting controls* measures were associated with four *lighting* measures in a three-shift manufacturing facility and 54 exterior *lighting* measures. All *lighting* retrofit measures included savings associated with a reduction in AOH from 8,760 to 3,996. Reported savings claimed additional *lighting controls* savings to account for a reduction in runtime. The *lighting controls* energy and demand savings were removed from evaluated savings to avoid double-counting the impact of runtime reduction, which reduced energy and demand savings.
- PRJ-2507867 included ten *lighting controls* measures. ArchEE tracking data reports that occupancy sensor controls were present in the pre- and post-condition. Reported savings calculated savings as if no *lighting controls* were present in the pre-condition. The EM&V team did not calculate energy or demand savings for these measures to align with control data reported in ArchEE. This eliminated energy and demand savings for these measures.

#### 9.4.2.6 Lighting—New Construction

- PRJ-2891558 included a *new construction interior project savings* measure that used an incorrect installed wattage in reported calculations. The two rows below capture lighting data, including 88 12-W linear LED lights and 2 13-W LED screw-in lamps. The EM&V team believes that the two 13 W LED screw-in lights are being counted twice in the wattage sum for that building area. Reported savings is likely using 1,108 W instead of the actual wattage sum of 1,082. The EM&V team used 1,082 W in evaluated savings calculations which increased energy and demand savings.
- PRJ-2604278 included one *new construction interior project savings* measure, which used an incorrect installed wattage in reported calculations. The 17 rows below capture lighting data, including two rows totaling three 14 W LED screw-in lamps. The EM&V team believes that the three 14 W LED screw-in lights are being counted twice in the wattage sum for that building area. Reported savings is likely using 2,06 W instead of the actual wattage sum of 2,026. The EM&V team used 2,026 W in evaluated savings calculations which increased energy and demand savings.

#### 9.4.2.7 Other

- No issues were found.

#### 9.4.2.8 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 8.2, the CoolSaver Program M&V Plan<sup>64</sup>, 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 8.2, 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 408 measures.

A CLEAResult tracking system extract was provided, including pre- and post-test-out projects used as the basis for CLEAResult's PY2018–PY2020 efficiency loss (EL) calculations. The EM&V team reviewed this dataset, examined it for outliers, and calculated the PY2018–PY2020 EL values for three sectors (*commercial <25 tons*, *commercial ≥25 tons*, and *residential*) and whether a refrigerant charge adjustment was performed.

Database revisions from previous evaluation findings led to the PY2021 *tune-up* measure database showing improved data completeness and an overall decrease in findings. The *TuneupidComm* field was used to capture the *pre-clean* measure's *JobId* measure associated with each *post-test-out* measure. This approach made it easier to match *pre-cleans* with *post-test-outs* than in previous years, which used various fields, including the *TuneUpTypeID* and *TiCondenserserialnumber* fields. No missing or incomplete data fields, such as the *JobId* or *MeasureDesc*, were observed, which marked improvement over previous years.

Most of the key *tune-up* measure data is maintained in a separate database outside of ArchEE. Continuous development and changes to this supplementary database have been noted, increasing its overall completeness and ease of understanding. However, the EM&V team recommends developing and maintaining a data dictionary to describe the data and document changes within this database with continuous development and changes.

#### 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 used and results obtained, repeating the calculation steps, and making calculation adjustments.

<sup>64</sup> The *tune-up* measure methodology was developed separately under EAL's own CoolSaver Program prior to being included in the Large C&I Solutions program.

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.

- Fourteen *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 demand savings was adjusted by dividing the cooling kilowatt-hour savings by 8,760; this increased demand savings for seven measures, and demand savings decreased for the remaining seven. Ten of the affected *Joblds* are listed below, with the complete list available upon request:
  - PRJ-261967,
  - PRJ-264094,
  - PRJ-264092,
  - PRJ-264007,
  - PRJ-264004,
  - PRJ-264003,
  - 2021-276082,
  - 2021-274524,
  - 2021-274523, and
  - 2021-274517.
- Three *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. 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 energy savings to only include the energy savings associated with the AC unit. The demand savings was adjusted by dividing the cooling kilowatt-hour savings by 8,760; these adjustments decreased energy and increased demand savings. The affected *Joblds* are listed below:
  - 255220-2021,
  - 255138-2021, and
  - 255130-2021.

#### 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 8.2. After selecting the best source of the key parameters from the available documentation, the savings were calculated based on TRM 8.2 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 8.2 algorithms across all the measures claimed in the LCI program. The EM&V team made various minor adjustments to specific projects described in detail 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 39,241 MWh, or 35 percent of the total LCI program recorded gross savings of 110,052 MWh. This percentage of total program savings is based on finalized ArchEE data from January 18, 2022.

#### 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 ECMs, 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 21 site visits conducted, four projects with savings adjustments resulted 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 PY2021 LCI program impact evaluation efforts included an engineering analysis for a sample of 70 projects and a site visit for 21 of those projects reviewed. For 52 of the projects in the sample, no savings adjustments were made. For the remaining 18 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 18 projects with energy or demand savings adjustments follow Table 131.

**Table 131. Large C&I Solutions—PY2021 Desk Review and Site Visit Results, By Project**

EM&V participant ID	EM&V review type <sup>65</sup>	Ex-ante savings		Ex-post savings		Realization rate	
		kW	kWh	kW	kWh	kW	kWh
<b>Custom - CEI</b>							
321017	Desk review	-76.2	102,250	-76.2	102,250	100.0%	100.0%
321019	Desk review	0.0	74,365	0.0	74,365	n/a	100.0%
421001	Desk review	1,326.0	2,654,738	1,326.0	2,654,738	100.0%	100.0%
421002	Desk review	713.3	2,400,155	713.3	2,400,155	100.0%	100.0%
421007	Desk review	0.0	2,014,721	0.0	2,014,721	n/a	100.0%
421011	Desk review	152.7	224,915	152.7	224,915	100.0%	100.0%
421014	Desk review	325.9	1,636,751	325.9	1,636,751	100.0%	100.0%
421015	Desk review	521.3	1,395,076	521.3	1,395,076	100.0%	100.0%
<b>Custom – CEI total</b>		<b>2,963.2</b>	<b>10,502,973</b>	<b>2,963.2</b>	<b>10,502,973</b>	<b>100.0%</b>	<b>100.0%</b>
<b>Custom - other</b>							
121006	Site visit	47.1	108,921	50.8	116,615	107.9%	107.1%
121008	Site visit	47.7	417,809	48.6	417,809	102.0%	100.0%
121010	Site visit	15.8	132,237	12.2	112,801	77.5%	85.3%
221007	Site visit	10.8	91,076	10.8	91,076	100.0%	100.0%
321003	Site visit	13.6	75,141	13.6	75,141	100.0%	100.0%
321010	Site visit	18.7	159,955	18.7	159,955	100.0%	100.0%
321012	Site visit	23.3	204,958	23.3	204,958	100.0%	100.0%
221003	Desk review	26.0	229,617	26.0	229,617	100.0%	100.0%
221006	Desk review	33.4	231,867	33.4	231,867	100.0%	100.0%
221013	Desk review	272.7	1,906,915	220.7	1,906,915	80.9%	100.0%
321002	Desk review	7.4	16,257	7.4	16,257	100.0%	100.0%

<sup>65</sup> All projects that received an on-site visit also received an engineering desk review.



EM&V participant ID	EM&V review type <sup>65</sup>	Ex-ante savings		Ex-post savings		Realization rate	
		kW	kWh	kW	kWh	kW	kWh
321004	Desk review	9.2	86,061	9.2	84,557	100.0%	98.3%
321006	Desk review	1.5	10,710	1.5	10,710	100.0%	100.0%
321008	Desk review	35.8	266,824	35.8	266,824	100.0%	100.0%
321014	Desk review	17.7	123,410	17.7	123,410	100.0%	100.0%
321018	Desk review	34.8	301,269	34.8	301,269	100.0%	100.0%
421003	Desk review	15.5	85,138	13.6	85,138	88.0%	100.0%
421005	Desk review	22.0	187,545	22.0	187,545	100.0%	100.0%
421008	Desk review	5.1	35,812	5.4	37,636	106.7%	105.1%
421009	Desk review	10.1	65,408	10.5	67,107	104.1%	102.6%
421012	Desk review	15.4	112,873	15.4	112,873	100.0%	100.0%
421013	Desk review	17.1	65,881	17.1	65,881	100.0%	100.0%
421017	Desk review	13.3	170,089	13.3	170,467	100.0%	100.2%
<b>Custom other total</b>		<b>714.1</b>	<b>5,085,774</b>	<b>662.0</b>	<b>5,076,430</b>	<b>92.7%</b>	<b>99.8%</b>
<b>Custom – early review</b>							
121011	Site visit	70.5	660,231	70.5	660,231	100.0%	100.0%
321005	Desk review	44.7	379,458	44.7	379,458	100.0%	100.0%
321007	Desk review	0.0	2,759,690	0.0	2,759,690	n/a	100.0%
321011	Desk review	69.7	1,232,631	69.7	1,232,631	100.0%	100.0%
321013	Desk review	0.0	593,866	0.0	593,866	n/a	100.0%
421010	Desk review	57.2	460,791	57.2	460,791	100.0%	100.0%
421019	Desk review	796.6	5,257,783	796.6	5,257,783	100.0%	100.0%
421020	Desk review	873.5	5,762,741	873.5	5,762,741	100.0%	100.0%
<b>Custom – early review total</b>		<b>1,912.3</b>	<b>17,107,191</b>	<b>1,912.3</b>	<b>17,107,191</b>	<b>100.0%</b>	<b>100.0%</b>
<b>Lighting - deemed</b>							
121005	Site visit	11.0	81,899	11.0	81,900	100.0%	100.0%
121007	Site visit	7.7	32,242	7.7	32,242	100.0%	100.0%
221009	Site visit	18.7	78,141	18.7	78,141	100.0%	100.0%
321009	Site visit	0.4	1,789	0.4	1,789	99.9%	100.0%
121001	Desk review	5.0	24,289	5.0	24,289	100.0%	100.0%
121002	Desk review	0.0	14,086	0.0	14,086	n/a	100.0%
221001	Desk review	0.0	52,487	0.0	52,487	n/a	100.0%
221005	Desk review	1.2	11,338	1.2	11,338	100.0%	100.0%
221008	Desk review	169.9	739,944	170.0	740,567	100.1%	100.1%

EM&V participant ID	EM&V review type <sup>65</sup>	Ex-ante savings		Ex-post savings		Realization rate	
		kW	kWh	kW	kWh	kW	kWh
221010	Desk review	0.0	24,687	0.0	24,687	n/a	100.0%
221012	Desk review	5.5	58,277	5.5	58,277	100.0%	100.0%
321006	Desk review	2.7	21,552	3.0	23,056	114.7%	107.0%
321015	Desk review	1.4	5,067	1.4	5,067	100.0%	100.0%
321023	Desk review	2.0	17,441	2.0	17,441	100.0%	100.0%
321024	Desk review	7.5	29,894	7.5	29,894	100.0%	100.0%
421004	Desk review	2.3	11,307	2.3	11,307	100.0%	100.0%
421006	Desk review	26.1	133,109	26.1	133,057	99.9%	100.0%
421016	Desk review	45.0	357,654	47.1	380,507	104.6%	106.4%
421018	Desk review	0.0	694,457	0.0	694,457	n/a	100.0%
421022	Desk review	12.3	61,067	12.3	60,495	99.4%	99.1%
<b>Lighting – deemed total</b>		<b>318.7</b>	<b>2,450,726</b>	<b>321.2</b>	<b>2,475,084</b>	<b>100.8%</b>	<b>101.0%</b>
<b>Lighting – non-deemed</b>							
121004	Site visit	118.5	1,126,177	118.1	1,101,126	99.6%	97.8%
121009	Site visit	9.0	88,983	9.0	88,983	100.0%	100.0%
221011	Site visit	27.5	250,614	27.5	250,614	100.0%	100.0%
321001	Site visit	190.4	1,610,007	190.4	1,610,007	100.0%	100.0%
321020	Site visit	34.6	270,769	33.2	247,693	96.1%	91.5%
221004	Desk review	7.0	56,141	7.0	56,141	100.0%	100.0%
<b>Lighting – non-deemed total</b>		<b>387.0</b>	<b>3,402,691</b>	<b>385.2</b>	<b>3,354,564</b>	<b>99.5%</b>	<b>98.6%</b>
<b>Other</b>							
121006	Site visit	5.0	44,496	5.0	44,496	100.0%	100.0%
221005	Site visit	0.5	8,913	0.5	8,909	100.0%	100.0%
221008	Site visit	0.8	8,365	0.8	8,365	100.0%	100.0%
221012	Site visit	6.0	88,962	6.0	88,962	100.0%	100.0%
321022	Site visit	4.4	41,110	4.4	41,110	100.0%	100.0%
121003	Desk review	3.5	49,855	3.5	49,855	100.0%	100.0%
221002	Desk review	2.3	9,391	2.3	9,391	100.0%	100.0%
221005	Desk review	2.8	113,005	2.8	113,005	100.0%	100.0%
321006	Desk review	3.8	35,457	3.8	35,457	100.0%	100.0%
321015	Desk review	4.5	14,954	4.5	14,954	100.0%	100.0%
321016	Desk review	1.8	78,003	1.8	78,003	100.0%	100.0%
321021	Desk review	1.9	72,638	1.9	72,638	100.0%	100.0%

EM&V participant ID	EM&V review type <sup>65</sup>	Ex-ante savings		Ex-post savings		Realization rate	
		kW	kWh	kW	kWh	kW	kWh
321023	Desk review	1.4	63,184	1.4	63,184	100.0%	100.0%
421021	Desk review	4.5	63,582	4.5	63,582	100.0%	100.0%
<b>Other total</b>		<b>43.2</b>	<b>691,915</b>	<b>43.2</b>	<b>691,911</b>	<b>100.0%</b>	<b>100.0%</b>

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 19 projects with a total gross energy savings of 21,284 MWh, representing 19 percent of the entire program. Eight 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 commercial and industrial 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 25 projects with a total gross energy savings of 38,489 MWh, representing 35 percent of the entire program. Eight desk reviews and one site visit were conducted on this stratum, resulting in zero projects with savings adjustments.

The measures in this strata consisted of 14 *CEI*, one *variable frequency drive*, one *custom—non-heating and cooling*, and six *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.

#### 9.4.6.3 Custom—Other

The *custom—other* stratum consisted of 57 projects with a total gross energy savings of 10,318 MWh, representing ten percent of the entire program. Twenty-three desk reviews and seven site visits were conducted on this stratum, resulting in eight projects with savings adjustments. The savings adjustments were primarily methodology adjustments from the metered data analysis conducted by CLEAResult. Additionally, one site visit found parameters different from the reported savings estimates.

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. The findings for the *custom—other* strata were an increase over PY2020 but were still low compared to earlier program years. The eight projects with adjustments are described below.

- **Participant ID 121006 as-found conditions during the site visit.** This project was for a cold storage facility that installed high-speed doors in refrigerated warehouse spaces. The site visit found multiple changes in the high-speed door system from the reported savings calculations. The on-site inspection found the interior setpoints for the freezer spaces was -15° F, whereas the reported savings had -10° F for some and -20° F for others. Also, the door timers were set to three seconds for open and close, and five seconds was used in the reported savings calculations. Adjusting these parameters in the calculator resulted in a net increase in energy and demand savings.
- **Participant ID 121008 adjustment for peak demand calculation methodology.** This project involved installing VFD controllers on chilled and hot water pumps at a large office facility. The peak demand for the reported savings took the total kilowatt-hour savings divided by 8,760 hours. The evaluated savings used the estimated annual hours of operation (8,592) and assumed consistent operation during the peak period, which slightly increased demand savings.
- **Participant ID 121010 adjustment for calculation methodology.** This project replaced a hydraulic power-pack winder with a servo-driven winder at an industrial facility. The reported savings calculation assumed 8,760 hours of operation from the post-installation data. The M&V team assumed the winder is not operating when the energy use from the monitored data is less than 1 kW. This assumption resulted in a pre-retrofit AOH of 8,613 and a post-retrofit AOH of 7,738. Similarly, the M&V team determined a CF of 1.0 for the pre-retrofit case and 0.78 for the post-retrofit. The evaluated savings applied averages of those values to estimate energy and demand, which resulted in decreased energy and demand savings.
- **Participant ID 221013 adjustment for calculation error.** This project purchased new servo-electric injection molding machines at a manufacturing facility. This project followed a custom M&V plan, which used an average of this customer's previously completed injection molding machines to establish the baseline efficiency. The reported savings calculated the peak demand savings by taking the energy savings estimate and dividing by the AOH for one of the previous projects (7,488 hours). The evaluated savings were divided by the expected AOH for this project (8,640 hours), which reduced the peak demand savings.
- **Participant ID 321004 adjustment for calculation methodology.** This project consisted of *compressed air energy improvement* upgrades at a manufacturing facility. The reported savings adjusted the AOH for each bin by a factor representing the customer's annual operating hours estimate (13 hours/day, 6 days/week for 4 months/year and 13 hours/day, 5 days/week for 8 months/year). This estimate did not include any holiday shutdown periods, and the evaluator noted the facility was shut down for two normal business days for the Fourth of July. The evaluated savings AOH estimate uses the pre-period measured data for the 6 days/week period and the post-period for the 5 days/week period and assumes 10 total days of holiday shutdown per

year. This estimate resulted in an AOH of 3,525, which is a reduction from the 3,588 in the reported savings, and resulted in reduced energy and demand savings.

- **Participant ID 421003 adjustment for peak demand calculation methodology.** This project was for the installation of new hydro-electric injection molding machines at a manufacturing facility. The reported savings calculation assumed constant peak period operation of the injection molding machines, while the stated production estimate from the customer included 12 percent random downtime. The EM&V team accounted for the random downtime in the peak period by using a CF of 0.88 in the peak period estimates, which resulted in reduced demand savings.
- **Participant ID 421008 and 421009 adjustment for calculation errors.** These projects for the same customer included installing *compressed air energy improvement* upgrades, including replacing compressed air-driven open blowers with electric air blowers. The reported savings calculations did not use the full range of data available for estimating the hours of operation. Four records had discrepancies for baseline and post-retrofit cases. Including this data resulted in a minor increase in savings. A second formula error resulted in the omission of one of the bins from a total used to extrapolate the AOH in each bin. CLEAResult acknowledged this error, which was the larger adjustment on this project. Overall, these two adjustments resulted in increased energy and demand savings.
- **Participant ID 421017 adjustment for calculation error.** This project was for repairing compressed air system leaks at a sawmill. In the reported savings calculation, the average power for the 2,800-2,899 CFM bin was extrapolated from the trend of previous bins. However, there was limited data available for this bin. The evaluated savings used the average for the monitored data for this bin, which resulted in a slight decrease in energy savings. The demand savings were unaffected.

#### 9.4.6.4 Other

The *other* stratum consists of prescriptive *non-lighting* measures, including *HVAC replace-on-burnout*, *commercial showerheads*, *faucet aerators*, *commercial door air infiltration*, *electronically commutated motors*, and *evaporator fan controls* projects. The *other* strata consisted of 73 projects with 7,181 MWh of energy savings, representing 6.5 percent of the program savings. 13 desk reviews and five site visits were conducted on this stratum, with zero adjustments to 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 335 projects with over 22,979 MWh of claimed savings, representing 21 percent of the program. Twenty desk reviews and four site visits were conducted on this stratum, with five adjustments to the claimed savings.

- **Participant ID 221008 savings adjustment for fixture input wattage.** This project was for a new construction warehouse and office building that installed multiple *lighting* and *HVAC* measures. A quantity of 9 two-lamp four-foot LED fixtures (Barron LPA-24-60-4K, DLC ID - PL4FS0A6B8JY) were adjusted from the reported 60 W to 57 W. These lights are DLC-certified at 56.7 input watts. This increased energy and demand savings.

- **Participant ID 321006 savings adjustments for fixture input wattage and nonqualified fixtures.** The project was for the installation of LED lighting fixtures, unitary AC equipment, *evaporator fan controls*, ECM fan motors, and demand-controlled kitchen ventilation in a new construction retail building. As a result of the desk review, two adjustments were made:
  - The ZR24MT and ZR14MT fixtures were claimed as 40 W fixtures; however, the included DLC listings had an input wattage of 32 W; lowering the wattage on these fixtures resulted in increased energy and demand savings.
  - The tracking system described the *entrance* lights (SFT-228-PS-RM-03-E-UL-BZ-350-IC) as non-qualified by ENERGY STAR or DLC. The EM&V team agreed that these lights were non-qualified; however, reported savings were calculated for the entrance area despite the fixture not being qualified. The evaluated savings were set to zero for this building area, which lowered energy savings.

Overall, these adjustments resulted in increased energy and demand savings.

- **Participant ID 421006 savings adjustment for installed fixture type.** This project was for an outpatient healthcare center that replaced interior and exterior linear fluorescent lights, incandescent lights, CFLs, and metal halides with LED lights throughout the building and parking lot. The project also replaced incandescent exit signs with LED exit signs. The fourth line item for the project described an 18-inch T8 lamp replaced by a 12 W LED fixture; however, the model number in the work order contains "no change." Also, the invoice did not include a 12 W fixture that could have replaced an 18-inch T8 lamp. This fixture was removed from the evaluated savings, resulting in a slight decrease in energy and demand savings.
- **Participant ID 421016 savings adjustment for installed fixture type.** The project was for an industrial biomass facility that replaced fluorescent, halogen, and metal halide lighting with LED lighting. The model number for one fixture was changed from GT-HB07-150WSACGD1-BH57 to GT-HB07-150WNB CD1-BH57 to match the model number depicted in post-inspection photos. This updated model number was found to be DLC-certified at 129 W. The wattage was adjusted from the reported 153 W to 129 W; this increased energy and demand savings.
- **Participant ID 421022 savings adjustments for installed fixture type and fixture input wattage.** The project was for a new construction retail store that installed interior and exterior LED lighting. As a result of the desk review, two adjustments were made:
  - The post-inspection report adjusted the four lights in the building parking lot from WPR3-UNVL-100-4-50-BZ to QDXLE-120-50-UNV. These lights were found to be DLC-certified at 120 W; the wattage was adjusted from the reported 105 W to 120 W, which decreased energy and demand savings.
  - The three pole lights (QDXLE2-150-50-UNV-[1;2]-5-[N;D1;D2]-Z5) were found to be DLC-certified at 151 W; the wattage was adjusted from the reported 149 W to 151 W, which slightly decreased energy and demand savings.

Overall, these adjustments resulted in increased energy and demand 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 28 projects were in this strata, with 7,609 MWh of claimed savings, representing seven percent of the program savings.

Six desk reviews and five 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 four projects with adjustments to the claimed savings.

- **Participant ID 121004 savings adjustments for calculation error and fixture input wattage.** This project was for a three-shift manufacturing facility that replaced interior and exterior linear fluorescent and metal halide lights with LED lights. All lighting, including exterior lighting, was reported to operate 8,760 hours per year (24 hours per day) in the pre-condition. Photocell daylighting sensors were reported to be installed on most exterior lights to operate only at night. As a result of the desk review and site visit, two adjustments were made:
  - A quantity of six LED wall-mounted fixtures (Lithonia TWR2 LED ALO 50K MVOLT, DLC ID - PLU4M1U1QGD) were adjusted from the reported 87 W to 86 W. These lights were found to be DLC certified at 86.19 W; this adjustment increased energy and demand savings.
  - The *controls* measures associated with exterior lighting claimed savings used a power adjustment factor (PAF) of 0.46 with an AOH of 3,996. The evaluated savings adjusted the AOH to 8760, which resulted in the post-installation AOH being 3,996; this increased savings for these controls measures.

The site visit found all installed interior lighting operating during the site visit, and exterior lighting was off with photocell sensors installed. No adjustments were made to the custom AOH from the site visit. Overall, the adjustments resulted in increased energy and demand savings.

- **Participant ID 221004 savings adjustment for calculation error.** This project is for a manufacturing facility, warehouse and office that replaced fluorescent and compact fluorescent lighting with LED lighting throughout the interior and exterior of their facility. The reported savings included a therms penalty for 14 line items in the tracking data, including two items where the kilowatt-hour savings were zero. Since the therms penalty is calculated by taking the kilowatt-hour savings times a heating penalty factor, the evaluated savings calculated zero therms penalty for these two line items. This adjustment resulted in a reduction in the therms penalty.
- **Participant ID 221011 savings adjustment for calculation error.** This project is for a warehouse building that replaced metal halide, fluorescent, and high-pressure sodium

lighting with LED lighting throughout the interior and exterior of their facility. The tracking system incorrectly calculated therms savings for *lighting controls* measures by taking the therms savings for the full fixture replacement rather than basing the savings on the *lighting controls* measure. This calculation resulted in an overstatement of the therms penalty.

- **Participant ID 321020 savings adjustments for custom AOH.** The site is a hospital that replaced fluorescent, compact fluorescent, and incandescent lighting with LED lighting. Lines 53, 56, 58, 89, and 65, corresponding with offices and gift shops, had a reported AOH of 2,346 instead of the 2,340, which was stated in the AOH letter. These adjustments resulted in slightly decreased energy savings.

The on-site inspection could not verify quantity and fixture types for all spaces due to COVID-19 restrictions. An interview with facility personnel was conducted to verify the operating hours' assumptions throughout the project. The on-site inspection documented 15 areas that operate approximately nine hours per day, where the reported savings used 8,760; these areas were adjusted to 3,485 annual hours of operation and the deemed CF. The on-site visit documented 11 areas that operate approximately 16 hours per day when the reported savings used 8,760; these areas were adjusted to 5,840 AOH and the deemed CF. Both of these adjustments led to decreased energy and demand savings.

#### 9.4.7 Program 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 PY2021 participant information and savings;
- Quality Control and Assurance Manual for EAL commercial programs, dated November 10, 2017;
- PY2021 Program Manual for the LCI Program obtained from the EAL website; and
- *Overhead door weather stripping* deemed savings methodology and calculations.



### 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 manual is 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 PY2021 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 8.2, supplementary deemed savings methodologies for *overhead door weather stripping*, 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 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, 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 was included in project file requests for the two projects that used stipulated AOH. In PY2021, 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*.

PY2021 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 sheets. 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.

## 9.5 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 LCI program, 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 *custom—other* projects, and *lighting—deemed* and *lighting—non-deemed* adjustments for installed fixture types, input fixture wattages, and custom AOH values, 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 LCI program evaluated savings resulted in slightly higher energy and lower demand savings than those calculated by the program implementer (100.1 percent kWh and 99.5 percent kW 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 70 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 *custom—other*, *lighting—non-deemed*, and *commercial Wi-Fi thermostat* measures. Multiple *custom—other* measures reported demand savings had assumptions for constant peak period operation, and data or customer operation estimates indicated some off periods. 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 132 shows that *custom—other* measures had the most significant variances for demand savings, while *lighting—non-deemed* had the most significant changes in energy savings.

**Table 132. Large C&I 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	4,785	21,283,906	4,785	21,283,906	100.0%	100.0%	Desk reviews
Custom—other	1,436	10,318,484	1,331	10,299,527	92.7%	99.8%	Desk reviews and site visits
Custom—early review	3,530	38,488,999	3,530	38,488,999	100.0%	100.0%	Desk reviews and site visits
Lighting—deemed	3,422	22,978,954	3,450	23,207,339	100.8%	101.0%	Desk reviews and site visits
Lighting—non-deemed	900	7,609,142	896	7,501,519	99.5%	98.6%	Desk reviews and site visits
Other	425	7,181,321	425	7,181,284	100.0%	100.0%	Desk reviews and site visits
Tune-ups	574	2,191,220	573	2,177,997	99.8%	99.4%	Tracking system and M&V review
<b>Total</b>	<b>15,073</b>	<b>110,052,025</b>	<b>14,990</b>	<b>110,140,571</b>	<b>99.5%</b>	<b>100.1%</b>	

## 9.6 QUALITY CONTROL/QUALITY ASSURANCE PROCESSES

For all EAL commercial programs, EAL worked with the implementer CLEAResult to develop a quality management process that includes QA and QC components. QA emphasizes trade ally training to remind trade allies of program processes, technical requirements for measures, application requirements, and awareness of the QC process. For QA, the program staff also conduct application reviews of each incentive application. Incomplete proposals are rejected and sent back for completion. For QC, the program staff performs pre-installation inspections to confirm pre-installation conditions and conducts post-installation inspections to confirm post-installation conditions. Project savings calculations or incentives are adjusted as appropriate. These inspections are completed for 100 percent of custom projects and the largest (approximately ten percent) 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. 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.

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 staff 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 described by program documentation:

- 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.

As part of the LCI 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, 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 one specific area for improvement:

1. Request greater detail on some invoices.

## 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, weather stripping), 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. Ten site visits were completed for this program. Limited process activities were undertaken in PY2021 as a process evaluation was completed in PY2019, and no significant changes in the program have occurred since then. Program staff interviews focused on discussing PY2021 progress and challenges and implementing PY2020 evaluation recommendations presented in the executive summary.

**Table 133. Small Business 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 <sup>66</sup>
Deemed from prior year research	Program staff interviews (2) Materials review	Census	25	10	None

<sup>66</sup> 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).

## 10.1 KEY FINDINGS

Based on the PY2021 program tracking data, the SBS program incentivized energy efficiency measures to 907 unique participants<sup>67</sup> through 46 trade allies. Table 134 provides the program's claimed savings by measure category, where the most considerable amount of claimed participants (71 percent) and savings (85 percent) were attributable to lighting measures. All SBS program's claimed savings were from *prescriptive* project types, and no *custom* projects were claimed in PY2021.

**Table 134. Small Business Solutions—Reported Participation and Savings<sup>68</sup>**

Measure category	Trade allies	Participants**	Projects	Program savings (kWh)	Percentage of program savings (kWh)
Domestic hot water*	1	10	10	79,102	0.4%
Envelope*	1	34	36	2,059,038	9.8%
Lighting	33	770	789	17,255,173	82.3%
Tune-ups	13	109	408	1,580,287	7.5%
<b>Total</b>	<b>46</b>	<b>907</b>	<b>1,234</b>	<b>20,973,600</b>	<b>100.0%</b>

\* 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 PY2021, the SBS program reported 20,974 MWh in gross energy savings and 3.32 MW in gross demand savings. Table 135 below shows the reported and evaluated savings across the program. The program exceeded its energy and demand savings planning goals, achieving 135 percent of the energy savings goal and 187 percent of the demand savings goal.

**Table 135. Small Business Solutions—Reported, Evaluated, and Net Savings**

Energy/demand savings	Reported savings	Evaluated savings <sup>69</sup>	Realization rate	NTG ratio	Net savings	Program contribution to portfolio savings
Energy savings (MWh)	20,974	20,714	98.8%	102.4%	21,201	6.8%
Demand savings (MW)	3.32	3.29	99.2%	102.2%	3.36	3.5%

<sup>67</sup> A unique participant is based on a single utility account number.

<sup>68</sup> ArchEE extract dated 1-18-2022.

**Table 136. Small Business Solutions—Goals vs. Achieved**

Program	Savings	Goal	Actual	Percentage achieved
Small Business Solutions	Energy savings (MWh)	15,663	21,201	135%
	Demand savings (MW)	1.8	3.4	187%

The SBS' evaluated energy and demand savings were slightly lower than reported savings (98.8 percent kWh realization rate, 99.2 percent kW 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 *lighting* project during the desk review and on-site process. The most significant adjustment was for a single *lighting* project where the baseline was changed from *retrofit* to *new construction*. Another finding that significantly impacted savings and many measures 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 reduction in evaluated savings.

NTG research was conducted in PY2019 for SBS measures and PY2017 for *tune-up* measures. We stipulated the PY2021 NTG based on this primary research. The prior evaluation researched NTG ratio is 103.3 percent for the non-tune-up portion of the program. There was no free-ridership, and approximately 3 percent of spillover was observed, resulting in an overall NTG ratio of 103.3 percent. Due to inadequate response among participants who installed measures other than lighting, the EM&V team could not calculate measure-level NTG estimates. The *tune-up* measure NTG ratio is 93.0 percent for kWh and kW. The commercial *Wi-Fi thermostat* measure NTG ratio is 90.0 percent.

A complete process evaluation was not conducted in PY2021 since an entire process evaluation was completed in PY2019 for the majority of measures and no material changes in the program occurred. The next full process evaluation for all SBS measures will be conducted in PY2022.

## 10.2 RECOMMENDATIONS

The EM&V team has identified key findings and recommendations for consideration by Entergy Arkansas, LLC (EAL) (Table 137), 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 137. Small Business Solutions—PY2021 Recommendations

Type	Recommendation	Key finding
Impact	<b>Recommendation 1:</b> Review savings algorithms for <i>Wi-Fi thermostat</i> measures to ensure consistency.	<p>The EM&amp;V team found that all projects with a reported <i>heat pump</i> heating fuel type were calculating demand savings incorrectly. All 24 projects calculated demand savings by dividing the deemed heat pump heating energy savings by 8,760 instead of the deemed cooling savings, which aligns with EAL's peak demand period. This systematic finding affected all heat pump projects across all three commercial programs with <i>Wi-Fi thermostat</i> measures.</p> <p>During the desk review, the EM&amp;V team also identified 29 projects where the reported fuel type was <i>electric AC with gas heat</i>, but savings were using deemed savings values for a <i>heat pump</i> unit.</p> <p>The EM&amp;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>
Impact	<b>Recommendation 2:</b> Review all projects that are being completed in renovated facilities to check if the building use is changing.	<p>During the desk review, the EM&amp;V team found one lighting project where a major renovation looked to have been completed at the facility, which drastically changed the building type from a retail store to a self-storage warehouse facility. During the site visit, the primary use change and substantial renovation of the facility were verified. Because of the change in building type, the EM&amp;V adjusted the baseline from <i>retrofit to new construction</i>; this impacted the baseline wattage allowance, which resulted in a reduction in evaluated energy and demand savings.</p> <p>The EM&amp;V team recommends documenting and verifying any building type changes that may take place during lighting projects that are part of a significant building renovation.</p>
Impact	<b>Recommendation 3:</b> Review <i>lighting control</i> measure tracking data for potential errors in algorithms.	<p>During the tracking system review, two projects totaling 262 lighting controls measures reported incorrect therms penalties. The reported therms penalties for these lighting controls measures were identical to the lighting measures directly associated with these control measures. The EM&amp;V team believes that the reported savings may be calculating the therms penalty using the associated retrofit lighting kWh savings instead of the lighting controls kWh savings. This overstated the therms penalties for these measures.</p> <p>The EM&amp;V team recommends reviewing the therms penalty calculation for <i>lighting controls</i> measures to ensure it is being calculated accurately.</p>



## 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 ten 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 PY2021 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 M&V of ten sampled accounts that also received desk reviews.

Table 138 shows the sample design and achieved sample sizes for the different data collection types employed for the impact evaluation effort.

**Table 138. Small Business 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 <sup>70</sup>	Census	Census	N/A	784
Engineering desk review	25	25	N/A	25
On-site M&V visit <sup>71</sup>	10	10 <sup>72</sup>	N/A	10

<sup>70</sup> ArchEE extract dated July 1, 2021. A count of prescriptive projects is the quantity of unique *JobId* numbers in the tracking database.

<sup>71</sup> On-site visits were recruited from the list of participants that received desk reviews, nesting the on-site sample within the desk review sample.

Most of the measures incentivized by the SBS program in PY2021 are currently included in the Arkansas Technical Reference Manual (TRM) Version 8.2 (TRM 8.2), Volume 2. Specific sections of TRM 8.2 associated with the savings developed for the SBS program measures are provided in Table 139. 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 139. TRM 8.2 Prescriptive Algorithms Utilized by the Small Business Solutions**

Measure category	TRM 8.2 section	TRM 8.2 measure name
Domestic hot water	3.3.2	Faucet aerators
	3.3.5	Low-flow showerheads
Envelope	3.2.11	Commercial door air infiltration
Lighting	3.6.2	Lighting controls
	3.6.3	Lighting efficiency
Food service equipment	3.8.11	Low-flow pre-rinse spray valves

*Air conditioning and heat pump tune-up measures, overhead door weather stripping measures, and PTAC sealing measures were incentivized through the SBS program. Overhead door weather stripping measures and PTAC sealing measures do not adhere to TRM 8.2 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 140. 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 weather stripping
	PTAC sealing

### 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 8.2-based algorithms. The tracking system data review began using the TRM 8.2 as a reference in our review of measure-level savings assumptions. Chapters of the TRM 8.2 utilized for the tracking system review are described above in Table 139.

The EM&V team reviewed the tracking systems linkage to the TRM 8.2 deemed savings algorithms used to estimate savings. This review was completed across a census of the program measures at the end of Q2<sup>73</sup>. 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 8.2 used to estimate project savings. Third, it assessed the ability of the tracking system to support future evaluation needs.

**Table 141. PY2021 Q1–Q2 Tracking System Reported Energy Savings by Measure Category**

Measure	Reported savings	
	kW	kWh
Domestic hot water	2	16,564
Envelope	30	1,148,718
Lighting	1,396	8,599,554
Tune-up and Wi-Fi thermostat	279	1,580,287
<b>Total</b>	<b>1,706</b>	<b>11,345,123</b>

### 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.

<sup>73</sup> Tracking data downloaded July 1, 2021.

### 10.3.1.3 Desk Reviews and Site Visits

The optimal count of sample units for the custom, lighting, and other strata were determined based on PY2018 through PY2020 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 years past. Also, uncertainty in savings drove sampling considerations for the lighting stratum and other strata.

The optimal count of sample units within each lighting stratum was determined based on a similar process. The lighting strata's savings exceeded their one-third cumulative share, and the EM&V team decided to sample more units. The EM&V team monitored the sampling process throughout PY2021 to ensure adequate coverage of all three lighting strata within each program by the end of the year.

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 142 summarizes the result of the sampling for the SBS program.

**Table 142. Small Business Solutions Summary of Sampled Savings**

Measure category	Projects	Projects sampled	Reported kWh	Reported kW
<b>Lighting subtotal</b>	<b>21</b>	<b>21</b>	<b>1,345,584</b>	<b>185</b>
High ≥57 MWh	8	8	1,024,512	128
Medium ≥25 MWh and <57 MWh	7	7	259,291	44
Low <25 MWh	6	6	61,781	13
<b>Other</b>	<b>4</b>	<b>4</b>	<b>547,207</b>	<b>12</b>
<b>Total</b>	<b>25</b>	<b>25</b>	<b>1,892,791</b>	<b>197</b>

## 10.4 DETAILED IMPACT EVALUATION RESULTS

The SBS program's evaluated energy and demand savings was slightly lower than the reported savings (98.8 percent kWh realization rate, 99.2 percent kW 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 considerable adjustment was adjusting one *lighting* project's baseline from *retrofit* to *new construction*. 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 *Wi-Fi thermostat* projects that contributed additional savings were found to be primarily due to:

- *heat pump* projects using demand algorithms associated with AC units and
- *Wi-Fi thermostat* measures using incorrect unit type (AC or heat pump) in savings algorithms.

Corrections to *lighting* projects that contributed additional savings were found to be primarily due to:

- changes in therms penalty calculations which reduced the therms penalty and
- adjustments to lighting operating schedules observed during the desk reviews.

Corrections to *lighting* projects that contributed to reduced savings were found to be primarily due to:

- changes in the baseline condition from *retrofit* to *new construction* made during the nest review and site visit and
- changes to lighting fixture wattage 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 143. 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
PTAC sealing	Envelope

Measure description	Measure category
Bonus and backpay	Lighting
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
Overhead door weather stripping	Envelope
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 pre-clean	Tune-ups
Commercial Wi-Fi thermostat	Tune-ups

Table 144 below outlines the claimed number of program participants and the percentage of savings by measure category in PY2021. Lighting was the dominant measure category in PY2021, accounting for 89 percent of claimed demand (kW) savings and 82 percent of claimed energy use (kWh) savings.

**Table 144. PY2021 Reported Small Business Solutions Participation and Savings by Measure Category**

Measure category	Participants*	Projects*	Program savings		Percentage of program savings	
			kW	kWh	kW	kWh
Domestic hot water	10	10	16	79,102	0%	0%
Envelope	34	36	69	2,059,038	2%	10%
Lighting	770	789	2,954	17,255,173	89%	82%
Tune-ups	109	408	279	1,580,287	8%	8%
<b>Total</b>	<b>907</b>	<b>1,234</b>	<b>3,317</b>	<b>20,973,600</b>	<b>100%</b>	<b>100%</b>

\* 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 145 outlines the savings and percentage of savings by measure in PY2021. *Interior LEDs* were the dominant measure in PY2021 and accounted for 79 percent of claimed gross kW savings and 57 percent of claimed gross kWh savings. *Outdoor LEDs* were the second most dominant measure in PY2021, accounting for 14 percent of claimed gross kWh savings; however, they did not contribute to program demand savings. *Integrated-ballast LED lamps* were the third most dominant kWh savings category and second most dominant kW savings category with five percent of the kWh savings and eight percent of the program kW savings.

**Table 145. PY2021 Reported Small Business Solutions Participation and Savings by Measure**

Measure	Program savings		Percentage of program savings	
	kW	kWh	kW	kWh
<b>Domestic hot water</b>				
Commercial showerheads	2	26,135	<1%	<1%
Faucet aerators	13	45,762	<1%	<1%
Pre-rinse spray valves	1	7,205	<1%	<1%
<b>Envelope</b>				
Commercial door air infiltration	38	1,253,879	1%	6%
Overhead door weather stripping	26	582,178	1%	3%
PTAC sealing	5	222,981	<1%	1%

Measure	Program savings		Percentage of program savings	
	kW	kWh	kW	kWh
<b>Lighting</b>				
Halogens	19	89,606	1%	<1%
HIDs	20	94,274	1%	<1%
Integrated-ballast compact fluorescent lamps (CFL)	0	1,320	<1%	<1%
Integrated-ballast LED lamps	270	1,122,614	8%	5%
LEDs	2,610	12,020,989	79%	57%
Lighting controls	5	29,278	<1%	<1%
Magnetic ballast T5 or premium T8 retrofit of T12	22	112,327	1%	1%
Modular CFLs and CCFLs	0	1,550	<1%	<1%
Other linear fluorescents	7	35,929	<1%	<1%
Outdoor-halogens	0	23,564	0%	<1%
Outdoor-HIDs	0	67,097	0%	<1%
Outdoor-integrated-ballast compact fluorescent lamps (CFL)	0	0	0%	<1%
Outdoor-integrated-ballast LED lamps	0	738,816	0%	4%
Outdoor-LEDs	0	2,896,529	0%	14%
Outdoor-magnetic ballast T5 or premium T8 retrofit of T12	0	21,047	0%	<1%
Outdoor-modular CFLs and CCFLs	0	0	0%	0%
Outdoor-other linear fluorescents	0	232	0%	<1%
<b>Tune-ups</b>				
Commercial AC post-test-out	22	42,067	1%	<1%
Commercial AC pre-clean	16	30,028	<1%	<1%
Commercial central air conditioner (tune-up)	93	178,580	3%	1%
Commercial heat pump (tune-up)	27	92,593	1%	<1%
Commercial HP pre-clean	0	854	<1%	<1%
Commercial Wi-Fi thermostat	119	1,236,165	4%	6%
<b>Total</b>	<b>3,317</b>	<b>20,973,600</b>	<b>100%</b>	<b>100%</b>



Table 146 shows the incentive structure for PY2021.

**Table 146. PY2021 Small Business Solutions Program Incentives**

Measure	Incentive as of 1/1/2020* 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: PY2021 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 PY2021 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) were all directly installed by the implementer, and 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 one of the multiple flow rates (e.g., 0.5 GPM, 1.0 GPM). Also, photo documentation of the water heater and its nameplate was provided. Details of the current equipment flow rates were not found described, and a specification of the new equipment was not included.

- *Commercial door air infiltration* measures (e.g., weather stripping, door sealing) were all directly installed by the implementer. A Direct Install Report typically inventoried the device, quantity (by gap size), and new weather stripping length installed by room. Additional notes typically included the gap size as the new equipment may be of multiple sizes (e.g., one-eighth-inch, one-quarter-inch) and the type (e.g., weather stripping, 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 found. A clear description or documentation of the HVAC type was not found.
  - *PTAC sealing* measures were a new addition to the program for PY2021 and were all directly installed by the implementer. Similar documentation as *commercial door air infiltration* measures was collected, including a Direct Install Report which inventoried the device, quantity (by gap size), and new PTAC sealing length installed by room. Additional notes typically included the gap size as the new equipment may be of multiple sizes (e.g., one-eighth-inch, one-quarter-inch) and the type (e.g., weather stripping, door sweep). Because *PTAC sealing* was a new addition to the program, extensive photo documentation of each unit was requested by the EM&V team and recorded by the implementer for each project.
  - *Lighting and lighting controls* measures included existing and new fixture types, make and model numbers, wattages, quantity, and control type. Also, Design Lights Consortium (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 November 10, 2017; and
  - PY2021 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 8.2-based algorithms and the final claimed values necessary for each measure. The tracking system data review began using TRM 8.2 as a reference in our review of measure-level savings assumptions. Chapters of TRM 8.2 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 8.2 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. 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 8.2 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 program evaluated tracking system savings resulted in slightly lower savings (98.8 percent kWh and 99.2 percent kW realization rates) than those calculated by the program implementer. The evaluated savings are based on adjustments from completing engineering reviews of the program's desk review, site visits, and *tune-up* tracking system review.

Overall, the tracking system review found the following:

- Except for the *overhead door weatherstripping*, *PTAC sealing*, and *tune-up* measures in the SBS program, all measures utilize TRM 8.2, Volume 2 deemed algorithms. The savings equations were confirmed consistent with TRM 8.2. As described above, the *overhead door weather stripping*, *PTAC sealing*, and *tune-up* measures follow custom approaches developed from assumptions and methodologies in the TRM. The EM&V team confirmed the *overhead door weather stripping* 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 8.2, Volume 2 deemed savings assumptions, with three notable exceptions. *Overhead door weather stripping* and *PTAC sealing* measures use extrapolated savings values based on the *commercial door air infiltration* measure in TRM 8.2. Also, some *lighting efficiency* measures use site-specific annual operation hours instead of the deemed values in TRM 8.2 for lighting projects.
  - Approximately two-and-a-half percent of lighting projects use site-specific custom annual operating hours (AOH) as captured from the site and based on the buildings' typical operating hours and hours of occupancy. This approach decreased over PY2020, where seven percent of SBS program projects used custom AOH.
- The overall tracking review realization rates were 100.1 percent kW and 100.1 percent kWh, not including the *tune-up* measures. Tracking review realization rates for most measures were at 100 percent.

**Table 147. PY2021 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	2	16,564	2	16,558	100.0%	100.0%
Envelope	30	1,148,718	30	1,148,718	100.0%	100.0%
Lighting	1,396	8,599,554	1,396	8,605,740	100.1%	100.1%
<b>Total</b>	<b>1,427</b>	<b>9,764,836</b>	<b>1,428</b>	<b>9,771,017</b>	<b>100.1%</b>	<b>100.1%</b>

### 10.4.3.1 Domestic Hot Water

- No issues found.

### 10.4.3.2 Envelope

- No issues found.

### 10.4.3.3 Lighting (i.e., Retrofits Including Controls)

- One project (PRJ-2401419) totaling 54 *exterior lighting* measures was found to be reporting a therms penalty. No therms penalty should be claimed for *exterior lighting*. The EM&V team reported zero therms penalty for these measures.
- Two projects totaling 262 *lighting controls* measures were found to be reporting incorrect therms penalties. The reported therms penalties for these *lighting controls* measures were identical to the *lighting* measures directly associated with these *control* measures; this overstated the therms penalties for these measures. The EM&V team evaluated savings following the TRM deemed value of -0.008 therms per kWh. Overall, this increased the evaluated therms penalty.

## 10.4.4 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 8.2, the CoolSaver Program M&V Plan<sup>74</sup>, 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 8.2, 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 408 measures.

A CLEAResult tracking system extract was provided, including pre- and post-test-out projects used as the basis for CLEAResult's PY2018–PY2020 efficiency loss (EL) calculations. The EM&V team reviewed this dataset, examined it for outliers, and calculated the PY2018–PY2020 EL values for three sectors (*commercial <25 tons*, *commercial ≥25 tons*, and *residential*) and whether a refrigerant charge adjustment was performed.

<sup>74</sup> The tune-up measure methodology were developed separately under their own CoolSaver Program prior to being included in the Small Business Solutions program.

Database revisions resulting from previous evaluation findings led to the PY2021 *tune-up* measure database showing improved data completeness and an overall decrease in findings over previous years. The *TuneupidComm* field was used to capture the *pre-clean* measure's *JobId* measure associated with each *post-test-out* measure. This approach made it easier to match *pre-cleans* with *post-test-outs* than in previous years, which used various fields, including the *TuneUpTypeID* and *TiCondenserserialnumber* fields. No missing or incomplete data fields, such as the *JobId* or *MeasureDesc*, were observed, which marked improvement over previous years.

Most of the key *tune-up* measure data is maintained in a separate database outside of ArchEE. Continuous development and changes to this supplementary database have been noted, increasing its overall completeness and ease of understanding. However, 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.

We recommend continuing checks for entries on key database fields to ensure that database savings are calculated correctly. For example, in PY2021, one project was observed where an incorrect efficiency loss factor was used in reported savings. These findings are described in detail below.

#### 10.4.5 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.

- Twenty-four *commercial Wi-Fi thermostats* measures installed on heat pump systems were using incorrect demand savings. Reported demand savings were calculated using the heat pump heating deemed energy savings divided by 8,760 instead of the AC unit kWh savings divided by 8,760. The EM&V team adjusted the demand savings to be calculated by dividing the AC kWh savings by 8,760; this increased demand savings. Ten of the affected project numbers are listed below, with the full list available upon request:
  - PRJ-261162,
  - PRJ-261160,
  - PRJ-261159,
  - PRJ-261158,
  - 2021-277980,
  - PRJ-259836,
  - 2021-275790,

- 2021-275788,
- 2021-275336, and
- 2021-273273
- Twenty-nine projects totaling 29 *commercial Wi-Fi thermostats* installed on AC 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 heat pump heating. Reported demand savings were calculated using the heat pump heating deemed energy savings divided by 8,760 instead of the AC unit kWh savings divided by 8,760. The EM&V team adjusted the energy savings to only include the energy savings associated with the AC unit. The demand savings was adjusted to be calculated by dividing the AC kWh savings by 8,760; this decreased energy and increased demand savings. Ten of the affected project numbers are listed below, with the full list available upon request:
  - 252372-2021,
  - 252371-2021,
  - 252370-2021,
  - 252369-2021,
  - 252368-2021,
  - 252367-2021,
  - 252366-2021,
  - 252360-2021,
  - 257020-2021, and
  - 256979-2021
- One *commercial central AC tune-up* project (2021-271712) used an incorrect EL value. Reported savings used EL values associated with units that received refrigerant charge adjustments. However, the tracking data indicated no refrigerant charge adjustments were made for this project. The EM&V team used the EL value for units that did not receive refrigerant charge adjustments, increasing energy and demand savings.
- One *commercial AC post-test-out* project (2021-262950) reported zero energy savings and negative demand savings. The implementer stated there were maintenance issues preventing a proper test-out from being conducted. The EM&V team did not adjust savings.

## 10.4.6 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 8.2. After selecting the best source of the key parameters from the available documentation, the savings were calculated based on TRM 8.2 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 8.2 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 1,892,791 kWh, or nine percent of the total SBS program recorded gross savings of 20,973,500 kWh. This percentage of total program savings is based on finalized ArchEE data from January 18, 2022.

### 10.4.6.1 Site Visits

The EM&V team's evaluation plan included conducting ten site visits to SBS 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 SBS 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;
- *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;
- *envelope* measures: length of the installed door or PTAC gasket, gap width, and heating/cooling system type; and
- *refrigeration* measures: length of refrigeration door gaskets, gap width, and area of installed strip curtains.

The site visits found that most parameters recorded in the project documentation to calculate savings were accurate. Out of the ten site visits conducted, one customer account changed due to the site visit. For the nine remaining customer accounts, all parameters were verified or were deemed to be reasonable based on the site inspection. The single adjustment was to adjust the *prescriptive* savings from a *retrofit* baseline to a *new construction* baseline. This project was found to be a building remodel where the primary use of the facility was drastically changed; this resulted in an overall energy savings adjustment from the desk review results of about 2.3 percent and is described in more detail in the project review results section below.

### 10.4.7 Desk Review and Site-Visit Results

As noted earlier, the PY2021 SBS program impact evaluation efforts included an engineering analysis for a sample of 25 projects and a site visit for 10 of those projects reviewed. For 21 of the projects in the sample, no savings adjustments were made. For the remaining four 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 148.

**Table 148. Small Business Solutions—PY2021 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	8.5	59,326	8.5	59,354	100%	100%
122002	Lighting high	Desk review	12.9	60,744	12.9	60,744	100%	100%
122003	Lighting low	Desk review	1.7	7,658	1.7	7,658	100%	100%
122004	Lighting medium	Desk review	3.5	35,191	3.5	35,191	100%	100%
122005	Lighting high	Site visit	10.3	86,121	10.3	86,121	100%	100%
122006	Lighting medium	Desk review	6.7	43,220	6.7	43,220	100%	100%
122007	Other	Site visit	6.7	319,548	6.7	319,548	100%	100%
122008	Lighting low	Desk review	3.6	12,430	3.6	12,430	100%	100%
122009	Lighting medium	Site visit	6.2	33,061	6.2	33,061	100%	100%
222001	Lighting high	Desk review	33.1	208,968	33.1	208,968	100%	100%
222002	Lighting low	Site visit	3.0	16,996	3.0	16,996	100%	100%
222003	Lighting high	Desk review	-	148,847	-	148,847	N/A	100%
222004	Lighting low	Desk review	1.7	7,805	1.7	7,805	100%	100%
222005	Lighting medium	Site visit	4.9	29,701	4.9	29,701	100%	100%
222006	Lighting medium	Desk review	4.8	26,589	4.8	26,589	100%	100%
222007	Other	Desk review	1.5	62,952	1.5	62,952	100%	100%
222008	Lighting medium	Site visit	6.6	48,673	6.6	48,673	100%	100%
222009	Lighting high	Desk review	10.4	59,505	10.4	59,505	100%	100%
222010	Lighting low	Desk review	1.9	9,060	1.9	9,060	100%	100%
322001	Lighting high	Desk review	15.7	100,457	15.7	100,400	100%	100%
322002	Lighting high	Site visit	36.7	300,544	29.2	254,870	79%	85%
322003	Lighting low	Desk review	1.3	7,833	1.3	7,833	100%	100%
322004	Lighting medium	Desk review	11.5	42,855	11.5	42,855	100%	100%



EM&V participant ID	Measure stratum	EM&V review type*	Ex-ante savings		Ex-post savings		Realization rate	
			kW	kWh	kW	kWh	kW	kWh
322005	Other	Site visit	1.9	90,124	2.0	92,374	103%	102%
322006	Other	Site visit	1.7	74,583	1.7	74,583	100%	100%
<b>Total</b>			<b>196.8</b>	<b>1,892,791</b>	<b>189.3</b>	<b>1,849,338</b>	<b>96%</b>	<b>98%</b>

\* 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.

#### 10.4.7.1 Other

The *other* strata consist of prescriptive, non-lighting measures. Four project IDs were selected in the *other* category for the SBS program. All four of the *other* category projects completed *envelope* measures. Two projects completed the new *PTAC sealing* measure, which was introduced in PY2021.

- Participant ID 322005 adjustment to gap width during the desk review and on-site.** This project was a *PTAC sealing* project. During the desk review, the EM&V team found a discrepancy between the reported gap width in the direct install report and the tracking system and photos taken during installation. The tracking data and direct install report noted that 10 feet of 5/8" gap around a PTAC unit in room 109 were sealed. However, pre-inspection photos of the gap next to a tape measure showed this gap to be 7/8". Ten feet of weather stripping was adjusted from the reported 5/8" to 7/8"; this increased energy and demand savings. This site also received a site visit to verify the gaps and proper gap sealing.

#### 10.4.7.2 Lighting High

The *lighting high* strata consist of lighting projects with total energy savings greater than 57 MWh. Eight desk reviews and four site visits have been conducted on these strata, resulting in four savings adjustments.

- Participant ID 322001 adjustments for post-installation fixture wattage during the desk review.** A quantity of three LED exit signs (Superior Life 82206) were adjusted from the reported 2 W to 4 W (specification sheets verified these lights to be 3.8 W); this reduced energy and demand savings for these measures.
- Participant ID 322002 adjustment for AOH during the desk review and adjustment for new construction baseline during the site visit.** During the desk review, the EM&V team found that the lights in the office areas were reported to operate 3,120 hours per year following a custom AOH schedule. However, project documentation noted that the office areas operate Monday through Saturday from 7:00 a.m. to 6:00 p.m. every week of the year, which corresponds to 3,432 AOH. The reported 3,120 AOH correspond to 10 hours per day instead of the 11 hours noted in the project

documentation. The EM&V team used 3,432 AOH in the evaluated savings, which increased energy savings.

Also, during the desk review, the photos showed this facility was renovated, and the building type was changed during the renovation and lighting project. This building type change was verified during the site visit. Reported savings were calculated using a deemed *retrofit* baseline. After the site visit, all lighting in the self-storage and office areas of the building were adjusted to a *new construction* baseline, which affected 748 lights. On-site, it was noted that this facility used to be a retail store where the retail showroom floor and office areas were converted to a self-storage warehouse facility. A warehouse lighting power density (LPD) of 0.8 W/sf was used for this area of the building. The square footage of this area was documented on-site to be 30,000 square feet. The existing warehouse facility and exterior lighting remained in the project as a *retrofit*. Overall, this reduced energy and demand savings for this project

- Participant ID 122005 adjustments to therms savings during the desk review.** During the desk review, the EM&V team found a calculation error affecting all *lighting control* measures. Reported savings for *lighting control* measures calculate the therms penalty by multiplying the associated lighting retrofit energy savings by the interactive effects factor for gas (IEFg). This IEFg factor should be multiplied by the *lighting control* savings, not the savings associated with that measure's retrofit energy savings. The EM&V team multiplied the IEFg factor (-0.008 therms/kWh) by the lighting control energy savings, which resulted in a reduced therms penalty.

#### 10.4.7.3 Lighting Medium

The *lighting medium* strata consists of lighting projects with total energy savings more significant than 25 MWh and less than 57 MWh. Seven desk reviews and zero site visits were conducted on these strata, resulting in no savings adjustments.

#### 10.4.7.4 Lighting Low

The *lighting low* strata consist of lighting projects with total energy savings of less than 25 MWh. Six desk reviews and zero site visits were conducted on this stratum, resulting in no savings adjustments.

#### 10.4.8 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 received the following documentation related to the program:

- ArchEE data tracking system extract containing PY2021 participant information and savings;
- Quality Control and Assurance Manual for EAL commercial programs, dated November 10, 2017;

- PY2021 Program Manual for the Small Business Solutions Program obtained from the EAL website;
- *overhead door weather stripping* deemed savings methodology and calculations; and
- 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.

#### 10.4.8.1 Program Documentation Review

The EM&V team received program-related documentation key to understanding the program and participation processes, including the PY2021 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 8.2, supplementary deemed savings methodologies for *overhead door weather stripping*, *PTAC sealing*, 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 (support claimed quantities, equipment make, and models) and manufacturer cut sheets (confirm equipment makes, models, sizes, types, efficiencies). 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 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 was included in project file requests for the two projects that used stipulated AOH. In PY2021, 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*.

PY2021 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. 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.

## 10.5 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 demand savings than those calculated by the program implementer (98.8 percent kWh and 99.2 percent kW 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 (kW and kWh) from one *lighting* project where the baseline was adjusted from *retrofit* to *new construction*. 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 149 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 kWh and kW for the program.

**Table 149. Small Business 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	
Lighting - high	781	5,429,892	734	5,187,665	94.1%	95.5%	Desk reviews and site visits
Lighting - medium	942	5,428,766	943	5,428,764	100.0%	100.0%	Desk reviews and site visits
Lighting - low	1230	6,396,515	1,230	6,396,558	100.0%	100.0%	Desk reviews and site visits
Other	85	2,138,140	85	2,146,932	100.5%	100.4%	Desk reviews and site visits
Tune-ups	279	1,580,287	298	1,553,622	106.8%	98.3%	Tracking system review
<b>Total</b>	<b>3,317</b>	<b>20,973,600</b>	<b>3,290</b>	<b>20,713,542</b>	<b>99.2%</b>	<b>98.8%</b>	

## 10.6 QUALITY CONTROL/QUALITY ASSURANCE PROCESSES

For all EAL commercial programs, EAL worked with the implementer CLEAResult to develop a quality management process that includes QA and QC components. QA emphasizes trade ally training to remind trade allies of program processes, technical requirements for measures, application requirements, and awareness of the QC process. For QA, the program staff also conduct application reviews of each incentive application. Incomplete proposals are rejected and sent back for completion. For QC, the program performs pre-installation inspections to confirm pre-installation conditions and conducts post-installation inspections to confirm post-installation conditions. Project savings calculations or incentives are adjusted as appropriate. These inspections are completed for 100 percent of custom projects and the largest (approximately 10 percent) projects identified by kWh 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 20 percent of all other projects under 60,000 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.

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 described by program documentation:

- 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.

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, 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. Increase the QA/QC of tracking data to ensure proper building-type selection.
2. Request greater detail on invoices.

## 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 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.

Through hands-on expertise and consulting, the program benchmarks customers' energy use 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*, *weather stripping*), 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. Limited process activities were conducted in PY2021 as a process evaluation was conducted in PY2019, and no significant changes in the program have occurred since then. Program staff interviews focused on discussing PY2021 progress and challenges and implementing PY2020 evaluation recommendations presented in the executive summary.

**Table 150. Public Institutions 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 <sup>75</sup>
Deemed from prior year research	Program staff interviews (2) Materials review	Census	30	15	7

## 11.1 KEY FINDINGS

Based on the PY2021 program tracking data, the PIS program incentivized energy efficiency measures to 3,927 unique participants<sup>76</sup> through 29 trade allies. Table 151 provides the program's claimed savings by measure category, where the most considerable amount of claimed participants (65 percent) and savings (55 percent) were attributable to *tune-up* measures. The most significant participation and savings for non-*tune-up* measures were for lighting (24 percent of participants and 26 percent of energy savings). Another significant measure in terms of participation was continuous energy improvement (CEI), with 8 percent of participants and 6 percent of energy savings.

**Table 151. Public Institutions Solutions—Reported Participation and Savings<sup>77</sup>**

Measure category	Trade allies	Participants**	Projects	Program savings (kWh)	Percentage of program savings (kWh)
Custom—CEI	0	31	43	1,389,771	6.4%
Custom—other	3	5	5	1,810,040	8.3%
Domestic hot water*	0	4	4	36,853	0.2%
Envelope*	0	14	15	932,870	4.3%
HVAC	2	3	3	27,462	0.1%
Lighting	16	95	100	5,635,424	26.0%
Tune-ups	11	255	3,059	11,845,784	54.6%
<b>Total</b>	<b>29</b>	<b>392</b>	<b>3,224</b>	<b>21,678,204</b>	<b>100.0%</b>

\* 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.

<sup>75</sup> 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.

<sup>76</sup> A unique participant is based on a single utility account number.

<sup>77</sup> ArchEE extract dated January 18, 2022.



In PY2021, the PIS program reported 21,678 MWh in gross energy savings and 3.70 MW in gross demand savings. Table 152 below shows the reported and evaluated savings across the program. The program fell short of achieving its planned energy and demand savings goals, reaching 92 percent of the annual energy and 67 percent of the annual demand savings goals.

**Table 152. Public Institutions 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)	21,678	21,316	98.3%	94.9%	20,235	6.5%
Demand savings (MW)	3.70	3.75	101.3%	95.2%	3.57	3.7%

\* NTG ratios displayed in the table are weighted based on the evaluated net savings results. The NTG ratios used at the measure level are 0.93 for the *tune-up* measures, 0.9 for *commercial Wi-Fi thermostats*, and 1.0 for everything else.

**Table 153. Public Institutions Solutions—Goals vs. Achieved**

Program	Savings	Goal	Actual	Percentage achieved
Public Institutions Solutions	Energy savings (MWh)	21,987	20,235	92%
	Demand savings (MW)	5.3	3.6	67%

The PIS program's evaluated energy savings were slightly lower, and demand savings was slightly higher than the reported savings (98.3 percent kWh realization rate, 101.3 percent kW 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 PY2021 focus on further improving data accuracy and consistency.

The researched NTG ratio is 100 percent for the PIS measures based on research conducted in PY2019. For the second year, *tune-up* measures were included in the PIS program; they use different deemed NTG ratios of 90 percent for *Wi-Fi thermostats* and 93 percent for *tune-up* projects based on prior evaluation cycle research. A complete process evaluation for this program, including NTG ratio updates, is planned for PY2022.

## 11.2 RECOMMENDATIONS

The EM&V team has identified key findings and recommendations for consideration by EAL (Table 154), 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 154. Public Institutions Solutions—PY2021 Recommendations**

Type	Recommendation	Key finding
Impact	<b>Recommendation 1:</b> Review savings algorithms for <i>commercial Wi-Fi thermostat</i> measures to ensure consistency.	<p>The EM&amp;V team found that projects with a reported <i>heat pump</i> heating fuel type incorrectly calculated demand savings. For seven projects, demand savings were calculated by dividing the deemed heat pump heating energy savings by 8,760 instead of the deemed cooling savings, which aligns with EAL's peak demand period. For 20 projects, the energy savings did not include the heating portion of the energy savings algorithm. During the tracking system review, the EM&amp;V team also identified 142 projects where the reported fuel type was <i>electric AC with gas heat</i>, but savings were using deemed savings values for a <i>heat pump</i> unit.</p> <p>The EM&amp;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>
Impact	<b>Recommendation 2:</b> Ensure consistency in data recorded from direct-install projects and entered into ArchEE for savings.	<p>During the desk review, the EM&amp;V team found two projects where the installed lengths tracked in ArchEE did not match the project documentation. For one project, the installed weather stripping length was simultaneously counted in different gap width categories. For another project, the direct-install report included an installed length of weather stripping different from the savings summary.</p> <p>The EM&amp;V team recommends increasing QA/QC procedures for the direct-install reports to limit future data errors of these types.</p>

## 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 PY2021 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 155 shows the sample design and achieved sample sizes for the different data collection types employed for the impact evaluation effort.

**Table 155. Public Institutions 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 <sup>78</sup>	Q1–Q2 census	Q1–Q2 census	N/A	48
Engineering desk review <sup>79</sup>	30	30	8	24
On-site M&V visit <sup>80</sup>	15	15 <sup>81</sup>	4	11
Tune-up measure data review	census	census	N/A	N/A

Most of the measures incentivized by the PIS program in PY2021 are currently included in the Arkansas Technical Reference Manual (TRM) Version 8.2 (TRM 8.2), Volume 2. Specific sections of TRM 8.2 associated with the savings developed for the PIS program measures are provided in Table 156. 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.

<sup>78</sup> ArchEE extract dated July 1, 2021. The count of prescriptive projects is the quantity of unique *JobId* numbers for the measure categories included in the Q1–Q2 tracking database review.

<sup>79</sup> Two participants had both *prescriptive* and *custom* measures incentivized under the same *JobId*.

<sup>80</sup> 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 156. TRM 8.2 Prescriptive Algorithms Utilized by the Public Institutions Solutions Program**

Measure category	TRM 8.2 section	TRM 8.2 measure name
Domestic hot water	3.3.2	Faucet aerators
	3.3.5	Low-flow showerheads
Envelope	3.2.11	Commercial door air infiltration
HVAC	3.1.18	Unitary and split-system AC/HP equipment
Lighting	3.6.2	Lighting controls
	3.6.3	Lighting efficiency

*Air conditioner, heat pump tune-ups, and overhead door weather stripping* measures were also incentivized through the PIS program. *Overhead door weather stripping* measures do not strictly adhere to TRM 8.2 but instead 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 monitoring and verification approach. A separate tracking system review was conducted for all *tune-up* measures across the three commercial programs.

**Table 157. Non-TRM Prescriptive Algorithms Utilized by the Public Institutions 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 weather stripping

### 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 8.2-based algorithms. The tracking system data review began using TRM 8.2 as a reference in our review of measure-level savings assumptions. Chapters of the TRM 8.2 utilized for the tracking system review are described above in Table 156.

The EM&V team reviewed the tracking systems linkage to the TRM 8.2 deemed savings algorithms used to estimate savings. This review was completed across a census of the program measures at the end of Q2<sup>82</sup>. 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 8.2 used to estimate project savings. Third, it assessed the ability of the tracking system to support future evaluation needs.

**Table 158. PY2021 Q1–Q2 Tracking System Reported Energy Savings by Measure Category**

Measure	Reported savings	
	kW	kWh
Domestic hot water	3	26,052
Envelope	20	654,904
HVAC	10	20,190
Lighting	135	907,512
<b>Total evaluated</b>	<b>169</b>	<b>1,608,658</b>
Tune-up and Wi-Fi thermostat <sup>83</sup>	1,163	8,609,673
Custom	37	147,961
<b>Total</b>	<b>1,369</b>	<b>10,366,293</b>

### 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.

<sup>82</sup> Tracking data downloaded July 1, 2021.

<sup>83</sup> *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.

### 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 PY2020 savings representations 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. 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).
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-strata 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 PY2021.

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 159 summarizes the result of the sampling for the PIS program.

**Table 159. Public Institutions Solutions Summary of Sampled Savings**

Sampling strata	Projects	Projects sampled <sup>84</sup>	Reported kWh	Reported kW
<b>Custom subtotal</b>	<b>48</b>	<b>9</b>	<b>1,813,881</b>	<b>506</b>
CEI	43	5	52,023	4
Other	5	4	1,761,857	503
<b>Lighting subtotal</b>	<b>100</b>	<b>15</b>	<b>457,345</b>	<b>59</b>
Deemed	91	13	403,258	51
Non-deemed	9	2	54,087	8
<b>Other subtotal</b>	<b>20</b>	<b>8</b>	<b>416,849</b>	<b>22</b>
<b>Total</b>	<b>165</b>	<b>30</b>	<b>2,688,074</b>	<b>588</b>

## 11.4 DETAILED IMPACT EVALUATION RESULTS

The PIS program's evaluated energy savings were slightly higher, and demand savings was slightly lower than the reported savings (101.3 percent kWh realization rate, 98.3 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 *Wi-Fi thermostat* projects that contributed additional savings were found to be primarily due to:

- *heat pump* projects using demand algorithms associated with AC units, and
- *Wi-Fi thermostat* measures using incorrect unit type (AC or heat pump) in savings algorithms.

Corrections to *lighting* projects that contributed additional savings were found to be primarily due to:

- changes in therms penalty calculations, which reduced the therms penalty;
- installed fixture type different from the project documentation for one project; and
- additional fixtures retrofit but not recorded on the inspection form for another project.

<sup>84</sup> Two sampled projects had measures in multiple categories.

Corrections to *envelope* projects that contributed to reduced savings were found to be primarily due to:

- *therms penalty* calculated for a measure that does not include a *therms penalty* (a *commercial showerhead* measure), and
- installed gap lengths not matching between project documentation and the values recorded in ArchEE 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 160. Mapping to Measure Category**

Measure description	Measure category
Continuous energy improvement	Custom—CEI
Custom—heating and cooling	Custom—other
Custom—non-heating and cooling	Custom—other
Commercial showerheads	Domestic hot water
Faucet aerators	Domestic hot water
Low-flow showerheads	Domestic hot water
Commercial door air infiltration	Envelope
Overhead door weather stripping	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
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
NC—interior project savings	Lighting
NC—LEDs	Lighting
Other linear fluorescents	Lighting
Outdoor—halogens	Lighting
Outdoor—HIDs	Lighting
Outdoor—integrated-ballast LED lamps	Lighting
Outdoor—LEDs	Lighting
Outdoor—magnetic ballast T5 or premium T8 retrofit of T12	Lighting



Measure description	Measure category
Outdoor—modular CFLs and CCFLs	Lighting
Outdoor—NC—LEDs	Lighting
Outdoor—NC—lighting project savings	Lighting
Outdoor—other linear fluorescents	Lighting
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 161 below outlines the claimed number of program participants and the percentage of savings by measure category in PY2021. *Tune-ups* were the dominant measure category in PY2021, accounting for 56 percent of claimed demand (kilowatt) savings and 55 percent of claimed energy use (kilowatt-hours) savings.

**Table 161. PY2021 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	31	43	237	1,389,771	6%	6%
Custom—other	5	5	509	1,810,040	14%	8%
Domestic hot water	4	4	4	36,853	0%	0%
Envelope	14	15	23	932,870	1%	4%
HVAC	3	3	15	27,462	0%	0%
Lighting	95	100	859	5,635,424	23%	26%
Tune-ups	255	3,059	2,057	11,845,784	56%	55%
<b>Total</b>	<b>392</b>	<b>3,224</b>	<b>3,703</b>	<b>21,678,204</b>	<b>100%</b>	<b>100%</b>

\* 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 162 outlines the savings and percentage of savings by measure in PY2021. *Commercial Wi-Fi thermostat* was the dominant measure in PY2021 and accounted for 27 percent of claimed gross kilowatt savings and 44 percent of claimed gross kilowatt-hour savings. *LEDs* were the second most dominant measure in PY2021, accounting for 22 percent of claimed gross kilowatt and kilowatt-hour savings. *Commercial central air conditioner (tune-up)* was the third most dominant measure with 7 percent of the kilowatt-hour savings and 21 percent of the program kilowatt savings.

**Table 162. PY2021 Reported Public Institutions Solutions Participation and Savings by Measure**

Measure	Program savings		Percentage of program savings	
	kW	kWh	kW	kWh
<b>Custom—CEI</b>				
Continuous energy improvement	237	1,389,771	6%	6%
<b>Custom—other</b>				
Custom—heating and cooling	63	188,848	2%	1%
Custom—non-heating and cooling	446	1,621,191	12%	7%
<b>Domestic hot water</b>				
Commercial showerheads	1	7,604	<1%	<1%
Faucet aerators	1	12,168	<1%	<1%
Low-flow showerheads	2	17,081	<1%	<1%
<b>Envelope</b>				
Commercial door air infiltration	16	454,962	<1%	2%
Overhead door weather stripping	7	477,908	<1%	2%
<b>HVAC</b>				
Unitary AC equipment—unitary AC < 65000 btu/hr—replace on burnout	15	22,910	<1%	<1%
Unitary AC equipment—unitary AC => 65000 btu/hr—replace on burnout	<1	4,552	<1%	<1%
<b>Lighting</b>				
Halogens	0	0	0%	0%
HIDs	0	0	0%	0%
Integrated-ballast CFL	0	0	0%	0%
Integrated-ballast LED lamps	31	189,856	1%	1%
LEDs	803	4,868,659	22%	22%
Lighting controls	21	127,403	1%	1%
Magnetic-ballast T5 or premium T8 retrofit of T12	1	2,311	<1%	<1%

Measure	Program savings		Percentage of program savings	
	kW	kWh	kW	kWh
NC—interior project savings	3	16,367	<1%	<1%
NC—LEDs	0	0	0%	0%
Other linear fluorescents	0	-103	<1%	<1%
Outdoor—halogens	0	1,203	0%	<1%
Outdoor—HIDs	0	991	0%	<1%
Outdoor—integrated-ballast LED lamps	0	104,028	0%	<1%
Outdoor—LEDs	<1	314,069	<1%	1%
Outdoor—magnetic ballast T5 or premium T8 retrofit of T12	0	0	0%	0%
Outdoor—modular CFLs and CCFLs	0	0	0%	0%
Outdoor—NC—LEDs	0	0	0%	0%
Outdoor—NC—lighting project savings	0	10,640	0%	<1%
Outdoor—other linear fluorescents	0	0	0%	0%
<b>Tune-ups</b>				
Commercial AC post-test-out	41	76,040	1%	<1%
Commercial AC pre-clean	163	385,381	4%	2%
Commercial central air conditioner (tune-up)	777	1,467,778	21%	7%
Commercial heat pump (tune-up)	70	246,657	2%	1%
Commercial HP post-test-out	5	17,984	<1%	<1%
Commercial HP pre-clean	10	34,009	<1%	<1%
Commercial Wi-Fi thermostat	990	9,617,935	27%	44%
<b>Total</b>	<b>3,703</b>	<b>21,678,204</b>	<b>100%</b>	<b>100%</b>

\* 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 163 shows the incentive structure for PY2021 compared to the previous program year.

The incentives for all tiers of measures were reduced in PY2021 from PY2020.

**Table 163. PY2021 Public Institutions Solutions Program Incentives**

Measure			PY2020 incentive*	PY2021 incentive**
<b>Directly Installed by CLEARResult</b>				
<b>Domestic hot water</b>				
Commercial showerheads			Full cost	Full cost
Faucet aerators			Full cost	Full cost
Pre-rinse spray valves			Full cost	Full cost
<b>Envelope</b>				
Commercial door air infiltration (i.e., weather stripping)			Full cost	Full cost
<b>Lighting</b>				
Integrated-ballast LED lamps			Full cost	Full cost
Outdoor-integrated-ballast LED lamps			Full cost	Full cost
<b>Installed by trade ally</b>				
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
<b>PY2020 incentive*</b>	\$0.14/kWh	\$0.15/kWh	\$0.16/kWh	\$0.18/kWh
<b>PY2021 incentive**</b>	\$0.12/kWh	\$0.13/kWh	\$0.14/kWh	\$0.15/kWh

\* Source: PY2020 Program Manual CitySmart program.

\*\* Source: PY2021 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 CLEARResult. The EM&V team received the following documentation related to the program:

- ArchEE data tracking system extract containing PY2021 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., *weather stripping*, *door sealing*). A Direct Install Report typically inventoried the device, quantity (by gap size), and new weather stripping 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., weather stripping, 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 November 10, 2017;
- PY2021 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 8.2-based algorithms and the final claimed values necessary for each measure. The tracking system data review began using TRM 8.2 as a reference in our review of measure-level savings assumptions. Chapters of TRM 8.2 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 8.2 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. 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 8.2 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 11.5.

The overall PIS program evaluated tracking system savings resulted in nearly identical savings (100.0 percent kW and 100.1 percent kWh 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 (kWh) 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 weather stripping*, and *tune-up* measures in the PIS program, all measures utilize TRM 8.2, Volume 2 deemed algorithms. The savings equations were confirmed consistent with TRM 8.2. As described above, the *overhead door weather stripping* and *tune-up* measures follow custom approaches developed from assumptions and methodologies in the TRM. The EM&V team confirmed the *overhead door weather stripping* 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 8.2, Volume 2 deemed savings assumptions, with two notable exceptions. The *overhead door weather stripping* measure uses extrapolated savings values based on the *commercial door air infiltration* measure in TRM 8.2. Also, some *lighting efficiency* measures use site-specific AOH instead of the deemed values in TRM 8.2 for lighting projects.

- Nine 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 increased over PY2021, where only two-and-a-half percent of PIS program projects used a custom AOH.
- The overall tracking review realization rates were 100.0 percent kW and 100.1 percent kWh. Tracking review realization rates were 100 percent for *envelope* and *HVAC* measures.

**Table 164. PY2021 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	26,052	3	26,008	99.8%	99.8%
Envelope	20	654,904	20	654,904	100.0%	100.0%
HVAC	10	20,190	10	20,190	100.0%	100.0%
Lighting	135	907,512	135	909,111	100.0%	100.2%
<b>Total</b>	<b>169</b>	<b>1,608,658</b>	<b>169</b>	<b>1,610,213</b>	<b>100.0%</b>	<b>100.1%</b>

#### 11.4.3.1 Domestic Hot Water

- The EM&V team calculated slightly lower energy and demand savings than reported in the tracking data for 57 *low-flow showerhead* measures from one *JobId* (PRJ-2921161). These measures followed the TRM 8.2 prescriptive residential approach, which was appropriate because these measures were installed in residential homes on an Air Force Base. The EM&V team believes the difference in savings is likely due to rounding key input values, such as gallons saved per year—this slightly reduced energy and demand savings for these measures.

#### 11.4.3.2 Envelope

- No issues were found.

#### 11.4.3.3 HVAC

- No issues were found.

#### 11.4.3.4 Lighting (i.e., Retrofits Including Controls)

- One exterior lighting project (*JobId* PRJ-2875924) was incorrectly using custom AOH. This project reported zero energy and demand savings. The *ProjectNarrative* field noted that the AOH had been stipulated, but *ExistingAnnualHours* and *AnnualHours* fields, which normally note the custom AOH, were empty. It is assumed that the AOH of 0, which was used in reported savings, was done in error. The EM&V team used the TRM deemed AOH and coincidence factor (CF) for the reported exterior location; this increased energy savings for this project.

#### 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 8.2, the CoolSaver Program M&V Plan<sup>85</sup>, 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 8.2, 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 408 measures.

A CLEAResult tracking system extract was provided, including pre- and post-test-out projects used as the basis for CLEAResult's PY2018–PY2020 efficiency loss (EL) calculations. The EM&V team reviewed this dataset, examined it for outliers, and calculated the PY2018–PY2020 EL values for three sectors (*commercial <25 tons*, *commercial ≥25 tons*, and *residential*) and whether a refrigerant charge adjustment was performed.

Database revisions from previous evaluation findings led to the PY2021 *tune-up* measure database showing improved data completeness and an overall decrease in findings over previous evaluations. The *TuneupidComm* field was used to capture the *pre-clean* measure's *JobId* measure associated with each *post-test-out* measure. This approach made it easier to match *pre-cleans* with *post-test-outs* than in previous years, which used various fields, including the *TuneUpTypeID* and *TiCondensersserialnumber* fields. No missing or incomplete data fields, such as the *JobId* or *MeasureDesc*, were observed, which marked improvement over previous years.

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<sup>85</sup> The *tune-up* measure methodology was developed separately under the CoolSaver Program prior to being included in the PIS program.



Most of the key *tune-up* measure data is maintained in a separate database outside of ArchEE. Continuous development and changes to this supplementary database have been noted, increasing its overall completeness and ease of understanding. However, the EM&V team recommends developing and maintaining a data dictionary to describe the data and document changes within this database with continuous development and changes.

We recommend continuing checks for entries on key database fields to ensure that database savings are calculated correctly. For example, in PY2021, one project was observed where an incorrect EL factor was used in reported savings. These findings are described in detail below.

#### 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 used and results obtained, repeating the calculation 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.

- One-hundred-forty-two *commercial Wi-Fi thermostats* 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. 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 energy savings to only include the energy savings associated with the AC unit. The demand savings was adjusted by dividing the cooling kilowatt-hour savings by 8,760. These adjustments decreased energy and increased demand savings. Ten of the affected *JobIds* are listed below, with the complete list available upon request:
  - 252385-2021,
  - 252384-2021,
  - 252383-2021,
  - 252382-2021,
  - 252381-2021,
  - 252380-2021,
  - 252378-2021,
  - 252377-2021,
  - 252376-2021, and
  - 252375-2021.

- Twenty *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 with gas heat* 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 *Joblds* are listed below, with the complete list available upon request:
  - 2021-262919,
  - 2021-263074,
  - 2021-278273,
  - PRJ-262245,
  - PRJ-262244,
  - PRJ-262243,
  - PRJ-262242,
  - PRJ-262241,
  - PRJ-262664, and
  - PRJ-262662.
  
- Seven *commercial Wi-Fi thermostats* 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 demand savings was adjusted by dividing the cooling kilowatt-hour savings by 8,760. These adjustments reduced demand savings. The seven affected *Joblds* are listed below:
  - PRJ-261967,
  - 2021-274524,
  - 2021-274523,
  - 2021-274517,
  - 2021-265253,
  - 2021-265251, and
  - 2021-265141.

### 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 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 8.2. After selecting the best source of the key parameters from the available documentation, the savings were calculated based on TRM 8.2 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 8.2 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 2,688,074 kWh, or 12 percent of the total PIS program recorded gross savings of 21,678,204 kWh. This percentage of total program savings is based on finalized ArchEE data from January 18, 2022.

### 11.4.6 Site Visits

The EM&V team's evaluation plan included conducting ten 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 condition of each of the measures 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; and
- *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 two adjustments. One site visit found a different lighting product installed (a lamp replacement rather than a fixture replacement) specified in the project documentation. Another site visit found additional 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 PY2021 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 23 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 30 PIS projects reviewed by the evaluation. Detailed descriptions of the seven projects with energy or demand savings adjustments follow Table 165.

**Table 165. Public Institutions Solutions—PY2021 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
<b>Custom - CEI</b>							
323006	Desk review	0.0	18,354	0.0	18,354	n/a	100.0%
323007	Desk review	0.0	16,543	0.0	16,543	n/a	100.0%
323008	Desk review	0.0	14,258	0.0	14,258	n/a	100.0%
423004	Desk review	3.5	1,929	3.5	1,929	100.0%	100.0%
423005	Desk review	0.0	939	0.0	939	n/a	100.0%
<b>Custom – CEI total</b>		<b>3.5</b>	<b>52,023</b>	<b>3.5</b>	<b>52,023</b>	<b>100.0%</b>	<b>100.0%</b>
<b>Custom - other</b>							
123005	Site visit	36.8	147,961	36.8	147,961	100.0%	100.0%
323004	Site visit	26.6	40,887	26.6	40,887	100.0%	100.0%
323005	Site visit	0.2	2,010	0.2	2,010	100.2%	100.0%
423001	Site visit	439.3	1,570,998	439.3	1,570,998	100.0%	100.0%
<b>Custom – other total</b>		<b>502.9</b>	<b>1,761,857</b>	<b>502.9</b>	<b>1,761,857</b>	<b>100.0%</b>	<b>100.0%</b>
<b>Lighting - deemed</b>							
123004	Site visit	0.0	128,164	0.0	128,863	n/a	100.5%
223001	Site visit	10.4	58,675	10.4	58,675	100.0%	100.0%
223005	Site visit	2.7	20,272	2.7	20,272	100.0%	100.0%
223009	Site visit	1.8	8,311	1.9	8,752	103.9%	105.3%
323003	Site visit	15.8	67,561	15.9	68,182	100.9%	100.9%
323010	Site visit	2.4	11,851	2.4	11,851	100.0%	100.0%
<b>Lighting – deemed total</b>		<b>33.2</b>	<b>294,833</b>	<b>33.4</b>	<b>296,594</b>	<b>100.7%</b>	<b>100.6%</b>
<b>Lighting – non-deemed</b>							
123003	Desk review	5.7	48,831	5.7	48,831	100.0%	100.0%
123006	Desk review	2.1	12,051	2.1	11,472	97.5%	95.2%

EM&V participant ID	EM&V review type*	Ex-ante savings		Ex-post savings		Realization rate	
		kW	kWh	kW	kWh	kW	kWh
223002	Desk review	6.5	27,909	6.5	27,909	100.0%	100.0%
223004	Desk review	2.0	12,064	2.0	12,064	100.0%	100.0%
223008	Desk review	0.1	3,165	0.1	3,165	100.0%	100.0%
323002	Desk review	0.3	1,725	0.3	1,725	100.0%	100.0%
323009	Desk review	0.6	2,680	0.6	2,680	100.1%	100.0%
423002	Site visit	7.7	45,140	7.7	45,140	100.0%	100.0%
423003	Desk review	0.6	8,947	0.6	8,947	100.0%	100.0%
<b>Lighting – non-deemed total</b>		<b>25.6</b>	<b>162,512</b>	<b>25.6</b>	<b>161,933</b>	<b>99.8%</b>	<b>99.6%</b>
<b>Other</b>							
123001	Site visit	2.1	51,233	2.1	51,233	100.0%	100.0%
123005	Site visit	9.9	19,814	9.9	19,814	100.0%	100.0%
223003	Site visit	2.7	106,440	2.7	104,639	98.6%	98.3%
223007	Site visit	1.5	63,605	1.4	59,310	93.2%	93.2%
323001	Site visit	0.3	149,900	0.0	148,890	0.0%	99.3%
323004	Site visit	4.6	7,272	4.6	7,272	100.0%	100.0%
123002	Desk review	1.2	17,117	1.2	17,117	100.0%	100.0%
223006	Desk review	0.1	1,469	0.1	1,469	100.0%	100.0%
<b>Other total</b>		<b>22.4</b>	<b>416,849</b>	<b>22.0</b>	<b>409,743</b>	<b>97.9%</b>	<b>98.3%</b>

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 two *HVAC* projects, two *custom non-heating and cooling*, and five *CEI* projects, with four site visits conducted on the *HVAC* and *custom non-heating and cooling* projects. There were no projects with savings adjustments in the *custom* strata.

### 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. Eight desk reviews and six site visits were conducted on this stratum, with three adjustments to savings.

- **Participant ID 223003 adjustment for installed gap lengths.** This project consisted of *commercial showerhead*, *faucet aerator*, *commercial door air infiltration*, and *overhead door weather stripping* measures in a wastewater facility. The sum of the 1/2" overhead door gap widths was 50 feet in the table in the Direct Install Report, compared to 54 feet in the direct install report summary, the calculation file, and the tracking system data. The EM&V team adjusted the gap length to 50 feet which reduced energy and demand savings.
- **Participant ID 223007 adjustment for installed gap lengths.** This project consisted of *commercial door air infiltration* measures in an education facility. The door gap length for the 5/8" gap was adjusted from the reported 26 feet to 17 feet. The Direct Install Report only showed one door with a 5/8" gap totaling 17 feet. A calculation error may have accidentally included the nine feet of 3/8" door sweeps in the 5/8" summary as well as the 3/8" gap summary; this adjustment reduced energy and demand savings.
- **Participant ID 323001 adjustment for incorrect calculation type.** This project consisted of *commercial showerhead*, *faucet aerator*, *commercial door air infiltration*, and *overhead door weather stripping* measures in a public order and safety facility. A therms penalty was reported for the *commercial showerhead* measure. However, no therms penalty should be calculated for *domestic hot water* measures. The site visit verified that the building heating fuel and hot water heating fuel types were both electric. The therms penalty was removed for the verified 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 91 projects with over 5,230 MWh of claimed savings. Thirteen desk reviews and six site visits were conducted on this stratum, with four adjustments to the claimed savings.

- **Participant ID 123004 savings adjustment for installed fixture type.** This project was for exterior *lighting* retrofits. A quantity of 35 LED lights was adjusted from the reported 51 W (Rsx1 LED P1 40K R3 fixtures) to 45.5 W (Keystone KT-45HID corn cob LED lamps—DLC ID P849CS6B). The site visit found that these high-pressure sodium fixtures were not replaced but that the high-pressure sodium lamps were replaced with the Keystone lamps; this adjustment slightly increased energy savings.
- **Participant ID 123006 savings adjustment for nonqualified fixtures.** This project was for exterior and interior *lighting* retrofits at a public assembly facility. A quantity of five A19 LED lamps (Satco S29597) were not ENERGY STAR-certified. These lights were removed from savings which reduced energy and demand savings.
- **Participant ID 223009 savings adjustment for installed quantities.** This project was for interior *lighting* retrofits at a non-refrigerated warehouse facility. As a result of the site visit, two adjustments to quantities were made:
  - Three additional 9 W A19 LED lights were found (E9A19D50/4P/WS1T); these lights were not noted on the inventory sheet—these lights were assumed to have replaced 60 W incandescent lamps, consistent with the other areas of the building. Three additional 9 W A19 LEDs were added in the post-condition and the pre-condition, and three additional 60 W incandescent lights were added to the inventory. This increased energy savings.
  - In the utility room, two additional four-foot linear LED lamps were found (EDI-APT8-4F12-AB 5000K). These were assumed to have a four-foot T12 lamp baseline, consistent with the other LED lamps in this location. Two additional 12 W four-foot LED lamps were added in the post-condition and the pre-condition; one additional two-lamp T12 fixture was added to the inventory. This adjustment increased energy and demand savings.

Overall, these adjustments resulted in increased energy and demand savings.

- **Participant ID 323003 savings adjustment for fixture input wattage.** This project was for interior *lighting* retrofits at a public assembly facility. A quantity of 216 21 W LED downlights (LDN8RV 40/15) were adjusted from the reported 21 W to 20 W. These lights were ENERGY STAR-certified at 20.48 W. This increased 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 nine projects were in the *non-deemed lighting* strata, which accounted for over 405 MWh of claimed savings.

Two desk reviews and one site visit 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. For one healthcare facility project, the customer denied the request for a site visit due to COVID-19 restrictions. The single site visit 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 no adjustments to the claimed savings for this strata.

#### 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 PY2021 participant information and savings;
- Quality Control and Assurance Manual for EAL commercial programs, dated November 10, 2017;
- PY2021 Program Manual for the Public Institutions Solutions Program obtained from the EAL website; and
- *Overhead door weather stripping* 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 PY2021 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 8.2, supplementary deemed savings methodologies for *overhead door weather stripping*, 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 two projects that used stipulated AOH. In PY2021, 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*.

PY2021 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 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 higher energy and lower demand savings than those calculated by the program implementer (101 percent kWh and 98 percent kW 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 two *envelope* measures where the direct-install lengths of weather stripping 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 166 shows that *tune-up* measures had the most considerable variances and contributed the most significant portion of program savings.

**Table 166. Public Institutions 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—CEI	237	1,389,771	237	1,389,771	100.0%	100.0%	Desk reviews
Custom—other	509	1,810,040	509	1,810,040	100.0%	100.0%	Desk reviews and site visits
Lighting—deemed	807	5,230,257	810	5,245,603	100.7%	100.6%	Desk reviews and site visits
Lighting—non-deemed	51	405,167	51	405,167	99.8%	99.6%	Desk reviews and site visits
Other	42	997,185	41	980,188	97.9%	98.3%	Desk reviews and site visits
Tune-ups	2,057	11,845,784	2,102	11,485,674	102.2%	97.0%	Tracking system and M&V review
<b>Total</b>	<b>3,703</b>	<b>21,678,204</b>	<b>3,751</b>	<b>21,316,442</b>	<b>101.3%</b>	<b>98.3%</b>	

## 11.6 QUALITY CONTROL/QUALITY ASSURANCE PROCESSES

For all EAL commercial programs, EAL worked with the implementer CLEAResult to develop a quality management process that includes QA and QC components. QA emphasizes trade ally training to remind trade allies of program processes, technical requirements for measures, application requirements, and awareness of the QC process. For QA, program staff also conduct application reviews of each incentive application. Incomplete proposals are rejected and sent back for completion. For QC, the program performs pre-installation inspections to confirm pre-installation conditions and conducts post-installation inspections to confirm post-installation conditions. Project savings calculations or incentives are adjusted as appropriate. These inspections are completed for 100 percent of *custom* projects and the largest (approximately ten percent) 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.

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 staff maintain 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 described by program documentation:

- 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.

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, 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 two specific areas for improvement:

1. Perform QA/QC on the pre- and post-inspection forms to ensure the most up-to-date inspection data is captured in tracking data.
2. Request greater detail on invoices.

## 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 electricity cost 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, and aquaculture facilities.

Customers can participate via two pathways: prescriptive or custom. Prescriptive provides a simplified method to make efficient choices based on a list of pre-defined energy efficiency measures. Custom is a more comprehensive and customized approach for farmers who have energy efficiency needs beyond one or two measures on the pre-defined measure list. Prescriptive measures use a deemed methodology as outlined in the Arkansas Technical Reference Manual (TRM) Version 8.2 (TRM 8.2).

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 ten projects and on-site measurement and verification (M&V) of six projects.

**Table 167. Agricultural Energy 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 <sup>86</sup>
Deemed from prior research	Program staff interviews (2) Materials review	Census	10	6 (ride alongs)	None

<sup>86</sup> 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.

## 12.1 KEY FINDINGS

Based on the PY2021 program tracking data,<sup>87</sup> the AES program reported implementing 8,251 *lighting* measures to 28 unique participants. Table 168 provides the program's participation and reported savings by measure category. In PY2021, new construction lighting projects provided the most savings for the program, though retrofit lighting projects had more unique accounts participating, similar to PY2020.

**Table 168. Agricultural Energy Solutions—Reported Participation, Measures, and Savings**

Measure category	Participants	Measures (quantity)	Reported program savings (kWh)	Percentage of program savings (kWh)
Custom—new construction	14	5,238	12,583,211	93.7%
Custom—retrofit	17	3,013	842,424	6.3%
<b>Grand total</b>	<b>28</b>	<b>8,251</b>	<b>13,425,635</b>	<b>100.0%</b>

In PY2021, the AES program reported 13,426 MWh in gross energy savings and 2.1 MW in gross demand savings, as shown in the table below. The AES program's evaluated savings resulted in identical energy and demand savings (100 percent MWh and 100 percent MW realization rates) to those calculated by the program implementer. The program has far exceeded the energy and demand goals, achieving 210 percent and 207 percent of energy and demand goals, respectively.

**Table 169. Agricultural Energy 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)	13,426	13,426	100.0%	100.0%	13,426	4.3%
Demand savings (MW)	2.1	2.1	100.0%	100.0%	2.1	2.2%

**Table 170. Agricultural Energy Solutions—Goals vs. Achieved**

Program	Savings	Goal	Actual	Percentage achieved
Agricultural Energy Solutions	Energy savings (MWh)	6,398	13,426	210%
	Demand savings (MW)	1.0	2.1	207%

<sup>87</sup> The tracking system data extract is from January 9, 2022.

## 12.2 RECOMMENDATIONS

The EM&V team has identified two key findings and recommendations for consideration by EAL through the evaluation process.

**Table 171. Agricultural Energy Solutions—PY2021 Recommendations**

Type	Recommendation	Key finding
Impact	<b>Recommendation 1:</b> Continue to work collaboratively with the EM&V team and seek review of large custom 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.
Impact	<b>Recommendation 2:</b> Define additional measure descriptions to ArchEE to clarify measure type as the program expands with new measure offerings beyond lighting.	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> . Although PY2021 data did not include non-lighting measures, this recommendation persists from PY2020.

## 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 8.2 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 used and results, repeating the calculation steps to verify accuracy. Ten projects were sampled for reviews, with most having multiple measures tracked in ArchEE. A total of 30 project measures in ArchEE were in the sample, approximately 31 percent of the recorded project measures. These sampled projects represented gross savings of 11,037,875 kWh, 82 percent of the total AES recorded gross savings. The sampling was conducted by stratifying the participants by measure category and then randomly selecting projects weighted by the savings.

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 practice. As a result, the EM&V team utilized the underlying calculation approaches to verify savings.

The EM&V team also coordinated post-installation site visits with program implementation staff as part of the PY2021 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.

## 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. A therm heating penalty was calculated using standard TRM algorithms for lighting projects involving heated spaces. 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 square foot. 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:

<i>AOH</i>	= custom annual operating hours of the lit space
<i>Sq. Ft.</i>	= square footage of the lit space
<i>LPD</i>	= 0.8 W per square foot
<i>Installed Watts</i>	= sum of efficient lighting watts installed in the lit space
<i>IEF<sub>e</sub></i>	= 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, typically 0.77

*IEF<sub>d</sub>* = interactive effects factor for energy based on heating and cooling types

$$therm_{penalty} = IEF_g * kWh_{savings}$$

where:

*IEF<sub>g</sub>* = 0.008 therms/kWh

*kWh savings* = savings calculated by the kWh 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 Sampling Methodology

The EM&V team generated a stratified sample by measure category and then randomly selected projects weighted by the project savings. The desk review sample consisted of five retrofit lighting and five new construction lighting projects. The ten sampled desk reviews also included six on-site M&V projects for PY2021.

## 12.4.3 Desk Review Results

As noted earlier, the PY2021 AES program impact evaluation efforts included an engineering analysis for a sample of projects from 28 unique account holders. Table 172 provides measure-level realization rates for the ten AES projects reviewed by the evaluation.

**Table 172. Agricultural Energy Solutions—PY2021 Desk Review Results by Measure Category**

Measure category	Reported savings		Evaluated savings		Realization rate	
	kWh	kW	kWh	kW	kWh	kW
Custom—new construction	10,955,381	1,711.0	10,955,381	1,711.0	100.0%	100.0%
Custom—retrofit	82,494	18.1	82,494	18.1	100.0%	100.0%
<b>Total</b>	<b>11,037,875</b>	<b>1,729.1</b>	<b>11,037,875</b>	<b>1,729.1</b>	<b>100.0%</b>	<b>100.0%</b>

## 12.4.4 Site Visit Results

In PY2021, the EM&V team coordinated post-installation site visits with program implementation staff for six 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 six PY2021 projects received rebated light-emitting diode (LED) lighting through EAL's program; one site received retrofitted LED lighting, and five projects installed new construction LED lighting.

At each project, the EM&V team confirmed 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 100 percent of lamps on-site rebated through the AES program were installed, functional, and matched wattages claimed through program tracking data, resulting in no adjustments to the reported savings.

## 12.5 OVERALL SAVINGS ESTIMATES

The EM&V team calculated savings results at the measure category level. The overall AES program evaluated savings resulted in 100 percent realization rates for both energy and demand. The desk reviews and site visits did not find any discrepancies in the sampled projects. Table 173 shows the evaluated savings.

**Table 173. Agricultural Energy Solutions—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	12,583,211	1,939.1	12,583,211	1,939.1	100.0%	100.0%	Desk review and on-site M&V
Custom—retrofit	842,424	132.4	842,424	132.4	100.0%	100.0%	Desk review and on-site M&V
<b>Total</b>	<b>13,425,635</b>	<b>2,071.5</b>	<b>13,425,635</b>	<b>2,071.5</b>	<b>100.0%</b>	<b>100.0%</b>	

## 12.6 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 up to date on program processes, technical requirements for measures, application requirements, and awareness of the QC process. For QC, ICF conducts a review of each incentive application, confirms pre-installation conditions, and conducts on-site inspections to confirm post-installation conditions and adjust 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. The EM&V team found that the pre-inspection form was not included in the documentation package in retrofit cases.

## 13.0 RESIDENTIAL DIRECT LOAD CONTROL

The Residential Direct Load Control (DLC) program 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 Residential DLC 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 PY2021, the Residential DLC program responded to four events on four separate days, spanning June through July of 2021. 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 (17,455 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 calculated kilowatt savings via Midcontinent Independent System Operator (MISO) demand response curtailment algorithms and regression analysis to support the impact evaluation.

**Table 174. Residential DLC—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 <sup>88</sup>
Deemed at 1.0 as industry practice	Materials review	Census	None	None	Census

### 13.1 KEY FINDINGS

In PY2021, the Residential DLC program achieved 18.3 MW in gross demand savings, as shown in Table 175. 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 101.9 percent and will be further detailed in Section 13.4 of this report. The program met 60 percent of the demand savings goal, as detailed in Table 176.

<sup>88</sup> 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 175. Residential DLC 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)	18.0	18.3	101.9%	100.0%	18.3	19.2%

\* The PY2021 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.

**Table 176. Residential DLC—Goals vs. Achieved**

Program	Savings	Goal	Actual	Percentage achieved
Residential Direct Load Control	Energy savings (MWh)	-	-	-
	Demand savings (MW)	30.5	18.3	60%

\* 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 177.

**Table 177. Residential DLC Program Savings—PY2021 Recommendations**

Type	Recommendation	Key finding
Impact	<b>Recommendation 1:</b> Consider estimating kilowatt-hour savings for the Residential DLC program.	Residential DLC does not have a kilowatt-hour goal, but the EM&V team estimated a range of kilowatt-hour savings from negative to positive across all events called during PY2021. Program implementation calculation of kilowatt-hour savings could yield improvements in the robustness of kilowatt-hour savings models and inform any process improvements needed to address snapback.

## 13.3 METHODOLOGY

Itron provides three savings calculations to EAL, all evaluated by the EM&V team. For purposes of contract compliance with EAL, savings are calculated for the highest performing 15-minute period across all the events. 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 in more detail below, using the term *High 4 of 5 Calculation* to refer to the technique previously required for contract compliance and *MISO Calculation* to refer to the three MISO reporting methods used again in PY2021. Table 178 describes the events called in PY2021.

**Table 178. Residential DLC—PY2021 Load Control Events**

Date	Start time (CDT)	End time (CDT)	Participants	Event type
06/03/2021	14:00	15:00	18,246	Test event
06/18/2021	14:00	16:00	18,027	Normal event
07/29/2021	14:00	15:00	17,455	Normal event

For each event, savings are based on the M&V sample meter data. Depending on the calculation method, the baseline is constructed either through observation of the loads on days before the event, with adjustments made to differences in pre-event hours on the baseline and event days (*High 4 of 5 calculation*)<sup>89</sup>, or via calculated baseline, 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 Manual<sup>90</sup> specifies three calculation options.

#### 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.

<sup>89</sup> As of PY2019, Itron is no longer required to calculate savings using the *High 4 of 5 calculation* method. The EM&V team calculated savings using this method in PY2021 to provide an additional point of comparison for savings results.

<sup>90</sup> Business Practices Manual Demand Response. MISO, July 2019.

### 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 beginning 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 DLC 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.

### 13.3.2 EAL Calculation

The *High 4 of 5 calculation* uses a *High 4 of 5* baseline with an adjustment factor and gauges the implementer's performance relative to EAL's contract. The savings of interest is the highest 15-minute average device savings across the events of PY2021. For contract purposes, per-device savings are established for the event hours during which the ambient air temperature exceeded 95°F. If no hour in a year's events reached 95°F, the per-device savings from the most recent year in which the ambient air temperature reached or exceeded 95°F is used. In PY2021, one event occurred with temperatures exceeding 95°F; the event that occurred on July 29 from 14:00 to 15:00. The EM&V team calculated PY2021 savings using the approach stipulated in the evaluation contract for all event days. In this analysis, the savings calculation is the load during 15 minutes on an event day subtracted from the adjusted baseline load.

#### 13.3.2.1 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.

#### 13.3.2.2 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 PY2021 load control season (17,455 active devices in PY2021). Using the ending device count is a conservative approach since some participant attrition does occur during the control season.



### 13.3.2.3 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 PY2021. For the Residential DLC 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 calculated 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 time period spanning June 1, 2021, through September 30, 2021. 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 kW load for a given hour

$\alpha_t$  = 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 kW 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 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 kW 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 kW load

$hum_t$  = relative humidity for the hour period

$\alpha_{hour}$  = hour-of-day indicator

$\beta_{hour} * Event_{j,t}$  = hour-of-day indicator for event day  $j$  during hour  $t$

$kW_{t-k}$  = kW 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 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, 2021;
- 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 PY2021 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 18.03 MW was calculated using the weather-adjusted savings from the event on July 29 from 14:00 to 15:00 of 1.03 kW per device multiplied by the 17,455 active endpoint devices. The EM&V team calculated a savings value of 1.05 kW per meter during the same event. Using this per-device savings value multiplied by the same 17,455 active endpoint devices, the EM&V team calculated an evaluated savings of 18.32 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 179 below highlights the unadjusted baseline calculations undertaken by Itron and the EM&V team.

**Table 179. Residential DLC—MISO Calculation #1—MISO Unadjusted Baseline Calculations**

Date	Start time (CDT)	End time (CDT)	Itron baseline	EM&V team baseline
06/03/2021	14:00	15:00	0.48	0.48
06/18/2021	14:00	15:00	1.00	1.00
06/18/2021	15:00	16:00	1.09	1.09
07/29/2021	14:00	15:00	1.30	1.30

## 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 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.
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:

$$\text{kW Savings} = \text{Symmetrical Multiplicative Adjusted Baseline kW} - \text{Metered Load}$$

Across all the event hours during PY2021, 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 July 29 from 14:00 to 15:00. For this hour, the realization rate is 100.0 percent. Table 180 summarizes each hour's load reduction, with Table 181 summarizing the corresponding event-hour total kilowatt savings and realization rates. The realization rates were 100.0 percent during all events.

**Table 180. Residential DLC—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)
06/03/2021	14:00	15:00	0.49	0.49	0.26	0.26
06/18/2021	14:00	15:00	1.20	1.20	0.72	0.73
06/18/2021	15:00	16:00	1.31	1.31	0.60	0.61
07/29/2021	14:00	15:00	1.55	1.55	0.88	0.88

**Table 181. Residential DLC—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 (%)
06/03/2021	14:00	15:00	18,246	0.26	0.26	8,941	8,941	100.0
06/18/2021	14:00	15:00	18,027	0.72	0.73	21,632	21,632	100.0
06/18/2021	15:00	16:00	18,027	0.60	0.61	23,615	23,615	100.0
07/29/2021	14:00	15:00	17,455	0.88	0.88	27,055	27,055	100.0

### MISO Calculation #3—Weather-Adjusted Baseline

Itron calculated a temperature adjustment by developing a regression equation that explained air temperatures' influence<sup>91</sup> 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, 2021. 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 0.065 kW per degree Fahrenheit. The statistical results showed that the model explained 87.37 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, 2021), 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 are nearly identical to Itron's 0.065 kW per degree Fahrenheit. Additionally, the EM&V team found a nearly identical percentage of variability (83.7 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—July 29, from 14:00 to 15:00—Itron and the EM&V team calculated a savings of 0.88 kW per device.

<sup>91</sup> Temperature data provided by NOAA for Little Rock, AR, weather station KLIT; 2-meter dry bulb temperature. See: [www.ncdc.noaa.gov](http://www.ncdc.noaa.gov).

### 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.

For EAL's MISO Calculation, the baseline condition is based on the average hourly load per device. 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 182. Minor differences of 0.03 kW per device or less are attributable to rounding temperature values and are not consequential.

**Table 182. Residential DLC—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)
06/03/2021	14:00	15:00	81.0	81.0	0.32	0.32
06/18/2021	14:00	15:00	89.0	89.1	0.72	0.75
06/18/2021	15:00	16:00	90.0	90.0	0.66	0.68
07/29/2021	14:00	15:00	95.0	95.0	1.03	1.05

### Savings Calculation

The savings calculation for each event hour is:

$$\text{kW Savings} = \text{Weather Adjusted Baseline kW} - \text{Metered Load}$$

Across all the event hours during PY2021, the highest single hour is selected to represent the program savings. Both Itron and the EM&V team determined the highest performing hour to be July 29 from 14:00 to 15:00. The realization rate is 101.9 percent for this hour, with kilowatt savings of 1.05 per device. Table 183 summarizes each hour's load reduction, with

Table 184 summarizing the corresponding event-hour realization rates, ranging from 101.3 percent to 103.8 percent across events.

**Table 183. 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
06/03/2021	14:00	15:00	18,246	0.32	0.32	5,839	5,912
06/18/2021	14:00	15:00	18,027	0.72	0.75	12,979	13,466
06/18/2021	15:00	16:00	18,027	0.66	0.68	11,898	12,258
07/29/2021	14:00	15:00	17,455	1.03	1.05	17,979	18,328

**Table 184. 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 (%)
06/03/2021	14:00	15:00	5,839	5,912	101.3%
06/18/2021	14:00	15:00	12,979	13,466	103.8%
06/18/2021	15:00	16:00	11,898	12,258	103.0%
07/29/2021	14:00	15:00	17,979	18,328	101.9%

### 13.4.2 EAL Calculation Evaluated Savings—High 4 of 5

Effective in PY2019, the *High 4 of 5* savings evaluation methods were no longer used to report MISO or Entergy savings; Itron did not include an estimate using this savings method in their report. The EM&V team chose to include it this year so that it could be compared with previous years' results and received the following information from Itron to calculate savings using the *High 4 of 5* evaluation method:

1. M&V sample five-minute load data, spanning June 1 through September 30, 2021;
2. a savings report Itron provided 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 PY2021 program details; and
3. discussions to clarify data definitions, calculation methodology steps, and information interpretations in their report.



Table 185 describes the results for the EM&V team, illustrating agreement for each of the hours represented. The maximum per-device savings of 1.30 kW occurring during a 15-minute period for the PY2021 control season occurred on July 29 from 14:00 to 15:00 (highlighted in **bold** typeface).

**Table 185. Residential DLC—PY2021 Load-Control Events by Hour**

Date	Start time (CDT)	End time (CDT)	EM&V team adjustment factor	EM&V max 15-min savings
06/03/2021	14:00	15:00	0.70	0.41
06/18/2021	14:00	15:00	0.96	1.13
06/18/2021	15:00	16:00	0.96	0.75
<b>07/29/2021</b>	<b>14:00</b>	<b>15:00</b>	<b>1.02</b>	<b>1.30</b>

### 13.4.3 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, 2021. 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 PY2021 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 significantly different from the baseline only for hour ending 15:00. On average, hourly regressions explained 87.1 percent of the variation in load.<sup>92</sup> Table 186 illustrates that each participant had negative savings of 0.55 kWh across all event days after accounting for both in-event savings and post-event snapback. Table 187 illustrates that all PY2021 events' net effect shows a kilowatt-hour consumption increase of 9.64 MWh.

<sup>92</sup> 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 186. Residential DLC—Baseline Calculation #1—PY2021  
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
06/03/2021	0.35	0.46	0.81
06/18/2021	1.3	-2.49	-1.19
07/29/2021	1.03	-1.2	-0.17
<b>Total</b>	<b>2.68</b>	<b>-3.23</b>	<b>-0.55</b>

**Table 187. Residential DLC—Baseline Calculation #1—PY2021  
Total Load-Control Savings**

Date	LCRs participating	Modeled in-event kWh savings	Modeled post-event snapback kWh	Net program kWh savings
06/03/2021	18,246	6,386	8,393	14,779
06/18/2021	18,027	23,435	-44,887	-21,452
07/29/2021	17,455	17,979	-20,946	-2,967
<b>Total</b>		<b>47,800</b>	<b>-57,440</b>	<b>-9,640</b>

Note negative event savings (or consumption increases) associated with all events. As illustrated in Figure 23, 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*. 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 23. Residential DLC Program—Calculated Baseline #1—June 3 Test DLC Event

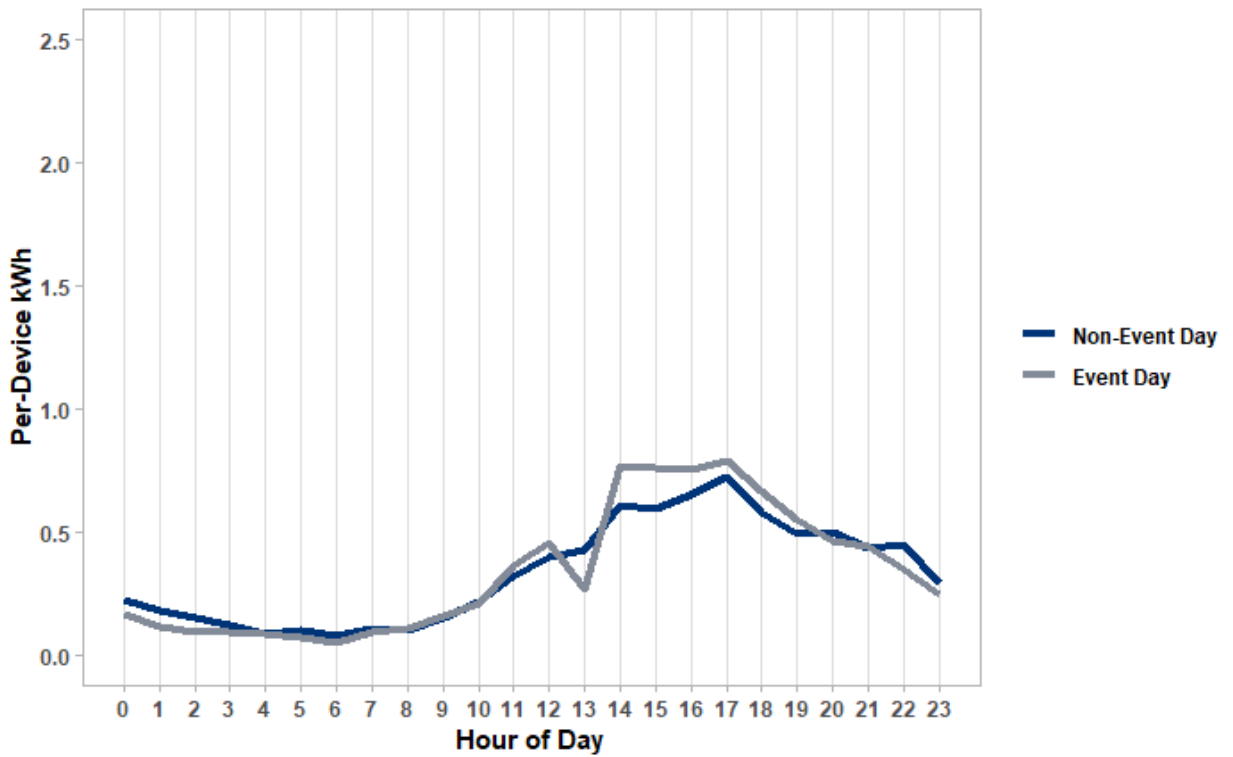


Figure 24. Residential DLC Program—Calculated Baseline #1—June 18 DLC Event

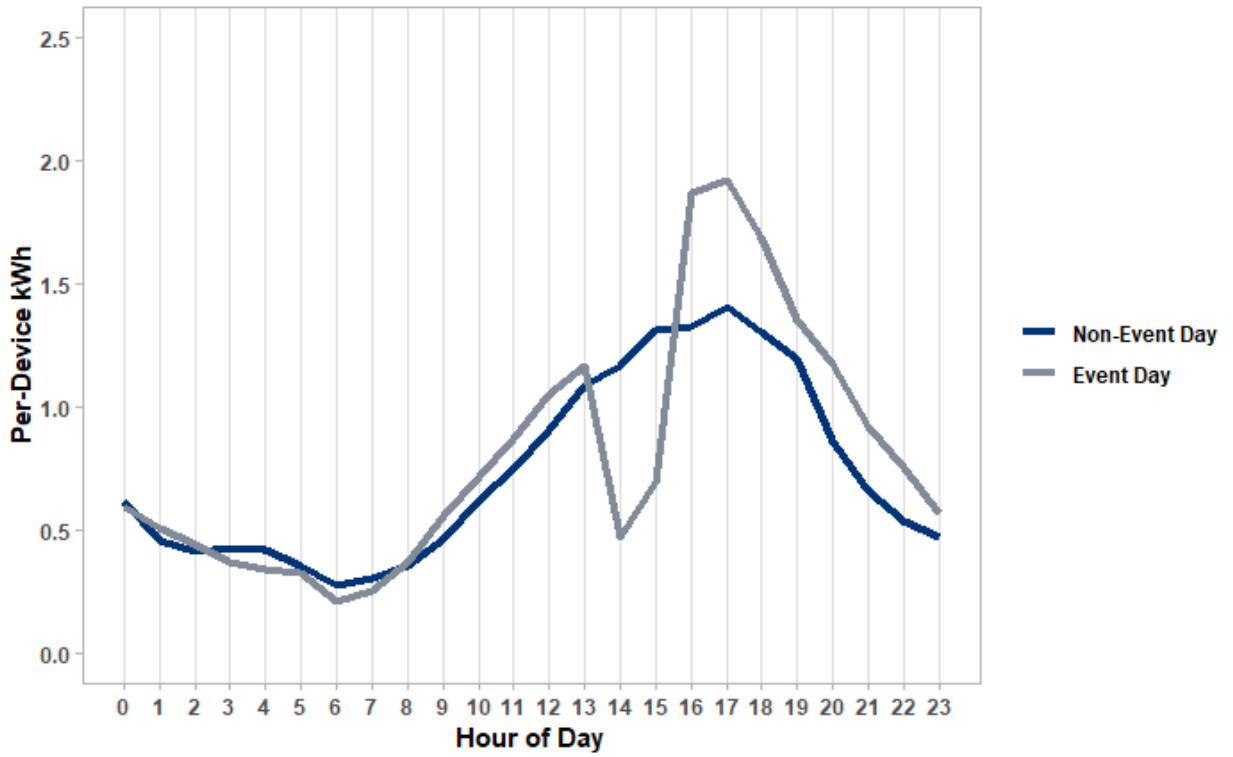
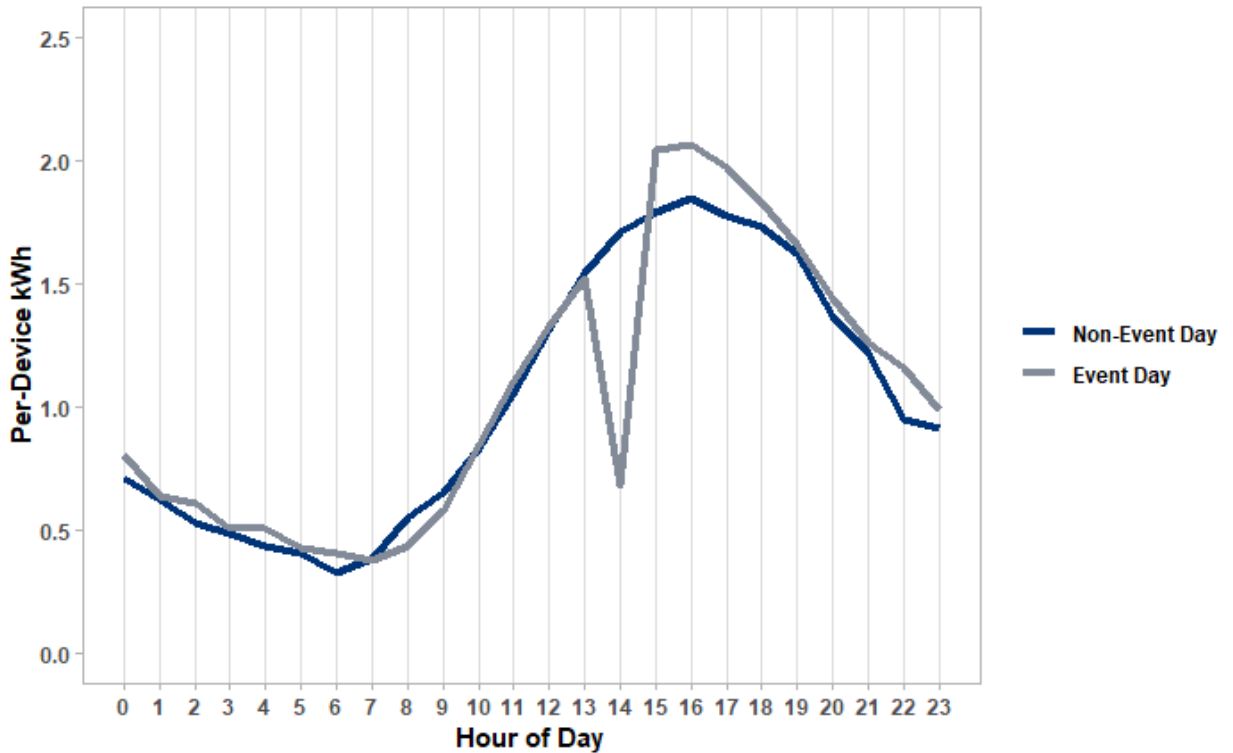


Figure 25. Residential DLC Program—Calculated Baseline #1—July 29 DLC Event



## 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, 2021. 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 significantly 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 99.47 percent of the variation in load.<sup>93</sup> Table 188 illustrates that each participant saved a total of 0.69 kWh across all event days after accounting for in-event savings and post-event snapback. Table 189 illustrates that the net effect of all PY2021 events shows a kilowatt-hour consumption decrease (savings) of 14.12 MWh.

**Table 188. Residential DLC—Baseline Calculation #2—PY2021 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
06/03/2021	0.42	-0.01	0.41
06/18/2021	0.75	-0.43	0.32
07/29/2021	0.98	-0.28	0.70
<b>Total</b>	<b>2.15</b>	<b>-0.72</b>	<b>1.43</b>

**Table 189. Residential DLC—Baseline Calculation #2—PY2021 Load-Control Events**

Date	LCRs participating	Modeled in-event kWh savings	Modeled post-event snapback kWh	Net program kWh savings
06/03/2021	18,246	7,663	-182	7,481
06/18/2021	18,027	13,520	-7,752	5,769
07/29/2021	17,455	17,106	-4,887	12,219
<b>Total</b>		<b>38,289</b>	<b>-12,821</b>	<b>25,468</b>

Note that negative event savings (or consumption increases) associated with the first calculation events have fallen away. As shown in Table 189, 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*.

<sup>93</sup> 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.

As highlighted in Figure 26, 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 specific 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 26. Residential DLC Program—Calculated Baseline #2—June 3 Test DLC Event**

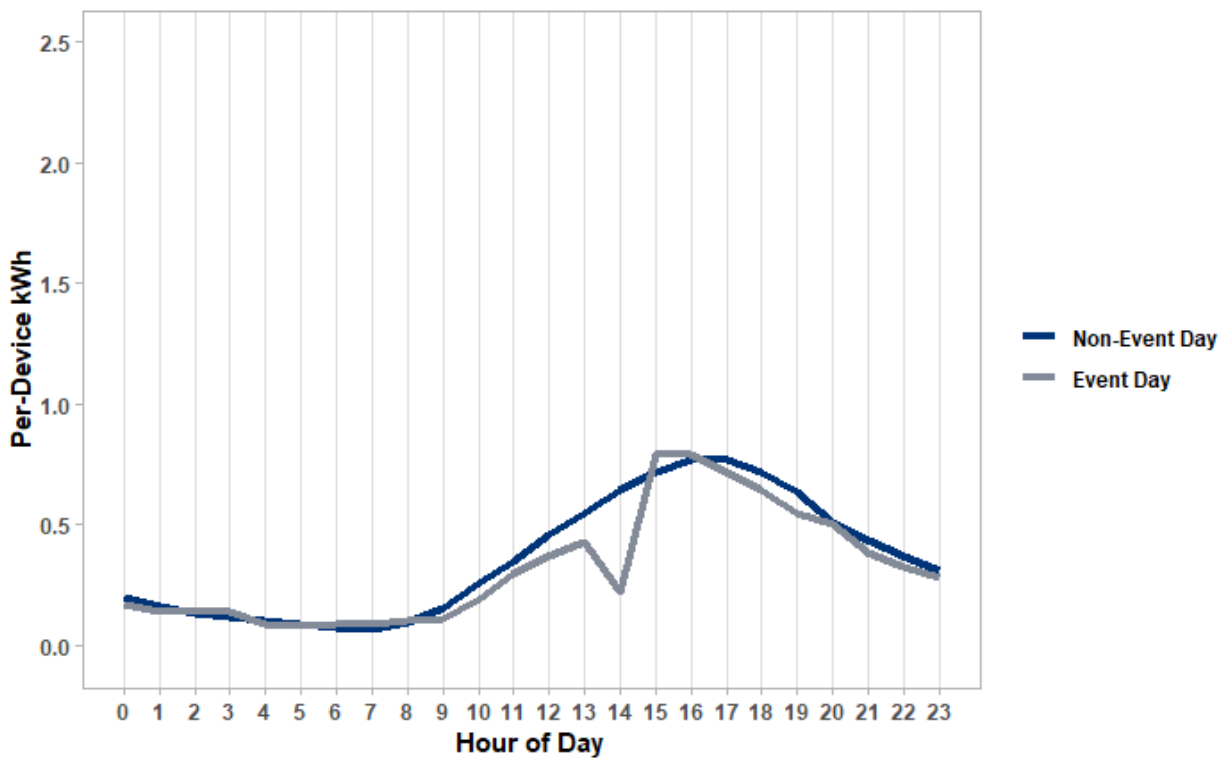


Figure 27. Residential DLC Program—Calculated Baseline #2—June 18 DLC Event

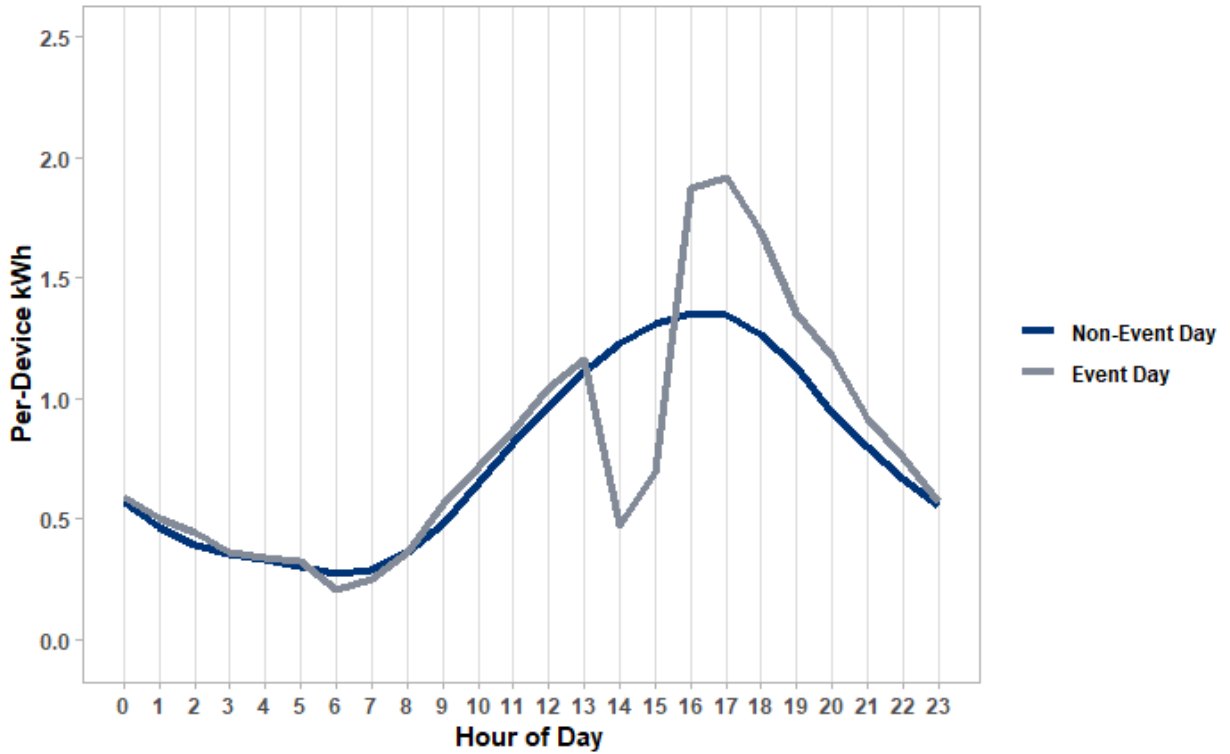
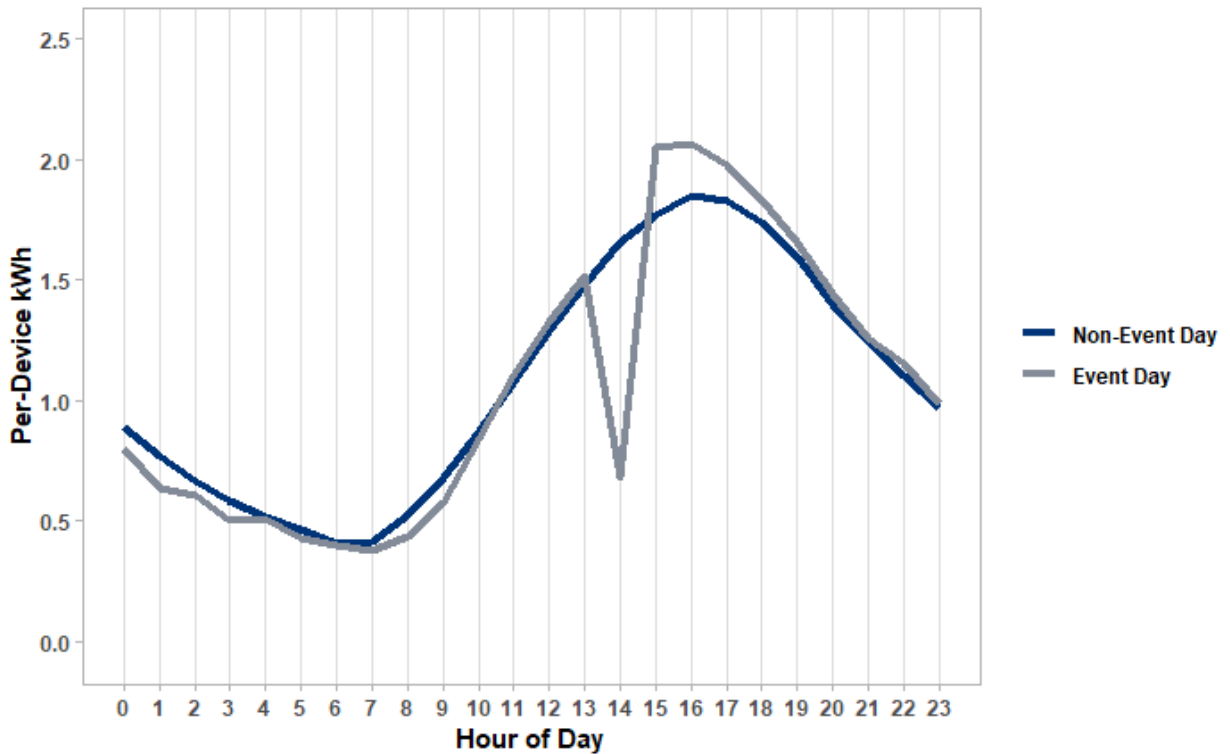


Figure 28. Residential DLC Program—Calculated Baseline #2—July 29 DLC Event



## 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 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 PY2021, the SDLC pilot called seven events on seven days, spanning June through August of 2021. The first event, which occurred on June 3, 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 PY2021 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*<sup>94</sup> (MISO's Business Practice Manual). Process evaluation activities included biweekly meetings with implementation and EAL staff for the duration of PY2021. Table 190 details the evaluation activities conducted for the program in PY2021.

**Table 190. SDLC 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 <sup>95</sup>
Deemed from prior research	Program staff interviews (2) Materials review	Census	None	None	Census

<sup>94</sup> Midcontinent Independent System Operator Demand Response Business Practices Manual. BPM-026-r7. Effective December 7, 2021.

<sup>95</sup> 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.



## 14.1 KEY FINDINGS

In PY2021, the SDLC pilot achieved 3.2 MWh in gross energy savings and 3.2 MW in gross demand savings, as shown in Table 191. The EM&V team found that energy savings using deemed values in Arkansas Technical Reference Manual (TRM) 8.2 (TRM 8.2) 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 100 percent for energy savings. The program met 78 percent of the energy savings goal, as detailed in Table 192.

**Table 191. SDLC 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)	3,725	3,680	98.8%	87.4%	3,216	1.0%
Demand savings (MW)	3.2	3.2	100.0%	100.0%	3.2	3.4%

\*The PY2021 NTG ratio uses a weighted average of residential (Home Energy Solutions) and commercial (CoolSaver) smart thermostats for energy savings.

**Table 192. SDLC Pilot—Goals vs. Achieved**

Program	Savings	Goal	Actual	Percentage achieved
Smart Direct Load Control Pilot	Energy savings (MWh)	4,133	3,216	78%
	Demand savings (MW)	19.5	3.2	17%

## 14.2 RECOMMENDATIONS

The EM&V team identified two recommendations for EAL's consideration through the evaluation process, presented in Table 193.

**Table 193. Smart DLC Pilot Savings—PY2021 Recommendations**

Type	Recommendation	Key finding
Impact	<b>Recommendation 1:</b> Development a standard method to track opt-outs, by event.	The specific set of devices opting out of load control events is essential to accurately estimate load and demand reductions for the correct group of thermostats. Developin a standard metod of tracking this information will ensure that estimates of demand reduction are accurate.

Type	Recommendation	Key finding
Impact	<b>Recommendation 2:</b> Estimate demand savings after each event during the season.	The implementation team and EM&V team should work cooperatively during the load control season to estimate event demand reductions as soon as possible after events. This will provide results to EAL, establish a secure data transfer process, and ensure both teams employ similar methodologies.

## 14.3 METHODOLOGY

The evaluated savings results are based on savings calculations made during the tracking system review, using deemed savings values in TRM 8.2 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 *Business Practices Manual for Demand Response*.

### 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 8.2 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 8.2, 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 are eligible to 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 PY2021 SDLC pilot program energy savings.

### 14.3.2.1 Residential Participants

The EM&V team used Section 2.1.12 of TRM 8.2 to calculate savings for smart thermostats installed for residential customers. Table 194<sup>96</sup> provides the kilowatt-hour savings per square foot of conditioned space for smart thermostats installed residentially.

**Table 194. Smart Thermostats—Deemed Savings Value per Square Foot of Conditioned Space**

Baseline	Electric cooling (kWh/ft <sup>2</sup> )	Electric resistance heat (kWh/ft <sup>2</sup> )	Electric HP heating (kWh/ft <sup>2</sup> )
Manual thermostat	0.450	0.845	0.395
Programmable thermostat	0.113	0.212	0.099
<b>Default</b>	<b>0.399</b>	<b>0.750</b>	<b>0.351</b>

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 194 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  $i$ .

Overall, most residential smart thermostats were in homes with gas heat, and 32 percent of participants' homes had heat pumps. Table 195 provides full results, while Table 196 details the types of thermostats customers had before installing their new smart thermostats.

<sup>96</sup> Reproduced from Table 70, Page 81, Volume 2, TRM 8.2.

**Table 195. Distribution of Heating Type (Residential)**

Heating	Unique devices	Percentage
AC with resistance heat	283	10.9%
AC with gas heat	1,477	56.9%
Heat pump	837	32.2%
<b>Total</b>	<b>2,597</b>	<b>100.00%</b>

**Table 196. Type of Thermostat Removed (Residential)**

Type of thermostat removed	Unique devices	Percentage
Manual	2,166	83.4%
Programmable	226	8.7 %
Unknown	205	7.9%
<b>Total</b>	<b>2,597</b>	<b>100.0%</b>

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 PY2021. 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 their own 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 2,516,607 kWh in PY2021 in residential installations, resulting in a 100.0 percent realization rate. Net savings, which applied an NTG ratio of 86.2 percent,<sup>97</sup> were 2,169,315 kWh.

### 14.3.2.2 Commercial Participants

Trade allies directly installed all but ten smart thermostats on commercial properties. In PY2021, the SDLC pilot program rebated 345 smart thermostats. Energy savings for smart thermostats installed in commercial buildings used an energy savings factor of 819 kWh per ton of cooling capacity, as shown in Equation 2.

**Equation 2. Smart Thermostat Energy Savings (Commercial)**

$$kWh_i = tonnage_i \times \left( 819 \frac{kWh}{ton} \right)$$

<sup>97</sup> Based on primary NTG research conducted in PY2019 for residential smart thermostats.

Table 197 summarizes the distribution of air conditioner and heat pump cooling capacities for PY2021 SDLC pilot program commercial participants. More than 57 percent of commercial smart thermostats are connected to HVAC units under five tons; an additional 38 percent of commercially-installed smart thermostats were connected to HVACs with five to six tons of capacity. However, some larger units also participated in the pilot.

**Table 197. Commercial Cooling Tonnage (SDLC)**

Cooling capacity (tons)	Count	Percentage	Cumulative percentage
< 2 tons	6	1.7%	1.7%
≥ 2 tons and < 3 tons	49	14.2%	15.9%
≥ 3 tons and < 4 tons	76	22.0%	38.0%
≥ 4 tons and < 5 tons	67	19.4%	57.4%
≥ 5 tons and < 6 tons	131	38.0%	95.4%
≥ 6 tons and < 7 tons	1	0.3%	95.7%
≥ 7 tons and < 8 tons	5	1.4%	97.1%
≥ 8 tons and < 9 tons	0	0.0%	97.1%
≥ 9 tons and < 10 tons	0	0.0%	97.1%
≥ 10 tons and < 11 tons	9	2.6%	99.7%
≥ 11 tons and < 20 tons	1	0.3%	100.0%
<b>Total</b>	<b>345</b>	<b>100.0%</b>	<b>100.0%</b>

After applying the energy savings factor of 819 kWh per ton of capacity, the EM&V team estimated 1,162,980 kWh in energy savings achieved through installations of smart thermostats in commercial buildings in PY2021. These findings were slightly less than reported savings of 1,208,025 kWh, resulting in a realization rate of 96.3 percent among commercial installations. The NTG ratio for commercial thermostats was deemed 90.0 percent from previous evaluations, resulting in a net savings of 1,046,682 kWh.

### 14.3.3 Demand Response

The EM&V team 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 also removed from the analysis file. In PY2021, EAL called seven events that spanned ten hours, including a test event on June 3. Table 198 provides a summary of called events during PY2021. As the load control season continued through summer, more thermostats enrolled in the program, as shown in Table 198.

**Table 198. SDLC—PY2021 Load Control Events**

Date	Start time (CST)	End time (CST)	Participating thermostats	Event type
06/03/2021	13:00	14:00	2,024	Test event
06/18/2021	14:00	16:00	2,098	Normal event
07/29/2021	14:00	15:00	2,468	Normal event
08/10/2021	15:00	16:00	2,409	Normal event
08/12/2021	15:00	16:00	2,527	Normal event
08/24/2021	13:00	15:00	2,651	Normal event
08/26/2021	14:00	16:00	2,802	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 Business Practice Manual.

#### 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 prior to the event start from both 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 *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).<sup>98</sup>

<sup>98</sup> All weather data for the SDLC evaluation are from Bill and Hillary Clinton National Airport (KLIT).

## 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 8.2 resulted in savings of 2,516,607 kWh in PY2021 and a 100.0 percent realization rate. Net savings, which applied an NTG ratio of 86.2 percent,<sup>99</sup> totaled 2,169,315 kWh.

Among commercial installations, the EM&V team estimated 1,162,980 kWh in gross energy savings after applying the energy savings factor of 819 kWh per ton of capacity. These findings were slightly lower than reported savings, resulting in a realization rate of 96.3 percent. The NTG ratio<sup>100</sup> for commercial thermostats resulted in net savings of 1,046,382 kWh for commercial thermostats.

The discrepancy in savings among commercial thermostats came from a single thermostat. The entry recorded a unit size of 60 tons, which was the British thermal units (BTU) per hour rating of the unit, not the tonnage. The true tonnage of the unit was five tons. Accounting for this discrepancy reduced savings for the project from 49,140 kWh to 4,095 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 PY2021 resulted in gross energy savings of 3,679,587 kWh, with a corresponding realization rate of 98.8 percent. Based on NTG ratios of 86.2 percent for residential smart thermostats and 90.0 percent for commercial smart thermostats, net savings were estimated at 3,215,997 kWh in PY2021. Table 199 provides full details on the savings achieved by the SDLC pilot program during its second year of operation.

**Table 199. Final Evaluated Energy Savings—SDLC Pilot**

Sector	Participants	Device count	Reported savings (kWh)	Evaluated savings (kWh)	Realization rate	NTG ratio	Net savings
Residential	2,200	2,597	2,516,607	2,516,607	100.0%	86.2%	2,169,315
Commercial	146	345	1,208,025	1,162,980	96.3%	90.0%	1,046,682
<b>Total</b>	<b>2,346</b>	<b>2,942</b>	<b>3,724,632</b>	<b>3,679,587</b>	<b>98.8%</b>	<b>87.4%</b>	<b>3,215,997</b>

### 14.4.2 Evaluated Kilowatt Savings Results (MISO Calculations)

In support of the SDLC evaluation, the EM&V team received the following from ICF:

- five-minute HVAC runtime data, spanning January 1 through October 30, 2021; and
- one opt-out file per event listing devices that did not participate in the SDLC event.

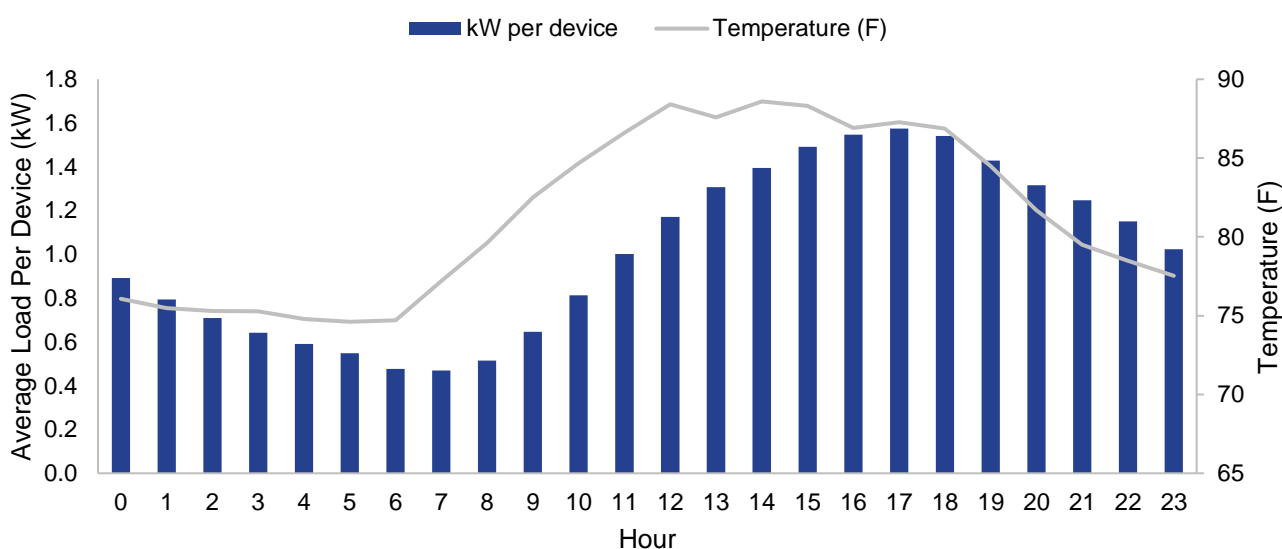
<sup>99</sup> Based on primary NTG research conducted in PY2019 for residential smart thermostats.

<sup>100</sup> Based on primary NTG research conducted in PY2019 for commercial smart thermostats.



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 3.2 MW occurred during the July 29, 2021, event using MISO Calculation #3 (weather-adjusted baseline). It is the opinion of the EM&V team that the weather-adjusted baseline methodology provides the best estimation of counterfactual events, as it incorporates both historical loads from days immediately preceding an event, as well as the important interaction between observed load and observed temperature. Figure 29 provides a visualization of the relationship between demand and temperature using data from the ten baseline days prior to July 29, 2021. The event on July 29, 2021, produced estimated demand reductions of 1.31 kW per participating thermostat.

**Figure 29. Kilowatt per Device and Temperature (Degrees Fahrenheit)**



### 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 200 below highlights the unadjusted baseline calculations undertaken by the EM&V team.

**Table 200. SDLC Pilot—MISO Calculation #1—MISO Unadjusted Baseline Calculations**

Date	Start time (CST)	End time (CST)	Baseline (kW per device)
06/03/2021	13:00	14:00	0.58
06/18/2021	14:00	15:00	1.12
06/18/2021	15:00	16:00	1.22

Date	Start time (CST)	End time (CST)	Baseline (kW per device)
07/29/2021	14:00	15:00	1.39
08/10/2021	15:00	16:00	1.56
08/12/2021	15:00	16:00	1.57
08/24/2021	13:00	14:00	1.21
08/24/2021	14:00	15:00	1.36
08/26/2021	14:00	15:00	1.43
08/26/2021	15:00	16:00	1.53

## 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 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  $\pm 20$  percent of the unadjusted baseline load. With the exception of the June 3, 2021, test event (0.957), all calculated *symmetrical multiplicative adjustment factors* exceeded 1.20; therefore, all event days are assigned a *symmetrical multiplicative adjustment* of 1.20.

## Savings Calculation

The savings calculation for each event hour is:

$$\text{kW Savings} = \text{Symmetrical Multiplicative Adjusted Baseline kW} - \text{Observed Load}$$

Table 201 summarizes each hour's load reduction, with Table 202 summarizing the corresponding event-hour total kilowatt savings and realization rates.

**Table 201. SDLC 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)
06/03/2021	14:00	15:00	0.56	(0.05)
06/18/2021	14:00	15:00	1.35	0.79
06/18/2021	15:00	16:00	1.46	0.44
07/29/2021	14:00	15:00	1.67	1.11
08/10/2021	15:00	16:00	1.87	1.33
08/12/2021	15:00	16:00	1.88	1.22
08/24/2021	13:00	14:00	1.45	0.73
08/24/2021	14:00	15:00	1.64	0.82
08/26/2021	14:00	15:00	1.71	0.69
08/26/2021	15:00	16:00	1.84	0.78

**Table 202. SDLC Pilot—MISO Calculation #2 Results**

Date	Start time (CDT)	End time (CDT)	Number of participating devices	Per device kW savings	Event-hour savings (kW)
06/03/2021	14:00	15:00	2,024	(0.05)	(99.3)
06/18/2021	14:00	15:00	2,098	0.79	1,662.8
06/18/2021	15:00	16:00	2,098	0.44	919.5
07/29/2021	14:00	15:00	2,468	1.11	2,739.8
08/10/2021	15:00	16:00	2,409	1.33	3,211.9
08/12/2021	15:00	16:00	2,527	1.22	3,076.9
08/24/2021	13:00	14:00	2,651	0.73	1,929.7
08/24/2021	14:00	15:00	2,651	0.82	2,186.3
08/26/2021	14:00	15:00	2,802	0.69	1,945.1
08/26/2021	15:00	16:00	2,802	0.78	2,183.7

**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.

The EM&V team 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 two equations:

$$\text{Equation 1: } kW_t = \alpha + \beta_1 \text{ Temperature}_t + e_t$$

$$\text{Equation 2: } kW_t = \alpha + \beta_1 \text{ Temperature}_t + \beta_2 \text{ Humidity}_t + e_t$$

The equations estimate the effect to which load during a given hour ( $t$ ) can be primarily explained by (1) a given hour's dry-bulb air temperature and/or relative humidity.<sup>101</sup> The resulting regressions, 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 203. Weather Adjusted Regression Output by Event Day-Hour**

Date	Start time (CST)	End time (CST)	kW per degree Fahrenheit	t-value	Pr >  t	Adjusted R <sup>2</sup>
06/03/2021	14:00	15:00	0.051	6.26	0.0002	0.809
06/18/2021	14:00	15:00	0.054	11.38	< .0001	0.935
06/18/2021	15:00	16:00	0.058	10.50	< .0001	0.924
07/29/2021	14:00	15:00	0.075	8.36	< .0001	0.884
08/10/2021	15:00	16:00	0.032	2.86	0.0212	0.444
08/12/2021	15:00	16:00	0.042	8.27	< .0001	0.882
08/24/2021	13:00	14:00	0.054	15.32	< .0001	0.963
08/24/2021	14:00	15:00	0.067	13.80	< .0001	0.963
08/26/2021	14:00	15:00	0.065	15.41	< .0001	0.963
08/26/2021	15:00	16:00	0.057	7.17	< .0001	0.848

Results from Table 203 show temperature coefficients ranging between 0.032 kW per degree Fahrenheit to 0.075 per degree Fahrenheit. With the exception of results for August 10 (adjusted R<sup>2</sup> of 44.4 percent), the models explained a high amount of the variability in load, with adjusted R<sup>2</sup> values ranging from 80.9 percent to 96.3 percent.

<sup>101</sup> The EM&V team found that Equation 1 outperformed Equation 2 for four of ten event hours. However, humidity was not a statistically significant predictor in nine of ten event-hour models; the single event-hour where humidity performed well as a predictor of load produced an adjusted R<sup>2</sup> of 0.709, easily the worst performing event-hour model.

## Savings Calculation

The savings calculation for each event hour is:

$$\text{kW Savings} = \text{Weather Adjusted Baseline kW} - \text{Observed Load}$$

Across all the event hours during PY2021, the highest single hour is selected to represent the program savings. Table 204 summarizes each hour's load reduction, with the final evaluated load reduction in **bold**.

**Table 204. MISO Calculation #3 Results**

Date	Start time (CST)	End time (CST)	Number of participating devices	Per device savings (kW)	Event-hour savings (kW)
06/03/2021	14:00	15:00	2,024	0.02	45.7
06/18/2021	14:00	15:00	2,098	0.75	1,570.8
06/18/2021	15:00	16:00	2,098	0.47	976.5
<b>07/29/2021</b>	<b>14:00</b>	<b>15:00</b>	<b>2,468</b>	<b>1.31</b>	<b>3,237.8</b>
08/10/2021	15:00	16:00	2,409	1.25	3,017.7
08/12/2021	15:00	16:00	2,527	1.20	3,028.7
08/24/2021	13:00	14:00	2,651	0.76	2,010.6
08/24/2021	14:00	15:00	2,651	0.93	2,470.7
08/26/2021	14:00	15:00	2,802	0.71	1,999.8
08/26/2021	15:00	16:00	2,802	0.72	2,011.5

Based on results from the regression analysis, summarized in Table 203 and Table 204, the SDLC event on July 29, 2021, produced the highest savings among participants. Overall, 2,486 participating smart thermostats reduced load by an average of 1.31 kW per device from 14:00 to 15:00, equating to 3,238 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 services, a call center, load control receivers (LCRs), and 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 peak kilowatt loads during load control events occurring from June 1 through August 31, 2021. Participants in the program have an LCR installed on their motor controller, allowing the program to turn the motor off or on remotely. Participants can remotely control their irrigation wells, subject to program limits associated with event participation, or protect the motor from rapid on and off cycles. A 15-minute ramp-down period is permitted for the first hour of a demand-response event. Participants are given a notification of the upcoming event two hours before, except when emergency events are called.

### 15.1 KEY FINDINGS

In PY2021, the AIRC program responded to four events called on four separate days. The first of the events was a test event (June 3), 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 four events, the three that took place on June 3, July 29, and August 11 were one hour each, and the June 18 event was two 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.

The AIRC 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 Midcontinent Independent System Operator (MISO) *symmetric multiplicative adjustment (SMA) baseline calculation*, which is appropriate for registering savings with MISO.

In PY2021, the AIRC program achieved 22.3 MW in gross demand savings and a realization rate of 100.1 percent, highlighted in Table 205. These savings are based on the maximum event savings that occurred during the hour ending 15:00 on August 11. Overall, 1,166 customers participated in the AIRC program during PY2021.

**Table 205. AIRC Program—Reported, Evaluated, and Net Savings**

Energy/demand savings	Reported savings	Evaluated savings	Realization rate	NTG ratio <sup>102</sup>	Net savings	Program contribution to portfolio savings
Energy savings (MWh)	-	-	N/A	N/A	N/A	N/A
Demand savings (MW)	22.3	22.3	100.1%	100.0%	23.3	23.4%

<sup>102</sup> NTG for demand response programs is inherently 100 percent.

Energy/demand savings	Reported savings	Evaluated savings	Realization rate	NTG ratio <sup>102</sup>	Net savings	Program contribution to portfolio savings
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\* The AILC program does not claim energy savings. Therefore, these cells are represented with a dash.

The program fell short of savings goals, achieving 50.6 percent of the demand savings goal, as detailed in Table 206.

**Table 206. AILC—Savings Goals and Achievements**

Energy/demand savings	Savings goal	Net savings achieved	Percentage of goal achieved
Energy savings (MWh)	-	-	-
Demand savings (MW)	44.1	22.3	51%

\* The AILC program does not have an energy savings goal. Therefore, these cells are represented with a dash.

**Table 207. AILC—Goals vs. Achieved**

Program	Savings	Goal	Actual	Percentage achieved
Agricultural Irrigation Load Control	Energy savings (MWh)	-	-	-
	Demand savings (MW)	44.1	22.3	51%

\* The AILC program does not claim energy savings. Therefore, these cells are represented with a dash.

## 15.2 RECOMMENDATIONS

The EM&V team found a new area for program improvement. A specific recommendation to address this is described in Table 208.

**Table 208. AILC—PY2021 Recommendations**

Type	Recommendation	Key finding
Impact	<b>Recommendation 1:</b> Streamline the evaluation process by providing a MISO savings report with 15-minute-level data.	During the analysis process, the EM&V team had some initial difficulty reproducing savings from the MISO report from Connected Energy. As these calculations are done using 15-minute-level data, receiving findings in this format would expedite identifying and resolving issues during the EM&V process.

## 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 PY2021 are described in Table 209 below.

**Table 209. PY2021 Load Control Events**

Date	Start time (CDT)	End time (CDT)	Active devices	Event type
06/03/2021	14:00	15:00	621	Test event
06/18/2021	14:00	16:00	868	Normal event
07/29/2021	14:00	15:00	1,137	Normal event
08/11/2021	14:00	15:00	1,166	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

The EM&V team interviewed the implementation team's EAL program manager and staff during the project kick-off. These interviews confirmed the team's understanding of program operations and M&V strategies. The EM&V team maintained open communications with the implementation team throughout PY2021, ensuring that data transfers occurred and necessary documentation and strategic program designs were communicated.

## 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 SMA 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* are 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 (horsepower, 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 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, 2021 through August 31, 2021 and
- calculations of the savings for each event hour for 2021.

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 210 describes the key calculation factors for each PY2021 event hour. Realization rates on savings range from 100.1 to 100.6 percent. Both Connected Energy and the EM&V team found agreement that the peak performing event hour was 14:00 to 15:00 on August 11.

**Table 210. AILC Program Load Control Event Baseline and Savings Comparison<sup>103</sup>**

<sup>103</sup> Savings results may not be exact per the data in the table due to rounding occurring at several steps of the calculation.

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 (%)
6/3/2021	14:00	234	1,699	1,709	1.17	2,034	2,046	100.6%
6/18/2021	14:00	1,737	3,468	3,482	1.20	4,509	4,526	100.4%
6/18/2021	15:00	1,376	3,959	3,959	1.20	5,026	5,026	100.0%
7/29/2021	14:00	1,443	10,929	10,948	1.20	13,403	13,426	100.2%
8/11/2021	14:00	1,293	19,654	19,669	1.13	22,303	22,320	100.1%

There are small 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 PY2021; however, differences are minor in absolute terms and are similar in magnitude between Connected Energy and the EM&V team on all event days.

## 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 PY2021. An overview of EAL’s implementation of the CWA is outlined in the Arkansas Technical Reference Manual (TRM) Version 8.2 (TRM 8.2), 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 PY2021.

### 16.1 CONSISTENT WEATHERIZATION APPROACH FINDINGS

Table 211 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 12,951 unique participants were enrolled in the four programs, providing a total of 93,862 energy-saving measure units across the installed measures. The number of installed measures increased by 23 percent compared to 76,339 measures installed in PY2020.

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 16,000 of the energy efficiency units installed in PY2021, representing about 77 percent of energy savings across the year. These results are similar to PY2020, where 79 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 programs.

**Table 211. PY2021 Participation in CWA Programs**

Program	Participants <sup>104</sup>	Measure quantity
Home Energy Solutions	8,283	65,889
Energy Solutions for Multifamily Homes	1,670	9,304
Energy Solutions for Manufactured Homes	612	4,465
Low-Income Solutions	2,386	14,204
<b>Total</b>	<b>12,951</b>	<b>93,862</b>

Table 212 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 93,862 energy efficiency measures were installed, most of which were *direct-install LED* light bulbs.

**Table 212. PY2021 Consistent Weatherization Measures Received—All Programs**

Measure	Participants <sup>105*</sup>	Measure quantity
Advanced power strip	4,627	4,697
Air conditioner tune-up	770	837
Air infiltration	6,192	6,241
Ceiling insulation	2,799	2,889
Duct replacement	8	8
Duct sealing	8,852	9,802
Low-flow faucet aerator	631	1,266
Heat pump tune-up	321	349
LED	6,751	66,335
Low-flow showerhead	525	689
Non-residential ENERGY STAR® pool pumps**	1	1
Non-res lighting**	6	315
Smart thermostat	346	433
<b>Total</b>	<b>12,951</b>	<b>93,862</b>

\* 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.

\*\* These measures are only applicable to the Energy Solutions for Multifamily Homes program.

<sup>104</sup> 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.

<sup>105</sup> 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.

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.

### 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 tune-ups, and heat pump tune-ups*. The program offers incentives for these premium energy efficiency upgrades.

Table 213 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 8,283 eligible customers took part in the program, ultimately installing 65,889 energy-saving measures.

**Table 213. PY2021 Consistent Weatherization Measures Installed—Home Energy Solutions Program**

Measure	Participants* <sup>106</sup>	Measure quantity	Incentive (\$)
Advanced power strip	3,326	3,391	53,293
Air conditioner tune-up	326	391	97,750
Air infiltration	3,829	3,854	659,652
Ceiling insulation	2,078	2,163	2,295,210
Duct replacement	8	8	7,048
Duct sealing	5,875	6,763	4,631,842
Faucet aerator	238	480	625
Heat pump tune-up	186	211	52,750
LED	4,734	47,967	54,898
Low-flow showerhead	232	315	1,617
Smart thermostat	264	346	78,654
<b>Total</b>	<b>8,283</b>	<b>65,889</b>	<b>\$7,933,339</b>

<sup>106</sup> 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.

\* 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 5,122 Home Energy Solutions participants received a home energy audit (4,111 *Tier 1 Audits* and 1,011 *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 cost<sup>107</sup> is estimated at \$8,265,321 (including the cost associated with *energy audits* and contractor *performance bonus*) across the 8,283 participating households throughout EAL's territory in PY2021, producing a total of 30,971 MWh and 9.7 MW in net savings. The average cost of the program was approximately \$998 per participant.

Ultimately, 42 contractors conducted home *energy audits* or installations through the program. All 42 contractors installed at least one energy-efficiency measure type. All 42 contractors implemented *weatherization* measures; 28 of these 42 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 tune-ups* and *heat pump tune-ups*, *air sealing*, and *duct sealing*. The program offers incentives for these premium energy efficiency upgrades.

Table 214 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 612 eligible customers took part in the program, ultimately installing 4,465 energy-saving units.

**Table 214. PY2021 Consistent Weatherization Measures Received—Energy Solutions for Manufactured Homes Program**

Measure	Participants* <sup>108</sup>	Measure quantity	Incentive (\$)
Advanced power strip	237	239	3,764
Air conditioner tune-up	121	121	30,250
Air infiltration	349	349	81,690
Duct sealing	458	460	477,878

<sup>107</sup> The program's cost is estimated based on the *Total Incentive Amount* per installed measure as reported by the program's tracking database.

<sup>108</sup> 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.

Measure	Participants* <sup>108</sup>	Measure quantity	Incentive (\$)
Low-flow faucet aerator	70	173	248
Heat pump tune-up	5	5	1,250
LED	304	2,997	3,224
Low-flow showerhead	76	117	561
Smart thermostats	4	4	894
<b>Total</b>	<b>612</b>	<b>4,465</b>	<b>\$599,760</b>

\* 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 324 Home Energy Solutions participants received a home *energy audit* (221 *Tier 1 Audits* and 103 *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 cost<sup>109</sup> is estimated at \$622,260 (including the cost associated with *energy audit* and *contractor performance bonus*) across the 612 participating households throughout EAL's territory in PY2021, producing a total of 5,114 MWh and 0.75 MW in net savings. The average cost of the program was approximately \$1,017 per participant.

Ultimately, 28 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 21 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 215 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 1,670 eligible participants took part in the program, ultimately installing 9,304 energy-saving units.

<sup>109</sup> 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 215. PY2021 Consistent Weatherization Measures Received—Energy Solutions for Multifamily Homes Program**

Measure	Participants* <sup>110</sup>	Measure quantity	Incentive (\$)
Advanced power strip	282	283	4,393
Air conditioner tune-up	238	239	34,655
Air infiltration	982	1006	160,193
Ceiling insulation	216	220	122,329
Duct sealing	1200	1236	632,493
Low-flow faucet aerator	240	451	772
Heat pump tune-up	30	30	4,500
LED	704	5374	6,079
Low-flow showerhead	140	149	980
Non-residential ENERGY STAR pool pumps	1	1	350
Non-res lighting	6	315	5,622
<b>Total</b>	<b>1,670</b>	<b>9,304</b>	<b>\$972,366</b>

\* 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 706 Home Energy Solutions participants received a home *energy audit* (657 *Tier 1 Audits* and 49 *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 six energy-saving units were installed per participating customer, on average. The program's cost<sup>111</sup> is estimated at \$991,656 (including the cost associated with *energy audits* and *contractor performance bonus*) across the 1,670 participating households throughout EAL's territory in PY2021, producing a total of 8,444 MWh and 1.3 MW in net savings. The average cost of the program was approximately \$594 per participant.

Ultimately, 22 contractors conducted home *energy audits* and installations through the program. All contractors installed at least one energy-efficiency measure. Between them, 21 implemented *weatherization* measures; of those 22, 16 also installed *direct-install* measures.

<sup>110</sup> 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.

<sup>111</sup> 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

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 tune-ups*, and *heat pump tune-ups*.

Table 216 highlights the types and quantities of the Core Program *direct-install* and *weatherization* measures implemented under the Low-Income Solutions program. A total of 2,386 eligible participants took part in the program, ultimately installing 14,204 energy-saving units.

**Table 216. PY2021 Consistent Weatherization Measures Received Low-Income Solutions Program**

Measure	Participants* <sup>112</sup>	Measure quantity	Incentive (\$)
Advanced power strip	782	784	12,204
Air conditioner tune-up	85	86	20,765
Air infiltration	1,032	1,032	214,342
Ceiling insulation	505	506	504,957
Duct sealing	1,319	1,343	973,152
Low-flow faucet aerator	83	162	251
Heat pump tune-up	100	103	25,750
LED	1,009	9,997	10,971
Low-flow showerhead	77	108	449
Smart thermostat	78	83	18,546
<b>Total</b>	<b>2,386</b>	<b>14,204</b>	<b>1,781,387</b>

\* 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.

<sup>112</sup> 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.

A total of 5,122 Home Energy Solutions participants received a home energy audit (4,111 *Tier 1 Audits* and 1,011 *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 six energy-saving units were installed per participating customer, on average. The program's cost<sup>113</sup> is estimated at \$2,098,355 (including the cost associated with *energy audits*, *contractor performance bonus*, and *health and safety* measures) across the 2,386 participating households throughout EAL's territory in PY2021, producing a total of 8,034 MWh and 2.2 MW in net savings. The average cost of the program was approximately \$879 per participant.

Ultimately, 22 contractors conducted home energy audits and installations through the program. All 22 contractors installed at least one energy-efficient measure. Among them, all 25 implemented audit or *weatherization* measures; 19 of those 22 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 PY2021. 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 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 Manufactured Homes and 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).

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<sup>113</sup> 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 217 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.<sup>114</sup>

**Table 217. PY2021 in Residential Programs (Excluding Upstream Programs)**

Program	Participants	Completed process surveys
Home Energy Solutions	8,283	108
Energy Solutions for Manufactured Homes	612	90
Energy Solutions for Multifamily Homes	1,670	104
Low-Income Solutions	2,386	44
<b>Total</b>	<b>12,951</b>	<b>346</b>

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 218, where LIHEAP eligibility is determined through a combination of household size and household income.

**Table 218. PY2021 Income and Household Size Cutoffs to Determine LIHEAP Eligibility<sup>115</sup>**

Household size	Monthly income
1	\$1,805
2	\$2,360
3	\$2,915
4	\$3,471
5	\$4,026
6	\$4,581
7	\$4,955
8	\$5,515
9	\$6,075
10	\$6,635
11	\$7,195

<sup>114</sup> 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.

<sup>115</sup> 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. The table is truncated at a household size of 11, as this was the largest household size observed in the process surveys.

### 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 PY2021. 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.

### 16.2.4 Low-Income Solutions

This program targets low-income households eligible for LIHEAP or EAL customers aged 65 or older. In PY2021, the program incentivized *ceiling insulation* installation, *air infiltration*, *duct sealing*, *air conditioner tune-ups* and *heat pump tune-ups* measures while providing direct installation of *faucet aerators*, *low-flow showerheads*, *advanced power strips*, *smart thermostats*, and *lighting* measures at no cost to the customers.

Table 219 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 71.7 percent were eligible for LIHEAP benefits. Applying these shares to PY2021 participation numbers, approximately 1,079 participants were 65 or older, and approximately 1,696 participants were eligible for LIHEAP benefits.

**Table 219. PY2021 Demographic Information—Low-Income Solutions**

Respondent characteristic		Percentage	Participants <sup>116</sup>
Respondent age	18–24	2.40%	57
	25–34	4.80%	115
	35–44	7.10%	170
	45–54	7.10%	169
	55–64	33.30%	795
	65 or older	45.20%	1,079
	<b>Participants (n)</b>		
LIHEAP status	LIHEAP-eligible	71.10%	1,696
	Not LIHEAP-eligible	28.90%	690
	<b>Participants (n)</b>		<b>2,386</b>

<sup>116</sup> 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.

\*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 upgrades and cost-effective *weatherization* measures, including *ceiling insulation*, *air infiltration*, *duct sealing* or *duct replacement*, *air conditioner tune-ups* and *heat pump tune-ups* measures.

Table 220 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 PY2021 participation numbers, 1,955 participants were 65 or older. Approximately 14 percent of surveyed participants were LIHEAP-eligible, resulting in an estimated 1,160 participants for PY2021.

**Table 220. PY2021 Demographic Information—Home Energy Solutions**

Respondent characteristic		Percentage	Participants <sup>117</sup>
Respondent age	18–24	0.9%	75
	25–34	15.1%	1,251
	35–44	19.8%	1,640
	45–54	21.7%	1,797
	55–64	18.9%	1,565
	65 or older	23.6%	1,955
	<b>Participants (n)</b>		<b>8,283</b>
Income	Less than \$25,000	11.1%	919
	\$25,000 to less than \$50,000	20.4%	1,690
	\$50,000 to less than \$75,000	18.5%	1,532
	\$75,000 to less than \$100,000	22.2%	1,839
	\$100,000 or greater	27.8%	2,303
	<b>Participants (n)</b>		<b>8,283</b>
LIHEAP status	LIHEAP-eligible	14.0%	1,160
	Not LIHEAP-eligible	86.0%	7,123
	<b>Participants (n)</b>		<b>8,283</b>

<sup>117</sup> 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.

\*Percentages are estimated from PY2020 process surveys.

## 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 tune-ups* and *heat pump tune-ups*, *air sealing*, and *duct sealing*. The program offers incentives for these premium energy efficiency upgrades.

Table 221 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 PY2021 participation numbers, approximately 146 were 65 or older in PY2021. For LIHEAP eligibility, approximately 109 participants and 132 participants were eligible for LIHEAP benefits in PY2021.

**Table 221. PY2021 Demographic Information—Energy Solutions for Manufactured Homes Program**

Respondent characteristic		Percentage*	Participants* <sup>118</sup>
Respondent age	18–24	2.8%	17
	25–34	11.3%	69
	35–44	18.3%	112
	45–54	23.9%	146
	55–64	19.7%	121.0
	65 or older	23.9%	146
	<b>Participants (n)</b>		<b>612</b>
Income	Less than \$25,000	44.6%	273
	\$25,000 to less than \$50,000	38.5%	236
	\$50,000 to less than \$75,000	10.8%	66
	\$75,000 to less than \$100,000	4.6%	28
	\$100,000 of greater	1.5%	9
	<b>Participants (n)</b>		<b>612</b>
LIHEAP status	LIHEAP eligible	21.5%	132

<sup>118</sup> 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.

Respondent characteristic		Percentage*	Participants* <sup>118</sup>
	Not LIHEAP eligible	78.5%	480
<b>Participants (n)</b>			<b>612</b>

\*Percentages are estimated from PY2018 process surveys.

## 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 *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 222 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 PY2021 participation numbers, approximately 145 participants were 65 or older in PY2021. Approximately 439 participants were eligible for LIHEAP benefits in PY2021.

**Table 222. PY2021 Demographic Information—Energy Solutions for Multifamily Homes**

Respondent characteristic		Percentage*	Participants <sup>119</sup>
Respondent age	18–24	4.3%	72
	25–34	21.7%	362
	35–44	30.4%	508
	45–54	17.4%	291
	55–64	17.4%	291
	65 or older	8.7%	145
	<b>Participants (n)</b>		
Income	Less than \$25,000	57.9%	967
	\$25,000 to less than \$50,000	26.3%	439
	\$50,000 to less than \$75,000	5.3%	88
	\$75,000 to less than \$100,000	5.3%	88
	\$100,000 of greater	5.3%	88

<sup>119</sup> 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.



Respondent characteristic		Percentage*	Participants <sup>119</sup>
	<b>Participants (n)</b>		<b>1,670</b>
LIHEAP status	LIHEAP-eligible	26.3%	439
	Not LIHEAP-eligible	73.7%	1,231
	<b>Participants (n)</b>		<b>1,670</b>

\*Percentages are estimated from PY2018 process surveys.

## 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 to establish an approach for quantifying non-energy benefits (NEB) in cases where they are material and quantifiable. 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*: non-energy benefits for electricity, natural gas, and liquid propane (*other fuels*);
- *Protocol L2*: non-energy benefits for water savings; and
- *Protocol L3*: non-energy benefits of avoided and deferred equipment replacement costs (ADRC).

### Protocol L1: Non-Energy Benefits 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.<sup>120</sup> 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

<sup>120</sup> Propane savings = therm savings \* 1.1.

## Protocol L2: Non-Energy Benefits 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) 2021 (PY2021) marginal water rates were \$0.00841 (residential) and \$0.00726 (commercial) per gallon.<sup>121</sup> 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:

$$\text{Benefit} = \text{Water Savings} \times \text{Avoided Water Costs}$$

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: Non-Energy Benefits of Avoided and Deferred Equipment Replacement Costs<sup>122</sup>

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 2021 energy efficiency portfolio use the static inputs presented in Table 223. Where appropriate, prices have been updated to 2021 dollars using a compounding annual inflation rate of 2.09 percent.

**Table 223. PY2021 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 3

<sup>121</sup> Arkansas TRM 8.2, Volume 1: Section L2, Table 9.

<sup>122</sup> The EM&V team, in coordination with EAL and implementers, convened a NEBs working group during PY2021 to establish consensus definitions, methodologies, and protocols for the identification and calculation of avoided and deferred replacement costs across EAL's portfolio, including processes for efficiently identifying, estimating, or verifying ADRCs associated with custom projects.

Parameter	Value	Source
Propane	\$2.38 per gallon	Arkansas TRM 8.2 (TRM 8.2) (2021 dollars)
Natural gas	\$0.58 per therm	EAL 2017; updated to 2021 dollars
Water (residential)	\$0.00841 per gallon	TRM 8.2 (2021 dollars)
Water (commercial)	\$0.00726 per gallon	TRM 8.2 (2021 dollars)
Water (unknown)	\$0.00786 per gallon	TRM 8.2 (2021 dollars)
Net-to-gross (NTG) ratio	Variable by program and measure	EM&V team research

**Equation 3. Real Discount Rate**

$$RDR = \frac{(0.0633 - 0.0209)}{(1 + 0.0209)} = 0.0415$$

**Equation 4. Compound Interest**

$$Price_{2020} = Price_y \left( 1 + \frac{i}{(2021 - y)} \right)^{2021-y}$$

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 8.2 for each measure and NEB category. The EM&V team adapted the Excel-based calculator created by the Parties Working Collaboratively (PWC) to be R-compatible. 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 8.2.

## 17.2 IDENTIFICATION OF NON-ENERGY BENEFITS IN THE PY2021 PORTFOLIO

Using data extracts from the tracking system,<sup>123</sup> 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 224 and Table 225 summarize EAL's PY2021 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.

**Table 224. Non-Energy Benefits by Measure (Residential Sector)**

Measure	Water reduction	Other fuel	Avoided/deferred replacement costs	TRM 8.2, Vol. 2 subsection
Advanced strips				2.4.4
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				2.4.6
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				2.4.5
ENERGY STAR room air-cleaners				2.4.7
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

<sup>123</sup> Files for analysis were downloaded in February 2022 and contain finalized PY2021 data.

Measure	Water reduction	Other fuel	Avoided/deferred replacement costs	TRM 8.2, Vol. 2 subsection
Smart thermostats		✓		2.1.12
Variable frequency drive				N/A

**Table 225. Non-Energy Benefits by Measure (Commercial Sector)**

Measure	Water reduction	Other fuel	Avoided/deferred replacement costs	TRM 8.2, Vol. 2 subsection
Commercial AC/HP tune-up				3.1.7
Commercial door air infiltration		✓		3.2.11
Commercial showerheads	✓	✓		3.3.5
Commercial Wi-Fi thermostats		✓		N/A
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		✓		3.6.3
Low-flow pre-rinse spray valves	✓			3.8.11
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

Measure	Water reduction	Other fuel	Avoided/deferred replacement costs	TRM 8.2, Vol. 2 subsection
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				3.7.8
Refrigeration strip curtains				3.7.7
Unitary and split system AC/HP equipment				3.1.18
Variable frequency drives				N/A
Water-chilling equipment—air-cooled				3.1.19
Water-chilling equipment—water-cooled centrifugal				3.1.19
Zero energy doors				3.7.9

## 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. Residential customers have baseline lighting assumed based on Energy Independence and Security Act (EISA) guidelines. The current EISA baseline is halogen or incandescent lighting. In 2022, the Arkansas TRM baseline will switch to CFLs or CFL equivalents. 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 5 and Equation 6 below relate to deferred replacement costs associated with efficient lighting technologies with static baseline technologies.

#### Equation 5. 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 6. 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 3.

$$EUL_{base} = \frac{BaselineLifeHours}{AOH * PAF}$$

$$EUL_{eff} = \frac{EfficientLifeHours}{AOH * PAF}$$

Where:

$BaselineLifeHours$  corresponds with the rated life in hours associated with the baseline lighting technology—see Table 226

$EfficientLifeHours$  corresponds with the rated life in hours associated with efficient lighting technology—see Table 226

$AOH$  = Annual Operating Hours, the annual operating hours of the site receiving efficient lighting technology—see Table 226



*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—see Table 226.

### 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 8.2. The PWC and IEM deemed replacement costs for residential lighting projects, excluding labor costs of replacement. Therefore, replacement costs used throughout avoided and deferred replacement costs for residential *lighting* projects are in the *material cost* column of Table 226.

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, and Energy Solutions for Multifamily Homes 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 6 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 5 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 CLEAResult to understand the tracking system inputs and how they relate to deferred replacement cost calculations for each commercial project. Table 226 highlights lighting and lighting assumptions used by CLEAResult 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 226. PY2021 CLEAResult 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
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 8.2 Volume 2, Table 387, and matched the building type identifiers in the tracking system. Table 227 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 227. PY2021 Annual Operating Hours by Building Type**

<b>Building description</b>	<b>AOH</b>	<b>Coincidence factor</b>
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
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 5 (ROB) or Equation 6 (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 6 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 228 highlights the EM&V team's methodology for deciding the baseline lighting depending on the *new construction efficient lighting* technology. Equation 5 was used to determine the deferred replacement costs.

**Table 228. PY2021 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 8.2 Volume 2 subsections highlighted in Table 224 and Table 225, 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 (PY2021) 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 223). PY2021 marginal water rates were calculated and set at \$0.00841 (residential) and \$0.00726 (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 223).

### 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 (PY2021) 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 223). 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 223).

## 17.4 ESTIMATES OF NON-ENERGY BENEFITS IN THE PY2021 PORTFOLIO

Below we highlight the EM&V team's NEBs findings for PY2021 using the methodologies described above.

### 17.4.1 Home Energy Solutions

The Home Energy Solutions program offered 13 unique types of measures for PY2021. 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 229 to Table 233).

**Table 229. 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 230. Gas Savings—Home Energy Solutions**

First-year savings (therms)	Lifetime savings (therms)	First-year savings	Lifetime savings (Net present value (NPV))
1,502,711	25,920,359	\$863,206	\$10,965,488

**Table 231. Propane Savings—Home Energy Solutions**

First-year savings (gallons)	Lifetime savings (gallons)	First-year savings	Lifetime savings (NPV)
5,036	87,153	\$11,880	\$151,063

**Table 232. Water Savings—Home Energy Solutions**

First-year savings (gallons)	Lifetime savings (gallons)	First-year savings	Lifetime savings (NPV)
1,147,623	11,476,232	\$9,652	\$80,926

**Table 233. Avoided and Deferred Replacement Costs—Home Energy Solutions**

Avoided and deferred replacement costs (NPV)
\$567,045

## 17.4.2 Energy Solutions for Multifamily Homes

The Energy Solutions for Multifamily Homes program offered 13 unique types of measures for PY2021. 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 234 to Table 238).

**Table 234. 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		✓	✓
ENERGY STAR omnidirectional LEDs		✓	✓
Faucet aerators	✓		
Heat pump tune-up			
Low-flow showerheads	✓		
Non-res ENERGY STAR pool pumps			

**Table 235. Gas Savings—Energy Solutions for Multifamily Homes**

First-year savings (therms)	Lifetime savings (therms)	First-year savings	Lifetime savings (NPV)
37,578	665,681	\$21,795	\$279,428

**Table 236. 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 237. Water Savings—Energy Solutions for Multifamily Homes**

First-year savings (gallons)	Lifetime savings (gallons)	First-year savings	Lifetime savings (NPV)
616,806	6,168,060	\$5,187	\$43,495

**Table 238. Avoided and Deferred Replacement Costs—Energy Solutions for Multifamily Homes**

Avoided and deferred replacement costs (NPV)
\$65,590

### 17.4.3 Energy Solutions for Manufactured Homes

The Energy Solutions for Manufactured Homes program offered 13 unique types of measures for PY2021. 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 239 to Table 243).

**Table 239. 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 240. Gas Savings—Energy Solutions for Manufactured Homes**

First-year savings (therms)	Lifetime savings (therms)	First-year savings	Lifetime savings (NPV)
45,133	772,334	\$26,177	\$327,784



**Table 241. Propane Savings—Energy Solutions for Manufactured Homes**

First-year savings (gallons)	Lifetime savings (gallons)	First-year savings	Lifetime savings (NPV)
2,067	35,279	\$4,920	\$61,479

**Table 242. Water Savings—Energy Solutions for Manufactured Homes**

First-year savings (gallons)	Lifetime savings (gallons)	First-year savings	Lifetime savings (NPV)
419,308	4,193,080	\$3,526	\$29,568

**Table 243. Avoided and Deferred Replacement Costs—Energy Solutions for Manufactured Homes**

Avoided and deferred replacement costs (NPV)
\$35,417

#### 17.4.4 Low-Income Solutions

The Low-Income Solutions program offered 14 unique types of measures for PY2021. 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 244 to Table 248).

**Table 244. Low-Income Solutions Measures and Potential Non-Energy Benefits**

Measure	Water reduction	Other fuel	Avoided/deferred replacement costs
Advanced 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 245. Gas Savings—Low-Income Solutions**

First-year savings (therms)	Lifetime savings (therms)	First-year savings	Lifetime savings (NPV)
324,299	5,652,726	\$188,094	\$2,385,774

**Table 246. Propane Savings—Low-Income Solutions**

First-year savings (gallons)	Lifetime savings (gallons)	First-year savings	Lifetime savings (NPV)
-13	-241-	-\$30	-\$408

**Table 247. Water Savings—Low-Income Solutions**

First-year savings (gallons)	Lifetime savings (gallons)	First-year savings	Lifetime savings (NPV)
387,882	3,878,820	\$3,262	\$27,352

**Table 248. Avoided and Deferred Replacement Costs—Low-Income Solutions**

Avoided and deferred replacement costs (NPV)
\$117,625

### 17.4.5 Point of Purchase Solutions

The Point of Purchase Solutions program offered 15 unique types of measures (nine residential, three commercial) for PY2021. 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 249 to Table 253).

**Table 249. 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			

Measure	Water reduction	Other fuel	Avoided/deferred replacement costs
Advanced power strips			
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		✓	
Variable frequency drive			

**Table 250. Gas Savings—Point of Purchase Solutions**

First-year savings (therms)	Lifetime savings (therms)	First-year savings	Lifetime savings (NPV)
-344,737	-6,515,905	-\$200,019	-\$2,835,740

**Table 251. Propane Savings—Point of Purchase Solutions**

First-year savings (gallons)	Lifetime savings (gallons)	First-year savings	Lifetime savings (NPV)
1,953	21,480	\$4,647	\$42,062

**Table 252. Water Savings—Point of Purchase Solutions**

First-year savings (gallons)	Lifetime savings (gallons)	First-year savings	Lifetime savings (NPV)
0	0	\$0	\$0

**Table 253. Avoided and Deferred Replacement Costs—Point of Purchase Solutions**

Avoided and deferred replacement costs (NPV)
\$11,864,301

### 17.4.6 Large C&I Solutions

The Large C&I Solutions program offered 32 types of measures for PY2021. 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 254 to Table 258).

**Table 254. Large C&I Solutions 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		✓	
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			

Measure	Water reduction	Other fuel	Avoided/deferred replacement costs
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 255. Gas Savings—Large C&amp;I Solutions

First-year savings (therms)	Lifetime savings (therms)	First-year savings	Lifetime savings (NPV)
-144,156	-1,498,318	-\$83,637	-\$692,430

Table 256. Propane Savings—Large C&amp;I Solutions

First-year savings (gallons)	Lifetime savings (gallons)	First-year savings	Lifetime savings (NPV)
0	0	\$0	\$0

Table 257. Water Savings—Large C&amp;I Solutions

First-year savings (gallons)	Lifetime savings (gallons)	First-year savings	Lifetime savings (NPV)
1,536,310	15,363,101	\$11,154	\$93,520

Table 258. Avoided and Deferred Replacement Costs—Large C&amp;I Solutions

Avoided and deferred replacement costs (NPV)
\$5,626,897

### 17.4.7 Small Business Solutions

The Small Business Solutions program offered 18 unique types of measures for PY2021. 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 259 to Table 263).

**Table 259. Small Business Solutions 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		✓	✓
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 260. Gas Savings—Small Business Solutions**

First-year savings (therms)	Lifetime savings (therms)	First-year savings	Lifetime savings (NPV)
-101,314	-1,329,832	-\$58,762	-\$578,042

**Table 261. Propane Savings—Small Business Solutions**

First-year savings (gallons)	Lifetime savings (gallons)	First-year savings	Lifetime savings (NPV)
0	0	\$0	\$0

**Table 262. Water Savings—Small Business Solutions**

First-year savings (gallons)	Lifetime savings (gallons)	First-year savings	Lifetime savings (NPV)
804,192	8,041,925	\$5,838	\$48,954

**Table 263. Avoided and Deferred Replacement Costs—Small Business Solutions**

Avoided and deferred replacement costs (NPV)
\$4,987,580

### 17.4.8 Public Institutions Solutions

The Public Institutions Solutions program offered 19 unique types of measures for PY2021. 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 264 to Table 268).

**Table 264. Public Institutions Solutions 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 265. Gas Savings—Public Institutions Solutions**

First-year savings (therms)	Lifetime savings (therms)	First-year savings	Lifetime savings (NPV)
-38,550	-446,343	-\$22,361	-\$197,560

**Table 266. Propane Savings—Public Institutions Solutions**

First-year savings (gallons)	Lifetime savings (gallons)	First-year savings	Lifetime savings (NPV)
0	0	\$0	\$0

**Table 267. Water Savings—Public Institutions Solutions**

First-year savings (gallons)	Lifetime savings (gallons)	First-year savings	Lifetime savings (NPV)
360,383	3,603,831	\$2,616	\$21,938



**Table 268. Avoided and Deferred Replacement Costs—Public Institutions Solutions**

Avoided and deferred replacement costs (NPV)
\$1,233,644

### 17.4.9 Agricultural Energy Solutions

The Agricultural Energy Solutions program offered two measures in PY2021. The EM&V team calculated ADRCs for *lighting* measures (see Table 269 to Table 273).

**Table 269. Agricultural Energy Solutions Measures and Potential Non-Energy Benefits**

Measure	Water reduction	Other fuel	Avoided/deferred replacement costs
Custom lighting			✓

**Table 270. Gas Savings—Agricultural Energy Solutions<sup>124</sup>**

First-year savings (therms)	Lifetime savings (therms)	First-year savings	Lifetime savings (NPV)
N/A	N/A	N/A	N/A

**Table 271. Propane Savings—Agricultural Energy Solutions**

First-year savings (gallons)	Lifetime savings (gallons)	First-year savings	Lifetime savings (NPV)
N/A	N/A	N/A	N/A

**Table 272. Water Savings—Agricultural Energy Solutions**

First-year savings (gallons)	Lifetime savings (gallons)	First-year savings	Lifetime savings (NPV)
N/A	N/A	N/A	N/A

**Table 273. Avoided and Deferred Replacement Costs—Agricultural Energy Solutions**

Avoided and deferred replacement costs (NPV)
\$6,913

<sup>124</sup> Per footnote 584 in Arkansas TRM 8.2, Volume 2, Section 3.6.3 (Commercial Lighting Efficiency), poultry houses “do not require interactive effects since the wait heat generated by poultry will differ significantly from the assumptions shown in Appendix I.”

### 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 PY2021. The EM&V team calculated gas NEBs for all residential *smart thermostat* projects at sites with gas heating (see Table 274 to Table 278).

**Table 274. 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 275. Gas Savings—Smart Direct Load Control Pilot**

First-year savings (therms)	Lifetime savings (therms)	First-year savings	Lifetime savings (NPV)
69,139	760,527	\$40,100	\$362,936

**Table 276. 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 277. 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 278. 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 PY2021 PORTFOLIO

Table 279 summarizes first-year gas and water NEBs, and Table 280 provides lifetime NEBs for each of EAL's programs, including totals for the EAL portfolio.

**Table 279. PY2021 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	1,502,711	5,036	\$875,086	1,147,623	\$9,652	\$884,737
Energy Solutions for Multifamily Homes	37,578	-	\$21,795	616,806	\$5,187	\$26,982
Energy Solutions for Manufactured Homes	45,133	2,067	\$31,098	419,308	\$3,526	\$34,624
Low-Income Solutions	324,299	-13	\$188,063	387,882	\$3,262	\$191,325
Point of Purchase Solutions	-344,737	1,953	-\$195,371	-	-	-\$195,371
Large C&I Solutions	-144,156	-	-\$83,637	1,536,310	\$11,154	-\$72,483
Small Business Solutions	-101,314	-	-\$58,762	804,192	\$5,838	-\$52,924
Public Institutions Solutions	-38,550	-	-\$22,361	360,383	\$2,616	-\$19,745
Agricultural Energy Solutions	-	-	-	-	-	-
Residential Direct Load Control	-	-	-	-	-	-
Smart Direct Load Control Pilot	69,139	-	\$40,100	-	-	\$40,100
Agricultural Irrigation Load Control	-	-	-	-	-	-
<b>Total</b>	<b>1,350,102</b>	<b>9,044</b>	<b>\$796,011</b>	<b>5,272,505</b>	<b>\$41,236</b>	<b>\$837,246</b>

Dashes in tables ("-") denote values of zero.

**Table 280. PY2021 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	25,920,359	87,153	\$11,116,551	11,476,232	\$80,926	\$567,045	\$11,764,522
Energy Solutions for Multifamily Homes	665,681	-	\$279,428	6,168,060	\$43,495	\$65,590	\$388,513
Energy Solutions for Manufactured Homes	772,334	35,279	\$389,263	4,193,080	\$29,568	\$35,417	\$454,248
Low-Income Solutions	5,652,726	-241	\$2,385,366	3,878,820	\$27,352	\$117,625	\$2,530,343
Point of Purchase Solutions	-6,515,905	21,480	-\$2,793,678	-	-	\$11,864,301	\$9,070,623
Large C&I Solutions	-1,498,318	-	-\$692,430	15,363,101	\$93,520	\$5,626,897	\$5,027,987
Small Business Solutions	-1,329,832	-	-\$578,042	8,041,925	\$48,954	\$4,987,580	\$4,458,492
Public Institutions Solutions	-446,343	-	-\$197,560	3,603,831	\$21,938	\$1,233,644	\$1,058,021
Agricultural Energy Solutions	-	-	-	-	-	\$6,913	\$6,913
Residential Direct Load Control	-	-	-	-	-	-	\$0
Smart Direct Load Control Pilot	760,527	-	\$362,936	-	-	-	\$362,936
Agricultural Irrigation Load Control	-	-	-	-	-	-	\$0
<b>Total</b>	<b>23,981,230</b>	<b>143,671</b>	<b>\$10,271,835</b>	<b>52,725,049</b>	<b>\$345,752</b>	<b>\$24,505,011</b>	<b>\$35,122,599</b>

Dashes in tables (“-”) denote values of zero.

# ENTERGY ARKANSAS, LLC

## Arkansas Energy Efficiency Program Portfolio Annual Report

**Docket No. 07-085-TF**

**2021 PROGRAM YEAR**

**April 29, 2022**

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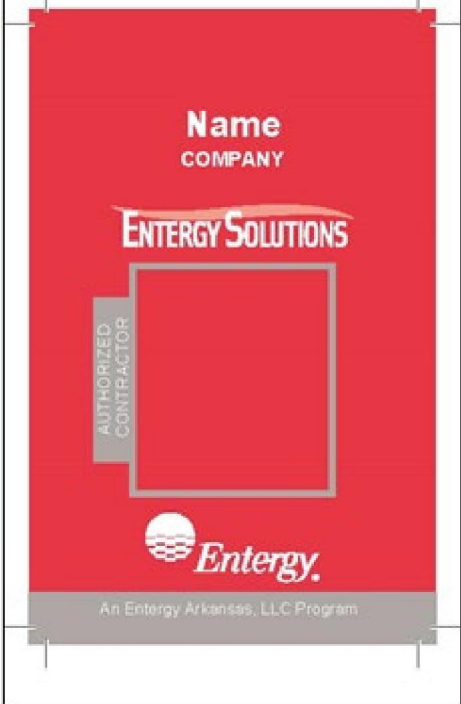
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**CROSS PROGRAMS**

**1.1 EAL\_Badge TEMPLATE APPROVED 9.17.19**



**1.2 EAL Branded Items 11 in 1 Multi Tool**



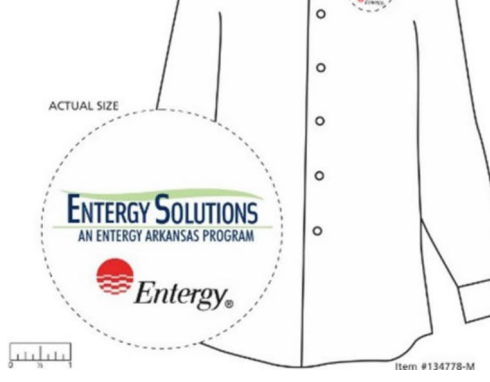
**1.3 2021 EAL Branded Apparel**

**CALVIN KLEIN NON IRON DOBBY SHIRT - MEN'S**  
LEFT CHEST: 4" DIAMETER

Order# 18113064-4 To: \_\_\_\_\_ 877.446.7746  
Date: 06-13-19 From: Judy.McDonald.x8395 **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.

imprint color(s):  
BLACK  
Robison-Anton 2282 Green  
Robison-Anton 2341 Blue  
Robison-Anton 2420 Red



**CALVIN KLEIN NON IRON DOBBY SHIRT - MEN'S**  
LEFT CHEST: 4" DIAMETER

Order# 18113064-5 To: \_\_\_\_\_ 877.446.7746  
Date: 06-13-19 From: Judy.McDonald.x8395 **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.

imprint color(s): WHITE

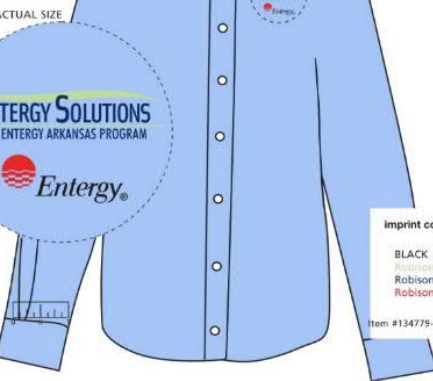


**CALVIN KLEIN NON IRON MICRO PINCORD SHIRT - MEN'S**  
LEFT CHEST: 4" DIAMETER

Order# 18113064-6 To: \_\_\_\_\_ 877.446.7746  
Date: 06-13-19 From: Judy.McDonald.x8395 **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.

imprint color(s):  
BLACK  
Robison-Anton 2282 Green  
Robison-Anton 2341 Blue  
Robison-Anton 2420 Red



**CUTTER & BUCK ADVANTAGE LONG SLEEVE POLO - MEN'S**  
Imprint Area: 4" DIAM

Order# 18113064-1 To: \_\_\_\_\_ 877.446.7746  
Date: 07-01-19 From: Judy.McDonald.x8395 **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.

imprint color(s): WHITE



APPROX. FILED Time: 4/29/2022 9:57:55 AM: Recvd 4/29/2022 9:43:41 AM: Docket 07-085-TF-Doc. 782

Order# 18113064-2 To: \_\_\_\_\_  
 Date: 07-01-19 From: Judy.McDonald.x8395

4imprint  
 877.446.7746  
**Art Proof**

imprint color(s):  
 WHITE  
 Robison-Anton 2282 Green  
 Robison-Anton 2341 Blue

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.  
 25%  
 ACTUAL SIZE



CROSSLAND FLEECE VEST - MEN'S  
 Imprint Area: 4" diameter

Order# 18113064-3 To: \_\_\_\_\_  
 Date: 06-13-19 From: Judy.McDonald.x8395

4imprint  
 877.446.7746  
**Art Proof**

DOTTED LINE WILL NOT APPEAR ON YOUR IMPRINTED ITEM  
 THIS ART PROOF SHOWS THE APPROXIMATE SIZE AND PLACEMENT OF YOUR IMPRINT RELATIVE TO THE SIZE OF THE ITEM.  
 25%  
 ACTUAL SIZE



NORTH END HOODED SOFT SHELL JACKET - MEN'S  
 LEFT CHEST: 4" DIAMETER

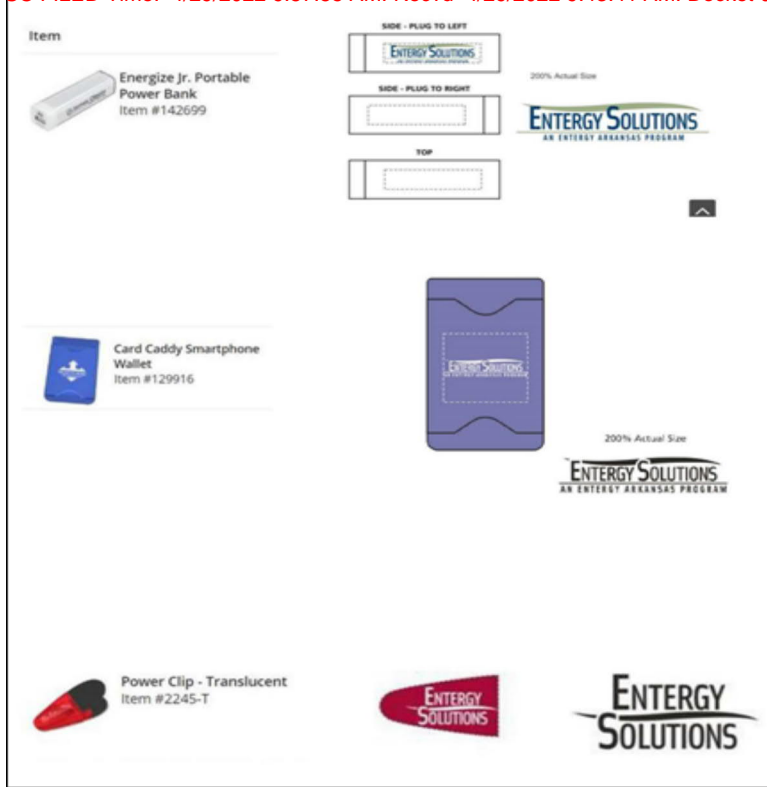
Order# 18113064-7 To: \_\_\_\_\_  
 Date: 07-01-19 From: Judy.McDonald.x8395

4imprint  
 877.446.7746  
**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.  
 25% OF ACTUAL SIZE



1.4 2021 EAL Branded Give Aways

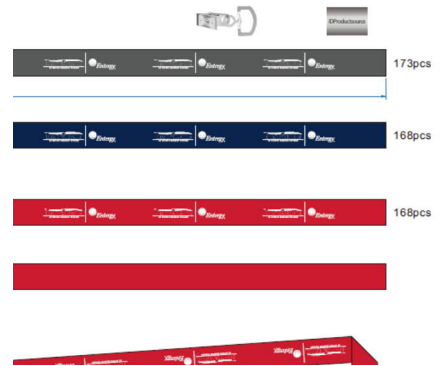
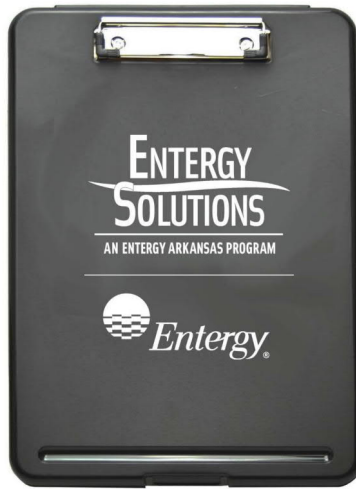


### Carabiner

100% of actual size



### Clipboard





**ENTERGY 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](http://entergysolutionsar.com)

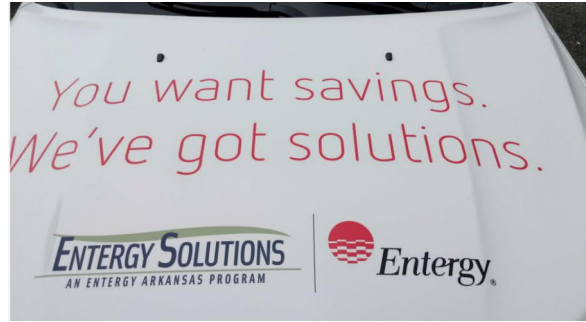
WE POWER LIFE®

1.6 5 22403\_EAL\_2020JeepCompass\_Wrap\_v06

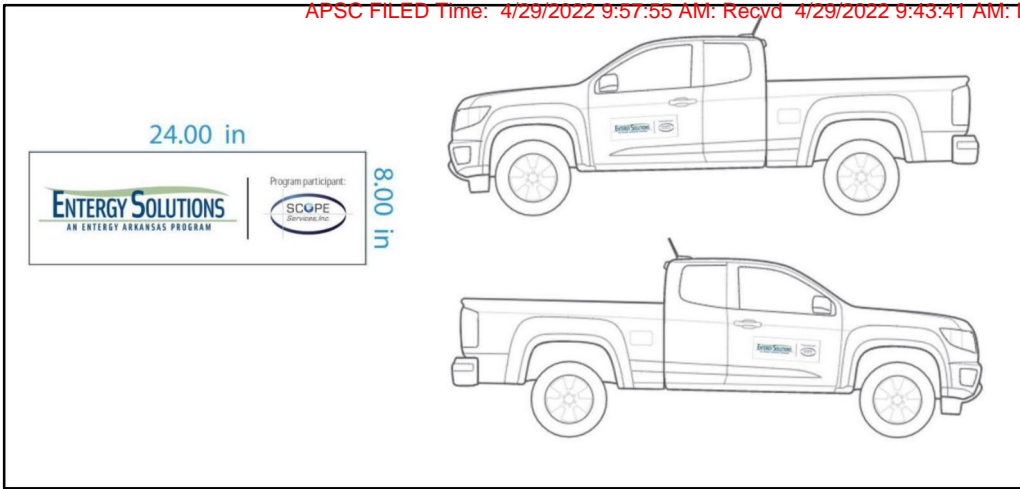
**NOTE TO VENDOR:** Match red color with Entergy red (PMS 185)  
Entergy Solutions logo = (PMS 541 & PMS 7494)

You want savings.  
We've got solutions.

**ENTERGY SOLUTIONS** **Entergy.**



### 1.7 Scope Truck Signage



### 1.8 CLEAResult EA Branded Apparel



## 2 Cross Residential Programs

### 2.1 Find A Trade Ally Tool

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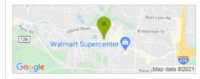
LIFE®





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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This site uses cookies to learn about you and enhance your experience. [Learn more.](#)

Get it

## 2.2 Circuit Newsletter Article April 2021 – AC Tune Up.PNG

ARTICLE

### Stay Cool This Summer with an A/C Tune-up at No Additional Cost.



The hot days of summer are quickly approaching but you don't have to sacrifice your home's comfort. Now is the perfect time to sign up for a high-performance air conditioning tune-up through our [Entergy 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. 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 Entergy Solutions can help you save energy, visit [entergysolutionsar.com](http://entergysolutionsar.com).

## 2.3 Circuit Newsletter Article November 2021 – Weatherization.PNG

ARTICLE

## Stay cozy this winter by weatherizing your home.



Weatherizing your home is one of the best ways to keep your home more comfortable and help you save energy. 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.

Whether you live in a single-family home, manufactured home, apartment, condo or townhouse you may be eligible to take advantage of air sealing, duct sealing or attic insulation installation measures through one of our [Energy Solutions Programs](#). These upgrades can help keep you comfortable and save energy in the long run.

Below are a few reasons to see if you are eligible for weatherization upgrades to your home:

1. **Energy efficiency.** Sealing and insulating increases the efficiency of your home, which can help save energy.
2. **Home comfort.** 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.

Improve the comfort level and energy efficiency of your home now and for years to come. Visit [energysolutionsar.com](http://energysolutionsar.com) or call 866-627-9177 to find a [participating trade ally](#) or to learn more.

\*Source: [energystar.gov](http://energystar.gov)

**ENROLLMENT FORM**



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. Entergy Arkansas is not responsible for lost documentation.

**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. **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-ups incentives, the service must be performed by an Entergy Arkansas trade ally. For other Entergy Arkansas programs, please visit [entergyarkansas.com](http://entergyarkansas.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.

**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.

**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.

**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.

**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 limitation, 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.

**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 contracted for the received services (as 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 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.

**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 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.

**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.

**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](http://entergy.com/privacy-policy).

<b>Customer Information</b>	
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	
<b>Terms and Conditions</b>	
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:
<b>Property Service Information</b>	
<b>Measures Requested:</b>	
<b>DIRECT INSTALL</b>	<b>WEATHERIZATION</b>
<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
<b>HEATING &amp; COOLING</b>	<b>COMMERCIAL</b>
<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"/> A/C Replacement	<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:



Visit [enterysolutions.com](http://enterysolutions.com) for more information.



2.5 19131\_EAL\_NoCostLowCost\_TipCard\_v04\_RELEASE

2.6 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:

- Dust sealing.
- Air sealing.
- LED light bulbs.
- High efficiency showerheads and bath aerators.
- "Smart thermostats."

Plus, an energy efficiency consultant will survey your home to identify opportunities for future energy efficiency improvements and incentives.

**Ready to get started?**  
 Visit: [energysolutions@ef.com](mailto:energysolutions@ef.com)  
 Call: 866-627-9177  
 Email: [energysolutions@ef.com](mailto:energysolutions@ef.com)

When you service your air conditioning equipment with the Entergy 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.**

Entergy Arkansas Energy Solutions logo and "WE POWER LIFE" slogan.

Air conditioning tune-up

Keep your air conditioner running smoothly to help save energy.





**Air conditioning tune-up**

The Entergy 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.

Entergy Solutions and Entergy logos.

2.7 21216\_EAL\_ACTuneUp\_Cobranded\_Trifold\_OnDemand\_v07\_RELEASE\_print



**Want more ways to save energy?**

Entergy Solutions programs also offer weatherization and direct install measures such as:

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- Air sealing.
- LED light bulbs.
- High efficiency showerheads and bath aerators.
- "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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 Call: 866-627-9177  
 Email: [energysolutions@ef.com](mailto:energysolutions@ef.com)

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**Make it a win-win with incentives on a high-performance air conditioning tune-up.**

Entergy Arkansas Energy Solutions logo and "WE POWER LIFE" slogan.

Air conditioning tune-up

Keep your air conditioner running smoothly to help save energy.





**Air conditioning tune-up**

The Entergy 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.

Entergy Solutions and Entergy logos.

2.8 21216\_EAL\_Weatherization\_Cobranded\_Trifold\_OnDemand\_v09\_RELEASE\_print

**How it works**

1. You can visit [energysolutions.com](http://energysolutions.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 are complete, the work performed may be subject to a quality assurance inspection.
4. Entergy 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.

Entergy Arkansas Energy Solutions logo and "WE POWER LIFE" slogan.

Weatherize your home.

Keep your home comfortable year-round while saving energy.



**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.**

**Dust 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.

Dust sealing reduces air escaping through leaks, poorly insulated or inefficient ducts.

\*Source: ENERGY STAR

**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.

**Ceiling insulation**

Ceiling insulation will help you keep the desired temperature in your house all year round, protecting it against cold in winter and excess heat in summer.\*

**Sealing and insulation benefits**

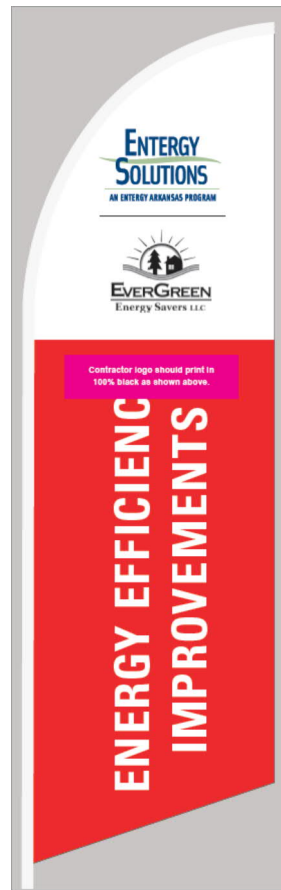
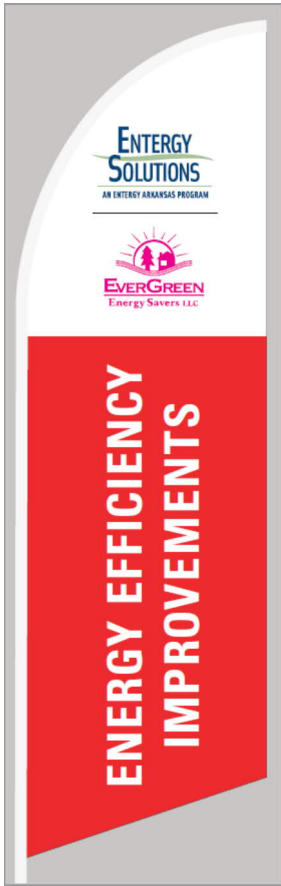
**Energy efficiency.** Sealing and insulating increases the efficiency of your home, which may help lower energy costs.

**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.

Entergy Solutions and Entergy logos.



## 2.10 EAL Homepage Banner\_AC Tune-up\_May 2021\_RELEASE.docx

**Client:** Entergy Arkansas

**Project:** May 2021 Home Page Banner (A/C Tune-Up)

**Date:** 4/27/21 **Draft:** 1

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**Stay cool this summer with an A/C tune-up.**

Get a high efficiency tune-up through one of our Entergy Solutions programs to increase your home's comfort and save on energy costs.

[LEARN MORE](#)

Link: [https://www.energy-arkansas.com/your\\_home/save\\_money/ee/residential-solutions/](https://www.energy-arkansas.com/your_home/save_money/ee/residential-solutions/)

2.11 EAL Homepage Banner\_AC Tune-up\_Sept 2021\_RELEASE.docx

APSC FILED Time: 4/29/2022 9:57:55 AM; Recvd: 4/29/2022 9:43:41 AM; Docket 07-085-TF-Doc. 782

Entergy Arkansas  
Sept 2021 Home Page Banner (A/C Tune-Up)  
Date: 9/2/21

---



**Stay cool with an A/C tune-up.**

Increase your home's comfort and save on energy costs with a high efficiency tune-up from Entergy Solutions at no additional cost.

[LEARN MORE](#)

Link: [https://www.energy-arkansas.com/your\\_home/save\\_money/ee/residential-solutions/](https://www.energy-arkansas.com/your_home/save_money/ee/residential-solutions/)

The content below can be used by trade allies to promote Entergy Solutions programs on their own social media channels. Please note only the items in pink may be changed.


Topic	Social Media Content for Trade Ally Use <i>Only the items in pink may be changed.</i>
A/C Tune-Up	Be ready for summer's heat with a high-performance air conditioner tune-up. <b>Company name</b> is a participating trade ally partnering with Entergy Solutions. Entergy Solutions provides incentives for high-performance A/C tune-ups, saving you up to \$200. More than a standard tune-up, high-performance tune-ups involve evaluating the energy efficiency of your equipment and making <b>adjustments</b> so it operates closer to the performance level of a new unit – saving you energy. To learn more visit <b>web address</b> or call <b>phone number</b> .
	Get a high-performance air conditioner tune-up and save up to \$200. <b>Company name</b> is a participating trade ally partnering with Entergy Solutions, helping customers save energy and money. Entergy Solutions offers an A/C tune-up incentive to eligible customers. To learn more, visit <b>web address</b> or call <b>phone number</b> .
	<b>Company name</b> is a participating trade ally partnering with Entergy Solutions to help customers save energy and money. Contact us today to see if you qualify for an Entergy Solutions incentive that covers up to \$200 on a high-performance A/C tune-up. To learn more visit <b>web address</b> or call <b>phone number</b> .
	Did you know a high-performance A/C tune-up not only helps you save energy, but it also increases the comfort in your home and helps your equipment last longer? <b>Company name</b> is a participating trade ally partnering with Entergy Solutions, helping customers save energy and money. Entergy Solutions provides an incentive of up to \$200 to eligible customers who take advantage of the high-performance A/C tune-up. Contact us today at <b>web address</b> or <b>phone number</b> for more information. Your air conditioning unit may be working harder than it should. Let us help you save energy with a high-performance A/C tune-up. As a participating trade ally partnering with Entergy Solutions, we can help you determine if you qualify for incentives that can save you up to \$200 on an A/C tune-up. Call <b>company name</b> today at <b>phone number</b> or visit <b>web address</b> for more information.
Weatherization	Save with weatherization incentives from Entergy Solutions. By sealing leaks in your duct system and throughout your home, you can save energy. <b>Company name</b> is a participating trade ally partnering with Entergy Solutions. Learn more at <b>web address</b> or by calling <b>phone number</b> .
	Did you know air leaks from your home can waste energy? A well-sealed home with the right insulation can help you save energy, improve <b>comfort</b> and get the most out of your heating and cooling system in any season. <b>Company name</b> is a participating trade ally partnering with Entergy Solutions. Give us a call today at <b>phone number</b> to see if you qualify for weatherization incentives offered by Entergy Solutions.
	<b>Company name</b> is a participating trade ally partnering with Entergy Solutions to help customers save energy. Contact us today to see if you qualify for incentives that cover air sealing, duct sealing or adding insulation. To learn more visit <b>company web address</b> or call <b>company phone number</b> .
Home Energy Audits	Let us help you save energy by sealing air leaks in your home. As a participating trade ally partnering with Entergy Solutions, we can see if you qualify for incentives that cover weatherization measures for your home. Call <b>company name</b> today at <b>company phone number</b> or visit <b>company web address</b> for more information.
	Let us identify ways to help you save energy with a home energy audit. As a participating trade ally partnering with Entergy Solutions, we offer a comprehensive evaluation at no additional cost to you. Energy audits also include the installation of energy-efficient light bulbs, showerheads, faucet aerators and an advanced power strip. Plus, ask how you can get a smart thermostat installed at no additional cost – a \$225 value. Call <b>company name</b> today at <b>company phone number</b> or visit <b>company web address</b> for more information.
	As a participating trade ally partnering with Entergy Solutions, we provide home energy audits and install energy-efficient items like LED bulbs and advanced power strips at no additional cost to you. Plus, ask how you can get a smart thermostat installed at no additional cost – a \$225 value. Call us today at <b>company phone number</b> for more information. Get energy-efficient light bulbs, showerheads, faucet aerators and an advanced power strip installed with an Entergy Solutions home energy audit -- all at no additional cost to you. <b>Company name</b> is a participating trade ally partnering with Entergy Solutions to help you save energy. Call us today at <b>company phone number</b> to schedule your appointment.

Approved for use 4/30/20

### 2.13 Cross Program EAL Social Media Posts- Facebook and Twitter

**Entergy Arkansas** April 30, 2021 · 🌐

Prep now for summer savings. 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/6183Hahqx> to find a trade ally near you.



4 2 Comments 3 Shares

**Entergy Arkansas** August 3, 2021 · 🌐


The hot days of summer are here but you don't have to sacrifice your home's comfort. You may qualify for a high-performance air conditioning tune-up at no additional cost through our Entergy Solutions programs. Visit <http://enter.gy/6180yiu1w> to find a trade ally near you.



Like Comment Share

**Entergy Arkansas** December 27, 2021 · 🌐

With outside temps continuing to dip, you can keep your home cozy by sealing duct and air leaks and adding insulation. Our Entergy Solutions programs can help keep your family comfortable and lower your energy costs. Schedule an appointment to start saving energy and money. Visit <http://enter.gy/6188JSjEo> to find a trade ally near you.



1 Comment 2 Shares

**Entergy Arkansas** February 4, 2021 · 🌐


Show your home some love with weatherization upgrades, at no additional cost, through our Entergy Solutions programs. Sealing air leaks and adding ceiling insulation are two great ways to save energy and make your home more comfortable. Visit <http://enter.gy/6181HdhSb> to find a trade ally near you.



4 2 Comments 2 Shares

**Entergy Arkansas** July 6, 2021 · 🌐

Don't let the dog days of summer get you down. Now is the perfect time to sign up for an air conditioning tune-up through one of our Entergy Solutions programs to help keep you cool and comfortable all summer long. Visit <http://enter.gy/6187yVirT> to find a trade ally near you.



8 2 Shares

**Entergy Arkansas** June 18, 2021 · 🌐

Stay cool 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 <http://enter.gy/6189yylQt> to find a trade ally near you.



4 2 Comments 1 Share

**Entergy Arkansas** May 5, 2021 · 🌐

The hot days of summer are quickly approaching but you don't have to sacrifice your home's comfort. Now is the perfect time to sign up for an air conditioning tune-up through our Entergy Solutions programs to help keep you cool and comfortable all summer long. Visit <http://enter.gy/6188HA2Cu> to find a trade ally near you.




7 3 Comments 4 Shares

Like Comment Share

**Entergy Arkansas** November 8, 2021 · 🌐

As cooler weather moves in, keep your home cozy by sealing duct and air leaks and adding insulation. Our Entergy Solutions programs can help lower your energy costs and keep your family comfortable. Schedule an appointment to start saving energy and money. Visit <http://enter.gy/6182JXFCq> to find a trade ally near you.



9 2 Comments 2 Shares

**Entergy Arkansas** ✓  
October 5, 2021 · 🌐

October is Energy Awareness Month, making it the perfect time to weatherize your manufactured home. By sealing leaks in your duct system & throughout your home, you can save energy and improve comfort. Visit <http://enter.gy/6185JGI0U> to learn about energy-saving upgrades available at no additional cost.

**Energy Awareness Month**

**TIP 1**  
Turn off lights when leaving a room.

**TIP 2**  
Reverse ceiling fans in the fall and winter to push warm air down.

**TIP 3**  
Contact Entergy Solutions for energy-saving upgrades.

**TIP 4**  
Set your thermostat to 68 degrees during cooler months.

ENERGY SOLUTIONS  
BETTER. SMARTER. TOGETHER. Entergy

5 2 Comments 1 Share

**Entergy Arkansas** ✓  
September 9, 2021 · 🌐

Did you know sealing air leaks and adding insulation are great ways to save energy and make your home more comfortable? Our Entergy Solutions programs can help with home weatherization at no additional cost. Visit <http://enter.gy/6187yFeU3> to find a trade ally near you.

2 3 Shares

**Entergy Arkansas** ✓  
September 24, 2021 · 🌐

Catch big savings when you enroll in one of our Entergy Solutions programs. From A/C tune-ups to weatherization upgrades and LED bulbs, we offer ways to help you save year-round. Visit <http://enter.gy/6185yF9ZB> to find a trade ally near you.

2 1 Share

**Entergy Arkansas** ✓ @EntergyArk · Apr 2, 2021

Prep now for summer savings. Our Entergy Solutions programs offer A/C tune-ups at no additional cost. With a diagnostic check from a participating trade ally, your home's air conditioning system will run more efficiently to help you save all summer long. [enter.gy/6011HahqR](http://enter.gy/6011HahqR)

1 3



**Entergy Arkansas** @EntergyArk · Aug 3, 2021

The hot days of summer are here but you don't have to sacrifice your home's comfort. You may qualify for a high-performance air conditioning tune-up at no additional cost through our Entergy Solutions programs. Visit [entergy.com/6019yiulZ](https://entergy.com/6019yiulZ) to find a trade ally near you.



🗨️ 🔄 ❤️ 📤

**Entergy Arkansas** @EntergyArk · Dec 27, 2021

With outside temps continuing to dip, keep your home cozy by sealing duct and air leaks and adding insulation. Our Entergy Solutions programs can help keep your family comfortable and lower your energy costs. Schedule an appointment to start saving. [entergy.com/6017JSJEW](https://entergy.com/6017JSJEW)



🗨️ 🔄 ❤️ 📤

**Entergy Arkansas** @EntergyArk · Feb 4, 2021

Show your home some love with weatherization upgrades, at no additional cost, through our Entergy Solutions programs. Sealing air leaks and adding ceiling insulation are two great ways to save energy and make your home more comfortable. Visit [entergy.com/6018HdhSk](https://entergy.com/6018HdhSk) for details.



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**Entergy Arkansas** @EntergyArk · Jul 6, 2021

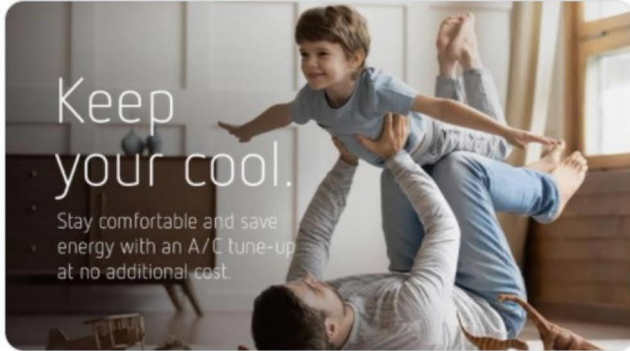
Don't let the dog days of summer get you down. Now is the perfect time to sign up for an air conditioning tune-up through one of our Entergy Solutions programs to help keep you cool and comfortable all summer long. Visit [entergy.com/6014yVirG](https://entergy.com/6014yVirG) to find a trade ally near you.



🗨️ 🔄 2 ❤️ 2 📤



**Entergy Arkansas** @EntergyArk · Jun 4, 2021  
Keep your cool this summer with an A/C Tune-up through our Home Energy Solutions Program. With a tune-up from one of our participating trade allies you can reduce cooling costs and extend the life of your equipment. [enter.gy/6018yyllw](https://enter.gy/6018yyllw)



1 2



**Entergy Arkansas** @EntergyArk · Jun 18, 2021  
Stay cool 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. [enter.gy/6012yylQm](https://enter.gy/6012yylQm)



1



**Entergy Arkansas** @EntergyArk · May 5, 2021  
The hot days of summer are approaching but you don't have to sacrifice your home's comfort. Now is the perfect time to sign up for an air conditioning tune-up through our Entergy Solutions programs to help keep you cool and comfortable all summer long. [enter.gy/6017HA2CP](https://enter.gy/6017HA2CP)



1



**Entergy Arkansas** @EntergyArk · Nov 8, 2021  
As cooler weather moves in, keep your home cozy by sealing duct and air leaks and adding insulation. Our Entergy Solutions programs can help lower your energy costs and keep your family comfortable. Visit [enter.gy/6011XFCU](https://enter.gy/6011XFCU) to find a trade ally near you.



2 1



**Entergy Arkansas** @EntergyArk · Sep 9, 2021

Did you know sealing air leaks and adding insulation are great ways to save energy and make your home more comfortable? Our Entergy Solutions programs can help with home weatherization at no additional cost. Visit [enter.gy/6012yFeoC](https://enter.gy/6012yFeoC) to find a trade ally near you.



1 3




**Entergy Arkansas** @EntergyArk · Sep 10, 2021

Catch big savings when you enroll in one of our Entergy Solutions programs. From A/C tune-ups to weatherization upgrades and LED bulbs, we offer ways to help you save year-round. Visit [enter.gy/6012yF9ns](https://enter.gy/6012yF9ns) to find a trade ally near you.



1

## 2.14 Cross Program EAL EE Homepage Banners




**Energy savings, shipped free.**

Save up to \$99 instantly.

With free shipping on all orders over \$35 and instant discounts on ENERGY STAR® certified smart thermostats, LEDs and more, Entergy Arkansas' Marketplace makes saving energy easier than ever.


[SHOP ONLINE](#)



**Celebrate Earth Day all month.**

Shop our online marketplace to get instant discounts on the latest ENERGY STAR® certified products.

[SHOP ONLINE](#)




**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 ONLINE](#)



**Defeat Vampire Power this Halloween.**

Don't let vampire power drain your bank account.

[READ MORE](#)



**Smart Savings**

**Combine Entergy instant discounts and rebates with Black Friday deals.**

Save even more on smart thermostats and other energy-efficient products when you combine our everyday instant discounts and rebates with limited-time Black Friday deals.

[LEARN MORE](#)

## 2.15 EAL Trade Ally Search Web Page

# Trade Ally Search

**Search for Contractor** | **Filter by Equipment or Service**

Search by name:

OR

Search by city or state:

Select An Option:

Contractor list

<p>13.4 miles <b>Tempco Inc</b> PO Box 6994 Hot Springs, AR 71910 (501) 321-9336 tempcoelectrical@gmail.com</p>	<p>16.74 miles <b>Arkansas Lighting Solutions</b> 138 Wackerlin Ln Rogers, AR 71968 (501) 825-2795 arkansaslightingsolutions@yahoo.com</p>	<p>18.27 miles <b>Zimmer Electrical Inc</b> 3253 Albert Pike Rd Hot Springs, AR 71913 (501) 520-8047 zeefmator7@gmail.com</p>
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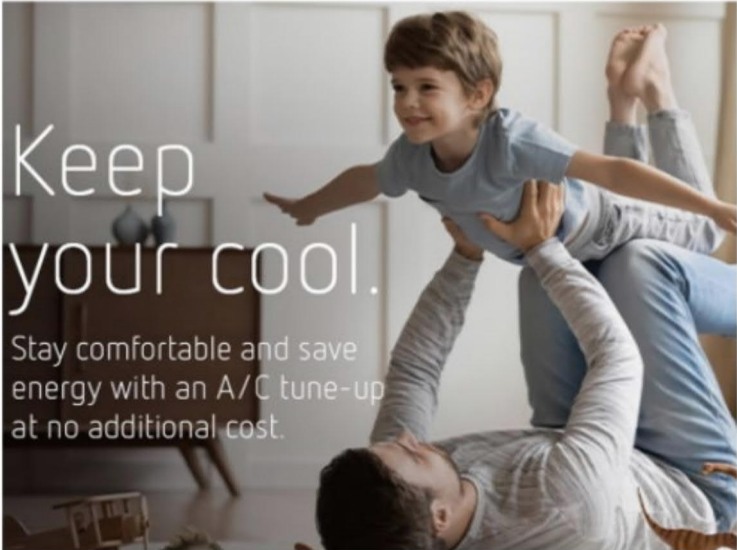
WE POWER LIFE™

## 3 Portfolio Programs

### 3.1 Home Energy Solutions

ARTICLE

## Improve Your Home's Comfort and Efficiency with Our Home Energy Solutions Program.



Keep your cool.

Stay comfortable and save energy with an A/C tune-up at no additional cost.

Spring is the perfect time to make sure your air conditioning equipment is working properly. Entergy Arkansas' Home Energy Solutions Program can help with a high performance air conditioning tune-up at no additional cost.

According to ENERGY STAR®, as much as half of the energy used in homes goes to heating and cooling. So making smart decisions about your home's heating and cooling system can have a big impact on improving efficiency and comfort. The Home Energy Solutions Program provides incentives that cover the costs of a high performance tune-up with one of our [partnering trade allies](#). 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. In addition to the services included for no additional cost, the trade ally will let you know if there are other issues or concerns that may need addressing.

The Home Energy Solutions Program also offers other energy-saving measures at no additional cost. An energy efficiency consultant will survey your home to identify opportunities for energy efficiency improvements and incentives for:

- Duct sealing.
- Air sealing.
- Ceiling insulation.
- LED light bulbs.
- Efficient flow showerheads and faucet aerators.
- Smart thermostats.

Contact one of our [participating trade allies](#) to schedule your air conditioning tune-up today. For more information or to explore other Entergy Solutions programs, visit [entergysolutionsar.com](http://entergysolutionsar.com), call 866-627-9177 or email us.



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.




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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.



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](http://entergyarkansas.com/efficiency) or email us at [homeenergysolutions@ef.com](mailto:homeenergysolutions@ef.com).



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The Home Energy Solutions program is an energy efficiency program administered with Entergy Services, LLC.

WE POWER LIFE®

21209\_EAL\_HESProgramOverview\_Flyer\_v08.indd 2 0000 3:02 PM



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.

**ENERGY SOLUTIONS**  
AN ENTERGY ARKANSAS PROGRAM

**EVERGREEN**  
Energy Services LLC

### 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](http://entergyarkansas.com/efficiency) or email us at [homeenergysolutions@icf.com](mailto:homeenergysolutions@icf.com).

**EVERGREEN**  
Energy Services LLC

123-456-7890  
[fakeemailaddress@fakehost.com](mailto:fakeemailaddress@fakehost.com)  
1234 Fake Street  
Fake City, USA

**Entergy.**  
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**WE POWER LIFE®**

### 3.1.4 21216\_EAL\_MA&HES\_Doorhanger\_v09\_Release\_Print+die

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**ENERGY SOLUTIONS** | **Entergy.**  
AN ENTERGY ARKANSAS PROGRAM

## 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](http://entergysolutionsar.com)  
Call: 866-627-9177  
Email: [entergysolutions@icf.com](mailto:entergysolutions@icf.com)

123-456-7890  
[fakeemailaddress@fakehost.com](mailto:fakeemailaddress@fakehost.com)  
1234 Fake Street  
Fake City, USA


**LOGO**

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**WE POWER LIFE®**

### 3.1.5 EAL\_Home Energy Report\_HES\_V8







**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 72345

Prepared by:  
John Tech, JT LLC  
Phone: 123-555-1233  
Email: john@tech.com

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The Entergy Solutions program is an energy efficiency program not affiliated with Entergy Solutions, LLC.

**WE POWER LIFE™**

**Nancy Tester**  
90 Main St  
Little Rock, AR 72345

**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.

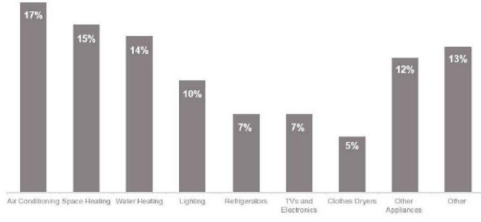
**Home Attributes**

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 [survey.yrtdb.com](http://survey.yrtdb.com) to complete a quick survey.

**Residential Energy Consumption by End Use\***



\*U.S. Energy Information Administration, 2015 Residential Energy Consumption Survey

[entergyarkansas.com/efficiency](http://entergyarkansas.com/efficiency) | [HomeEnergySolutionsEAL@icf.com](mailto:HomeEnergySolutionsEAL@icf.com) | 866-627-9177



**WE POWER LIFE™**

**Nancy Tester**  
90 Main St  
Little Rock, AR 72345

**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 [circuit.entropy.com/save-money/room-by-room-savings](http://circuit.entropy.com/save-money/room-by-room-savings).

[entergyarkansas.com/efficiency](http://entergyarkansas.com/efficiency) | [HomeEnergySolutionsEAL@icf.com](mailto:HomeEnergySolutionsEAL@icf.com) | 866-627-9177

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Little Rock, AR 72345

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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)
Advanced Power Strip – Home Office	2	\$13.20	\$132

**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)
Elec – Low-Flow Faucet Aerator – Bath	1	\$2.56	\$25.60

Product Name	No. Installed	Est. Savings (Annual)	Est. Savings (Lifetime)
Elec – Low-Flow Showerheads – Handheld Showerhead	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)

\*Energy savings based on average electric rate \$0.10/kWh and average natural gas rate \$0.80/dcf. 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.
- 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 [entergyarkansas.com/smartdirectload](http://entergyarkansas.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 [entergyarkansas.com](http://entergyarkansas.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, [entergyarkansas.com](http://entergyarkansas.com).

Other potential energy efficiency programs that may benefit your property can be found online at:

- Entergy Arkansas, LLC – [www.entropyarkansas.com](http://www.entropyarkansas.com)
- CenterPoint Energy – [www.centerpointenergy.com](http://www.centerpointenergy.com)
- Black Hills Energy – [www.blackhillsenergy.com](http://www.blackhillsenergy.com)

[entergyarkansas.com/efficiency](http://entergyarkansas.com/efficiency) | [HomeEnergySolutionsEAL@icf.com](mailto:HomeEnergySolutionsEAL@icf.com) | 866-627-9177

**WE POWER LIFE™**

### Terms and Conditions

**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, representation or claims for any products or services. Energy Arkansas makes no warranty of any kind, whether liability, contract or implied, including without limitation, warranties of merchantability or fitness for a particular purpose regarding EBAs. Energy Arkansas makes no guarantee of energy-saving results by receiving measures 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 suitable for any particular area (including patent laws, codes 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 contemplated and installed and that any necessary landlord or tenant 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 equipment.

**CUSTOMER'S CERTIFICATION:** Property manager/owner certifies that he/she has authorized the measures installation based on the application at the address location. Property manager/owner agrees that all information is true and that he/she has authorized the measures installation based on the application at the address location.

**RIGHT TO REFUSE:** The Energy Arkansas trade ally has the right to refuse service or not the delivery when conditions exist in a customer's existing home/apartment or when facing an unsafe situation. "Response" includes but is not limited to the following: unresponsive channels for service, potentially dangerous or obstructive language, harassment or erratic behavior and personal contact. Authorized trade ally reserves the right to refuse any premises, or comply, however, 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 terminated 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 has changed the program requirements, incentives, or terms and conditions, including discontinuing 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 e-mail, or otherwise. The customer agrees to be bound by these terms and conditions, at any time without notice.

**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 or more energy-saving items were self-installed by the customer for you to install. The service was self-installed by the customer as a result of:

**ENERGY SOLUTIONS**  
AN ENERGY ARKANSAS PROGRAM

**Entergy**

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The Energy Solutions program is an energy efficiency program not affiliated with Entergy Solutions, LLC.

WE POWER LIFE

### 3.1.6 Beacon Report\_EAL\_2\_25\_2020

## Home Energy Assessment Report

**Prepared For**

Customer Name: [REDACTED]  
 Customer Address: [REDACTED]  
 City, State ZIP Code: [REDACTED]  
 Customer Phone Number: XXX-XXX-XXXX

**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: 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 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.

38

530

### 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
<b>Air Sealing</b>			
Air Sealing Level	Air leakage rate of 2000 cubic feet per minute at 50 Pascals.	Reduce leakage from living space to 1000 CFM50	\$84.00
Seal/insulate Recessed Lights - Attic Area 1		Seal/insulate 12 Recessed Lights(s)	
Seal/insulate Attic Access Hatches - Attic Area 1		Seal/insulate 1 Attic Access Hatch(es)	
<b>Insulation</b>			
Attic Insulation - Attic Area 1	Current insulation level is 5" and condition is poorly insulated	Insulate 1600 square feet w/ Fiberglass (open below 3 inches	\$245.08
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 100 linear feet with Fiberglass Batt	\$13.04
<b>Windows &amp; Glass Doors</b>			
Windows & Glass Doors - Metal old pane no break	Current windows are double-pane clear without storm windows	Install 10 Units(s) with U-Value 0.3 & SHGC 0.32	\$30.37
<b>Doors</b>			
Doors - Wood	Current door is solid core wood (no storm)	Install 2 Add Storm Door	\$6.47
<b>HVAC Systems</b>			
Heating System - System 1	20-24 year old Air Source Heat Pump with an efficiency of 8.5 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 SEER		\$171.27
Cooling System Thermostat - System 1		System Service/Tune-up Install and Program Set-Back Thermostat	\$9.71
<b>Ducts</b>			
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
<b>Domestic Hot Water System</b>			
Water Heater - System 1	Current CHW system is 1902-1995 Storage (Tank) with energy factor (EF) of 0.60	Performance Tune-Up or Repair	\$1.55
<b>Lighting, Appliances &amp; Smart Strips</b>			
Replacement Lighting		Install 15 Energy Efficient Lamps *	\$85.41
Smart Strips		Install Smart Strips	
<b>Water Saving Measures</b>			
Low-Flow Showerheads		Replace 2 of 2 showerheads with low-flow showerheads	\$17.05
<b>Building Performance Measures</b>			
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	3,608	\$367	87.9%
Water Heating Savings	180	\$19	6.5%
Electric Baseload Savings	854	\$85	12.5%
HVAC Auxiliary Electricity Savings	273	\$27	26.2%
<b>Total Project Savings</b>	<b>9,712</b>	<b>\$971</b>	<b>N/A</b>
<b>Total Percent Savings</b>	<b>39.7%</b>	<b>39.7%</b>	<b>39.7%</b>


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 IRR	
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	9990.00

### 3.1.7 HES Live Survey



ENERGY SOLUTIONS  
AN ENTERGY ARKANSAS PROGRAM

Entergy

Thank you for taking the time to complete our survey for the Entergy Arkansas Home Energy Solutions Program. We value your feedback.

[Continue >](#)



Entergy Arkansas Home Energy Solutions Program

1. Please enter the information indicated below (optional).

First Name:   
 Last Name:   
 Home Phone:   
 Email Address:

2. Please describe your overall satisfaction with the Entergy Arkansas Home Energy Solutions Program.

Very Satisfied   Satisfied   Neutral   Somewhat Dissatisfied   Very Dissatisfied  
           

3. How did you first become aware of this Entergy Solutions program?

- Billing calculations
- Contacted online service
- Friend or neighbor
- Trade site (Entergy Solutions website)
- Entergy Arkansas email
- Entergy Solutions staff member
- Social media
- Other (please specify below)

Comment:

4. Why did you participate in this program? Select all that apply.

- To save money on my energy bill
- My neighborhood encouraged me
- To improve the efficiency of my home
- Because it was free
- To help the environment
- To improve the comfort of my home
- Other (please specify below)

Comment:

5. How likely would you be to recommend this Entergy Solutions program to others?

Very Likely   Likely   Not Sure   Somewhat Unlikely   Unlikely  
           

6. Did the trade ally make you aware of any other Entergy Solutions programs?

- Yes (Please specify which programs below)
- No

Comment:

7. Based on your recent experience, please rate your level of satisfaction with the trade ally that came on-site.

	Very Satisfied	Satisfied	Neutral	Somewhat Dissatisfied	Very Dissatisfied	Not Applicable
Rate of meeting 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"/>
Whether you agreed in advance of time that they are going to be arriving late	<input type="radio"/>	<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"/>	<input type="radio"/>
Ward is friendly and courteous	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Clearly explained the energy assessment process, recommendations and work that would be performed	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
As explained to specific energy concerns and questions	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Showing a energy saving tips	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Clearly show that how the Entergy Solutions program members work	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
How home visit left the way they found it	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

8. Do you have any suggestions for improving this Entergy Solutions program?

9. In your own words, please tell us what, if anything, you liked or disliked about this Entergy Solutions program.

10. How has your overall experience as an Entergy Arkansas, LLC customer been?

Very Satisfying   Satisfying   Neutral   Dissatisfying   Very Dissatisfying  
           

11. Assuming everyone could choose their provider, what is the likelihood you would recommend Entergy Arkansas to a friend or colleague?


Very Likely   Likely   Not Sure   Somewhat Unlikely   Unlikely



### 3.1.8 HES Survey Letter



Thank you for participating in an Entergy Solutions program.

 donotreply@programprocessing.com  
Thu 10/15/2020 2:33 PM  
To: Gorjachev, 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 [HomeEnergySolutionsEAI@icf.com](mailto:HomeEnergySolutionsEAI@icf.com).

Sincerely,

Heather Hendrickson  
Project Manager  
Entergy Arkansas



[Privacy Policy](#)



Our Home Energy Solutions Program offers incentives on air conditioning tune-ups, duct sealing, air sealing, ceiling insulation and more to help lower your energy costs, all at no additional cost to you.

[Learn more](#)



**Air conditioning 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.



**Ceiling insulation**  
The installation of ceiling insulation helps maintain a consistent temperature in your home all year long.

**Energy-saving products installed at no additional cost**  
Start saving immediately with LED bulbs, efficient showerheads and faucet aerators, advanced power strips and more.



Ready to get started? Visit us [online](#) or call 888-827-9177 for details.



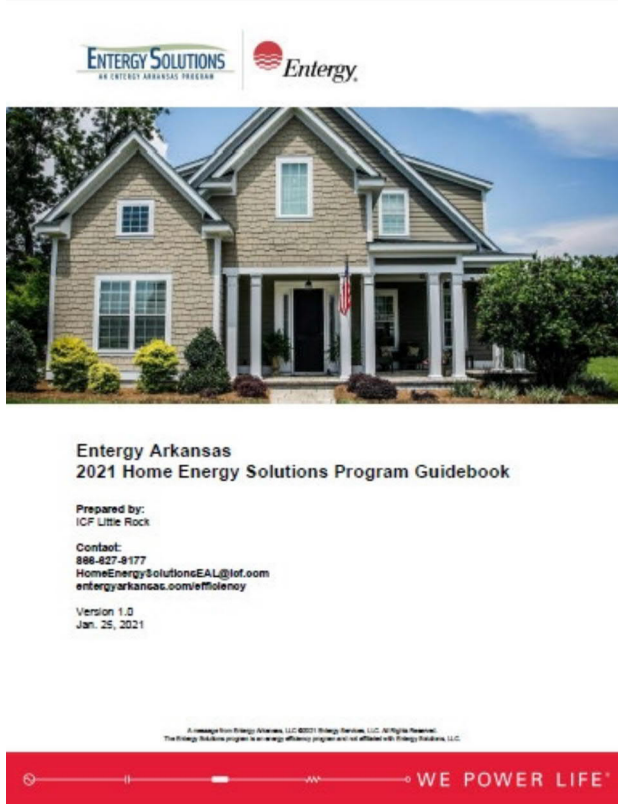
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This email was sent by Entergy Services, LLC, 400 West Coastway, Littleton, CO 80120  
To manage your preferences, change your email address or stop receiving these notifications, visit your [profile page](#).



3.1.11 HES Guidebook\_2021\_RELEASE (1).pdf



**Entergy Arkansas**  
2021 Home Energy Solutions Program Guidebook

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**Entergy Arkansas**  
2021 Home Energy Solutions Program Guidebook

**Program Overview**

**Program Description**

The Entergy 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-ups, 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: 888-827-8177  
Email: HomeEnergySolutionsEAL@icf.com  
Web: entergyarkansas.com/efficiency

**Program Eligibility**

Owners or renters (certifying 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 \$0.10 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

3

**Entergy Arkansas**  
2021 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.

**Tier 1 and Tier 2 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.

**Tier 1 Audit**

During the Tier 1 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.

**Tier 2 Audit**

The Tier 2 audit is a comprehensive evaluation on your home's energy use. This audit will provide recommendations on ways to save energy. During the Tier 2 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-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-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.

4

3.1.12 HES EAL Social Media Posts- Facebook and Twitter

**Entergy Arkansas**  
April 6, 2021 · 🌐

Pile on the savings with our Home Energy Solutions Program. From A/C tune-ups to weatherization upgrades and LED bulbs, we offer ways to help you save year-round. Visit <http://enter.gy/6181Hah4J> to find a trade ally near you.



👍 9 4 Shares

**Entergy Arkansas**  
January 10, 2021 · 🌐

Today is Cut Your Energy Costs Day and the perfect time to let our Home Energy Solutions Program help you save energy. Schedule your appointment with one of our participating trade allies to receive weatherization measures like air and duct sealing and more at no additional cost. Visit <http://enter.gy/6184HnuvA> for details.



👍 5 2 Comments 4 Shares

**Entergy Arkansas**  
June 4, 2021 · 🌐

Keep your cool this summer with an A/C Tune-up through our Home Energy Solutions Program. With a tune-up from one of our participating trade allies you can reduce cooling costs and extend the life of your equipment. Visit <http://enter.gy/6189yyllb> to find a trade ally near you.



👍 6 5 Comments 4 Shares

**Entergy Arkansas** May 7, 2021 · 🌐

Sign up for savings with our Home Energy Solutions Program. From A/C tune-ups to weatherization upgrades and LED bulbs, we offer ways to help you save year-round. Visit <http://enter.gy/6188HAN5p> to find a trade ally near you.



3 5 Comments 1 Share

**Entergy Arkansas** November 9, 2021 · 🌐

Air that leaks from your home wastes a lot of energy. A well-sealed home with the right insulation can help you save energy and make your home more comfortable. Enroll in our Home Energy Solutions Program to receive air sealing, duct sealing, insulation, and more at no additional cost. Visit <http://enter.gy/6184JX2Gm> to learn more and to find a trade ally near you.



To learn how to Seal and Insulate with ENERGY STAR please visit [www.energystar.gov/sealandinsulate](http://www.energystar.gov/sealandinsulate).

5 1 Comment 1 Share

**Entergy Arkansas** @EntergyArk · Apr 6, 2021

Pile on the savings with our Home Energy Solutions Program. From A/C tune-ups to weatherization upgrades and LED bulbs, we offer ways to help you save year-round. Visit [enter.gy/6013Hah4B](http://enter.gy/6013Hah4B) to find a trade ally near you.



1 4

**Entergy Arkansas** September 22, 2021 · 🌐

Fall into savings with help from our Home Energy Solutions Program. From energy audits to air sealing, insulation and more, let us help you save energy and improve comfort no matter the season. Visit <http://enter.gy/6180yF9JA> to find a trade ally near you.



4 3 Shares



Entergy Arkansas @EntergyArk · Mar 2, 2021

You're in luck. Our Home Energy Solutions program provides weatherization upgrades at no additional cost. Adding ceiling insulation and sealing air leaks are two great ways to save energy and make your home more comfortable. Visit [enter.gy/6012HilrM](https://enter.gy/6012HilrM) for details.



Entergy Arkansas @EntergyArk · Jan 10, 2021

Today is Cut Your Energy Costs Day and the perfect time to let our Home Energy Solutions Program help you save energy. Contact one of our participating trade allies to receive weatherization measures like air and duct sealing at no additional cost. [enter.gy/6017HhuvL](https://enter.gy/6017HhuvL)



1

4



1

1

2



Entergy Arkansas @EntergyArk · May 7, 2021

Sign up for savings with our Home Energy Solutions Program. From A/C tune-ups to weatherization upgrades and LED bulbs, we offer ways to help you save year-round. Visit [enter.gy/6017HAN5T](https://enter.gy/6017HAN5T) to find a trade ally near you.



2

2



**Entergy Arkansas** @EntergyArk · Nov 9, 2021

A well-sealed home with the right insulation can help you save energy and make your home more comfortable. Enroll in our Home Energy Solutions Program to receive air sealing, duct sealing, insulation, and more at no additional cost. [enter.gy/6013JX2Gf](http://enter.gy/6013JX2Gf) efficiency

**Proper Attic Sealing and Insulation**

Insulation baffles Proper insulation level

To learn how to Seal and Insulate with ENERGY STAR please visit [www.energystar.gov/sealandinsulate](http://www.energystar.gov/sealandinsulate).

Seal and Insulate with ENERGY STAR

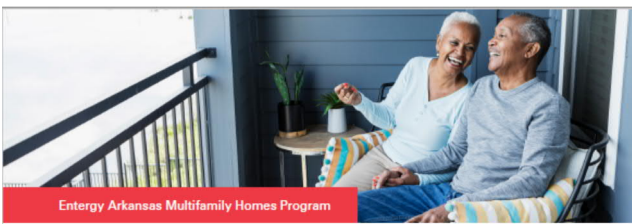
**Entergy Arkansas** @EntergyArk · Sep 22, 2021

Fall into savings with help from our Home Energy Solutions Program. From energy audits to air sealing, insulation and more, let us help you save energy and improve comfort no matter the season. Visit [enter.gy/6019yF9Jf](http://enter.gy/6019yF9Jf) to find a trade ally near you.

Fall into savings.

### 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:<sup>1</sup>

- 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 LED<sup>2</sup>
- Lighting Controls
- Permanent Delamping

\* Source: energystar.gov  
<sup>1</sup> Incentives are capped at 75% of the total project cost.  
<sup>2</sup> Includes LED parking lot, per canopy, area, flood, wall pack or retrofit exit.

### 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"> <li>• A qualified technician will measure and collect all required test data.</li> <li>• Pending customer approval, typical improvement measures include:                             <ul style="list-style-type: none"> <li>» Airflow correction.</li> <li>» Cleaning of indoor blower, evaporator coils and condenser coils.</li> <li>» Correction of refrigerant charge using required tools and procedures.</li> </ul> </li> </ul>

#### Pool pump upgrade

ENERGY STAR<sup>®</sup> 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"> <li>• ENERGY STAR certified pool pumps run at different speeds.</li> <li>• You can program them to match the pool operation with an appropriate speed.</li> <li>• Reducing pump speed by one-half allows the pump to use just one-eighth as much energy.</li> <li>• An ENERGY STAR certified pool pump:                             <ul style="list-style-type: none"> <li>» Runs quietly.</li> <li>» Prolongs the life of your pool's filtering system.</li> <li>» Can help you save money and energy.</li> </ul> </li> </ul>

#### Get started today

For more information, call 866-627-9177, visit [entergyarkansas.com/multifamily](http://entergyarkansas.com/multifamily) or email us at [MultifamilyEAL@icf.com](mailto:MultifamilyEAL@icf.com).

\* Source: energystar.gov



A message from Entergy Arkansas, LLC ©2021 Entergy Services, LLC. All Rights Reserved. The Entergy Solutions program is an energy efficiency program and not affiliated with Entergy Solutions, LLC.



### 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.

7

### 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. Entergy Arkansas is not responsible for lost documentation.

**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, Dust 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 [entergyarkansas.com](http://entergyarkansas.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.

8

The Entergy Arkansas trade ally has the right to refuse service or end the program if a customer acts inappropriately or when facing an unsafe situation, but is not limited to the following: unreasonable demands for service, offensive language, threatening or erratic behavior or failure to comply with the advice of Health and/or any applicable health and safety recommendations. Entergy Arkansas reserves the right to exclude any premises, or vicinity therein, deemed unsafe.

**TERMINATION:** Either party may terminate this agreement upon 30 days' advance notice. The customer shall be reimbursed for all services properly performed and approved under this program.

**NOTIFICATION:** Participant agrees that Entergy Arkansas or Entergy Arkansas' program implementer ICF may contact participant via mail, phone, text message or email in connection with program quality assurance communication.

**PROGRAM CHANGES, SUSPENSION OR CANCELLATION:** Entergy Arkansas reserves the right to change the program requirements, incentives, or terms and conditions, suspend or terminate the program, or to accept or reject applications or terminating the program, at any time without notice.

These terms and conditions constitute the agreement between the parties and their authorized representatives. By executing an Enrollment Form, the participant agrees to be bound by these terms and conditions.

I may view Entergy's privacy policy at [entergy.com/privacy-policy/](http://entergy.com/privacy-policy/).

Entergy Arkansas or 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 under this program.

Results are subject to a number of variable conditions and circumstances. While the program is designed to help customers achieve energy efficiencies, neither Entergy Arkansas nor ICF can guarantee that any specific energy efficiency gains will be achieved for a particular participant in the program.



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.<sup>1</sup>

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.<sup>1</sup>

**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.  
<sup>1</sup> Savings are approximate and may 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](http://entergyarkansas.com/multifamily) or email us at [multifamilyeal@ecf.com](mailto:multifamilyeal@ecf.com).



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The Entergy Arkansas program is an energy efficiency program and/or affiliated with Entergy Services, LLC.

WE POWER LIFE®

21217\_EAL\_MF\_ProgramOverview\_Flyer\_v08.indd 1

00000 8:17 PM

21217\_EAL\_MF\_ProgramOverview\_Flyer\_v08.indd 2

00000 8:17 PM

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](http://entergyarkansas.com/multifamily).

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WE POWER LIFE®

16\_EAI\_MF\_Homes\_Installation\_Doorhanger\_v04.indd 1
3/13/20 11:29 AM
16\_EAI\_MF\_Homes\_Installation\_Doorhanger\_v04.indd 2
3/13/20 11:29 AM

### 3.2.4 EAI\_CoBrand\_Business\_Card\_Template\_v03\_FPO




Cody Allen

Energy Efficiency Trade Ally

425 West Capitol Ave., Suite 3180 • Little Rock, AR 72201  
501-733-7771 • [Cody.Allen@icfi.com](mailto: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](mailto:Cody.Allen@icfi.com)

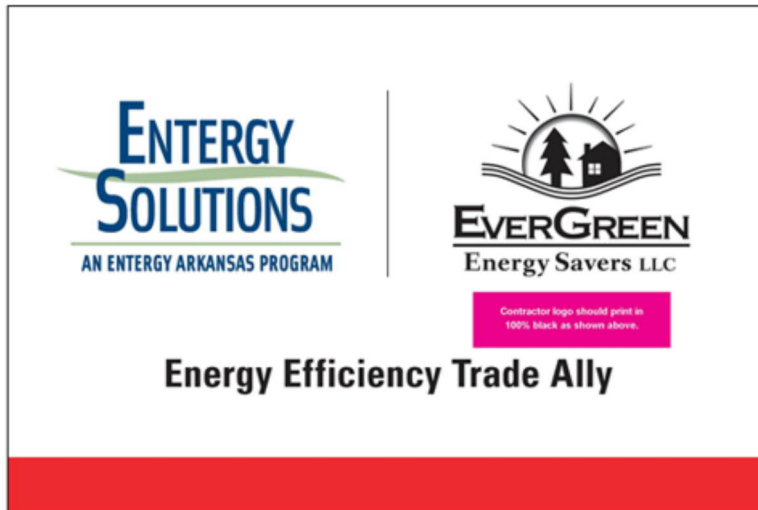
Contractor logo should print in 100% black.  
Contractor name is Univers Black, C=0 M=96 Y=91 K=0 at 14pt.  
Job Title is Univers Condensed at 9pt, and should print in 100% black.  
Contact info. is Univers Condensed at 9pt, with 12pt. leading. Tracking set to 30 and should print in 100% black.

### 3.2.5 EAI\_Pocket\_Folder\_2017\_v03\_RELEASE








3.2.6 Entergy\_Co-Branded\_TruckMagnet\_NewBrand\_v02\_FPO



3.2.7 Entergy\_MF-MA\_Tune-Up\_label\_2x3\_14180\_RELEASE


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](https://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](https://energysolutionsar.com) for more information.

If you need additional assistance or have any questions, feel free to call 866-627-9177 or email [MultifamilyEAL@ecf.com](mailto:MultifamilyEAL@ecf.com).

Sincerely,  
Heather Hendrickson  
Project Manager  
Entergy Arkansas

### 3.2.9 MF Live Survey



Thank you for taking the time to complete our survey for the Entergy Arkansas Multifamily Homes Program. We value your feedback to help us improve our program and the services we offer.

[Continue >](#)

**Energy Arkansas Multifamily Homes Program Customer Survey**

**Required Question(s)**

1. Please enter the information indicated below (optional).

First Name:   
 Last Name:   
 Home/Work:   
 Email Address:

2. Please describe your overall satisfaction with the Energy Arkansas Multifamily Homes Program Solution(s) project(s).

Very Satisfied   Satisfied   Neutral   Somewhat Dissatisfied   Very Dissatisfied

3. How did you first become aware of this Energy Solutions program?

Energy Arkansas site  
 Search engine search  
 Friend or colleague  
 Tap on this Energy Solutions contractor  
 Energy Arkansas email  
 Energy Solutions staff member  
 Social media  
 Other:

4. What was the main reason you participated in this program? Select all that apply.

To improve the sustainability of my energy bill  
 To reduce my home or office energy bill  
 My supervisor encouraged me  
 To improve the energy efficiency of my property  
 Because I'm free  
 To help the environment  
 To better market my property  
 Other:

5. How likely would you be to recommend this Energy Solutions program to others?

Very Likely   Likely   Not Sure   Somewhat Likely   Unlikely

6. Did the trade show make you aware of any other Energy Solutions programs?

Yes   No

7. Have tenants had comments or complaints about the Energy Solutions program or the energy-efficient products that were installed?

Yes, please describe below.  
 No

Comment:

8. Based on your recent experience, please rate your level of satisfaction with the trade show after came on-site.

	Very Satisfied	Satisfied	Neutral	Somewhat Dissatisfied	Very Dissatisfied	Not Applicable
On-time arrival for the appointment	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Staffing you ahead of time that they are going to be coming in	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Overall appearance that a friendly and industry attitude	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Clearly explained the energy efficiency programs, recommendations and work that would be performed	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Responded to specific energy concerns or questions	<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"/>
Various energy-saving tips	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Length of time required for installations	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Quality installation / service	<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   Neutral   Somewhat unlikely   Very unlikely

10. Do you have any suggestions for improving this Energy Solutions program?

11. In your own words, please tell us what, if anything, you liked or disliked about this Energy Solutions program.

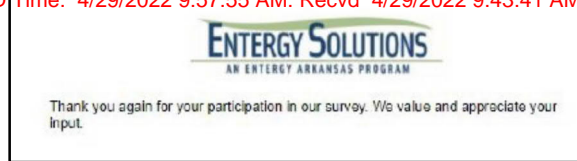
12. How has your overall experience as an Energy Arkansas, LLC, customer been?

Very Satisfying   Satisfying   Neutral   Dissatisfying   Very Dissatisfying

13. Assuming everyone could choose their provider, what is the likelihood you would recommend Energy Arkansas, LLC, to a friend or colleague?


Very Likely   Likely   Not Sure   Somewhat Likely   Unlikely

Final



### 3.2.10 Survey Email

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 [MultifamilyEAL@icf.com](mailto:MultifamilyEAL@icf.com).

Sincerely,

Heather Hendrickson  
Project Manager  
Entergy Arkansas

[Privacy Policy](#)





**Your Home Energy Checkup Report**

Jun 26, 2019

**Multifamily 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

A message from Entergy Arkansas, LLC ©2022 Entergy Services, LLC. All Rights Reserved. The Entergy Solutions program is an energy efficiency program not affiliated with Entergy Solutions, LLC.

WE POWER LIFE

**Nancy Tester**  
90 Main St  
Little Rock, AR12345

**Entergy Arkansas**  
Your Home Energy Checkup Report

Dear Nancy Tester,

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.

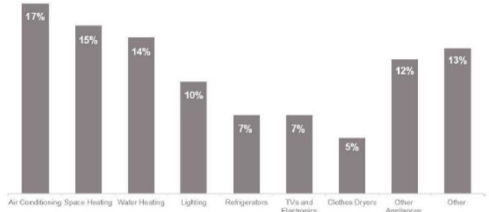
**Home Attributes**

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 [survey.yrittd.com](http://survey.yrittd.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](http://entergyarkansas.com/multifamily) | MultifamilyEAL@jct.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 [entergy.com/save-money/room-by-room-savings](http://entergy.com/save-money/room-by-room-savings).

[entergyarkansas.com/multifamily](http://entergyarkansas.com/multifamily) | MultifamilyEAL@jct.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.

**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	\$2.50	\$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.

**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)
				Elec – Low-Flow Showerheads – Handheld Showerhead	1	\$24	\$240

\*Energy savings based on average electric rate \$0.10/kWh and Average Natural Gas Rate \$0.80/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 [entergyelcibonus.com](http://entergyelcibonus.com) to learn more. You can also receive a discount on a quality advanced smart thermostat when you apply online using the Entergy Arkansas instant rebate website, [entergyinstantrebate.com](http://entergyinstantrebate.com).

Other potential energy efficiency programs that may benefit your property can be found online at:

- Entergy Arkansas, LLC - [www.energyarkansas.com](http://www.energyarkansas.com)
- CenterPoint Energy - [www.centerpointenergy.com](http://www.centerpointenergy.com)
- Black Hills Energy - [www.blackhillsenergy.com](http://www.blackhillsenergy.com)

[entergyarkansas.com/multifamily](http://entergyarkansas.com/multifamily) | MultifamilyEAL@jct.com | 866-627-9177

WE POWER LIFE

### Terms and Conditions

These terms and conditions are only valid for service completion on or after Jan. 1, 2020. Only these sites may accept applications for incentive participation.

**ENERGY AUDIT REPORT:** The Energy Audit report provides the customer with a complete results of energy-saving measures throughout the property, as well as recommendations related to energy efficiency programs available. Energy Arkansas is not responsible for lost participation.

**ELIGIBILITY:** Participants must be Energy Arkansas electric utility customers. Funds and credits are available for participants who are a first-time, first-time bank, in order for participants to qualify for Air Sealing, Cool Heating and Air Conditioning. The services must be performed by an Energy Arkansas trade ally. For other Energy Arkansas programs, please visit [energyark.com](http://energyark.com).

**APPROVAL AND VERIFICATION:** Energy Arkansas reserves the right to verify the quality of service and to take reasonable steps to the participant's trade ally to verify the performance of energy efficiency (EE) install measures and/or energy efficiency work. Prior to any portion of work, 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 improvements and other weather conditions may affect this certification process. The home may also be selected for a quality control post-installation verification by Energy Arkansas. No warranty is warranted or implied by this verification.

**PAYMENT:** Each measure may only receive one 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 used or not incentive. Energy Arkansas will not be responsible for any tax liability resulting from the use of 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 allow removal and disposal of the equipment being installed by EEMs in accordance with all laws, rules and regulations. The customer agrees to EEMs that may require removal of equipment from the site in Arkansas or transfer 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 installation as confidential, and the information in the reports will be in the aggregate, where practical.

**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 ARISING FROM THIS PROGRAM. PARTICIPATION IN THE PROGRAM BY 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 impliedly. Energy Arkansas does not endorse, guarantee or warrant any particular manufacturer or product, and Energy Arkansas provides no warranty, express or implied, for any products or services. Energy Arkansas makes no warranty of any kind, whether liability, expressed or implied, including without limitation, any warranty of merchantability or fitness for a particular purpose. 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 completed with any particular care (including patent laws, codes 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 installed 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 direct notification of the program and has received the energy audit and associated direct installation of equipment.

**CUSTOMER'S CERTIFICATION:** Property manager/owner certifies that he/she has received the required notification on the property on which the equipment is installed. 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 conditions are a customer's safety, health, or when being an unsafe situation. "Unsafe situation" includes but is not limited to the following: unreasonable demands for services, personal harassment or abusive language, threatening or erratic behavior and personal contact. Authorized trade ally reserves the right to exclude any premises, or notify, terminate, suspend, or cancel service.

**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 executing an Enrollment Form, the customer agrees to be bound by these terms and conditions, at any time without notice.

**PRIVACY POLICY:** You may view Energy's privacy policy at [energy.com/privacy](http://energy.com/privacy).

**NOTES:**

PLEASE USE YOUR OWN JUDGMENT TO READ THESE TERMS AND CONDITIONS. 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 were left to be installed by you to install. The items will be left for you to install as a result of Customer choice.

\_\_\_\_\_

**ENERGY SOLUTIONS**  
AN ENERGY ARKANSAS PROGRAM

**Entergy**  
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The Energy Solutions program is an energy efficiency program not affiliated with Entergy Solutions, LLC.

WE POWER LIFE

### 3.2.12 Beacon Report\_EAL\_2\_25\_2020

### Home Energy Assessment Report

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 1.80 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.

### 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
<b>Air Sealing</b>			
Air Sealing Level	Air leakage rate of 2000 cubic feet per minute at 50 Pascals.	Reduce leakage from living space to 1000 CFM50	\$34.60
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)	
<b>Insulation</b>			
Attic Insulation - Attic Area 1	Current insulation level is 6" and condition is poorly insulated	Insulate 1600 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
Rim Joist - Group 1	Area is not currently insulated	Insulate 100 linear feet with Fiberglass Batt	\$13.64
<b>Windows &amp; Glass Doors</b>			
Windows & Glass Doors - Metal SR pane no break	Current windows are double-pane clear without storm windows	Install 10 Units(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
<b>HVAC Systems</b>			
Heating System - System 1	20-24 year old Air Source Heat Pump with an efficiency of 6.5 HSPF	Replace w/ 7.8 HSPF Install and Program Set-Back Thermostat	\$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
<b>Ducts</b>			
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
<b>Domestic Hot Water System</b>			
Water Heater - System 1	Current DHW system is 1920-1995 Storage (Tank) with energy factor (EF) of 0.88	Performance Tune-Up or Repair	\$1.55
<b>Lighting, Appliances &amp; Smart Strips</b>			
Replacement Lighting		Install 15 Energy Efficient Lamps *	\$85.41
Smart Strips		Install Smart Strips	
<b>Water Saving Measures</b>			
Low-Flow Showerheads		Replace 2 of 2 showerheads with low-flow showerheads	\$17.05
<b>Building Performance Measures</b>			
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	67.5%
Water Heating Savings	188	\$19	6.5%
Electric Baseload Savings	854	\$85	12.5%
HVAC Auxiliary Electricity Savings	273	\$27	26.2%
<b>Total Project Savings</b>	<b>9,712</b>	<b>\$971</b>	<b>N/A</b>
<b>Total Percent Savings</b>	<b>39.7%</b>	<b>39.7%</b>	<b>39.7%</b>

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

- Airflow** 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 changeover 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 your 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  
2021 Multifamily Homes Program Guidebook**

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ICF Little Rock

Contact:  
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entergyarkansas.com/multifamily

Version 1.0  
Jan. 25, 2021

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and money when properly installed and used. These measures will be cost to the customer. A survey will provide insights into other ways to use

prehensive evaluation on your home's energy use. This audit will provide ys to save energy. During the Tier 2 audit, customers eligible for n will start with a home inspection before work. The energy auditor will k-through<sup>1</sup> inspection of the conditioned space and note characteristics such rtain items including any air bypasses in the building's envelope. A pre- rformed to confirm the need for air sealing and a pre-duct blaster test rfirm the need for duct sealing. If the pre-testing confirms the need for elther ailing, the air sealing and duct sealing may be authorized. Post testing must ure and/or the duct to confirm the air-leakage reduction. This measure only art of a large multifamily Complex such as a duplex or triplex.

lassified as a multifamily dwelling taking electric service from Entergy ble for the Entergy Arkansas Multifamily Homes Program. Properties under multifamily rate code all qualify for this program.

xtimum limits on the size of a building or number of qualifying buildings in a id, and services are available in all Entergy Arkansas service territories on a served basis.

efficient products are furnished and installed at no additional cost to Entergy tomers. The installed measures help reduce energy usage, water charges. The measures available for direct installation in eligible properties

<sup>1</sup> LEDs in fixtures that replace incandescent bulbs.  
 minute showerheads and faucet aerators (when existing fixtures have flow ins per minute or greater and where the water heater is powered by electricity).  
 r strips for qualifying home entertainment system.



**Incentivized Measures**

**Air Conditioning and Heat Pump Tune-up Measures**

Any Entergy 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.

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 incentive forms for payment, which takes approximately six to eight weeks.

**HVAC Replacement Measures (Residential and Commercial)**

**Residential Heat Pump/Central Air Conditioner**

Any Entergy 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 16 SEER or greater rating, and existing equipment must be at least two years old to qualify.

**Commercial/ Common Area Heat Pump/Central Air Conditioner**

Any Entergy 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 16 SEER or greater rating and existing equipment must be at least five years old to qualify.

**Duct Sealing**

Any Entergy 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.

**Air Sealing**

Any Entergy 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.

**Ceiling Insulation**

Any Entergy 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.

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**Eligibility Criteria**

**Residential:** Any residence classified as a multifamily dwelling taking electric service from Entergy Arkansas.

**Commercial:** Common areas listed below in multifamily properties are eligible:

- Office.
- Lobby.
- Laundry room.
- Exercise room.

**Commercial Measures**

Any Entergy 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.

**Qualifying Lighting Measures**

**Exterior LED Lighting:** Floods, Parking, Wall Packs, Retrofit Kits and LED Exit Signs.

**Delamping:** T12 or T8 system with HPT8, T5 or TSHO lamp and ballast. Removing two lamps.

**Interior LED Lighting:**

- Recessed, Surface, Track and Pendant Downlight Fixtures.
- Troffer, Panel Fixtures and Retrofit Kits.
- LED Linear Tube Replacement and Retrofits (One for One).
- LED Screw-in Lamps, MR Lamps and Retrofit Trim Kits.

**Qualifying Misc. Measure Such As:**

- Plug Control: Advanced Power Strips.
- Lobby.
- Pool Pumps: VFD/Energy Star Certified 0.5-3.0 HP.
- Heat Pump or Air Conditioner Replacement.
- Heat Pump or Air Conditioner Tune-up.

**Program Quality Management**

**Post-Verification**

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 ask about the installation and visit the project site.

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**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. Entergy Arkansas is not responsible for lost documentation.

**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. 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 [entergyarkansas.com](http://entergyarkansas.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.

**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.

**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**

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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.

**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.

**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.

**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 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 requirements listed.

**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.

**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 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.

8

**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.

**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/](http://entergy.com/privacy-policy/).

**Disclaimer**

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.

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.

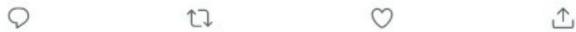
### 3.2.14 MF EAL Social Media Posts- Facebook and Twitter





Entergy Arkansas @EntergyArk · Aug 5, 2021

Help your residents save energy and money by signing up for air conditioning tune-ups and more through our Multifamily Homes Program. Visit [enter.gy/6010yiVcw](https://enter.gy/6010yiVcw) to find a trade ally near you.



Entergy Arkansas @EntergyArk · Jun 8, 2021

Help your residents save energy and money by signing up for high-performance air conditioning tune-ups through our Multifamily Homes Program. Visit [enter.gy/6017yyL6U](https://enter.gy/6017yyL6U) to find a trade ally near you.



### 3.3 Entergy Solutions for Manufactured Homes

#### 3.3.1 22542\_EAL\_MA\_Bill\_Insert\_v04\_RELEASE\_2021\_cropped.pdf

**A home to smile about**

The Entergy Arkansas Manufactured Homes Program offers incentives on an air conditioning tune-up to help your home's system run more efficiently, provide better comfort and lower your energy costs.

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.

Visit [entergyarkansas.com/manufactured](http://entergyarkansas.com/manufactured), or call us at 866-627-9177 to learn more.

**Simple solutions, lasting savings**

The Entergy Arkansas Manufactured Homes Program also offers weatherization and direct install measures such as:

- Duct sealing.
- Air sealing.
- LED light bulbs.
- Advanced power strips.
- Energy-efficient showerheads.
- Kitchen and bathroom faucet aerators.

Plus, an energy efficiency consultant will survey your home to identify opportunities for future energy efficiency improvements and incentives.

**Ready to get started?**  
Go to [entergyartradedeally.com](http://entergyartradedeally.com) to schedule an appointment with a participating trade ally.  
[entergyarkansas.com/manufactured](http://entergyarkansas.com/manufactured)  
866-627-9177

**Entergy**

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8-020120

**WE POWER LIFE\***

#### 3.3.2 Circuit Newsletter Article December 2021 – Manufactured Homes.PNG

ARTICLE

## Keep Your Manufactured Home Comfortable This Winter with Energy-Saving Upgrades



Our **Manufactured Homes Program** can help you save energy this winter and beyond. Did you know that air that leaks from your home can waste a lot of energy? Weatherization measures, as part of our Energy Solutions Manufactured Homes Program, can help ease your worry and ultimately improve your home's energy efficiency. A well-sealed home can help you save energy and money and improve comfort and durability.

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.

Home comfort starts here. Improve the energy efficiency of your home now and for years to come. Visit [energyarkansas.com/manufactured](https://energyarkansas.com/manufactured) to find a participating trade ally or to learn more.



Entergy Arkansas Manufactured Homes Program

## Program overview

**Save energy**

Community managers and residents of eligible manufactured homes can save energy through the Entergy 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.

Entergy 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.\*

**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.

\* 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/manufactured](http://entergyarkansas.com/manufactured) or email us at [manufactured@icf.com](mailto:manufactured@icf.com).



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The Smart Solutions program is an energy efficiency program administered by Entergy Solutions, LLC.

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### 3.3.4 25291\_EAL\_MA\_Spanish\_ProgramOverview\_Flyer\_OnDemand\_v04\_Print\_Release



Programa de Casas Prefabricadas de Entergy 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 Entergy 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 Entergy 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.\*

**Aireadores de grifo de cocinas y baños**

Un técnico instalará aireadores de grifo energéticamente eficientes que usan 1.5 galones por minuto en la cocina y en el baño.

- Los aireadores están hechos de materiales duraderos.
- Usan 31% menos agua en comparación con un aireador estándar, lo que significa que usan menor energía para calentar agua.†

**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.

\* Los productos de eficiencia de agua están disponibles solo para clientes que tienen un calentador de agua eléctrico.  
† 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 [entergyarkansas.com/manufactured](http://entergyarkansas.com/manufactured) o envíenos un correo electrónico a [manufactured@icf.com](mailto:manufactured@icf.com).



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El programa de Energía Eficiente es un programa de uso eficiente de la energía administrado por Entergy Solutions, LLC.

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### 3.3.5 21216\_EAL\_MA&HES\_Doorhanger\_v09\_Release\_Print+die

16\_EAL\_MAHES\_Doorhanger\_v09.indd 1 5/7/20 8:28 A 116\_EAL\_MAHES\_Doorhanger\_v00.indd 2 5/7/20 8:28 A

3.3.6 EAI\_CoBrand\_Business\_Card\_Template\_v03\_FPO

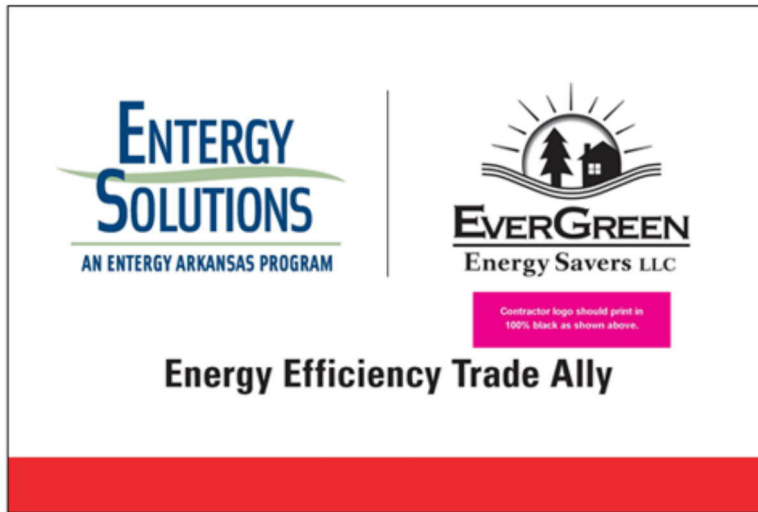
Contractor logo should print in 100% black.  
 Contractor name is Univers Black, C=0 M=96 Y=91 K=0 at 14pt.  
 Job Title is Univers Condensed at 9pt. and should print in 100% black.  
 Contact info. is Univers Condensed at 9pt. with 12pt. leading. Tracking set to 30 and should print in 100% black.

3.3.7 EAI\_Pocket\_Folder\_2017\_v03\_RELEASE





3.3.8 Entergy\_Co-Branded\_TruckMagnet\_NewBrand\_v02\_FPO




3.3.9 Entergy\_MF-MA\_Tune-Up\_label\_2x3\_14180\_RELEASE

The form is titled 'ENERGY SOLUTIONS AN ENTERGY ARKANSAS PROGRAM'. It contains four fields for data entry, each with a label and a dotted line for separation:

- Contractor Name:
- Technician Name:
- Date Performed:
- Unit ID#:

3.3.10 26338\_EAL\_MA\_Doorhanger\_v02\_Release\_Print




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 bajo a Energy Solutions, LLC.

3.3.11 EAL\_Home Energy Report\_MA\_V7



## 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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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.

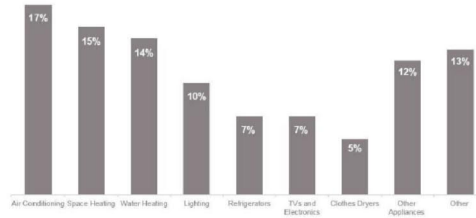
#### Home Attributes

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 [survey.rttbd.com](http://survey.rttbd.com) to complete a quick survey.

#### Residential Energy Consumption by End Use\*



\* U.S. Energy Information Administration, 2015 Residential Energy Consumption Survey

[entergyarkansas.com/manufactured](http://entergyarkansas.com/manufactured) | [ManufactureEAL@cf.com](mailto:ManufactureEAL@cf.com) | 866-627-9177

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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 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 70-80% 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 [circuit.entergy.com/save-money/room-by-room-savings](http://circuit.entergy.com/save-money/room-by-room-savings).

[entergyarkansas.com/manufactured](http://entergyarkansas.com/manufactured) | [ManufactureEAL@cf.com](mailto:ManufactureEAL@cf.com) | 866-627-9177

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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)
Advanced Power Strip – Home Office	2	\$13.20	\$132



**Light-Emitting Diode (LED) Bulbs**—The new LEDs that were installed can last at least 10 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)
Elec. – Low-Flow Faucet Aerator – Bath	1	\$2.56	\$25.60



**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)
Elec. – Low-Flow Showerheads – Handheld Showerhead	1	\$24	\$240

\*Energy savings based on average electric rate \$0.10/kWh and average natural gas rate \$0.80/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-Up:** The air conditioning tune-up helps each home's system to run more efficiently and provides better control to residents while lowering energy costs.

**Dust Sealing:** A dust 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](http://entergyarkansas.com/thermostat) or call 833-807-7832.

**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 [entergyarc.com](http://entergyarc.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, [entergyarc.com](http://entergyarc.com).

Other potential energy efficiency programs that may benefit your property can be found online at:

- Entergy Arkansas, LLC – [www.entergyarkansas.com](http://www.entergyarkansas.com)
- CenterPoint Energy – [www.centerpointenergy.com](http://www.centerpointenergy.com)
- Black Hills Energy – [www.blackhillsenergy.com](http://www.blackhillsenergy.com)

[entergyarkansas.com/manufactured](http://entergyarkansas.com/manufactured) | [ManufactureEAL@cf.com](mailto:ManufactureEAL@cf.com) | 866-627-9177

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**Terms and Conditions**

These terms and conditions are only valid for service completed on or after Jan. 1, 2020. Only these terms may submit applications for incentive consideration.

**ENERGY AUDIT REPORT:** The Energy Audit Report provides the customer with a limited review of energy usage measures related through the program, as well as recommendations related to energy efficiency programs available. Entergy Arkansas is not responsible for lost documentation.

**ELIGIBILITY:** Participants must be Entergy Arkansas electric utility customers. Funds are limited and services are available in select geographic areas on a first-come, first-served basis. In order to participate, you must be an Arkansas, DOD or DODM member. For more information, please visit [www.energysolutions.com](http://www.energysolutions.com).

**APPROVAL AND VERIFICATION:** Entergy Arkansas reserves the right to verify the quality of work and to have reasonable access to the participant's residence to verify the quality of work and to have reasonable access to the participant's residence to verify the quality of work. Entergy Arkansas reserves the right to verify the quality of work and to have reasonable access to the participant's residence to verify the quality of work. Entergy Arkansas reserves the right to verify the quality of work and to have reasonable access to the participant's residence to verify the quality of work.

**TAX LIABILITY:** The customer is responsible for obtaining and paying any and all applicable federal, state and local taxes that may be incurred as a result of this program. Entergy Arkansas is not responsible for any tax liability that may be incurred as a result of this program. Entergy Arkansas is not responsible for any tax liability that may be incurred as a result of this program.

**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 Entergy Arkansas at any time, with or without notice. The customer agrees to reimburse any third-party equipment provider 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 or service in promoting this program.

**INFORMATION RELEASE:** 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 or Entergy Arkansas (and/or the Arkansas Public Service Commission). Entergy Arkansas will treat all other information gathered in installations as confidential, and the information in the reports will be the property of Entergy Arkansas.

**LIMITATION OF LIABILITY:** ENTERGY ARKANSAS LIABILITY IS LIMITED TO PAYING THE INCENTIVE SPECIFIED. IN NO EVENT WILL ENTERGY ARKANSAS BE LIABLE WHETHER IN CONTRACT, TORT, NEGLIGENCE, STRICT LIABILITY, WARRANTY OR OTHERWISE FOR SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES. ENTERGY ARKANSAS DOES NOT WARRANT PARTICIPATION IN THE PROGRAM. ENTERGY ARKANSAS MAKES NO REPRESENTATION OR WARRANTY AS TO THE ACCURACY OF THE DATA AND ALL REQUIRED ADDITIONAL INFORMATION ARE NOT COMPLETE OR ACCURATE.

**WARRANTIES:** Entergy Arkansas does not warrant the proper completion of work or performance of installed or revised equipment, expressly or impliedly. Entergy Arkansas does not endorse, guarantee or warrant any particular manufacturer or product, and Entergy Arkansas provides no warranties, express or implied, for any products or services. Entergy Arkansas makes no warranties of any kind, whether installed, inspected or repaired, including without limitation, a warranty of merchantability or fitness for a particular purpose regarding any work. Entergy Arkansas makes no guarantee of energy-saving results by receiving measure installation. The customer acknowledges that neither Entergy Arkansas nor any of its consultants are responsible for ensuring the design, engineering or installation of the measures is proper or comply with any particular laws (including permit laws), codes 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 contemplated and that any necessary landlord or tenant's consent, as of the last day he 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/manager certifies that he/she has consented for the installed services listed on the application at the address location. Property manager/manager agrees that all information is true and that he/she has confirmed to all program and equipment requirements listed.

**RIGHT TO REFUSE:** The Entergy Arkansas trade ally has the right to refuse service or the delivery of any equipment to a customer acting independently or when being in an unsafe situation. "Unsafe" includes but is not limited to the following: unreasonable demands for service, personality, harassment or abusive language, harassment or erratic behavior and personal conduct. Authorized trade ally reserves the right to refuse any premises or working hours, 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 reimbursed for all services properly performed and approved as to date of termination.

**USE OF EMAIL ADDRESSES:** Entergy Arkansas or Entergy Arkansas program implementer may contact participants via email in connection with the program.

**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.

**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 [www.energysolutions.com/privacy-policy](http://www.energysolutions.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 or more energy-saving items were left by the contractor for you to install. The service was left for you to install as a result of:  
Customer initials: \_\_\_\_\_



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**3.3.12 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@gmail.com

**Description of Home**

House Type: Single-Family Detached  
 Conditioned Floor Area: 1800 Sq Ft  
 Number of Bedrooms: 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: 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 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.

### 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
<b>Air Sealing</b>			
Air Sealing Level	Air leakage rate of 2000 cubic feet per minute at 50 Pascals.	Reduce leakage from living space to 1500 CFM50	\$34.60
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)	
<b>Insulation</b>			
Attic Insulation - Attic Area 1	Current insulation level is 6" and condition is poorly insulated	Insulate 1500 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 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
<b>Windows &amp; Glass Doors</b>			
Windows & Glass Doors - Metal csi 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
<b>Doors</b>			
Doors - Wood	Current door is solid core wood (no storm)	Install 2 Add Storm Door	\$6.47
<b>HVAC Systems</b>			
Heating System - System 1	20-24 year old Air Source Heat Pump with an efficiency of 6.5 HSPF	Replace w/ 7.8 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
<b>Ducts</b>			
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
<b>Domestic Hot Water System</b>			
Water Heater - System 1	Current DHW system is 1992-1995 Storage (Tank) with energy factor (EF) of 0.88	Performance Tune-Up or Repair	\$1.55
<b>Lighting, Appliances &amp; Smart Strips</b>			
Replacement Lighting		Install 15 Energy Efficient Lamps *	\$85.41
Smart Strips		Install Smart Strips	
<b>Water Saving Measures</b>			
Low-Flow Showerheads		Replace 2 of 2 showerheads with low-flow showerheads	\$17.05
<b>Building Performance Measures</b>			
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	67.5%
Water Heating Savings	188	\$19	6.5%
Electric BaseLoad Savings	854	\$85	12.5%
HVAC Auxiliary Electricity Savings	273	\$27	26.2%
<b>Total Project Savings</b>	<b>9,712</b>	<b>\$971</b>	<b>NA</b>
<b>Total Percent Savings</b>	<b>39.7%</b>	<b>39.7%</b>	<b>39.7%</b>

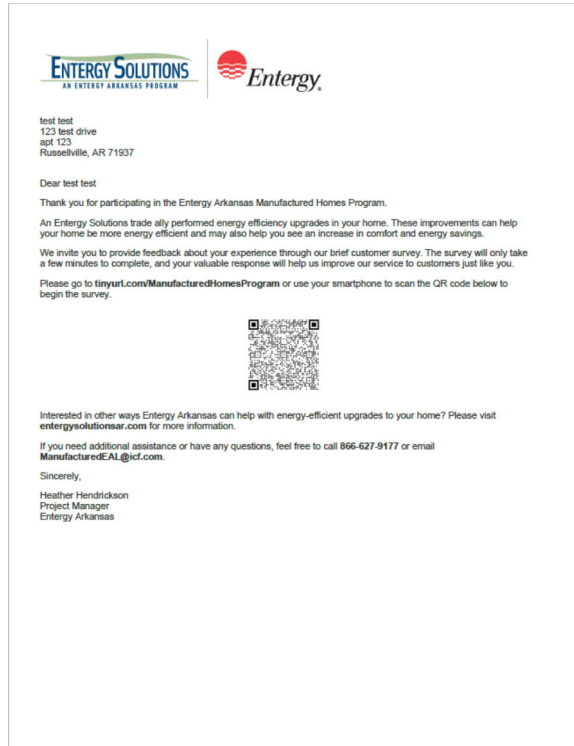
Projected Reduction in Annual Utility Costs  
If you install all of the measures recommended above, your projected annual energy cost savings would be \$971 and would potentially change as follows by end use category.

### 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 SHR	
Energy Saving Measures	\$0.00
Total Package Price	\$0.00
Arkansas Entergy 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

### 3.3.13 MA Survey Letter



### 3.3.14 MA Live Survey



**Energy Arkansas Manufactured Homes Program  
Customer Survey**

**Required Question(s)**

1. Please enter the information indicated below (optional)

First Name:   
 Last Name:   
 Home Phone:   
 Email address:

2. Please describe your overall satisfaction with the Energy Arkansas Manufactured Homes program.

Very Dissatisfied  Dissatisfied  Neutral  Satisfied  Very Satisfied

3. How did you first become aware of this Energy Solutions program?

- Energyarkansas.com
- Internet or online search
- Friend or neighbor
- Trade or industry solutions conference
- Energy Arkansas email
- Energy Solutions advertisement
- Social media
- Other

4. Why did you participate in this program? Select all that apply.

- To save money on my energy bill
- Neighbors that encouraged me
- To improve the efficiency of my home
- Because I love the
- To help the environment
- To improve the comfort of my home
- Other

5. How likely would you be to recommend this Energy Solutions program to others?

Very Likely  Likely  Not Sure  Somewhat Unlikely  Unlikely

6. Did the trade ally make you aware of any other Energy Solutions programs?

- Yes. Please specify programs below.
- No

Comment:

7. Based on your recent experience, please rate your level of satisfaction with the trade ally that came on-site.

	Very Dissatisfied	Dissatisfied	Neutral	Satisfied	Very Satisfied	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"/>
Notify(ing) you ahead of time that they are going to be arriving late	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Overall appearance that is friendly and customer oriented	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Clearly explained the energy assessment process, recommendations and work that would be performed	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Engagement to specific energy concerns and questions	<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"/>
Working closely during the	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Clearly directed how the Energy Solutions program would be used	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

8. Do you have any suggestions for improving the Energy Solutions program?

9. In your own words, please tell us what, if anything, you liked or disliked about this Energy Solutions program.

10. How has your overall experience as an Energy Arkansas, LLC customer been?

Very Satisfying  Satisfying  Neutral  Dissatisfying  Very Dissatisfying

11. Assuming everyone could choose their provider, what is the likelihood you would recommend Energy Arkansas, LLC to a friend or colleague?

Very Likely  Likely  Not Sure  Somewhat Unlikely  Unlikely





Thank you again for your participation in our survey. We value and appreciate your input.

### 3.3.15 Survey Email

Thank you for participating in an Entergy Solutions program.

**D** donotreply@programprocessing.com  
Thu 10/15/2020 2:38 PM  
To: Gorychev, 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.

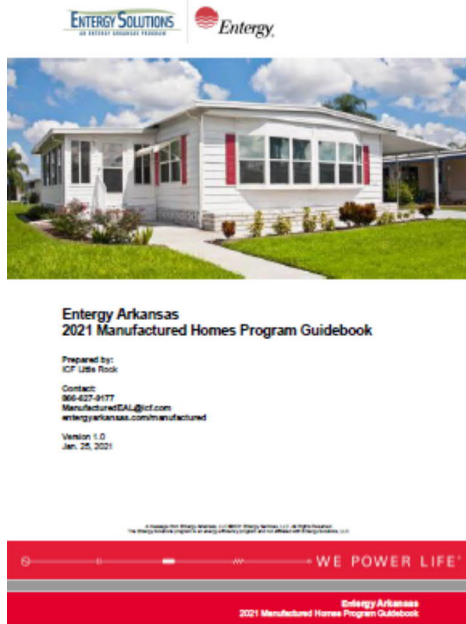
If you need additional assistance or have any questions, feel free to call **866-627-9177** or email [ManufacturedEAL@cf.com](mailto:ManufacturedEAL@cf.com).

Sincerely,

Heather Hendrickson  
Project Manager  
Entergy Arkansas



[Privacy Policy](#)



**Entergy Arkansas**  
2021 Manufactured Homes Program Guidebook

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**Entergy Arkansas**  
2021 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 home 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 sensors, 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 members 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 [EntergyArkTradeAlly.com](http://EntergyArkTradeAlly.com). If you have any questions, please call us at 366-627-9177 or email us at [Manufactured@CAL@icf.com](mailto:Manufactured@CAL@icf.com).

**STEP 2:** Schedule an appointment to have a trade ally visit your manufactured home to install the program measure 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.

**Tier 1 and Tier 2 Audits**

The home must have a working central heat and air system in order to qualify for the duct sealing, air sealing and A/C tune-up measures. If the home does not have a working central heat and air system, they are still eligible to receive a tier 1 audit with the direct installation of LED bulbs, low-flow showerheads and sensors and advanced power strips. A home may only receive these direct installation measures once every 10 years.

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**Entergy Arkansas**  
2021 Manufactured Homes Program Guidebook

**Tier 1 Audit**

During the Tier 1 audit walk-through survey, trade allies will install energy-saving measures including LED light bulbs, advanced power strips, showerheads and sensors/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.

**Tier 2 Audit**

The Tier 2 audit is a comprehensive evaluation on your home's energy use. This audit will provide recommendations on ways to save energy. During the Tier 2 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 blower 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 suboptimal. Post-audit must be performed in the structure and/or the duct to confirm the air leakage reduction.

**Program Eligibility**

Owners or renters (with the 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 [entergysolutions.com](http://entergysolutions.com).

**Program Benefits**

**Direct Install Measures**

In this program, energy-efficient products are furnished and installed at no additional cost to Entergy Arkansas Manufactured Homes 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 where 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.

**Dust Sealing**

Any Energy Manufactured Homes Program customer who uses a central dust system for heating and cooling the home may qualify for dust sealing based on the total system leakage. Dust sealing will consist of air leaks in the ductwork being sealed with the application of long-lasting materials. After the dust 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 set 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 final 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, Dust 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](http://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 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.

**INDORSEMENT:** 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 allies or any of their affiliates, directors, officers, employees, agents, or contractors liable for any fines 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 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 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.

**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 energy efficient measures.

**CUSTOMER'S CERTIFICATION:** Property manager/owner certifies that he/she has contracted for the required services 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 confirmed by a customer acting inappropriately or when being 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/](http://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 service(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 guarantee or warrants that any specific energy efficiency gains will be achieved for a particular customer participating in the program.

**Entergy Arkansas** December 28, 2021

Stand up to winter's chill by weatherizing your mobile home through our Manufactured Homes Program. Sealing air leaks in your duct system and throughout your home can save energy and improve comfort. Visit <http://enter.gy/6188JSjKm> to schedule an appointment with an authorized trade ally.



1

**Entergy Arkansas** January 13, 2021

Stand up to winter's chill by weatherizing your mobile home through our Manufactured Homes Program. Sealing air leaks in your duct system and throughout your home can save energy and improve comfort. Visit <http://enter.gy/6180HnuLw> to schedule an appointment with an authorized trade ally.



4 2 Shares

**Entergy Arkansas** June 7, 2021

Our energy efficiency programs aren't just for traditional single-family homes. Through our Manufactured Homes Program, you can sign up for energy-saving upgrades like A/C tune-ups, air and duct sealing and more. Find a participating trade ally at <http://enter.gy/6185yyld>.



6 6 Shares

**Entergy Arkansas** March 3, 2021

Spring into savings by weatherizing your mobile home through our Manufactured Homes Program. By sealing leaks in your duct system & throughout your home, you can save energy while improving comfort and durability. Visit us at <http://enter.gy/6185Hliw> to learn more or find an authorized trade ally near you.



3 3 Comments 4 Shares

**Entergy Arkansas** @EntergyArk · Dec 28, 2021

Stand up to winter's chill by weatherizing your mobile home through our Manufactured Homes Program. Sealing air leaks in your duct system and throughout your home can save energy and improve comfort. Visit [enter.gy/6017JSjKI](http://enter.gy/6017JSjKI) to find an authorized trade ally.



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**Entergy Arkansas** @EntergyArk · Jan 13, 2021

Stand up to winter's chill by weatherizing your mobile home through our Manufactured Homes Program. Sealing air leaks in your duct system and throughout your home can save energy and improve comfort. Visit [enter.gy/6019HnuLZ](http://enter.gy/6019HnuLZ) to find an authorized trade ally.



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Entergy Arkansas @EntergyArk · Jun 7, 2021

Our energy efficiency programs aren't just for traditional single-family homes. Through our Manufactured Homes Program, you can sign up for energy-saving upgrades like A/C tune-ups, air and duct sealing and more. Learn more at [enter.gy/6012yylfw](https://enter.gy/6012yylfw).



1 2



Entergy Arkansas @EntergyArk · Mar 3, 2021

Spring into savings by weatherizing your mobile home through our Manufactured Homes Program. By sealing leaks in your duct system & throughout your home, you can save energy while improving comfort and durability. Visit us at [enter.gy/6012HliwG](https://enter.gy/6012HliwG) to learn more.

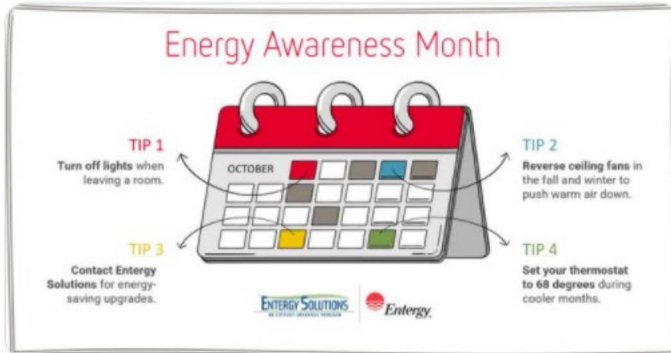


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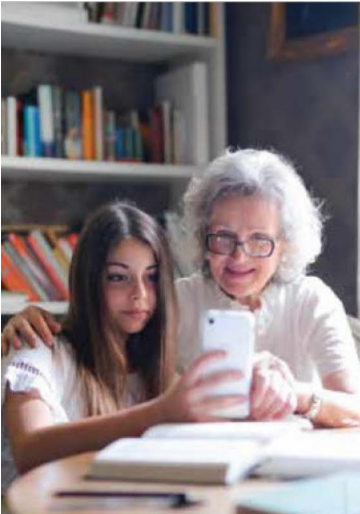
Entergy Arkansas @EntergyArk · Oct 5, 2021

October is Energy Awareness Month, making it the perfect time to weatherize your manufactured home. Visit [enter.gy/6013JGIOW](https://enter.gy/6013JGIOW) to learn about energy-saving upgrades available at no additional cost.



1

### 3.4 Low-Income Solutions




# Make sure comfort is always in season.

At no additional cost, you can save energy and improve home comfort this summer with the Low-Income Solutions Program.

Start by scheduling an air conditioning tune-up by emailing [lowincomesolutionseal@icf.com](mailto:lowincomesolutionseal@icf.com) or calling 866-627-9177.



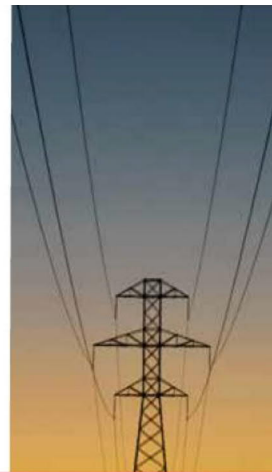
## Now is the time to tune up your air conditioner.




Easily improve your air conditioner's reliability by catching inefficiencies before they lead to trouble. An air conditioning tune-up helps your home's system run more efficiently, provides better comfort and lowers energy costs. And best of all, the process is simple – a certified technician cleans your system and adjusts your refrigerant charge.

Start by emailing [lowincomesolutionseal@icf.com](mailto:lowincomesolutionseal@icf.com) or calling 866-627-9177. Visit [entergyarkansas.com/lowincome](http://entergyarkansas.com/lowincome) to learn more.

A message from Entergy Arkansas, LLC ©2021 Entergy Services, LLC. All Rights Reserved. The Entergy Solutions program is an energy efficiency program and not affiliated with Entergy Solutions, LLC. E-062104







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 scheduling a home energy assessment by emailing [lowincomesolutionseal@icf.com](mailto:lowincomesolutionseal@icf.com) or calling 866-627-9177.



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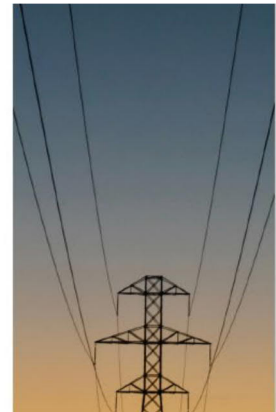
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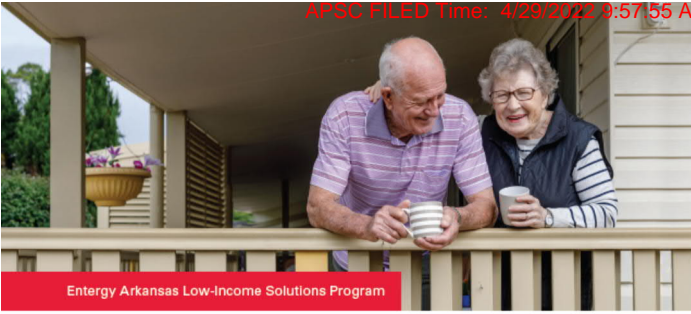
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Entergy Arkansas Low-Income Solutions Program

## 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:
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  - Advanced power strip.
  - Low-flow showerhead and aerators (for customers with electric water heaters).

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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.

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- Have in-home Wi-Fi service.

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A representative can help you decide whether an assessment is best for you. Visit [entergyarkansas.com/lowincome](http://entergyarkansas.com/lowincome) to learn more.



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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

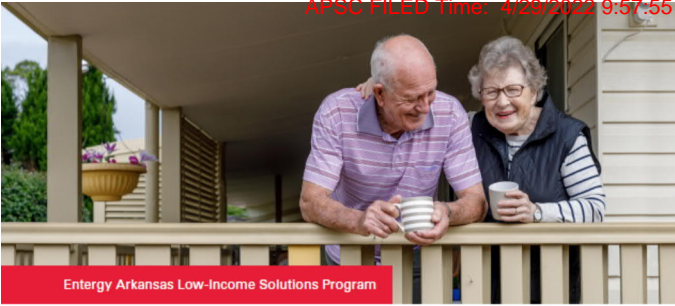
Póngase en contacto con el Centro de Soluciones de Eficiencia de Energía llamando al 866-627-9177 o enviando un correo electrónico a [lowincomesolutionseal@icf.com](mailto:lowincomesolutionseal@icf.com). Un representante puede ayudarle a decidir si una evaluación es lo mejor para usted. Para más información, visite [enteryarkansas.com/lowincome](http://enteryarkansas.com/lowincome).



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El programa de Entergy Solutions es un programa de uso eficiente de la energía y no está afiliado a Entergy Solutions, LLC.

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## Program overview

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123-456-7890  
[fakemailaddress@fakehost.com](mailto:fakemailaddress@fakehost.com)  
 1234 Fake Street  
 Fake City, USA

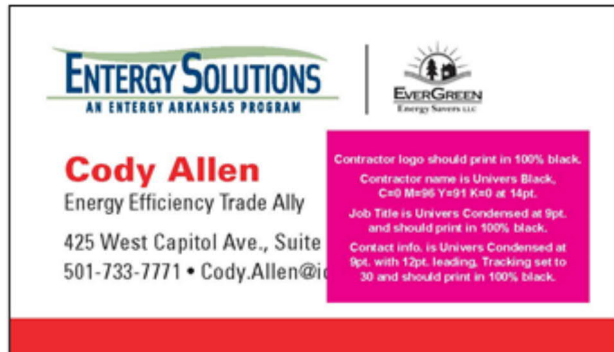
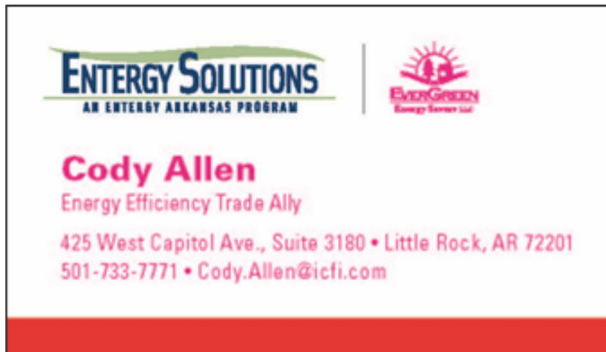


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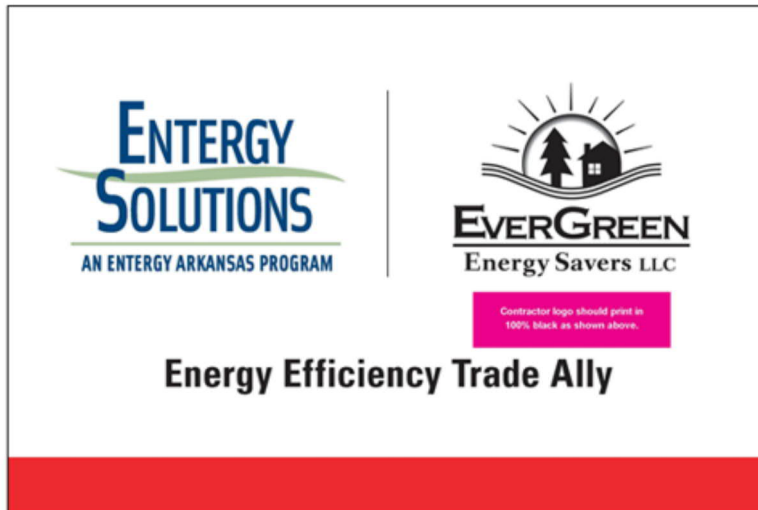
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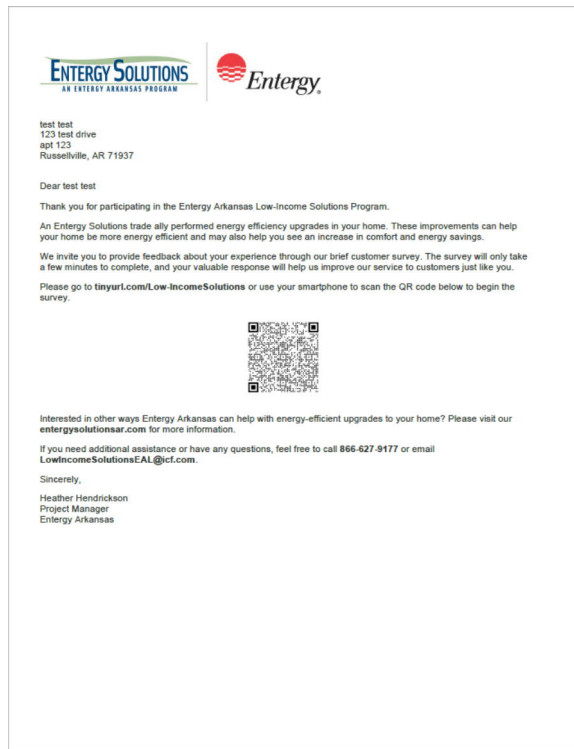


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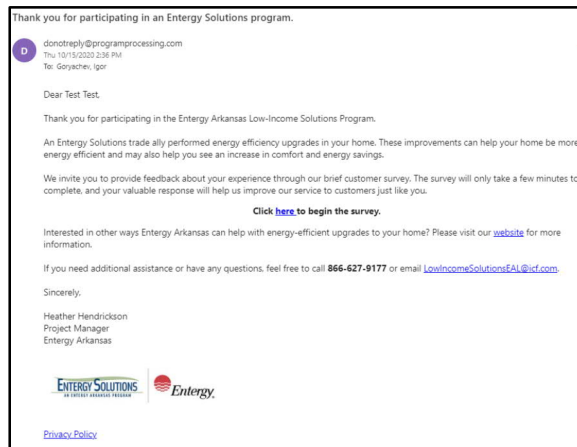


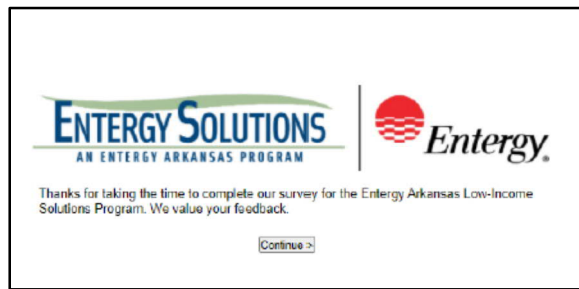
3.4.8 Entergy\_Co-Branded\_TruckMagnet\_NewBrand\_v02\_FPO





### 3.4.10 Survey Email







Low-Income Solutions Customer Satisfaction Survey

1. Please enter the information indicated below (optional).

First Name:   
 Last Name:   
 Home Phone:   
 Email Address:   
email@entergy.com  
 Postal Code:

2. Please describe your overall satisfaction with the Entergy Arkansas Low-Income Solutions program.

Very Satisfied   Satisfied   Neutral   Somewhat Unsatisfied   Very Unsatisfied  
           

3. 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

4. Why did you participate in this program? Select all that apply.

To save money on my energy bill  
 Neighbor/friend encouraged me  
 To improve the efficiency of my home  
 Because it was free  
 To help the environment  
 To improve the comfort of my home  
 Other

5. How likely would you be to recommend this Entergy Solutions program to others?

Very Likely   Likely   Not Sure   Somewhat Unlikely   Unlikely  
           

6. Did the trade ally make you aware of any other Entergy Solutions programs?

Yes (Please specify which programs below.)  
 No

Comment:

500 characters left.

7. Based on your recent experience, please rate your level of satisfaction with the trade ally that came on-site.

	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"/>
Clearly explained the energy assessment process, recommendations and work that would be performed	<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 explained the Health & Safety recommendations and work that would be performed	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Sharing health, safety or energy-saving tips	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Clearly described how the Entergy Solutions program incentives work	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

8. In your own words, please tell us what, if anything, you liked or disliked about this Entergy Low-Income Solutions program.

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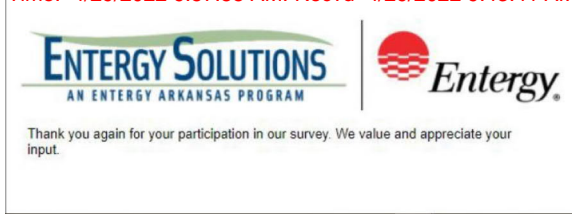
9. How has your overall experience as an Entergy Arkansas customer been?

Very Satisfying   Satisfying   Neutral   Unsatisfying   Very Unsatisfying  
           

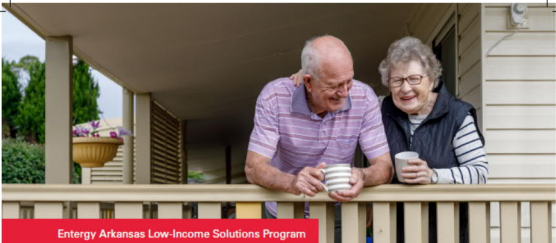
10. Assuming everyone could choose their providers, what is the likelihood you would recommend Entergy Arkansas to a friend or colleague?

Very Likely   Likely   Not Sure   Somewhat Unlikely   Very Unlikely  
           

Reset



### 3.4.12 EAL\_Home Energy Report\_LIS\_V8



Entergy Arkansas Low-Income Solutions Program

## Program overview

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**EVERGREEN**  
Energy Services LLC

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[fakeemailaddress@fakehost.com](mailto:fakeemailaddress@fakehost.com)  
1234 Fake Street  
Fake City, USA



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### 3.4.13 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: 1900 Sq Ft  
 Number of Bedrooms: 3  
 Number of Occupants: 3  
 Year Home Was Built: 1908-2000  
 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)

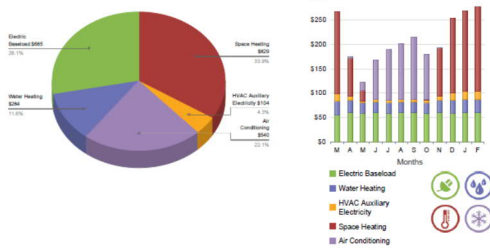
Scenario Id: XXXXXX

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

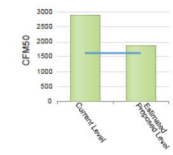
Your electric retail energy provider is Energy Arkansas and the rate used in this analysis is 0.10000 per kWh. The total energy cost and consumption has been normalized to reflect a typical year.

#### 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.

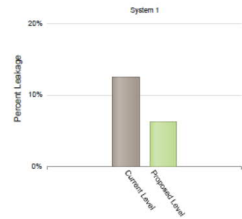
#### Your Home's Air Leakage Rate



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.

#### 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
<b>Air Sealing</b>			
Air Sealing Level	Air leakage rate of 2000 cubic feet per minute at 50 Pascals	Reduce leakage from living space to 1800 CFM50	\$84.00
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)	
<b>Insulation</b>			
Attic Insulation - Attic Area 1	Current insulation level is 5" and condition is poorly insulated	Insulate 1600 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
Rim Joist - Group 1	Area is not currently insulated	Insulate 100 linear feet with Fiberglass Batt	\$13.64
<b>Windows &amp; Glass Doors</b>			
Windows & Glass Doors - Metal (db) 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
<b>Doors</b>			
Doors - Wood	Current door is solid core wood (no storm)	Install 2 Add Storm Door	\$6.47
<b>HVAC Systems</b>			
Heating System - System 1	20-24 year old Air Source Heat Pump with an efficiency of 6.5 HSPFF	Replace w/ 7.8 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	25-26 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
<b>Ducts</b>			
Duct System 1 - Sealing	Current duct system leakage is 100 CFM25 to outdoors	Seal Ducts w/ Approved Materials	\$38.16
Smart Thermostat 1 - heat pump	Standard Thermostat	Smart Thermostat - heat pump	\$30.72
<b>Domestic Hot Water System</b>			
Water Heater - System 1	Current DHW system is 1902-1995 Storage (Tank) with energy factor (EF) of 0.68	Performance Tune-Up or Repair	\$1.55
<b>Lighting, Appliances &amp; Smart Strips</b>			
Replacement Lighting		Install 15 Energy Efficient Lamps *	\$85.41
Smart Strips		Install Smart Strips	
<b>Water Saving Measures</b>			
Low-Flow Showerheads		Replace 2 of 2 showerheads with low-flow showerheads	\$17.05
<b>Building Performance Measures</b>			
Address House Drainage Concerns		Divert Drainage from Foundation	

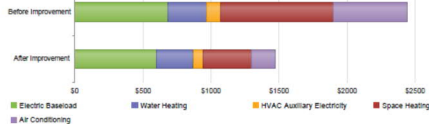
\* The lighting energy usage indicated for your home exceeds the national average. A cap has been applied to the lighting energy usage based on the modeling of your home.

#### 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	67.0%
Water Heating Savings	180	\$19	6.5%
Electric BaseLoad Savings	854	\$85	12.5%
HVAC Auxiliary Electricity Savings	273	\$27	26.2%
<b>Total Project Savings</b>	<b>9,712</b>	<b>\$971</b>	<b>NA</b>
<b>Total Percent Savings</b>	<b>39.7%</b>	<b>39.7%</b>	<b>39.7%</b>

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	\$071.15
Simple Payback (years)	0.0
Annual Rate of Return	0.00%
Lifetime Savings-to-Investment Ratio	9999.00

- 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.
- COF** 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**  
2021 Low-Income Solutions Program Guidebook

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**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: 866-427-4177  
 Email: LowIncomeSolutionsEAL@icf.com  
 Web: entergyarkansas.com/lowincome

**Program Eligibility**

Owners or renters (with/ing 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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2021 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 entergysolutions.com.

**How to Qualify**

There are two ways to verify, qualify and enroll in the program.

- 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: EntergyArkTradeAlly.com
- 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.

**Tier 1 and Tier 2 Audits**

Depending on your home's energy usage and size, you may be eligible for either a Tier 1 energy audit or a more detailed Tier 2 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.

**Tier 1 Audit**

During the Tier 1 energy audit, trade allies install products such as LED light bulbs, advanced

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power strips, showerheads and kitchen/bath fixtures. 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.

**Tier 2 Audit**

The Tier 2 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 Tier 2 audit also includes diagnostic testing to determine air infiltration and 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 door 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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**Direct Install Measures**

In the Low-Income Solutions Program, energy-efficient products are limited 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 when 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 Duct 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 customer who 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 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 abnormalities 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 this is finished, the trade ally may then send in the invoice 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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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-value and square feet of ceiling insulated. Density 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 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.

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**Terms and Conditions**

**ENERGY AUDIT REPORT:** The energy audit report provides the customer with a compiled review of energy-saving measure installed throughout the property, as well as recommendations related to energy efficiency programs available. Energy Arkansas is not responsible for use 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 LISSAP 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](http://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 these 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

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energy savings in reports or other documentation submitted to the program implementer or 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 allies or any third affiliates, directors, officers, employees, agents, or contractors liable for any fines 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 enhanced equipment, separately or jointly. 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 explicit, 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 resolving 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 local, state, federal, codes or industry standards. Customers should contact their independent contractors for details regarding equipment performance and warranties.

**PRIORITY 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 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.

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**RIGHT TO REFUSE:** The Energy Arkansas trade ally has the right to refuse service or 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 jointly owned, 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/](http://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 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.

### 3.4.15 LIS EAL Social Media Posts – Facebook and Twitter

**Entergy Arkansas** April 7, 2021

Spring is the perfect time to improve the energy efficiency of your home. A/C tune-ups and weatherization measures at no additional cost through our Low-Income Solutions Program can help increase your home's comfort and help you save. Find a participating trade ally at <http://enter.gy/6181HahhW>.



5 4 Shares

**Entergy Arkansas** August 4, 2021


Our Low-Income Solutions Program can help you make sure comfort is always in season. From A/C tune-ups, air sealing, insulation and more, let us help you save energy at no additional cost. Visit <http://enter.gy/6181yiVwt> to find a trade ally near you.



1 5 Comments 1 Share

**Entergy Arkansas** December 29, 2021

Improve your home's comfort and save energy year-round with upgrades available through our Low-Income Solutions Program. From energy audits to duct sealing, insulation and more, we can help you save energy. Visit <http://enter.gy/6189JSjul> to find a trade ally near you.



2

Like Comment Share

Most relevant

Write a comment...

**Entergy Arkansas** May 12, 2021


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 <http://enter.gy/6189HANmv>.



3 4 Shares

**Entergy Arkansas** November 10, 2021

Save energy and improve home comfort all year long with upgrades through our Low-Income Solutions Program. From energy audits to air sealing, insulation and more, let us help you save energy no matter the season. Visit <http://enter.gy/6187JX2zL> to find a trade ally near you.



**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
- Load shedding
- Air sealing
- Ceiling insulation
- A/C tune-up
- Energy-saving products:
  - LED bulbs (up to 75)
  - Advanced power strips
  - Low-flow showerhead and aerator

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Like Comment Share

Write a comment...

**Entergy Arkansas** @EntergyArk · Apr 7, 2021

Spring is the perfect time to improve the energy efficiency of your home. A/C tune-ups and weatherization measures at no additional cost through our Low-Income Solutions Program can help increase your home's comfort and help you save. Visit [enter.gy/6010Hahhm](http://enter.gy/6010Hahhm) for details.



1 3

**Entergy Arkansas** @EntergyArk · Aug 4, 2021

Our Low-Income Solutions Program can help you make sure comfort is always in season. From A/C tune-ups, air sealing, insulation and more, let us help you save energy at no additional cost. Visit [enter.gy/6016yIVwo](http://enter.gy/6016yIVwo) to find a trade ally near you.



1 3



Entergy Arkansas @EntergyArk · Feb 9, 2021

Now is the perfect time to improve the energy efficiency of your home. Weatherization measures at no additional cost through our Low-Income Solutions program can help increase your home's comfort by sealing air leaks and more. Find a trade ally at [enter.gy/6013He6SP](https://enter.gy/6013He6SP).



Entergy Arkansas @EntergyArk · Dec 29, 2021

Improve your home's comfort and save energy year round with upgrades available through our Low-Income Solutions Program. From energy audits to duct sealing, insulation and more, we can help you save energy. Visit [enter.gy/6018JSjuY](https://enter.gy/6018JSjuY) to find a trade ally near you.





**Entergy Arkansas** @EntergyArk · May 12, 2021

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. Visit [enter.gy/6018HANmQ](https://enter.gy/6018HANmQ) for details.



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**Entergy Arkansas** @EntergyArk · Nov 10, 2021

Save energy and improve home comfort all year long with upgrades through our Low-Income Solutions Program. From energy audits to air sealing, insulation and more, let us help you save energy no matter the season. Visit [enter.gy/6016JX2z1](https://enter.gy/6016JX2z1) to find a trade ally near you.

**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.

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BY ENTERGY ARKANSAS PROGRAM

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### 3.5 Point of Purchase Solutions





**UP TO \$300 REBATE**  
on a new qualifying pool pump.

**Step 1:**  
Purchase a new ENERGY STAR® pool pump and install it in your pool.

**Step 2:**  
Within 90 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 \$175 rebate for a two-speed pump or \$300 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 #: \_\_\_\_\_  
 Type of Pool Pump (check one):  Two-speed  Variable-speed  
 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:** \_\_\_\_\_

This offer is available through Dec. 31, 2021, or while funds last. We can only issue one rebate per household. All rebate forms must be received within 90 days of purchase and purchases must have been made between Jan. 1, 2021 and Dec. 31, 2021. Please allow four to six weeks for processing. For more information about other energy efficiency incentives from Entergy Arkansas, visit [entergyarkansas.com/energy\\_efficiency](http://entergyarkansas.com/energy_efficiency) or call 877-212-2420.

**Entergy Arkansas Rebate Program**  
 3100 West Rd., Bldg. 3, Ste. 200  
 East Lansing, MI 48823

**Email:**  
[enteryarappliances@clearresult.com](mailto:enteryarappliances@clearresult.com)  
**Fax:** 888-688-2907

Apply online at  
[enteryarappliances.clearresult.com](http://enteryarappliances.clearresult.com)



**\$25 REBATE**  
on a new qualifying dehumidifier.

**Step 1:**  
Purchase a new ENERGY STAR® 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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## 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

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, 2021, or while funds last, and it only applies to ENERGY STAR 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, 2021 and Dec. 31, 2021. Please allow four to six weeks for processing. For more information about other energy efficiency incentives from Entergy Arkansas, visit [entergyarkansas.com/energy\\_efficiency](http://entergyarkansas.com/energy_efficiency) or call 877-212-2420.



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:**  
[enteryarappliances@clearesult.com](mailto:enteryarappliances@clearesult.com)  
**Fax:** 888-668-2907

Apply online at  
[enteryarappliances.clearesult.com](http://enteryarappliances.clearesult.com)



**\$35 REBATE**  
on a new qualifying air purifier.

**Step 1:**  
Purchase a new ENERGY STAR® 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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AN ENTERGY ARKANSAS PROGRAM

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## 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

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, 2021, or while funds last, and it only applies to ENERGY STAR 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, 2021 and Dec. 31, 2021. Please allow four to six weeks for processing. For more information about other energy efficiency incentives from Entergy Arkansas, visit [entergyarkansas.com/energy\\_efficiency](http://entergyarkansas.com/energy_efficiency) or call 877-212-2420.



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:**  
[entgyarappliances@clearresult.com](mailto:entgyarappliances@clearresult.com)

**Fax:** 888-668-2907

Apply online at  
[entgyarappliances.clearresult.com](http://entgyarappliances.clearresult.com)



# \$60 REBATE

on new qualifying advanced thermostats




**Step 1:**  
Purchase and install a new ENERGY STAR® certified advanced 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.

Advanced thermostats make it easy to stay comfortable and save energy all year long. Get the savings started with an Entergy Arkansas rebate.

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WE POWER LIFE®

## Advanced 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, 2021, and only applies to ENERGY STAR certified advanced 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, 2021, and Dec. 31, 2021. Please allow four to six weeks for processing. For more information about other energy efficiency incentives from Entergy Arkansas, visit [entergyarkansas.com/energy\\_efficiency](http://entergyarkansas.com/energy_efficiency) or call 877-212-2423.



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](mailto:entergyappliances@clearresult.com)

**Fax:**  
888-668-2907

Or apply online at  
[entergyappliances.clearresult.com](http://entergyappliances.clearresult.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.

### 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.
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.

## 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 or 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 liable 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, and see #5 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 [entergycommercialdiscounts.com](http://entergycommercialdiscounts.com).

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Entergy Solutions is an energy efficiency program and is not affiliated with Entergy Solutions, LLC.





**MEASUREMENT & VERIFICATION**

For all products, the program will calculate savings based upon pre-approved equivalent savings per unit. Equivalent savings are standardised savings values that have been calculated based on aggregated data for a category of measures in representative building types. This approach is suitable for a variety of projects where energy savings may be achieved 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 or market data.

**NON-CASH BENEFITS**

**Communications & Public Relations Support**

CLEARresult will provide training for the distributor's sales associates on the program rules and processes, as well as any energy efficient product information they can use to market the program. CLEARresult will also market the program directly to customers and provide press releases and other communications support to inform the business community about the program. CLEARresult may target conferences and shows in order to reach more business customers.

**PROGRAM PARTICIPATION PROCESS**

**Lighting Products, Small Air Compressors, Hand Dryers and Drives**

There is no application in this process. The initial discount is applied at the time of purchase from a participating distributor and is included in the quoted sale price. Discounts are subject to funding availability. See Figure 1 for a diagram of the process.

To receive incentives from the program, commercial customers must provide their name and address to confirm eligibility for program funding and may be asked for their account or trade number. Commercial customers must also sign a program participation agreement which is provided to Energy Arkansas and includes, at minimum, the following information:

- Distributor's full name
- Name & address of business where installation will take place
- Email address (optional) and phone number
- Signature and date of signature

The incentive amount may be adjusted during the course of the program year according to changes in the estimated savings and participation levels. CLEARresult will update trade allow 30 days prior to the change if any changes are made to the incentive amounts available. Energy Arkansas is not required to pay the trade allow an incentive for ineligible purchases or for any incentive reimbursement requests submitted after the final incentive date specified on the program agreement. For more information, please see the Limits on Participation section below.

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**INCENTIVE PAYMENT PROCESS**

Any cash incentives received through the program are paid directly to the commercial customer via discount on purchases as described above. Reimbursement funds for incentives applied to eligible purchases are delivered in the form of a check to the trade allow once the purchases have been verified.

**LIMITS ON PARTICIPATION**

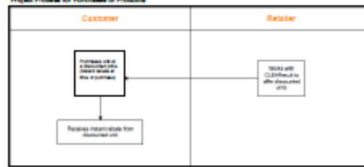
The incentive budget available through the program is limited and made available to commercial customers on a first come, first served basis. Funding allocation caps may be put in place with distributors in an attempt to manage the disbursement of funds.

**PARTICIPATING TRADE ALLIES**

**Lighting Products, Small Air Compressors, Hand Dryers and Drives**

CLEARresult has recruited trade allies to participate in the discount of these measures. Energy Arkansas commercial customers will be able to access a list of participating trade allies via the Energy Arkansas website.

Figure 1  
Retail Process for Purchases of Products



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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. Inclusion of a trade ally 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, value 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 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 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 for participating distributors.

**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 below steps outline the process for CLEARresult staff and/or training partners to receive customer complaints in a timely manner.

Goals 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, contract 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 two business days of the receipt of the complaint.

If the initial discussion with the participant does not result in a resolution, the program Implementation 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 discussions, the actions taken to resolve the complaint and the date the customer was taken. We will update the participant regarding the status of their issue resolution as soon as possible.

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CLEARresult will provide monthly updates to Energy on the status of any outstanding participant complaints. CLEARresult will resolve 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 elect to withhold payment for reimbursement or to terminate the agreement with the distributor.

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## 2021 Program Manual Residential Point of Purchase Solutions

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WE POWER LIFE™

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### PROGRAM DESCRIPTION

Energy Advances offers the Residential Point of Purchase Solutions Program to residential and small commercial customers in the Energy Advances territory. The program is designed to encourage these customers to save money and energy by taking the following measures:

- Purchasing and/or installing qualified ENERGY STAR:
  - Light-emitting diode (LED) bulbs and fixtures.
  - Dehumidifiers.
  - Pool Pumps.
  - Room Air Purifiers.
  - Advanced Thermostats (qualifying models only).
- Freezers.
- Heat Pump Water Heaters (qualifying models only).
- Purchasing and using advanced power strips.

During the program year, additional measures may be evaluated for non-efficiency measures that are considered appropriate to be added into the program. To encourage adoption of program measures, eligible customers will receive:

- Discounts and rebates.
- Promotional materials that describe the benefits of purchasing qualified energy-efficient items at outreach events and participating retail locations.

Additionally, the 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:

- Retailer and manufacturer training, outreach and rebates – CLEARResult, the implementer of this Program, will work to expand the retail network for the Program. CLEARResult also will strive to increase the number of products that are available in one retail location.
- Advertisement of the incentive program (including program tracking) – The program strives to make customer participation as convenient and streamlined as possible. To that end, CLEARResult works directly with manufacturers and retailers to discount lighting, thermostat and load control products at retail and online, and offers Energy customers both paper and electronic options for applying for rebates on qualifying products.
- Outreach events – These events will be used as an opportunity to distribute energy-efficient measures to customers through a more hands-on channel.

The long-term objective of this program is to transform the energy efficiency market over time by reducing the barriers that currently hinder Energy Advances customers from adopting energy-efficient technologies and practices.

Strategies for increasing these barriers include:

- Reducing the cost of energy-saving lighting, thermostat & plug-load control products, pool pumps, heat pump water heaters and/or appliances.
- Improving access to ENERGY STAR-qualified products.
- Providing consumers with information about the quality of efficient products.

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### PROGRAM MANAGEMENT & CONTACTS

Effie Weaver  
Email: [weaver@clearresult.com](mailto:weaver@clearresult.com)  
Energy Efficiency Solutions Center: 877-273-2400

### PROGRAM ROLES & RESPONSIBILITIES

Program Participant (Qualified Energy Advances Customer)

- Purchase the following ENERGY STAR-qualified items from participating retailers, distributors, or contractors (LED bulbs and fixtures, advanced thermostats, pool pumps, room air purifiers, dehumidifiers, heat pump water heaters, OR receive free ENERGY STAR-qualified LED bulbs 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. This 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 load control products, and discount code is used at the point of sale in the case of thermostats).

Participating Retailers, Distributors and Manufacturers

- Participating retailers and distributors are responsible for complying with the program processes set forth in their program agreement with CLEARResult. This can include educating customers about energy efficiency, providing CLEARResult 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 CLEARResult. This can include educating customers about energy efficiency, providing CLEARResult with monthly reports and sales figures for each measure and ensuring that all products used to rebates for purposes of the promotion comply with the qualifications set forth in the agreement and are or will be listed on the ENERGY STAR website.

### PROGRAM CHANGES

The Energy Advances Residential Point of Purchase Solutions Program has been implemented in the current form since 2011. In 2020, the following changes were made:

- Added ENERGY STAR-qualified freezers. In the program, these products were not previously included through the program.
- Added an online marketplace for customers to purchase products at discounted prices.

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### PROGRAM ELIGIBILITY

#### Customer Eligibility

The 2021 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 certain of the measures. Please see the "Program Participation Process" section of this document for information about how to participate.

#### Retailer, Distributor and Manufacturer Eligibility

CLEARResult 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 laid out in their program agreement with CLEARResult. 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 (LED) bulbs & fixtures, advanced thermostats, room air purifiers, dehumidifiers, pool pumps, heat pump water heaters and freezers. Certain of the 1 advanced power strips are also eligible for incentives under the program.

Measure Type	Incentive Level	Measure Description
LED Bulbs	<ul style="list-style-type: none"> <li>Full cost of the bulb (LEDs are given to qualifying customers at events)</li> <li>Energy Star:                             <ul style="list-style-type: none"> <li>\$1.00 per bulb</li> <li>\$1.00 per bulb</li> <li>\$2.00 per bulb, varies by type</li> </ul> </li> </ul>	This measure will rebate traditional incandescent and halogen bulbs with energy-saving LED bulbs.
Advanced Power Strips All qualifying models	<ul style="list-style-type: none"> <li>Up to \$70 per unit</li> </ul>	This measure will rebate traditional power strips with surge protection with advanced power strips with current sensing technology that enables it to shut off the flow of electricity to computers or peripherals automatically when not in use.
Pool Pumps (Variable speed (VSD) units)	<ul style="list-style-type: none"> <li>\$500</li> </ul>	This measure will rebate single-speed pool pumps with energy-saving pool pumps which have variable speed settings for filtration and cleaning.
Room Air Purifier	<ul style="list-style-type: none"> <li>\$5</li> </ul>	This measure will rebate traditional room air purifiers with energy-saving room air purifiers.

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Dehumidifier	Cost	This measure will rebate traditional dehumidifiers with energy-saving dehumidifiers.
Freezers	<ul style="list-style-type: none"> <li>\$25 - 175 cubic feet</li> <li>\$50 - 275 cubic feet</li> </ul>	This measure will rebate traditional non-stick, chest, and upright freezers with energy-saving freezers.
Heat Pump Water Heaters All qualifying models	<ul style="list-style-type: none"> <li>\$200 per unit</li> </ul>	This measure will rebate traditional electric tank storage water heaters with energy-saving hybrid heat pump water heaters.

### MEASUREMENT & VERIFICATION

For all bulbs, fixtures, air purifiers, advanced power strips, dehumidifiers, heat pump water heaters and pool pumps, the program will calculate savings based upon declared savings per unit. Declared savings are standardized savings values or simple formulas 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 advanced thermostats and freezers, the program will calculate savings based upon published savings presented in a work paper created by CLEARResult and accepted by the evaluator.

### NON-CASH BENEFITS

#### Communications & Public Relations Support

CLEARResult will assist the program to communicate, distribute free LED, appliances and/or advanced power strips, provide press releases and other communication support to inform the community about the steps their neighbors are taking to improve the energy performance of their homes, and may target ads to in order to reach more residential customers.

### PROGRAM PARTICIPATION PROCESS

#### ENERGY STAR LED, Advanced Thermostats, Heat Pump Water Heaters and Advanced Power Strips

There is no application required to participate in this program. The rebate 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 sales price found at the retail or online (no additional discount is given at the register). See Figure 1 for a diagram of the process. In the case of Advanced Thermostats, discount codes are emailed to qualifying participants, and are used to obtain a discount at the register, or are purchased online. Discounts are subject to funding availability.

**ENERGY STAR Air Purifiers, Dehumidifiers, Advanced 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 CLEARbuild with supporting documentation, including:

- Full name
- Address
- Utility account number
- Purchased equipment make and model number
- Email 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 awarded. CLEARbuild will update customers prior to purchase if any significant changes are made to the incentive amount available for their appliance purchases. Rebates will be processed in CLEARbuild's Michigan-based processing center. Energy Advances is not required to pay the customer an incentive for any purchases over the maximum number of eligible purchases, for ineligible purchases or for any rebate applications submitted after the final 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 discount on purchases or after the purchase as described above. Funds for post-purchase rebates are delivered in the form of a check once the purchase has been verified.

**LIMITS ON PARTICIPATION**

Both the total 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 Advances website at [energyadvances.com/homeappliances](http://energyadvances.com/homeappliances). Please see below for additional detail.

**ENERGY STAR LEDs, Heat Pump Water Heaters and Advanced Power Strips**

Each of these measures is being incentivized through a retail price markdown. Energy Advances customers will be able to purchase these products from any of the participating retailers. The savings are passed on to the

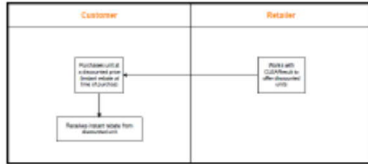
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**PARTICIPATING RETAILERS**

**ENERGY STAR LEDs, Heat Pump Water Heaters and Advanced Power Strips**

CLEARbuild recruits 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



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; 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 Advanced Thermostats**

This measure is being incentivized through an online marketplace, an instant discount, or, if later purchase, upon validation 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 pre-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 wishing to participate in the instant discount must receive a discount code in advance of purchase at [energyadvances.com](http://energyadvances.com). 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 [energyadvances.com/rebate](http://energyadvances.com/rebate) or through the mail. For paper rebate applications, customers will either receive a rebate application at the retail location where purchases were made or download an application from the Program website at [energyadvances.com/homeappliances](http://energyadvances.com/homeappliances). For the method of participation, the customer will need to provide their completed application form 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. Customers must receive residential electric service from Energy Advances. 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**

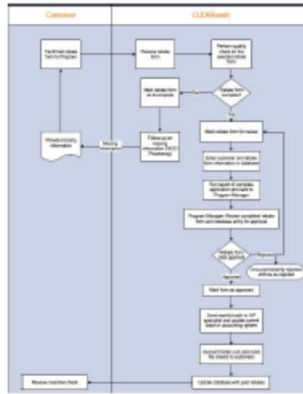
To participate in the ENERGY STAR air purifier, dehumidifier, freezer or pool pump promotions, customers need to purchase qualifying ENERGY STAR air purifiers, dehumidifiers, freezers, or pool pumps at the retailer of their choice. Customers can apply after purchase through the mail or online at [energyadvances.com/rebate](http://energyadvances.com/rebate). For paper rebate applications, customers will either receive a mail-in rebate application with their purchase (at participating retail locations only) or will download an application form from the program website at [energyadvances.com/homeappliances](http://energyadvances.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 the process. Customers must receive residential electric service from Energy Advances. 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.

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**ENERGY STAR Air Purifiers, Dehumidifiers, Advanced Thermostats, Freezers and Pool Pumps**

CLEARbuild recruits retail establishments to participate in the program by making rebate applications available at select store locations.

**Figure 2**  
ENERGY STAR product rebate project process



**DISCLAIMERS**

**Energy Arkansas and/or CLEARResult**

The selection of a participating retailer, distributor or manufacturer's product is the sole decision of the customer. Installation 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, value or effectiveness of any products provided by any such participating retailer 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 appear downstream in the process. QMP prevents quality issues from coming up in the first place and improves the entire system, including for participating retailers and distributors.

Retailer and distributor training and outreach are key components of the QMP for this program. Retail associates serve 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 ensure in-store promotional events.
- Conduct periodic check-ins by phone and in person to assess program effectiveness, verify point-of-purchase signage and develop relationships 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 throughout the program. Trainings will cover each measure relating to their store and the latest in energy efficiency.
Application Review (QA)	Retailer applications will be submitted to the in-house processing center for verification.

10

**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 (whichever is most specific to the complaint). An email is sent to the Program Manager for follow-up with the customer.

All complaints should be followed up on within two business days of the receipt of the complaint.

If the initial discussions with the participant do 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 discussions, the actions taken to resolve the complaint and the date the action was taken. We will update the participant regarding the status of their issue resolution no less than weekly.

CLEARResult will provide monthly account 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 liability or public relations risk.

12

Data Review (QA)	At least once per month, the program team will review sales reports from manufacturers, retailers and aggregating/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 monitored by CLEARResult. Additionally, CLEARResult may conduct periodic surveys to gauge customer satisfaction levels with the program.

11

**TRADE ALLY PERFORMANCE STANDARDS**

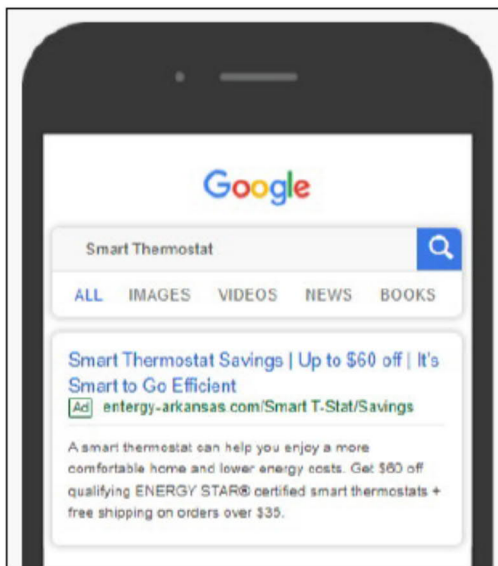
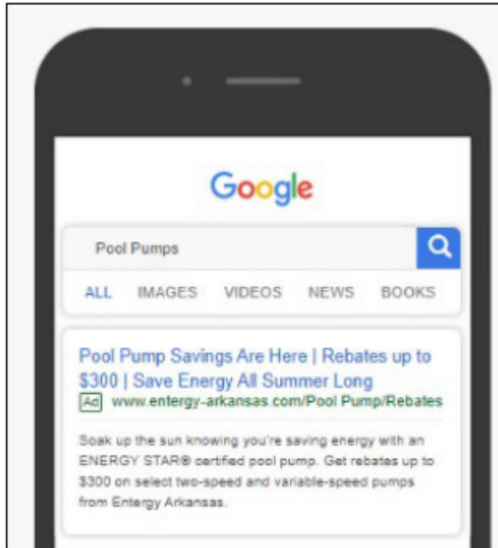
**Requirements for Participation**

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 take no corrective action and continue to fail to uphold their duties after receiving several warnings, CLEARResult may elect to withhold payment for reimbursement or to terminate the agreement with the retailer, distributor or manufacturer.

13

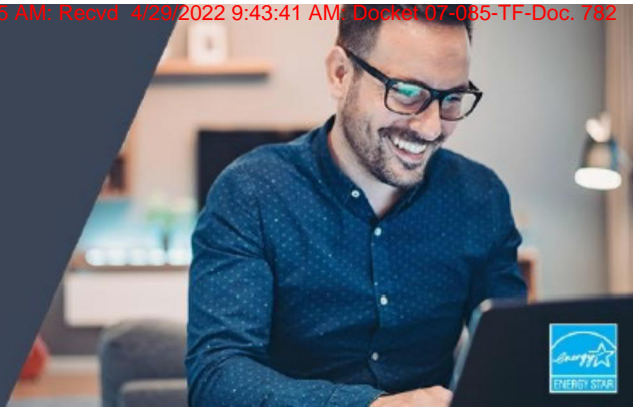


### 3.5.10 EA POPS Marketplace Banners

## Instant discounts, long-lasting savings

Take advantage of instant discounts on products that help make your home more comfortable and energy efficient.

[Shop now ▶](#)



## Pay less for what saves you more.

Take advantage of instant discounts on products that help make your home more comfortable and energy efficient.

[Shop now ▶](#)



## Take \$90 off select advanced thermostats through April 27.

[Shop now ▶](#)



## Shop. Save. Repeat.

Take advantage of instant discounts on products that help make your home more comfortable and energy efficient.

[Shop now ▶](#)



Take an additional \$30 off select advanced thermostats through Feb. 17.

Shop now ▶



Take up to \$110 off select advanced thermostats for a limited time.

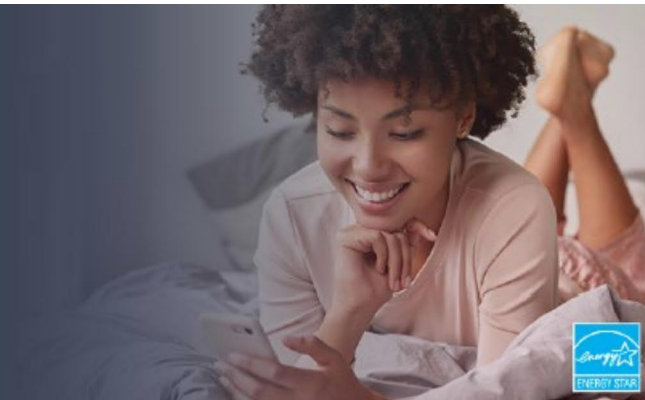
Shop now ▶



Cozy up to instant discounts.

Take advantage of instant discounts on products that help make your home more comfortable and energy efficient.

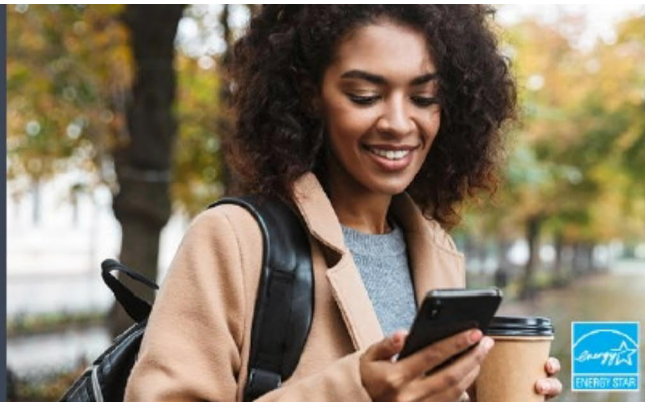
Shop now ▶



Find something you'll fall for.

Take advantage of Black Friday deals on products that help make your home more comfortable and energy efficient.

Shop now ▶



**Amazing deals on smart thermostats through Dec. 27**

Shop now ▶

**Amazing deals on smart thermostats through Dec. 27**

Shop now ▶

**Save on advanced power strips.**



Shop now ▶

**Save on advanced power strips.**



Shop now ▶

**Shop Black Friday deals.** 

Shop now ▶

**Shop Black Friday deals.** 

Shop now ▶

**Shop air purifier deals now through Dec. 14.** 

Shop now ▶

**Shop air purifier deals now through Dec. 14.** 


Shop now ▶

**FREE shipping**  on select bulbs


Shop now ▶

**FREE shipping**  on select bulbs

Shop now ▶

**68** 

Shop now ▶

**68** 


Shop now ▶

**Savings to keep you comfortable** 

Shop now ▶

**Savings to keep you comfortable** 

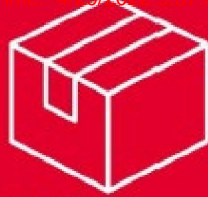
Shop now ▶

**Get special pricing on specialty bulbs.** 

Shop now ▶

**\$12 off 12 LEDs** 

Shop now ▶



**FREE shipping**  
on select bulbs

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**FREE shipping**  
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**Keep cool while  
saving energy.**

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**Keep cool while  
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**Shop Earth  
Day deals.**

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**Shop Earth  
Day deals.**

[Shop now ▶](#)












 <p>Heating <b>68</b> Indoor 65</p> <p>Shop now ▶</p>	 <p><b>\$12 off 12 LEDs</b></p> <p>Shop now ▶</p>
 <p>Save on advanced power strips.</p> <p>Shop now ▶</p>	 <p><b>Shop Black Friday deals.</b></p> <p>Shop now ▶</p>
 <p><b>FREE shipping</b> on all orders over \$35.</p> <p>Shop now ▶</p>	 <p><b>FREE shipping</b> on all orders over \$35.</p> <p>Shop now ▶</p>
 <p>Saving energy automatically is smart.</p> <p>Shop smart thermostats ▶</p>	 <p><b>Get special pricing on specialty bulbs.</b></p> <p>Shop now ▶</p>

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.

 <p><b>Google Nest Learning Thermostat™</b> Suggested Retail - <del>\$249.99</del> Your Price - \$189</p> <p style="background-color: red; color: white; padding: 2px 5px; font-weight: bold;">Get discount!</p>	 <p><b>Google Nest Thermostat</b> Suggested Retail - <del>\$149.99</del> Your Price - \$89.99</p> <p style="background-color: red; color: white; padding: 2px 5px; font-weight: bold;">Get discount!</p>	 <p><b>Honeywell Home Smart Color</b> Suggested Retail - <del>\$149.99</del> Your Price - \$109</p> <p style="background-color: red; color: white; padding: 2px 5px; font-weight: bold;">Get discount!</p>
 <p><b>Honeywell Home T5</b> Suggested Retail - <del>\$149.99</del> Your Price - \$109.99</p> <p style="background-color: red; color: white; padding: 2px 5px; font-weight: bold;">Get discount!</p>	 <p><b>Honeywell Home T5/T5+</b> Suggested Retail - <del>\$149.99</del> Your Price - \$89.99</p> <p style="background-color: red; color: white; padding: 2px 5px; font-weight: bold;">Get discount!</p>	 <p><b>Emerson ST55</b> Suggested Retail - <del>\$139.99</del> Your Price - \$69</p> <p style="background-color: red; color: white; padding: 2px 5px; font-weight: bold;">Get discount!</p>
 <p><b>Emerson ST75</b> Suggested Retail - <del>\$149.99</del> Your Price - \$109.99</p> <p style="background-color: red; color: white; padding: 2px 5px; font-weight: bold;">Get discount!</p>	 <p><b>Emerson ST75W</b> Suggested Retail - <del>\$149.99</del> Your Price - \$109.99</p> <p style="background-color: red; color: white; padding: 2px 5px; font-weight: bold;">Get discount!</p>	 <p><b>Kano Lux</b> Suggested Retail - <del>\$149.99</del> Your Price - \$89</p> <p style="background-color: red; color: white; padding: 2px 5px; font-weight: bold;">Get discount!</p>

Available for energy services for 100% of Arkansas service. See all eligible thermostat models, models & all energy services program service area and energy services form.  
The Energy Services program is subject to change without notice and subject to the approval of the relevant utility service provider.

Powered by CLEARresult


Instant Discount Portal

Energy Arkansas

For Immediate Release

# Energy Arkansas Earns ENERGY STAR Award, Saves 290K MWh in 2020

04/15/2021



The Energy Arkansas Smart Solutions Program has been awarded the prestigious ENERGY STAR® (Energy Star) award from the U.S. Environmental Protection Agency for the first time in its history, recognizing its dedication to energy efficiency.

Company officials said the Energy Solutions program was credited with saving over 290,000 megawatt hours last year alone, which is equal to avoiding greenhouse gas emissions from 227 million pounds of burning coal or generating nearly 23,000 homes for one year.

"Energy Arkansas is committed to offering its customers safe, reliable and affordable energy," said President and CEO Steve Anderson, "and ENERGY STAR is a testament to that. But we hope to provide innovative technologies to make our customers even more efficient, reducing their energy usage and saving money in the long run. We're excited to be recognized for our commitment to the environment by the EPA for our work."

Energy Solutions' smart energy efficiency programs administered by Energy Arkansas help residential and business customers save money and reduce their carbon footprint by installing energy-saving upgrades. The program uses smart participating partners, such as local utility providers, to help customers find ways to save energy through installation or replacement of energy-efficient equipment.

Programs for business customers include comprehensive audits, assessments, air conditioning tune-ups, smart thermostats, and upgrades on lighting and equipment. From energy efficiency consultants, air treatment, air sealing and duct cleaning, air also available through Energy Solutions' 16 business, leading business partners and solutions for completing energy efficiency projects and to make sure the business is up to date.

ENERGY STAR, which is a label for products that are ENERGY STAR certified, is a label for products that are ENERGY STAR certified.

According to the EPA, the ENERGY STAR label is a label for products that are ENERGY STAR certified. The ENERGY STAR label is a label for products that are ENERGY STAR certified.

Additional, Energy Solutions offers a dedicated 1-800-855-6262 helpline and provided some 70,000 free energy efficiency, like air conditioners, smart thermostats, LED lighting, and smart power strips.

In total, some 300,000 customers received the Energy Solutions program and offering, including from outside the Energy Arkansas service area. The program has also helped 1,300 homes and 1,300 businesses save energy and money by a variety of energy-saving programs. The ENERGY STAR program has earned the ENERGY STAR, and 100 commercial buildings that earned the ENERGY STAR, including 70 office buildings, several hospitals, and 100 commercial buildings.

"ENERGY STAR has all of the information we need to support our smart transformation efforts," said Steve Anderson, Energy Solutions' president. "Energy Solutions' smart energy efficiency programs are a key part of our smart transformation efforts. We're excited to be recognized for our commitment to the environment by the EPA for our work."

Energy Arkansas has implemented a number of energy-saving programs, including the ENERGY STAR program, which includes 12 leading business partners and solutions for completing energy efficiency projects and to make sure the business is up to date.

For more information about Energy Arkansas and programs, visit [www.energyarkansas.com](http://www.energyarkansas.com). For more information about residential and commercial energy efficiency programs, contact [energyarkansas@energyarkansas.com](mailto:energyarkansas@energyarkansas.com).

**ABOUT ENERGY ARKANSAS**

Energy Arkansas provides electricity to approximately 7.8 million customers in 10 counties. Energy Arkansas is a subsidiary of Energy Corporation (NYSE: ELEC), an integrated energy services company that provides energy services to residential and commercial customers. Energy Arkansas is a member of the utility group, consisting of Arkansas, Louisiana, Mississippi and Texas. Energy has annual revenues of \$1.2 billion and approximately 10,000 employees.

Link


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[ENERGY EFFICIENCY](#)

Related Articles

- Energy Arkansas Offers Simple Ways to Manage Your Energy Usage as Temps Fall
- How to Manage Energy Usage as Natural Gas Prices Rise this Winter
- How to Manage Energy Usage this Winter

It's time to get your pool 'summer ready'.



The weather may say otherwise, 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 certified pump, especially if your current pump is starting to show some signs of failure.

**You may need to upgrade your pool pump if it:**

- Doesn't seem as powerful as it once was.
- Continuously makes noise.
- Gets hot and shuts off.
- Humms or buzzes but will not start.
- Starts slowly.

**Why go energy efficient?**

Pool pumps are typically the home's second largest energy user, costing households nearly \$300 in energy every year, according to ENERGY STAR.

An ENERGY STAR certified pump:

- Uses up to 65% less energy than standard single speed pumps.
- Can save you up to \$150 a year in energy costs.
- Prolongs the life of your pool's filtering system.
- Is quieter than an inefficient pool pump.

Since the energy savings last as long as the pump does, you can save thousands of dollars over the lifetime of the pump. And with up to a \$300 rebate from Energy Arkansas, the typical payback period is less than a year.

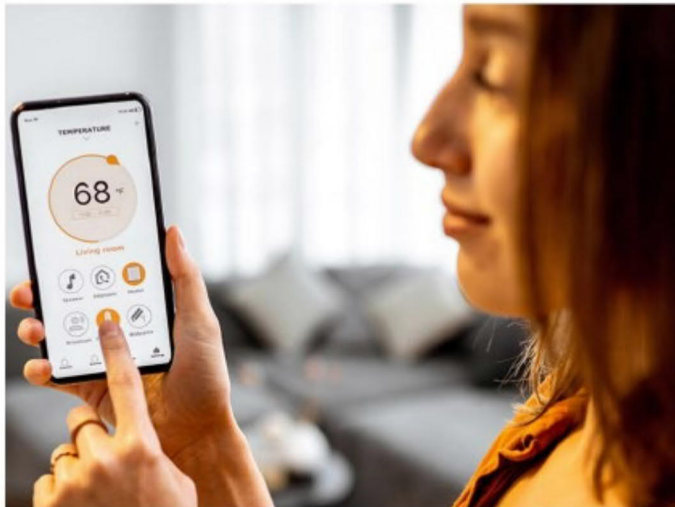
**The 'How' Behind the Savings**

Conventional pool pumps, with only one speed, are set to run at the higher speeds needed to clean the pool at all times. Filtration, the number one task of a pool pump, requires about half the flow speed that cleaning requires (as little as one eighth of the power). Therefore, the energy required to run the conventional pump during filtration operation is wasted by running the pump faster than necessary.

Learn more about energy-efficient pool pumps here. You can also find a lot of models that have earned the ENERGY STAR label, more information about making your pool equipment energy efficient, and what to look for in a pool contractor.

ARTICLE

## 6 Smart Thermostat Features We Can't Keep Secret



Shopping for a smart thermostat? Check if your choice has the latest and greatest in energy-saving tech.

Nowadays, smart thermostats are more accurate, intelligent and energy efficient than their manual or digital programmable thermostat counterparts. With more built-in, state-of-the-art features than ever, here's what sets them apart:

1. **Self-learning.** Many ENERGY STAR® certified smart thermostats will now learn to automatically adjust settings based on your personal preferences and schedule, saving you more energy over time.
2. **Occupancy-sensing.** Never worry about wasting energy again. Occupancy-sensing technology sets your device to an energy-saving mode when it notices no one is home. Sensors may be integrated or separate, depending on the model.
3. **Geofencing.** Similar to occupancy sensors, geofencing connects to your smartphone to determine your location and adjust your thermostat accordingly. When you are away, energy-saving mode is enabled, and when you return, the normal schedule starts back up.
4. **Smart sensors.** Remote temperature sensors allow your device to identify the temperature in the rooms where the sensors are placed, not just where the thermostat is located, so you can customize comfort in every room. Smart sensors may be sold separately for your model.
5. **App alerts.** If your thermostat has its own app, you can likely get helpful reminders and alerts sent straight to your phone. Get reminded when it's time to replace your furnace filters for example, or when extreme temperatures are sensed, indicating your furnace may be malfunctioning.
6. **Energy reports.** Some ENERGY STAR certified smart thermostats also provide monthly reports of your energy usage to help you compare your efficiency over time. Energy usage reports show you how much energy you've used and teach you how to use less.


**Only interested in savings? ENERGY STAR certified smart thermostats also:**

- **Use 15% less energy.** According to the Department of Energy, when programmed properly, a smart thermostat can reduce energy use from 5% to 15% per year. Simply set your preferences to adjust automatically during specific times, such as when you sleep or while you're at work.
- **Save you \$180 a year.** ENERGY STAR estimates the average U.S. homeowner can save up to \$180 per year by programming their thermostat properly. Those savings really add up, and smart thermostats make it effortless.
- **Come with discounts.** Whether you prefer to purchase at a retail store or online, the [Energy Arkansas Residential Point of Purchase Program](#) has you covered with instant discounts, discount codes, special offers and traditional rebates.

Discover more ways to save and see how to get your smart thermostat discount from Energy Arkansas at [energyarkansas.com/homeappliances](https://energyarkansas.com/homeappliances).

ARTICLE

## Two cool ways to save this summer



Stay cool and breathe easy this summer. ENERGY STAR® certified room air conditioners and air purifiers can help keep your home healthy and comfortable while using far less energy than non-certified models.

### Room Air Conditioners

Whether used as an alternative or a complement to central air conditioning, room air conditioners help keep you cool and comfortable while preventing mold and other problems caused by excess humidity. Choose an ENERGY STAR Most Efficient unit with variable speed technology when making your purchasing decision for the most energy savings. Plus, purchase at participating retail locations to save \$50 instantly at checkout thanks to a new Energy Arkansas discount.

Tips for choosing a room air conditioner:

- **Look for the blue label.** ENERGY STAR certified room air conditioners use around 10% less energy than standard models and are built with higher-quality materials. Most Efficient models save even more.
- **Choose your power.** Many people buy an air conditioner that is too large, thinking it will provide better cooling. However, an oversized air conditioner is actually less effective – and wastes energy at the same time. Determine the square footage of the area you'd like to cool by using the ENERGY STAR square footage and this chart. Remember that bigger is not always better!
- **Optimize for your space.** Your optimal cooling capacity can be higher or lower based on a number of factors. For instance, you'll want a higher capacity if you're cooling a kitchen or a room that gets a lot of sun. Similarly, you should decrease the capacity for heavily shaded rooms.
- **Get connected.** Many models are WiFi enabled, which make it easy to manage your energy use and comfort from any smart device.

Room Air Purifiers Air purifiers help remove airborne allergens, dust and other fine particles inside your home. Opt for an ENERGY STAR certified model to save \$25 with an Energy Arkansas rebate or an instant discount from our online marketplace.

According to [energystar.gov](https://energystar.gov), ENERGY STAR certified room air purifiers:


- Use around 60% less energy than standard models.
- Save up to \$190 in lifetime energy costs.
- Effectively remove dust, pollen and other irritants from indoor air.
- Qualify for a \$35 rebate from Energy Arkansas.

### More Cool Ways to Save

Explore all the ways we can help reduce your energy costs at [energyarkansas.com/homeappliances](https://energyarkansas.com/homeappliances).

ARTICLE

## 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—before it fails and you end up with a flooded basement or garage. According to the Environmental Protection Agency, water heating is typically the second largest use of energy in the home, surpassed only by heating and cooling. Switching to a high efficiency model can save thousands of dollars over the lifetime of the unit, and the best time to research and purchase is before an emergency ever happens.

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? What's the best size for me? For the average person, the explanation of how the technology works can be intimidating. The ENERGY STAR® water heaters webpage has simple, clear explanations of various types of water heating technology including hybrid electric heat pump water heaters, whole-home tankless gas water heaters, solar water heaters and demand hot water recirculating systems.

If it's not yet time to replace your equipment, the ACEEE Smarter House website has [low-or-no-cost options](https://www.aceee.org/smarter-house) for saving energy and money with your existing system. Simple changes like lowering the temperature setting on your water heater, installing low-flow faucet aerators and showerheads, and insulating tanks and pipes can add up to big savings.

Energy Arkansas is now offering a \$200 instant discount on the ultra-efficient A.O. Smith 50- and 80-gallon hybrid electric heat pump water heater. Combined with a federal tax credit, you could save up to \$400. Just look for our instant discount signs at participating stores, locations, and let the savings flow.

Beyond water efficiency, there may be other places to look for energy savings in your home. Visit [energyarkansas.com/homeappliances](https://energyarkansas.com/homeappliances) to learn how Energy Arkansas can help you implement energy efficiency upgrades and reduce energy costs.

## Defeat Vampire Power this Halloween.

Published: 10/29/2021 11:46:07 PM



Don't let vampire power drain your bank account.

Vampire power, also called vampire energy, standby power, ghost load or phantom load, is the energy lost by certain electronics when they are switched off or in standby mode. 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. According to a study from the National Resources Defense Council, vampire power costs the average American family around \$100 a year. For some households, it accounts for as much as 23% of the monthly electric bill. The environmental impact is also alarming. Each year, the electricity wasted by idle electronics across the U.S. contributes to over 44 million metric tons of carbon dioxide pollution.


Luckily, there's hope. Plugging your most-used devices into advanced power strips provides the same surge protection as standard power strips while allowing you to completely cut power to certain devices when not in use. They're also easy to use. Once set up, an advanced power strip will automatically turn off idle electronics to save you energy and money.

Even better, Entergy Arkansas offers discounts for advanced power strips purchased at [participating stores](#). Pick up yours today to keep the vampire power at bay.

Looking for more ways to save this fall? Explore all the discounts and rebates available from our Point of Purchase Solutions Program at [entergyarkansas.com/homeappliances](http://entergyarkansas.com/homeappliances).

View as Web Page





## TAKE CONTROL OF YOUR COMFORT.


Shop our online marketplace to save up to \$90 on select advanced thermostats when you combine our \$60 instant discount with limited-time manufacturer discounts.

Many smart thermostats can adapt to your schedule and preferences, track your energy use and be adjusted remotely through your smartphone.


[Shop now ▶](#)

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### \$60 Entergy Arkansas discount + select manufacturer discounts



**\$90 off**  
Google Nest Learning Thermostat  
Now-Feb. 17



**\$90 off**  
Emerson Sensi Thermostat  
Now-Feb. 16


[Shop now ▶](#)


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### Save even more.

Get up to \$50 when you sign up for the Smart Direct Load Program. Enroll your existing smart thermostat now or your new smart thermostat when it arrives:

- **Enroll** your Emerson Sensi Touch or Sensi Wi-Fi smart thermostat.
- **Enroll** your Honeywell Home T5, T6 Pro, T9 or T10 Pro smart thermostat.
- **Enroll** your Honeywell Home 9000, FocusPRO or Round smart thermostat.




WE POWER LIFE®

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## SOAK IN THE SAVINGS.

**ENERGY SOLUTIONS**  
AN ENERGY SERVICES PROGRAM

Sunny days will come again—and that's a promise. Make the most of them with **Entergy Arkansas rebates of up to \$300** on new ENERGY STAR® certified pool pumps.


**Save up to \$300 ▶**

**ENERGY STAR certified pool pumps:**

- Can save up to \$2,800 in lifetime energy costs.
- Run quieter than traditional single-speed pumps.
- Help reduce wear and tear on your filtering system.
- Qualify for a \$175 (two speed) or \$300 (variable speed) rebate.

If your current pool pump is over seven years old, too noisy or not as powerful as it used to be, now's the time to upgrade. Just submit your rebate application within 60 days of installation, and we'll send up to \$300 your way.

**Get pumped ▶**







◀ WE POWER LIFE ▶

Residential customers only. Must receive electric service from Entergy Arkansas. Purchased unit must be located in residence served by Entergy Arkansas. Additional restrictions may apply.

This email is sent by Entergy Arkansas, LLC at 405 West Capitol, Little Rock, Arkansas 72201.


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**ENERGY SOLUTIONS**  
AN ENERGY SERVICES PROGRAM

## HELP YOURSELF AND THE PLANET.

What better way to celebrate Earth Day than by saving energy? Shop our online marketplace for instant discounts on the latest ENERGY STAR® certified products.




[Shop now ▶](#)

---


**Instant discounts are available on:**

- **Smart thermostats** to keep you cool, comfortable and efficient.
- **LEDs** to save you energy at the flip of a switch.
- **Advanced power strips** to efficiently protect your electronics.
- **Air purifiers and dehumidifiers** to clear the air and reduce allergens.

Considering a new smart thermostat? Get yours by **April 22** to pair these special Earth Day offers with our everyday \$60 discount:

		
<b>\$90 off</b> Google Nest Thermostat <del>\$129</del> <b>\$39</b>	<b>\$90 off</b> Emerson Sensi Classic Thermostat <del>\$125</del> <b>\$35</b>	<b>\$80 off</b> Emerson Sensi Touch Thermostat <del>\$169</del> <b>\$89</b>

[Shop now ▶](#)



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Residential customers only. Must receive electric service from Entergy Arkansas. Purchased unit must be installed in residence owned by Entergy Arkansas. Additional restrictions may apply.  
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### 3.5.17 EA POPS Res Email – High Efficiency



## HIGH EFFICIENCY AT A LOW PRICE

Now just might be the smartest time to upgrade your thermostat. We've partnered with Greenlite to offer qualified customers the G2 smart thermostat for **just \$9.99**—a brilliant price for a truly smart upgrade.

[Get yours ▶](#)



### The Greenlite G2 smart thermostat:

- Is ENERGY STAR® certified for energy savings and quality.
- Adjusts automatically when you're home and away.
- Works with popular voice control systems.
- Can be controlled remotely from your smartphone.

[Save now ▶](#)



Residential customers only. Smart upgrade needs to be done from Entergy Network. Payment will need be included in residence served by Entergy Network. Additional restrictions may apply.

This email is sent by Entergy Network LLC at 128 West Capitol, Little Rock, Arkansas 72201.

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### SAVE YOUR ENERGY FOR LIVING.

ENERGY STAR® certified products are the smart choice for quality, convenience and energy savings. Shop our online marketplace for instant discounts on the latest and greatest upgrades for your home.

[Shop now ▶](#)

#### Instant discounts are available on:

- **Smart thermostats** for carefree energy savings and comfort.
- **LEDs** for long-lasting quality and efficiency.
- **Advanced power strips** for efficiently protecting electronics.
- **Air purifiers and dehumidifiers** for cleaner, healthier indoor air.

Of course, timing is everything. Add our everyday \$60 discount to limited-time Memorial Day deals for extra savings on new smart thermostats.



**Save \$110**  
Google Nest Learning Thermostat  
~~\$249~~ **\$139**



**Save \$80**  
Honeywell Home Wi-Fi FocusPRO  
~~\$160~~ **\$10**



**Save \$80**  
Emerson Sensi™  
~~\$125~~ **\$36**



**Save \$80**  
Emerson Sensi® Touch  
~~\$168~~ **\$88**

[Shop now ▶](#)



Google and Google Home Learning Thermostat are trademarks of Google U.S.

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.

This email is sent by Entergy Arkansas, LLC at 405 West Capitol, Little Rock, Arkansas 72201.

A member firm of Entergy Arkansas, LLC-65001 Entergy Services, LLC, Air State Road-101, The Dalles



### 3.5.19 EA POPS Res Email – Savings Made Simple



## ENERGY SAVINGS MADE SIMPLE

Our online marketplace makes saving energy simple. Shop now to find instant discounts on easy, long-lasting energy upgrades for your home.

[Shop now ▶](#)

### Instant discounts are available on:

- **Smart thermostats** for carefree energy savings and comfort.
- **LEDs** for long-lasting quality and efficiency.
- **Advanced power strips** for efficiently protecting electronics.
- **Air purifiers and dehumidifiers** for cleaner, healthier indoor air.

Ready to save even more? Add our everyday \$60 discount to limited-time Memorial Day deals for extra savings on the latest smart thermostats.



**Save \$110**  
Google Nest Learning  
Thermostat  
~~\$249~~ **\$139**



**Save \$100**  
Honeywell Home  
Wi-Fi Smart Color  
Thermostat  
~~\$169~~ **\$69**



**Save \$90**  
Honeywell Home  
Wi-Fi FocusPRO  
~~\$109~~ **\$19**



**Save \$90**  
Emerson Sensi™  
~~\$125~~ **\$35**



**Save \$80**  
Emerson Sensi®  
Touch  
~~\$169~~ **\$89**

[Shop now ▶](#)



Google and Google Nest Learning Thermostat are trademarks of Google LLC.  
Residential customers only. Must receive electric service from Entergy Arkansas. Purchased unit must be installed.  
A license is required by Entergy Arkansas. Additional restrictions may apply.  
This email is sent by Entergy Arkansas, LLC at 405 West Capitol, Little Rock, Arkansas 72201.



**3.5.21 EA POPS Res Email- Savings Made Simple 2**

**3.5.22 EA POPS Res Email – Save Your Energy 2**



### SAVE YOUR ENERGY FOR LIVING.

ENERGY STAR® certified products are the smart choice for quality, convenience and energy savings. Shop our online marketplace for instant discounts on the latest and greatest upgrades for your home.

[Shop now ▶](#)

**Instant discounts are available on:**

- **Smart thermostats** for carefree energy savings and comfort.
- **LEDs** for long-lasting quality and efficiency.
- **Advanced power strips** for efficiently protecting electronics.
- **Air purifiers and dehumidifiers** for cleaner, healthier indoor air.

Of course, timing is everything. Add our everyday \$60 discount to limited-time Fourth of July deals for extra savings on new smart thermostats.



**Save \$110**  
Google Nest Learning  
Thermostat  
~~\$249~~ **\$139**



**Save \$90**  
Google Nest  
Thermostat  
~~\$129~~ **\$39**



**Save \$80**  
Honeywell Home Wi-Fi  
Smart Color Thermostat  
~~\$169~~ **\$89**



**Save \$90**  
Honeywell Home  
Wi-Fi FocusPRO  
~~\$140~~ **\$50**

[Shop now ▶](#)



WE POWER LIFE®

Google and Google Nest Learning Thermostat are trademarks of Google LLC.

Residential customers only. \$60 instant electric rebate from Entergy Arkansas. Promotional discount not available in residential service by Entergy Arkansas. Additional restrictions may apply.

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### 3.5. 23 EA POPS Res Email – Smart Ways



## SO MANY SMART WAYS TO SAVE

With app-enabled remote control, adaptive temperature settings and loads of energy-saving features, smart thermostats are always a smart decision. Also smart: saving \$60 with an Entergy Arkansas rebate or discount.

### Four smart ways to save \$60:



**Shop online**  
Shop for discounted models from our online marketplace.



**Get a code**  
Get a discount code to use at checkout at your selected retailer.



**Apply online**  
Submit a rebate application online.



**Apply offline**  
Download an application to submit by mail, email or fax.

[Explore more savings ▶](#)



Offer available through Dec. 31, 2022, or while funds last. Free purchase rebate: only applies to ENERGY STAR certified models; ecoLine models do not qualify. Limited to one smart thermostat discount or rebate per household. Entergy Arkansas does not warrant or endorse any manufacturer.

Residential customers only. Must receive electric service from Entergy Arkansas. Purchased unit must be installed in a residence owned by Entergy Arkansas. Additional restrictions may apply.

Plan issued by Entergy Arkansas, 1117 W. 41st Street, Fayetteville, Arkansas 72701

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**3.5.25 EA POPS Res Email - High Efficiency 2**




**ENERGY SOLUTIONS**  
AN ENTERTAINMENT COMPANY

## HIGH EFFICIENCY AT A LOW PRICE

Now just might be the smartest time to upgrade your thermostat. We've partnered with Greenlite to offer qualified customers the G<sup>2</sup> smart thermostat for **just \$4.99**. Plus, we'll send you a **no-cost LED light bulb with your purchase** while supplies last.


**Get yours ▶**

---



**The Greenlite G<sup>2</sup> smart thermostat:**



- Is ENERGY STAR® certified for energy savings and quality.
- Adjusts automatically when you're home and away.
- Works with popular voice control systems.
- Can be controlled remotely from your smartphone.




**The Greenlite LED bulb:**

- Is ENERGY STAR certified.
- Lasts 15,000 hours.
- Uses advanced energy-saving technology.
- Replaces a standard 60-watt incandescent bulb.
- Is no cost with your G<sup>2</sup> smart thermostat purchase.

**Save now ▶**



WE POWER LIFE®


Residential customers only. Must receive electric service from Entergy Arkansas. Purchased unit must be installed in a location approved by Entergy Arkansas. Additional restrictions may apply.

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**GET SMART THIS BLACK FRIDAY.**

**Upgrade your home and save money with a smart thermostat.**

Download your instant discount code today to save \$60 on a new smart thermostat. Combine your rebate with Black Friday manufacturer deals and get even deeper discounts.

Get your \$60 instant discount code today.

[Download now ▶](#)

**Smart thermostats:**

- Can be controlled from your smartphone, tablet or computer.
- Automatically save energy based on your schedule preference.
- Come with helpful features like live weather and energy tracking.

[Save on your upgrade ▶](#)

**Entergy**

WE POWER LIFE®

Google and Google Heat Learning Thermostat are trademarks of Google LLC.  
 Restricted 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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3.5.27 EA POPS Res Email- Get the Deals



## GET THE DEALS WHILE THEY'RE GOOD



Add additional savings to popular holiday deals and save on ENERGY STAR® certified products and appliances.

[Explore savings ▶](#)

ENERGY STAR certified products make the perfect gift for your friends, family and the planet. Get up to \$350 off with Entergy Arkansas instant discounts and rebates for top-rated products, like:

- **Smart thermostats** to keep your loved ones comfortable during the winter months.
- **LEDs** to make your home merry and bright.
- **Advanced power strips** to protect your new electronics.
- **Air purifiers and dehumidifiers** to keep your home healthy.
- **Heat pump water heaters** to keep energy-savings flowing all year long.

[Explore savings ▶](#)



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### 3.5.28 Food Bank Survey



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 POPS EAL Social Media Posts – Facebook and Twitter**

**Entergy Arkansas** January 28

Set sail for savings. Our new online marketplace offers free shipping for orders over \$35. Shop now and see how much you can save on the latest energy-efficient products: <http://enter.gy/6188HnPsN>



**Entergy Arkansas** February 6

What's so advanced about advanced power strips? For one, they provide excellent surge protection. For another, they prevent your most power-hungry electronics from wasting energy when not in use. Shop our online marketplace through Feb. 9 to get \$3 off select advanced power strips plus free shipping on. <http://enter.gy/6180HnPoM>



**Entergy Arkansas** April 22

Celebrate #EarthDay with a new, planet-friendly upgrade. Find discounts and rebates on energy-efficient water heaters, freezers, LEDs, air purifiers, smart thermostats, pool pumps and more. Learn about all the ways you can save. <http://enter.gy/6186HahIA>



**Entergy Arkansas** October 31 at 8:00 AM

Spooked by energy vampires? Don't be. We can help. Plugging your devices into an advanced power strip can help save you money and reduce "vampire power" in your home. Save up to \$15 on advanced power strips. LEARN MORE - <http://enter.gy/6182JGlaY>



**Entergy Arkansas** October 6

Celebrate #EnergyEfficiencyDay with a new, planet-friendly upgrade. Find discounts and rebates on energy-efficient water heaters, freezers, LEDs, air purifiers, smart thermostats, pool pumps and more. Learn about all the ways you can save. LEARN MORE - <http://enter.gy/6187JHDJb>



**Entergy Arkansas** May 24

Get pumped for summer with rebates up to \$300 on select ENERGY STAR® certified multi- or variable-speed pool pumps, only from Entergy Arkansas. <http://enter.gy/6182HA00s>



**Entergy Arkansas** January 20

A new smart thermostat can help lower your energy costs up to 15%. Still not smart enough for you? It also comes with a \$60 instant discount if you get it from our new online store: <http://entergy/6189HnPe5>



**Entergy Arkansas** February 16

Take control of your comfort. Shop our online marketplace to save up to \$90 on select advanced thermostats through Feb. 17. Get yours today. <http://entergy/6182Hdiv2>



**Entergy Arkansas** July 4

Smart thermostat savings are sky-high this Fourth of July. Combine seasonal deals with our online marketplace's everyday \$60 discount to get the latest energy-saving models for less—including a new Honeywell Home Wi-Fi FocusPRO for just \$10. Shop and save now: <http://entergy/6180yTsV8>



**Entergy Arkansas** September 20

Is saving money part of your plans? Couple limited-time manufacturer discounts with our everyday \$60 discount to save even more on the latest smart thermostats. Get an instant discount code and take it to the checkout. Learn more: <http://entergy/6183yF9FX>



**Entergy Arkansas** May 25

Improvements in insulation and compressors mean today's freezers consume much less energy than older models. Check out Entergy's Point of Purchase Solutions Program to find rebates on new qualifying ENERGY STAR® freezers and more. <http://enter.gy/6187HA2xf>



**Entergy Arkansas** July 29

Make this the coolest summer ever. ENERGY STAR® certified Most Efficient room air conditioners use at least 10% less energy than standard models, deliver quiet and consistent cooling—and qualify for a \$50 instant discount from Entergy Arkansas. Find a participating store near you at <http://enter.gy/6186yTsoC>.



**Entergy Arkansas** June 17

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. Find a participating store near you. <http://enter.gy/6184yy08p>



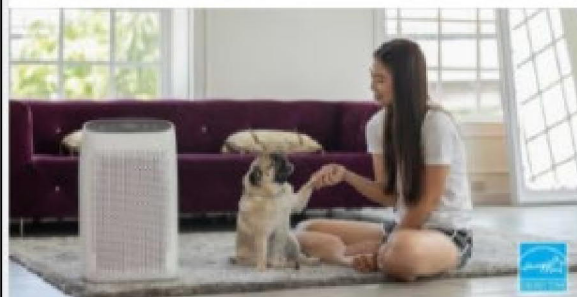
**Entergy Arkansas** April 29

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/6184HahJY>



**Entergy Arkansas** January 29

Take a deep breath. The new year has finally arrived. Make the most of it with a germ-fighting, allergen-capturing, odor-reducing, ENERGY STAR® certified air purifier—now up to \$35 off from the Entergy Arkansas Marketplace. <http://enter.gy/6180HnPaU>



**Entergy Arkansas** June 20

Take a deep breath: Summer is finally here. Make the most of it with a germ-fighting, allergen-capturing, odor-reducing, ENERGY STAR® certified air purifier—now \$40 off from our online marketplace. Shop and save at <http://enter.gy/6188yyLGe>











## 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><b>Free shipping on orders over \$35</b> Available ENERGY STAR® certified products include smart thermostats, LED lighting, advanced power strips, dehumidifiers and air purifiers.</p> <p>Shop now at <a href="http://entergyarkansas.com/marketplace">entergyarkansas.com/marketplace</a>.</p>
 <p>Instant Discounts</p>	<p>Shop and save instantly at participating stores (list available online).</p> <p><b>LEDs: Up to \$3 per bulb</b> Simply put, LEDs last longer, use less energy and emit less heat than any other bulbs.</p> <p><b>Advanced power strips: Up to \$15</b> Unused devices can still consume energy. Use an advanced power strip to prevent this costly "vampire power."</p> <p><b>Heat pump water heaters: \$350 off select models</b> 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><b>Smart thermostats: \$60</b> 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><b>Freezers: Up to \$50</b> Claim your Entergy Arkansas rebate now, and you could save \$195 over the next five years on your Entergy bill.</p> <p><b>Pool pumps: Up to \$300</b> ENERGY STAR certified pool pumps vary their energy use based on your pool's needs, which could save you hundreds each summer.</p> <p><b>Room air purifiers: \$35</b> Clear the air and save up to \$30 each year in energy costs by upgrading to a more energy-efficient air purifier.</p> <p><b>Dehumidifiers: \$25</b> 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](http://entergyarkansas.com/homeappliances).

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## 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><b>Free shipping on orders over \$35</b> Available ENERGY STAR® certified products include smart thermostats, LED lighting, advanced power strips, dehumidifiers and air purifiers. Shop now at <a href="http://entergyarkansas.com/marketplace">entergyarkansas.com/marketplace</a>.</p>
 <p>Instant Discounts</p>	<p>Shop and save instantly at participating stores (list available online).</p> <p><b>LEDs: Up to \$3 per bulb</b> Simply put, LEDs last longer, use less energy and emit less heat than any other bulbs.</p> <p><b>Advanced power strips: Up to \$15</b> Unused devices can still consume energy. Use an advanced power strip to prevent this costly "vampire power."</p> <p><b>Ductless Heat Pumps: Up to \$500</b> AHRI certified DHPs offer energy savings, enhanced control and improved comfort.</p> <p><b>Window Air Conditioners: \$50 off ENERGY STAR Most Efficient models</b> The latest air conditioners on the market offer more than just added energy savings; many come with connected functionality offering more convenience and comfort.</p> <p><b>Heat pump water heaters: \$350 off select models</b> 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><b>Smart thermostats: \$60</b> 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><b>Freezers: Up to \$50</b> Claim your Entergy Arkansas rebate now, and you could save \$195 over the next five years on your Entergy bill.</p> <p><b>Pool pumps: Up to \$300</b> ENERGY STAR certified pool pumps vary their energy use based on your pool's needs, which could save you hundreds each summer.</p> <p><b>Room air purifiers: \$35</b> Clear the air and save up to \$30 each year in energy costs by upgrading to a more energy-efficient air purifier.</p> <p><b>Dehumidifiers: \$25</b> 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](http://entergyarkansas.com/homeappliances).

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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.

 <b>Instant Discounts</b>	<p><b>Shop and save instantly at participating stores (list available online).</b></p> <p><b>LEDs: Up to \$3 per bulb</b> Simply put, LEDs last longer, use less energy and emit less heat than any other bulbs.</p>
	<p><b>Advanced power strips: Up to \$15</b> Unused devices can still consume energy. Use an advanced power strip to prevent this costly "vampire power."</p>
	<p><b>Ductless Heat Pumps: Up to \$500</b> AHRI certified DHPs offer energy savings, enhanced control and improved comfort.</p>
	<p><b>Window Air Conditioners: \$50 off ENERGY STAR Most Efficient models</b> The latest air conditioners on the market offer more than just added energy savings; many come with connected functionality offering more convenience and comfort.</p>
	<p><b>Heat pump water heaters: \$350 off select models</b> 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>
 <b>Discount Codes</b>	<p><b>Get your instant discount code from our online portal, then redeem at checkout.</b></p> <p><b>Smart thermostats: \$60</b> Many smart thermostats can adapt to your schedule and preferences, track your energy use and be adjusted remotely through your smartphone.</p>
 <b>Rebates</b>	<p><b>Purchase a qualifying ENERGY STAR certified product, then apply for a rebate online or by mail.</b> Rebates are also available for smart thermostats.</p>
	<p><b>Freezers: Up to \$50</b> Claim your Entergy Arkansas rebate now, and you could save \$195 over the next five years on your Entergy bill.</p>
	<p><b>Pool pumps: Up to \$300</b> ENERGY STAR certified pool pumps vary their energy use based on your pool's needs, which could save you hundreds each summer.</p>
	<p><b>Room air purifiers: \$35</b> Clear the air and save up to \$30 each year in energy costs by upgrading to a more energy-efficient air purifier.</p> <p><b>Dehumidifiers: \$25</b> 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](http://entergyarkansas.com/homeappliances).

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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](http://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](http://entergyarkansas.com/homeappliances) to apply for a rebate through the mail or online.

The discount cannot be combined with any other Entergy Arkansas incentive, but can be used during sales. Limit is one per service address. The home must have a central air conditioning unit. 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 [entergyarinstantrebate.com](http://entergyarinstantrebate.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](http://entergyarkansas.com/homeappliances) to apply for an Entergy rebate through the mail or online.



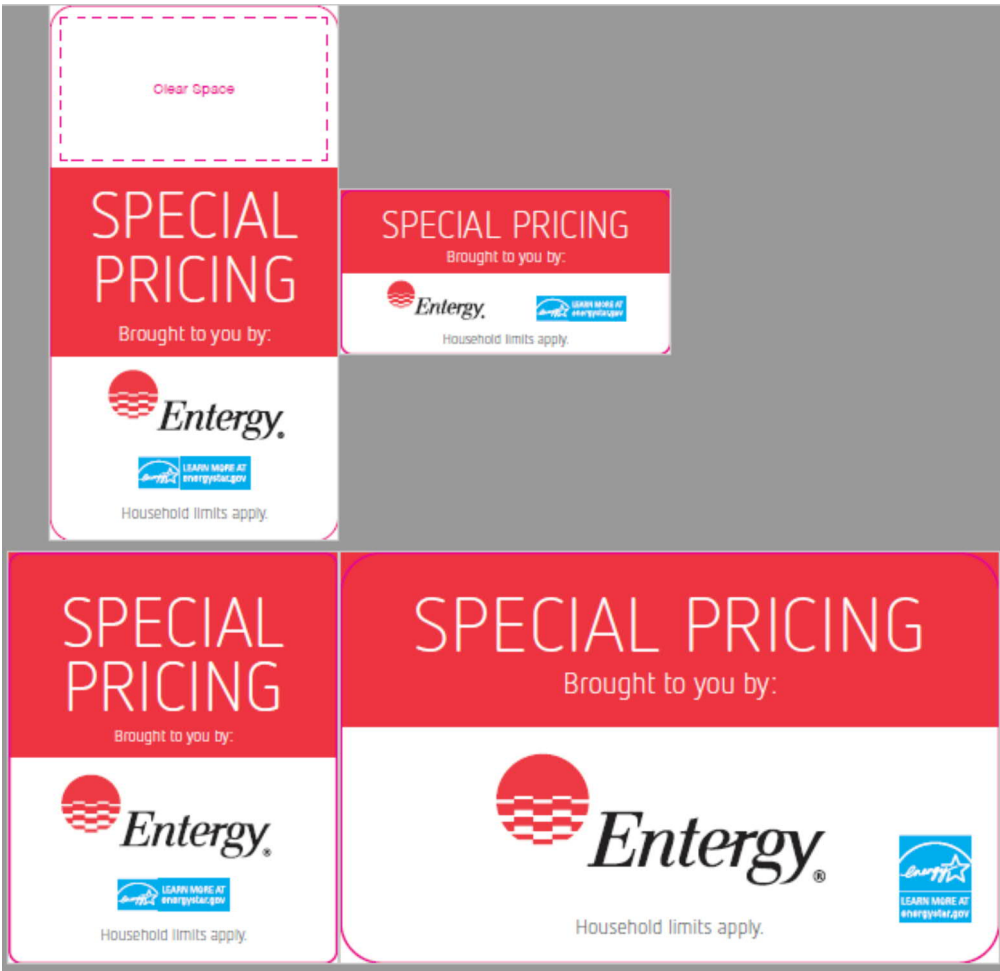
**ENERGY SOLUTIONS**  
AN ENTERGY ARKANSAS PROGRAM



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 W-R. Funds are limited and available on a first-come, first-served basis. Additional terms and conditions apply.

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WE POWER LIFE®







# REBATES ARE AVAILABLE

on select ENERGY STAR® certified products.

Brought to you by:



Apply online at [eaihomeappliances.clearesult.com](http://eaihomeappliances.clearesult.com).

 WE POWER LIFE\*

# SPECIAL PRICING

on select ENERGY STAR® certified products.

Brought to you by:



Visit [entergyarkansas.com/homeappliances](http://entergyarkansas.com/homeappliances) for more information.

 WE POWER LIFE\*



3.5.38 EA Direct Ship Banner.pdf



**GET YOURS for only \$26.95\***



\*For Details See your Account Representative or Greenlight Ohio



**ENERGY SOLUTIONS**  
AN ENERGY SERVICES PROGRAM



Register to see if you qualify:  
[www.greenliteusa.com/enteryar](http://www.greenliteusa.com/enteryar)

- ✓ Visit [greenliteusa.com/enteryar](http://greenliteusa.com/enteryar) or scan this code. Enter your email address.
- ✓ Check your email & complete registration.
- ✓ If you qualify, receive your **airz** Smart Thermostat shipped to your home within 7-14 days.



[www.greenliteusa.com](http://www.greenliteusa.com)

3.5.39 Food Bank Packaging.pdf



### 3.5.40 MegaLight Sticker.pdf



### 3.6 Large Commercial and Industrial Solutions

#### 3.6.1 0320-EAI-C&I-1869433-Opt-in-Flyer\_CLEAN.pdf



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Wade Harper  
AUTHORIZED CONTRACTOR  
Company Name



3.6.4 0521-EA-CoolSaver-2363682-Brochure Update\_CLEAN.pdf



**Get in tune with lower energy costs.**

Our commercial CoolSaver A/C Tune-up can help boost your air conditioner's cooling output and efficiency by up to 20%. Even cooler, the Entergy Solutions Program offers financial incentives to help cover the cost.

Tons	Incentive
1.5-3.5	\$225
4-5	\$275
6-10	\$450
11-15	\$650
16-25	\$800
26-30	\$850*
31-50	\$1,400*
51-80	\$2,000*
80+	\$2,500*

\*Pre-approval required

**Ready to be cool?**

Schedule your CoolSaver A/C Tune-up with a participating trade ally today, or give us a call to find out more.

[entergyarkansas.com/commercial](http://entergyarkansas.com/commercial)  
877-212-2420

**Tune up your bottom line.**

Improve the performance and efficiency of your cooling system by up to 20% with a commercial CoolSaver<sup>SM</sup> A/C Tune-up.



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WE POWER LIFE<sup>®</sup>



**Lower costs, higher comfort**

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.

Plus, schools, churches, restaurants and small office customers may qualify for additional energy-saving upgrades—including a smart thermostat.

**How does it work?**

During your tune-up, a qualified technician may:

- Measure and correct indoor airflow.
- Change or clean the filter.
- Inspect and clean outdoor condenser coils, indoor coil and blower.
- Adjust refrigerant charge to manufacturer's specifications using digital refrigerant analyzer.
- Test and verify how much cooling you're actually getting.
- Apply the appropriate incentive from the Entergy Solutions Program to your invoice.

**Benefits**

- A more dependable, longer-lasting unit.
- Lower energy costs.
- A cooler, more comfortable indoor environment.
- Improved humidity control.
- Instant discounts toward the cost of your tune-up.

**Eligibility**

To qualify, you must be an Entergy Arkansas commercial customer with a central air conditioning system that's at least one year old. Systems that have received a CoolSaver A/C Tune-up in the last five years are not eligible for incentives.





## BUSINESS SOLUTIONS PROGRAMS PARTICIPATION AGREEMENT



### Take control of your energy use.

Entergy 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™ / SCES 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 W-9 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 receive incentive funds.
5. Complete projects defined in the project application, notify program administrator and schedule post inspection as required.
6. Receive incentive dollars from Entergy Arkansas and benefit from energy savings.
7. 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.

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: \_\_\_\_\_  
\*If you have an account number, please provide a separate list of buildings, physical addresses and account numbers.

Questions? Contact the Energy Efficiency Solutions Center at 877-212-2420 or visit [entergyarkansas.com](http://entergyarkansas.com).



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## STANDARD TERMS AND CONDITIONS FOR PARTICIPATING CUSTOMERS



These Standard Terms and Conditions ("Terms") govern the participation of participating customers in the "Program" only and shall not be construed to constitute an offer of financing or other financial product. Entergy Arkansas, LLC ("Entergy") and Entergy Arkansas Energy Services, LLC ("Entergy Services") are the sole providers of the Program. The Program is subject to the terms and conditions of the "Program" and the "Terms" and is not intended to constitute an offer of financing or other financial product. The Program is subject to the terms and conditions of the "Program" and the "Terms" and is not intended to constitute an offer of financing or other financial product.

1. **ACCEPTANCE/INFORMATION:** Customer agrees to accept the Terms and Conditions and agrees to participate in the Program. Customer understands that the Program is subject to the terms and conditions of the "Program" and the "Terms" and is not intended to constitute an offer of financing or other financial product. Customer agrees to accept the Terms and Conditions and agrees to participate in the Program. Customer understands that the Program is subject to the terms and conditions of the "Program" and the "Terms" and is not intended to constitute an offer of financing or other financial product.
2. **INDEPENDENT MONITORING AND VERIFICATION:** Customer agrees to accept the Terms and Conditions and agrees to participate in the Program. Customer understands that the Program is subject to the terms and conditions of the "Program" and the "Terms" and is not intended to constitute an offer of financing or other financial product.
3. **COMPLETION:** Customer agrees to accept the Terms and Conditions and agrees to participate in the Program. Customer understands that the Program is subject to the terms and conditions of the "Program" and the "Terms" and is not intended to constitute an offer of financing or other financial product.
4. **WARRANTY:** Customer agrees to accept the Terms and Conditions and agrees to participate in the Program. Customer understands that the Program is subject to the terms and conditions of the "Program" and the "Terms" and is not intended to constitute an offer of financing or other financial product.
5. **FORCE MAJEURE:** Customer agrees to accept the Terms and Conditions and agrees to participate in the Program. Customer understands that the Program is subject to the terms and conditions of the "Program" and the "Terms" and is not intended to constitute an offer of financing or other financial product.
6. **ASSIGNMENT:** Customer agrees to accept the Terms and Conditions and agrees to participate in the Program. Customer understands that the Program is subject to the terms and conditions of the "Program" and the "Terms" and is not intended to constitute an offer of financing or other financial product.

This agreement should be signed by your organization's director, president or other executive and will remain valid until providing the program implementation activities unless you provide written notice to terminate your participation.

SIGNATURE: \_\_\_\_\_ DATE: \_\_\_\_\_

Please sign and email to the appropriate contact below. If electronic submission is unavailable, please fax to 888-420-4100.

Contact: Trade Ally Specialist  
tsupport@arkansas.com  
261-221-6221



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## 2021 Program Manual Large Commercial & Industrial

**PREPARED BY:**

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 Little Rock, AR 72202  
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**PROGRAM OVERVIEW**

**Program Description**

Entergy Arkansas, LLC offers a Large Commercial & Industrial Program to its qualifying customers. The program is designed to help customers who operate industrial or commercial facilities to operate their buildings more efficiently by deepening their understanding of the technical and financial benefits of energy efficiency investments. The program also helps these customers plan energy efficiency improvements for their facilities. Customers who enroll in the program may also receive technical and energy related assistance to help them make decisions about cost-effective energy efficiency investments.

**Program Benefits Include**

- Free technical advice that will help participants evaluate cost-effective energy efficiency projects.
- Cash incentives for completed projects.
- To get started, please call the Energy Efficiency Solutions Center at 877-212-2420.

Participants who complete qualifying energy efficiency projects are eligible for financial incentives. If the participant completes one or more projects that meet the threshold requirements discussed herein, he or she may receive additional program benefits including energy benchmarking, technical assistance and communications support. In general, the program does not prescribe technologies or end uses (instead, it provides a framework through which the participant can receive incentives for implementing and installing a wide range of measures at his or her site.

**Program Objectives**

The Entergy Arkansas Large Commercial & Industrial Program is designed to educate the commercial and industrial marketplace about cost-effective energy efficiency measures and promote the implementation of such measures while minimizing barriers to energy efficiency. Some program objectives are inherent in transforming the energy efficiency market while others are direct benefits that participants receive.

**The Large C&I Program is designed to:**

- Make energy efficiency a primary consideration for Entergy Arkansas's commercial and industrial customers by transforming the energy efficiency market through training, education and program implementation.
- Overcome market barriers to the implementation of energy efficiency projects.
- Enhance awareness of program benefits such as energy efficiency financing alternatives and energy efficiency project payback.
- Address the budget constraints and high-up-front costs that typically limit Entergy Arkansas's commercial and industrial customers to side-out energy efficient technologies.
- Enhance awareness of energy efficient technologies, energy efficiency calculation tools, and measurement and verification strategies.
- Provide participants with technical assistance in order to address energy efficiency at all major utility end-uses and avoid lost opportunities where reasonable.
- Promote cost-effective energy efficiency projects that maximize net benefits to both the participant and Entergy Arkansas.
- Assemble a list of qualified vendors and installers (trade allies) who have chosen to participate in the

**Program Overview**

- program and ensure that participants can access this list.
- Provide evaluation, measurement and verification measures who can adequately support the implementation of energy efficiency projects.
- Help Entergy Arkansas meet financial energy savings goals by seeking qualified Entergy Arkansas customers with the identification and implementation of cost-effective energy efficiency measures.
- Leverage cash incentives to help participants implement cost-effective projects.
- Streamline project delivery by providing participants with flexibility to have day-install or single-incentive day-install on an energy investment to third parties in order to offer work they can also sell incentives for (reseller arrangement).

**Program Contacts and Roles**

**Program Sponsor:**  
 Entergy Arkansas  
 Email: [EntergyEfficiency@entergy.com](mailto:EntergyEfficiency@entergy.com)  
 Website: [entergy.com/commercial](http://entergy.com/commercial)

- The program sponsor:**
- Provides all funding for the energy efficiency program and the program incentives.
  - Manages the energy efficiency programs and oversees implementation.

**Program Implementer:**  
 CS Allowance  
 Contact: Energy Efficiency Solutions Center Phone: 877-212-2420  
 Email: [EntergyARLargeCommercial@clearresult.com](mailto:EntergyARLargeCommercial@clearresult.com)

- The Program Implementer:**
- Perform outreach and education about the energy efficiency program.
  - Provide energy efficiency assistance to program participants (at no cost).
  - Assist program participants and trade allies with program documentation.
  - Perform required on-site inspections and documentation.
  - Calculate energy savings potential for identified projects.
  - Assist in evaluation of financial metrics for energy efficiency projects (payback, IRR, etc.).
  - Promote and deliver trade ally status.

**Program Evaluation**

- Trade Tech and AGM:**
- Oversee program implementation to verify that savings claimed by program staff are correct, valid and adequately documented.
  - May perform post-retrofit controls inspections, measurements or phone conversations to collect data for program savings verification.
  - Provide updates to program calculation methodologies through annual Technical Resource Manual updates.
  - Survey program participants to determine if program implementation is meeting their needs and expectations.
  - Survey Entergy Arkansas customers to determine if program outreach is adequately informing the market.

Energy efficiency program opportunities.

Program Participant

To participate in the program, qualified Energy Advance customers must:

- Execute the participation agreement.
- Contact the program implementer to schedule a facility assessment.
- Submit a project application to request incentives for qualifying energy efficiency projects.
- Following the walk-through electronic auditing tools, the trade ally will provide the necessary forms for signature by the participant.
- Execute final efforts to approve, fund, install and report projects by the time communicated to the program implementer staff (typically within the same program year).
- Contact the program implementer when problems are encountered, such as providing all necessary modeling and stream documentation and allow staff to perform a post inspection.
- Provide program implementation staff, including quality assurance/control and installation staff, access to facilities and facility supervisors both before and after project completion. These staff members may conduct inspection of the facility under the pre-approved conditions as required.

Trade Ally

To participate in the program, trade allies must:

- Execute the Trade Ally Agreement.
- Complete required background checks to the program guidelines set out in this manual.
- If providing lighting services, the trade ally shall complete additional required electronic auditing tools training.
- 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.
- Provide program staff with adequate project information to calculate and record the potential energy savings and participant incentives.
- Coordinate verification that the pre-inspection data provided to the program implementer is correct and validate accuracy of the savings and incentives 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 the program implementer.
- Perform all work according to the required standards of the program.

Please see the Customer Trade Ally Manual for Trade Ally details around this measure.

PROGRAM ELIGIBILITY

Program Changes

- The following are new measure offerings within the Large C&I Program:
  - o 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.**
  - o 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 subject matter expertise to provide group workshops, on-site one-on-one activities, and energy coaching services to increase customer engagement and measure operational and maintenance energy savings.
  - o Retro-commissioning (RCx) (RUE). This is a prescriptive approach to building optimization services designed to better meet the needs of Small and Medium Businesses (SMB). The program identifies "find and fix" measures to improve building operations, with savings that are calculated within the RCx Life Workbook. Trade ally will be trained to perform the RCx Life survey, enter the information into the RCx Life workbook, make the repairs and submit to the program for approval and incentive.

Participant Eligibility

The Large C&I Program targets any large commercial or industrial customer who purchases retail electric service from Energy Advance and has a peak demand of 300kW or greater. The following three commercial programs target specific market sectors, and participants are encouraged to take part in these programs when they are eligible:

- The CityLine (C&I) program targets municipalities, schools, cities, higher education facilities and other publicly funded institutions except for state and federal facilities. Participants eligible for CityLine (C&I) should take part in this program, which is designed to address specific market needs.
- The Small Business program targets Energy Advance customers with a commercial peak demand of less than 300 kW. This program offers higher incentives for most energy efficiency projects to assist smaller businesses in implementing projects with limited cash flow.
- The Agricultural Energy Solutions program targets Energy Advance's agricultural customers as identified by their Energy Account type and/or Standard Industrial Classification code. This program extends to a variety of ag-business including quality, dairy, cattle, swine, Delaware crop and aquaculture facilities.

For the purposes of this program, a customer is defined by their Energy Business Partner number. Organizations with multiple locations are thereby considered a single customer, regardless of how many Energy Advance account numbers they may have, as long as those accounts are aggregated to the Energy Advance Business Partner number under the Federal Tax ID Number is not available.

Trade Ally Participation and Eligibility

Trade allies are members of various trades who meet the qualifications and standards listed below. Trade allies will have their entity name included in a list of eligible trade allies that may be given to participants and may continue to work with the program, as long as they maintain compliance with all 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 to ensure the proficiency of the trade ally. The level of trade ally participation (i.e. number and type of completed projects in which the trade ally has been involved) may be included on the trade ally list for the participants to consider when selecting appropriate trade allies for their projects. Details about training, tools and performance are listed below.

Please see the Customer Trade Ally Manual for more details about being a Trade Ally for the Customer (measures).

Technical Requirements for the Trade Ally

- An understanding of basic building science principles.
- Completion of program required best practices training.
- Please see the Customer Trade Ally Manual for specific technical requirements for this measure.

Business Requirements for the Trade Ally

- Trade allies must provide proof of appropriate and required licensing, and demonstrate the capability to conduct business successfully by providing CDS of the following:
  - o A satisfactory DUNS and Business Rating.
  - o 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 credit.
    - Confirmation that the principals in the business have a satisfactory individual credit score with no outstanding liens or judgments.

Tools Required for Trade Ally

- Participating trade allies own, use and maintain all tools required in order to design, install and/or test materials and energy efficiency measures according to the manufacturer specifications, as well as local and industry standards.

Quality Performance Requirements for Trade Ally

- In order to maintain trade ally eligibility, the trade ally, upon request from the program implementer, and at no additional cost to the participant, shall either reassemble specific or sometimes rework that the trade ally has performed to bring such work up to the program standards. The repairs or rework items to be completed within the timeframe specified by the program implementer. The trade ally also agrees to take steps to ensure future work will comply with program standards.

PROGRAM INCENTIVES

Measures & Incentive Levels

A measure, for the purposes of calculating incentives, is a single proposed energy efficiency improvement, at either a single facility or multiple facilities. A project is 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 the program.

There is no minimum energy savings amount to qualify a project for incentives under this program. However, in order to receive certain non-cash benefits and assistance from the program, a participant must have completed energy efficiency measures resulting in a total annual energy savings that meets or exceeds 10,000 kWh. Projects involving installed measures with customers below the annual savings threshold of 10,000 kWh can be submitted, but the program implementer may request that the participant waive the implementation staff by providing photos or other documentation of existing (pre-retrofit) conditions for some sites or a user by email form.

All measures must be submitted to the program implementer or identified in a facility assessment and are subject to pre-approval to qualify for incentives. The energy efficiency 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.
- Must be cost effective as defined by the program utility and the program implementer.
- New equipment must exceed minimum current equipment efficiency standards as defined by the current version of the Advanced Technical Resource Manual and are available upon request.
- Must not develop any savings as a result of fuel switching.

The incentive rates for this program have been designed to encourage comprehensive projects to be delivered by the participant at their locations through a tiered incentive approach. The tiered incentive approach will be used to provide additional incentives for multiple measures achieved by the participant at their location in order to allow more from the Participants of single measure installations. For a measure to be eligible, multiple projects/incentives, it must meet the requirements as listed above. Additional rules for measures and tiered incentives are:

- If an energy efficiency measure is installed at a single facility or at multiple facilities for the same participant, then that measure is still considered a single measure.
- An energy efficiency measure must exceed 30,000 kWh to qualify for an additional tier of incentives.
- Multiple measures are eligible for incentives, but they do not meet the minimum requirement of 30,000 kWh annual savings to qualify as one. 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 add up to more than the 30,000 kWh minimum. Note that only one such grouping is allowed per participant.

If, during the past program year, the participant completed measures that could qualify for tiered incentives, those projects will be treated as tiered incentives meeting tiered incentive rules with two measures be listed in the Program Change section of the document. Previously completed measures can be paid additional incentives if they were installed from January of the previous program year to the current program year.

Trade Ally Documentation Confidentiality

Trade allies should note that this program is in place to drive energy efficiency in the Energy Advance service territory. Any program documentation submitted for a proposed project within the Energy Advance program will be treated with care 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 the customer upon request unless that documentation is clearly and obviously labeled as confidential on each page of the documentation. All confidential information as labeled will be verified with the provider prior to sharing with the program participant.

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 tiered incentive rate. However, measures and tiered incentives prior to Jan. 1 of the previous program year will not carry forward to the current program year. Note that **excess** incentives developed by projects can only be carried forward to the subsequent program year provided the funds are used by the year end.

No one participant designated by an individual Federal Tax ID or Energy Business Partner number may receive over 50 percent of the annual Large C&I program incentive budget. The incentive rates are listed in the table below. These rates are set at levels that are anticipated to persist through year end.

If there are incentive funds still available after Aug. 1 of the current program year provided the funds are used by the year end.

No one participant designated by an individual Federal Tax ID or Energy Business Partner number may receive over 50 percent of the annual Large C&I program incentive budget. The incentive rates are listed in the table below. These rates are set at levels that are anticipated to persist through year end.

If there are incentive funds still available after Aug. 1 of the current program year provided the funds are used by the year end.

Figure 1: Incentive Rates

Large C&I	1 measure	2 measures	3 measures	4+ measures	Cap
PC Power Management	\$0.10	\$0.10	\$0.10	\$0.10	100%
Gasline and Site Curbins	Paid per L/F (or \$P) of damaged gasline/curb				100%
All other measures	\$0.14	\$0.19	\$0.28	\$0.39	Up to 300%
*** Measures must be 30,000 kWh for the cap(s).					
*** Measures needed for tier are only measured to January of the previous program year.					
*** Program (Direct Install) measures will count as only one tier, even if different and same year.					
*** Excess incentives are benchmarked against other projects (up to the cap) and can carry forward to January of the following year.					
*** Non-measure incentives will be benchmarked against other projects (up to the cap) back to January of the previous year.					
*** Please see the Customer Trade Ally Manual for important details on this measure.					

The table above provides the currently applicable incentive rates and the hypothetical examples below illustrate how the tiered incentive levels will work in the Large C&I Program.

**Example 1:** A participant has identified four energy efficiency measures that they plan to install. If the participant installs all four measures in one program year, he or she will receive an incentive rate of \$0.10000 for that year and the measures are required to meet the four qualifying measures each exceeding 30,000 kWh or greater in annual energy savings.

**Example 2:** A participant identifies four energy efficiency measures that they plan to install. However, due to budget constraints, scheduling conflicts or equipment delivery delays, the participant chooses to install three measures during the current program year and the remaining measure in the next program year. The incentives will be \$0.10000 for the first three measures in the current program year and \$0.10000 for the other remaining measure in the next program year (based on four qualifying measures, three from year one and one from year two). In addition, the other three measures installed in the previous program year will be paid \$0.10000 incentive for the incentives in the current program year.

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**Example 2)** A participant identifies two energy efficiency measures to be installed. However, due to budget constraints, scheduling conflicts or equipment delivery delays, the participant chooses to install one measure during the current program year and a second measure in the next program year. Also, during the next program year, the participant installs two additional measures. The incentive rates will be as follows:

- \$5.1400/W for year one (first measure).
- \$5.1400/W for the second, third and fourth measures in year two (based on four qualifying measures installed).
- \$3.0800/W for retroactive incentives for the previous year measure.

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**Project Example**

**CASE STUDY**

**PRIME-LINE**

**The Opportunity**  
Prime-Line, a Michigan-based manufacturer of commercial products, was looking to reduce heat, humidity and moisture intrusion in its facility. With this in mind, the manufacturer decided to work with Energy Advances to complete a ventilation upgrade project.

**The Project**  
The main cause ventilation was installed to reduce indoor humidity levels and reduce the use of a large HVAC system. Effectively, the system allows warm heat from the production area to be recycled use of the facility through the open bay doors. This not only reduces interior heat and humidity, but also provides a manageable and sustainable working environment through all four seasons.

**The Results**  
The project is estimated to save Prime-Line \$24,075 annually in energy costs. The manufacturer received a total of \$88,590 in incentives from Energy Advances, greatly offsetting the project cost and paying the project period at only 0.85 years for just over 10 months.

**It doesn't just reduce energy for Prime-Line facilities. The manufacturer has saved \$88,590 (88%) in incentives, which is equivalent to the program's energy incentive benefits. This also drives the air savings percentage up to 100%, equivalent to the program's energy savings for one year, according to U.S. Environmental Protection Agency calculations.**

**The company is so pleased with the results it already has further projects planned, including new manufacturing facilities in AZ, TX and CA and a compressed air installation.**

**Questions? To learn more about the Large Commercial & Industrial Program, contact the Energy Efficiency Solutions Center at 877-212-2339 or visit [energyadvances.com/industrial](http://energyadvances.com/industrial).**

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**CASE STUDY**

**CRAIN AUTOMOTIVE**

**The Opportunity**  
With 17 facilities across Indiana, the Crain Automotive Team had extensive potential for energy savings. Like in most businesses, light and heating lighting is essential for building business from the inside out. Crain Automotive is committed to energy efficiency and working with the Energy Advances Large Commercial & Industrial Program to identify and secure generous incentives for energy efficient lighting supplies.

**The Project**  
Over five years, Energy Advances has helped Crain plan, fund and complete phase one and phase two LED lighting upgrades in several of its Indiana facilities. They also learned to reduce their HVAC system in their Little Rock office building. Energy Advances assisted Crain with tasks that a typical contractor might not.

**The Results**  
Altogether, the upgrades are expected to drive significant savings for Crain to come. Thanks to more than \$100,000 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 workplaces brighter, safer and more welcoming to customers and employees.

**Questions? Contact the Energy Efficiency Solutions Center at 877-212-2339 or visit [energyadvances.com/industrial](http://energyadvances.com/industrial).**

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**CASE STUDY**

**GEORGIA-PACIFIC CROSSETT**

**The Opportunity**  
Georgia-Pacific Crossett is one of the world's leading makers of tissue, pulp, paper, packaging, and other products and materials. The company is a leader in the industry and has been a part of the Energy Advances program for over 10 years. In 2021, Georgia-Pacific Crossett is working with the Energy Advances program to complete a lighting upgrade project. The project is estimated to save Georgia-Pacific Crossett \$1,870,607 annually in energy costs and pay for itself in just over 1.2 years.

**The Project**  
Through the Large Commercial & Industrial Program team, Georgia-Pacific has been able to secure funding for engineering, engineering support for environmental upgrades, and technical guidance to increase its overall energy efficiency. The program also includes a variety of services including system, on-site energy audits and energy efficiency assessments throughout the facility to reduce energy usage.

**The Results**  
As a result of the upgrades, Georgia-Pacific improved the operational, control and energy efficiency of its facility, resulting in annual savings of \$1,870,607 and \$1,870,607. Thanks to these savings and savings in other facilities from Georgia-Pacific, the project is expected to pay for itself in just over one year. The average savings per employee is the equivalent of \$1,870,607 per year.

**Questions? To learn more about the Large Commercial & Industrial Program, contact the Energy Efficiency Solutions Center at 877-212-2339 or visit [energyadvances.com/industrial](http://energyadvances.com/industrial).**

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**Co-Funding of Feasibility Studies**

The Large C&I program also will aid 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 software data, logged data, calculation methodologies and/or computer simulated energy models to determine if cost effective energy saving opportunities exist within that facility or campus. However, it is understood that the withdrawal of these feasibility studies may not be within the budget of the participant. The program has allocated Incentive Funds for the current program year to aid participants who wish to obtain these studies. It is the intent of the program that these studies provide a comprehensive review of opportunities within a facility. If more than one study is submitted for a single 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 awarded 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 handled in the same way as project applications in the case of over-subscription (see the Wait List Procedure section of this document). If the funds reserved for feasibility studies are not used by Sept. 1 of the program year, these funds may be released back into the general Incentive Funds for projects completed that program year.

Feasibility Tiered Structure		
Feasibility Study Savings**		
Min kWh	Max kWh	Incentive†
50,000	100,000	\$3,000
100,001	200,000	\$6,000
200,001	500,000	\$9,000
500,001	1,000,000	\$12,000
1,000,001	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 \$50k for study submission and the remaining 80% upon project completion for cost savings  
 \*\*Must be M&E projects. Savings includes "Tiered" measures from the current version of the Arkansas DSM

To request funding assistance, a participant needs to enroll in the program and submit the workorder document (see Appendix A), as well as the proposal from the consultant or trade ally proposing the study. The submission must also include a letter from the participant stating the request for feasibility study co-funding (see Appendix B) and how the participant is prepared 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 cost and a list of the expected deliverables to the participant (see Appendix C).

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 targeted to cover up to 70% percent of the cost of the study. Thirty percent co-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 expected to adhere to the feasibility table above, then the program will pay the balance of the feasibility cost as an additional incentive when the projects are complete and final project incentives are paid. The maximum co-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 whose combined total exceeds 50 percent of the total co-funding budget during the program year.

Eligible Measure Categories for Tier Credits

- Lighting and O&M Controls (Interior, Exterior, Specialty Lighting);
- Advanced Lighting Controls (Motion Sensor, Dimming, Time Scheduling Controls, etc.);
- Central Cooling (VAV/Zone) Requirements;
- CoolDown Air Conditioner Tune-ups;
- Chiller Tune-up;
- Retrofit VFD Drives for Air Handler Fans;
- Commercial VAV Thermostats;
- Building Automation Controls and Retro-Commissioning;
- Retro-Commissioning (RCx) List;
- Motor Replacement (Including OIGAC Conversion and EC Motors);
- Motor Drive or VFD Upgrades;
- Computer Power Management (PCPM, Server Virtualization, Server Consolidation, Data Center UPS Upgrades);
- Commercial Refrigeration Upgrades (OIGAC, ASHC, Zero Energy Chills, Night Chills, Open Cycle to Bulk Demand);
- Direct Install (Refrigeration, HVAC, SmartHeats, LEDs, Weather Stripping);
- Compressed Air Upgrades (Leak Flow, Demand Side, Supply Side, Air Treatment, Storage, Distribution, VFD Drive Components, etc.);
- Industrial Controls and/or Compressed Air System Controls (Installation or Modification of Pressure or Compressor Controls);
- Industrial Pump/Offen Upgrades;
- Injection Molding System Upgrades (Water Based Upgrade, Heater Band Replacement, Heater Band Replaces, Injection Machine Coating, etc.);
- Industrial Heating (Stoves, Ovens/Heaters, Drying Processes, etc.);
- Industrial Coating (Process Coaters, Industrial Refrigeration, etc.);
- Other Industrial Process Upgrades (Non-Heating/Coating);
- Refueling Savings (RS);
- All Other Measures (Storage Measures, Data Center Hot Aisle/Cold Aisle, etc.) that would be Measured and Verified.

Energy efficiency measures not specifically listed in the table above may be eligible under this program. Measures not specifically listed can be evaluated on a case-by-case basis and are subject to approval by the program implementer.

Some measures are available as direct install measures. Program implementation staff will install this equipment at no cost to the participant as an incentive for this measure. These items may be paid for up to 75 percent of cost, provided the project is cost effective.

Please see the [CoolDown Trade-Up Manual](#) for more details on the CoolDown measure and incentive levels.

Incentive Basis

Financial incentives that may be available to a participant through the program will be based on a total annual kWh reduction. Savings will be calculated using one of several savings approaches. Unless the participant is completing the work to locate the participant will need to select a trade ally (or other entity provided) to implement the measures. The program will select and implement an appropriate savings measurement and verification plan (including installing field monitoring equipment where applicable). Participants may also submit suggested measures, along with a suggested MBM approach. As long as the approach includes adequate calculations and/or monitoring to justify savings (as determined by the program implementer) the measures will be considered for eligibility to receive incentives under the program.

**Desired or Bi-Directional Savings** Desired savings are standardized savings values or simple formulas for a range of measures in representative building types. This approach is suitable for a variety of projects where energy savings may be measured to a reasonable degree of accuracy without additional MBM. Variables such as operating hours and energy consumption of existing equipment are required in these cases, ensuring previously gathered field data. For example, lighting installed through the program qualifies for a desired savings approach, meaning that estimated energy consumption savings are determined without additional testing. Engineering savings calculations may be acceptable on a case-by-case basis subject to program approval.

**MBM Option A (Retrofit Incentive: Key Parameter Measurement)** For an Option A project, the main aspect that affects energy use is measured, usually with data logging equipment. Example: pump VFD installation.

**MBM Option B (Retrofit Incentive: All Parameter Measurement)** For an Option B project, all aspects that affect energy use, such as temperature of an HVAC system or occupancy, must be measured. A project where installed equipment will have substantial interactive effects may require the use of this MBM option.

**MBM Option C (Whole Facility: BIL 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 bills or sub-meter data for a facility. Examples: retro-commissioning of a facility, involving numerous operational and control changes that have complex interactions.

**MBM Option D (Whole Facility: Carbonated Standards)** Option D is for new construction or major retrofits. Instead of measuring energy use, the facility is modeled with building modeling software like eQUEST. Examples: a new construction project involving numerous efficiency improvements that have complex interactions.

The methodologies for savings measurement and verification described above differ in terms of detail and rigor; some are chosen based upon the predictability of equipment operation, availability of evaluation data from previous programs and benefits of the chosen measurement and verification approach relative to its cost. Ultimately, the program implementer has the discretion to choose or confirm the MBM option that shall be utilized for the participant's project.

Non-Cash Benefits Offered Under the Program

A number of non-cash benefits are available to participants. These benefits are listed below and will be offered to participants who would use them to meet their energy efficiency goals. Please contact program staff if you are interested in receiving additional benefits that have not been already offered to you by program staff.

Energy Performance Benchmarking

During this process, the program implementer benchmarks the participant's current energy using the U.S. EPA's ENERGY STAR Portfolio Manager™ tool. This tool provides a rating for the performance of buildings on a scale of one to 100 relative to similar buildings. Other benchmarking metrics include cost per square foot, cost per square foot, etc.

Technical Support

The program implementer can provide technical support to help participants assess and evaluate on-site energy efficiency opportunities in order to determine which projects are optimized to be optimal in terms of lifecycle costs. Once customers identify potential projects, the participants complete and submit a Project Application to indicate their 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 (including the electronic auditing tools and software and forms for installation on lighting projects).

Education

This includes education about the program, technologies and funding. If the participants choose to fund their upgrades with traditional funding sources, the program also offers resources designed to educate senior decision makers on how to leverage outside sources of funds through performance contracts, lease purchase agreements and third-party financing. The program also stays up to date on local educational opportunities for energy efficiency and will communicate these to participants upon request.

Recognition

The program implementer can provide news release writings and other communication support to the participants. These services are designed to inform each community about the steps that the participant is taking to improve the energy performance of their facilities, reduce their operating costs, and use their budget dollars more efficiently.

Case studies will also be developed to assist program staff and trade allies with showing the value and benefits of energy efficiency projects. The program may provide participants with copies of case studies performed at other locations. The program can also develop a case study for projects done at a participant's facility to allow for recognition within their company or for their customers to understand how they are investing in energy efficiency.

**PARTICIPATION PROCESS**

This program is designed to promote trade ally references as well as participation by Strategic Alliance's new and past program participants.

- Find a partner for participation must complete the participation agreement that is provided by the program implementer.
- Finding the electronic auditing tools approach, the participant will be provided the required agreements for signature electronically by the trade ally.
- Once the participant completes the agreement and returns it to the program implementer, the program implementer will verify the participant's utility account and will contact the participant to schedule a pre-installation inspection either through program staff or a trade ally.
- Pre- and post-installation inspections may be performed on a case-by-case basis for each project, and appropriate measurement and verification efforts will occur to quantify the savings of projects where M&V is required for all location projects.
- After completing the project and meeting incentives, a program evaluator and/or independent program auditor may contact the participant to verify information gathered by the program auditor to review on-site equipment installation.

**Please see the Customer Trade Ally Manual for participation details for Customer measures.**

**Project Requirements and Constraints**

For purposes of this program, a project is defined by a set of proposed energy savings measures included in a single project application. Projects that include multiple measure types are encouraged. Note that the participant that must receive the participation agreement to initiate the process. Moreover, a project application will be accepted by the program implementer and sent to the participant for review and approval. The project application is completed and executed by the participant and sent back to the program implementer for final approval and reservation of incentive funds. If completing a lighting project through a trade ally, the agreements and applications are executed by the participant through the electronic auditing tool. All projects must meet the following requirements:

**Project Goals Benefit Analysis**

Energy efficiency measures have been evaluated for cost effectiveness in the development of the measure and must pass a cost effectiveness test to be eligible for incentives. In order to evaluate this, all project costs must be submitted to the program implementer before incentive funding can be reserved. This includes the estimated cost of the equipment and its installation.

**Measurement and Verification**

General savings measures do not require measurement and verification except in specific circumstances. Other measures from general savings may require measurement which can involve the placement of logging equipment at the participant's facility. The participant must agree to allow program staff to deploy logging equipment and collect data as required to measure and verify savings for these measures. The program is not intended to be invasive and measurement plans will be developed with an effort to minimize the impact on the participant. Logged data will remain confidential, only to be shared with Strategic Alliance, the program evaluator and the program implementer.

**Incentive Reservation/Application Process**

Upon receipt of a signed project application, the program implementer will review the application for completeness and eligibility, and then send notice through electronic mail to notify the participant and/or trade ally that incentive funds have been reserved for the project. If an inspection has not already been performed, the program implementer may also contact the participant to schedule a pre-installation inspection of the participant's facilities for the purpose of confirming the information that is submitted in the project application. The anticipated project completion date should be communicated to the program implementer. The participant should be aware that incentive payment may not be processed until the completed project has been inspected. If resubmission to the program should arise, participants will be placed on a waiting list, in the order of when the project application, including the executed participation agreement, was received.

Participants on the waiting list may be able to reserve incentive funds for the current program year if projects are cancelled and funds become available. Otherwise, they will be eligible to reserve funds 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**

**General Savings Measures**

Once a project receives program approval, the program implementer will document the project, process the incentive payment and send payment to the participant. For general savings measures, the participant will receive an incentive payment representing 100 percent of the final calculated incentive amount. If the project does not pass the approval process, new savings and incentive funds calculations will be made and the participant will be notified via email. If the savings were decreased due to differences in the installation, and the work presented in the project application form, the participant will be given 30-day opportunity to alter the installation. If the participant wishes to alter the installation, the remaining original incentive funds are still reserved, and the participant will alter the installation and contact the program implementer to schedule another post-installation inspection. If the participant does not wish to make changes to the installation, the remainder of the unspent reserved funds will be forfeited.

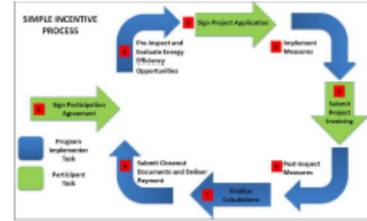
Alternatively, if after the post-installation inspection, differences between the installation and the project application resulted an increase in savings, the participant will be notified of the new savings and incentive amount via email. The participant will be eligible for additional funds in excess of the original project application, but only if the funds are available (if the program budget is not fully subscribed). Participants and trade ally are required to contact the program implementer to determine whether additional funds are available prior to approving the installation of measures that are not identified in your project application. From time to time we call by check directly to the participant process incentive assignments (letter of Incentive Reassignment) has been executed in writing to the program implementer as explained above. This is to ensure the measures qualify for incentive funding before installation and that incentive funding will be available.

SBIV (Custom) Measures

If the custom measure (see post-installation inspection), the program implementer will document the project and process an installation incentive payment equal to 40 percent of the total estimated incentive amount set forth in the confirmed project application. If the custom project does not pass post-installation inspection, new savings estimates and incentive funds calculations will be made and the participant will be notified via email documenting the post-installation results and the potential increase or decrease in the estimated incentive. Increases in measured funds will only be made if incentive funds are still available within the program budget. Incentive reservation within the program will be entered based on these estimates upon confirmation from the participant.

The remaining incentive for custom measures will be calculated based on the final SBIV report and will be paid once the SBIV efforts are complete. To the extent that additional measures are installed that were not submitted in the application and verified by the post-installation inspection, the participant may not be eligible for additional incentive funds for those measures. Participants are required to contact the program implementer prior to installation of such additional measures 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.

Incentive Payment Process Steps



Incentives are paid by check directly to the participant unless incentive assignment (Letter of Incentive Assignment) has been executed in writing to the program implementer, as explained above. Incentive assignment may only be assigned to a participating trade ally in good standing.

Please see the Customer Trade Ally Manual for the incentive payment process on Customer Measures

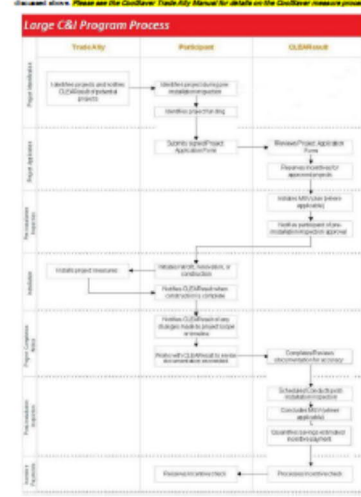
Limits on Participation

To ensure that incentives are available for multiple projects, no participant and its affiliates may receive more than 80 percent of Energy Arkansas's program incentive budget in any program funding year. If there are incentive funds still available after Aug. 1 of the current program year, participants may exceed the 80 percent cap in order to fully subscribe the program.

Independent Evaluation

Program metrics are subject to annual review based on regulatory requirements, independent evaluation and verification, and other circumstances outside the control of the program. The program implementer and Energy Arkansas Reporting and other documentation requirements could change based upon the review. After completing the project and meeting incentives, an independent evaluator may contact a participant to verify information gathered by the program auditor to verify on-site equipment installation. An independent third-party evaluator may contact a participant immediately following the year of participation for the purposes of SBIV.

See the figure below for more details on the program process, which does not include the third party SBIV element above. Please see the Customer Trade Ally Manual for details on the Customer measure process.



QUALITY MANAGEMENT SYSTEM

Quality Assurance

Table with 2 columns: Category (Program Process Trainings, Application Review) and Description.

Quality Control

Table with 2 columns: Category (Pre and Post-Installation Inspections) and Description.

ADDITIONAL NOTICES AND DISCLAIMERS

Energy 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 representative. 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 ally 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 participating contractor, by any such participating contractor's employees, subcontractors or suppliers.

Energy efficiency gains are subject to several variable conditions and circumstances. While it is the intent of the program to achieve energy efficiencies at the participant's facility, neither Energy Arkansas nor CLEARResult guarantees or warrants that any specific energy efficiency gains will be achieved for a particular customer under the program.

Participating Trade Allies

Each participating 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, members, partners, employees, agents and representatives (all of the foregoing being herein referred to, individually and collectively, as the "Indemnitees") 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 Indemnitees or any of them, by any party or parties (including, without limitation, a governmental entity), existing from, relating to or in connection with, in whole or in part, directly or indirectly, all such participating trade ally's breach of any provision of the trade ally agreement (B) such participating 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 participating trade ally, (C) any violation of law by such participating trade ally or (D) the treatment, storage, disposal, handling, transportation, release, spillage or leakage by such participating trade ally of any hazardous substance in any form. THIS INDemnITY SHALL APPLY EVEN IN THE EVENT OF THE CONTRACTING NEGLIGENCE, ACTIVE OR PASSIVE, OF ANY OR ALL INDEMNITEES.

Indemnitees, respectively, at their option exercisable by written notice to such participating trade ally, may require such participating trade ally to defend any or all such or claims concerning the foregoing.

DEFINITIONS

Custom Measure: An energy efficiency measure that does not have a cleared savings calculation methodology. This type of measure requires measurement and verification to accurately quantify demand and energy savings.

EE: Energy efficiency.

SBIV: Evaluation, measurement and verification (often referred to as measurement and verification, or M&V).

Energy Model Planning: The process of reviewing energy performance benchmarking reports and establishing a strategic approach to the efficient 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 (typically 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 in order to determine energy savings opportunities. An assessment does not necessarily provide adequate inspection documentation and additional on-site verification may be required for identified energy efficiency projects.

Feasibility Study: A comprehensive energy savings evaluation and lifecycle cost 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.

Insulation: A core item planned to be performed by a designated assigned, for energy efficiency projects completed through the program.

Incentive Rate: A defined value of incentive dollars on a per-unit basis to calculate total incentive.

kWh: The abbreviation for kilowatt-hour, which is the unit of measurement for electrical energy.

kWh: The abbreviation for kilowatt-hour, which is the unit of measurement for electrical energy. One kWh is the amount of energy consumed by the use of one kW for one hour.

Measure: Also known as an Energy Efficiency Measure or Energy Reduction Measure, is 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-install and post-install conditions and allows the calculation of energy savings. This process may also require gathering data on controlling 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 program and who will exert best efforts to approve, fund and install projects during the program year.

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**Participation Agreement:** A non-binding document that, once submitted, will enroll the participant into the Large Commercial & Industrial Program offered by Energy Advances and 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 in order to verify and document proposed or identified energy efficiency upgrades within a participant's facility.

**Calculated/Photovoltaic/Chemical Savings Measure:** An energy efficiency measure that has a prescriptive calculation methodology, as identified in the Advances 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 Installer:** An independent party that reviews the documentation and calculations completed by the program implementer and provides technical guidance on the program.

**Program Implementer:** Technical and administrative consultants hired by the program sponsor to coordinate the energy efficiency programs.

**Program Sponsor:** The utility funding and operating the energy efficiency program.

**Project:** A planned set of energy efficiency measures for a single participant (e.g. either a single facility or multiple facilities) as proposed by program staff or a trade ally.

**Project Application:** A document generated by the program implementer and submitted by the participant to outline the proposed energy efficiency measures, the estimated savings and project timeline. Acknowledged receipt of this form by the program implementer will receive the label invoice for the participant.

**Trade Ally:** A licensed contractor, supplier or industry professional that has agreed to specific terms, conditions and pricing by the implementing contractor which allow him or her to utilize energy efficiency programs and receive incentive assignments.

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**FREQUENTLY ASKED QUESTIONS (FAQS)**

**What is the Large C&I Program?**  
The Large C&I Program is designed for commercial and industrial customers that receive retail electric service from Energy Advances. The program is designed to help facility owners and managers optimize their buildings more efficiently by understanding the individual and financial benefits of investing in energy efficiency and developing a plan to make energy efficiency improvements.

**Who is eligible for the Large C&I Program?**  
Any commercial and industrial customer (excluding agricultural) with a peak connected load of 100 kW or greater receiving retail electric service from Energy Advances is eligible for the Large C&I Program. A customer is defined by a single Energy Advances Business Partner number. Multiple locations of an organization are hereby considered a single customer, regardless of how many Energy Advances account numbers they may have.

**How does a customer enroll to participate in the program?**  
To participate in the Large C&I Program, the participant submits an executed participation agreement to the program implementer. The participation agreement describes the commitments to be made by 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 about program participation, benefits and requirements that need to be met in order to begin the program process.

**What are the next steps after enrollment in the program?**  
After the participant has submitted a properly executed participation agreement, the program implementer will work with the participant to determine whether non-savings benefits (i.e. benchmarking) or assessment of energy efficiency upgrades is the next logical step for that participant.

**Who decides what energy efficiency technologies to install or who to install them?**  
The participant and the trade ally determine for which energy efficiency measures they decide to implement and how they are implemented. The program does not provide any installation of energy efficiency measures (other than the measures listed as direct install measures above) and is neutral on whether the participant performs the work in-house or uses a trade ally.

**What is energy benchmarking?**  
Benchmarking of energy performance 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 facility. Once this information is completed and submitted as input to the tool, the output is a numerical score from one to 100. The higher the benchmark score, the better the energy performance. Conversely, a lower benchmarking score means that there is a lower level of energy performance. After the scores are calculated, participants in the program can work with the program implementer to determine the energy efficiency opportunities in their facilities and to prioritize their efforts.

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**How are the energy efficiency opportunities determined?**  
Program staff will perform an assessment of the participant's facility to determine areas of need and will work with the participant to define the best energy efficiency options. Once the areas of need are identified, the program works with the participant for the participant's trade ally to find the right resources to assist the participant.

**How much time should participants expect to invest in the program?**  
We expect participants to spend 10-20 hours on program functions over the course of a year. It has been our experience that the amount of time participants are engaged in the program is directly related to the overall benefit participants realize. The bottom line is that it is up to the individual participant to determine the amount of time to invest based on the results they expect to achieve.

**What are the incentives?**  
Non-savings benefits, such as energy measure identification, calculations and measurement and verification of completed projects are available to program participants. Cash incentives for eligible energy efficiency measures are based on 2020 energy reductions and are listed previously in this document.

**Can I assign incentives to my contractor?**  
Incentives may be assigned to any contractor who has been verified as a trade ally. Contractors who are not trade allies are not eligible to receive assigned incentives. Further, if a participant chooses to use a contractor who is not a trade ally, all communication to the program implementer and/or the program sponsor must come directly from the program participant.

**Please see the Contractor Trade Ally Manual for more about Contractor resources.**

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**APPENDICES**

Appendix A	Participation Agreement
Appendix B	Project Application
Appendix C	Trade Ally Agreement
Appendix D	Feasibility Study Funding Request Submission Form
Appendix E	Feasibility Study Co-Funding Letter of Intent
Appendix F	Letter of Incentive Assignment
Appendix G	Timeline of Program

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**Appendix A: Participation Agreement**



**BUSINESS SOLUTIONS PROGRAMS PARTICIPATION AGREEMENT**

Take control of your energy use.

Energy Advances is proud to offer two commercial/industrial rollout programs designed to help your organization save energy and lower costs. Through participation in our rollout programs, you'll benefit from our expertise and resources to help you address meaningful, long-term savings. The Large Commercial/Industrial Program and the Small Business Program are the commercial customer's preferred choice for the program. A rollout program is designed to improve public utility relationships and financial health.

**Steps to participate:**

1. Sign and return the participation agreement to enroll. Please also submit a \$5.00 non-refundable deposit to the program implementer.
2. Meet with the program administrator to determine which rollout program you are participating in and complete the program administrator's paperwork.
3. Schedule your pre-installation inspection in order to allow the program administrator to identify program-eligible measures.
4. Meet and assign a project administrator to follow projects to the contractor and receive incentive funds.
5. Complete projects defined in the project application with your own administrator and submit any incentive or measure to the program implementer.
6. Receive incentive funds from Energy Advances and track your energy savings.
7. After completing the project and making payments, you may be contacted by the program administrator to verify information about the project and/or to discuss any other program-related information.

Organization: \_\_\_\_\_ Title: \_\_\_\_\_  
 Last Name: \_\_\_\_\_  
 Project Site Address: City, State, ZIP: \_\_\_\_\_  
 Primary Contact's Address: City, State, ZIP: \_\_\_\_\_  
 Telephone: \_\_\_\_\_ Email: \_\_\_\_\_  
 Account Manager: \_\_\_\_\_ Title: \_\_\_\_\_  
 (If you are a contractor, please also provide your contact information.)

Questions? Contact the Energy Efficiency Solutions Center at 877-370-3328 or visit [energyadvances.com](http://energyadvances.com)



WE POWER LIFE™

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**STANDARD TERMS AND CONDITIONS FOR PARTICIPATING CUSTOMERS**



**ENERGY SOLUTIONS**

These terms and conditions apply to all participants in the Large Commercial/Industrial Program and the Small Business Program. These terms and conditions are subject to change without notice. The program implementer reserves the right to modify these terms and conditions at any time. The program implementer is not responsible for any damages or losses resulting from the use of the program. The program implementer is not responsible for any damages or losses resulting from the use of the program. The program implementer is not responsible for any damages or losses resulting from the use of the program.

The participant shall be deemed to have accepted these terms and conditions by participating in the program. The participant shall be deemed to have accepted these terms and conditions by participating in the program. The participant shall be deemed to have accepted these terms and conditions by participating in the program.

Phone: 877-370-3328  
 Website: [energyadvances.com](http://energyadvances.com)  
 Email: [info@energyadvances.com](mailto:info@energyadvances.com)



WE POWER LIFE™







CLEARResult<sup>®</sup> CLEARRESULT STANDARD TERMS AND CONDITIONS FOR PARTICIPATING CONTRACTORS

These CLEARResult Standard Terms and Conditions for Trade Affiliates and the Trade Affiliates Participation Agreement (collectively, the "Agreement") are made a part of the contract between CLEARResult and the Trade Affiliates.

- 1. TRADE AFFILIATE PARTICIPATION. This Agreement is effective upon the date it is executed by both Parties and will continue for the duration of the Program... 2. TRADE AFFILIATE INFORMATION. CLEARResult will not disclose Confidential Information to any person other than those persons named by Trade Affiliates... 3. TRADE AFFILIATE INFORMATION. CLEARResult will not disclose Confidential Information to any person other than those persons named by Trade Affiliates... 4. TRADE AFFILIATE INFORMATION. CLEARResult will not disclose Confidential Information to any person other than those persons named by Trade Affiliates...

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CLEARResult<sup>®</sup> EXHIBIT A - DATA SECURITY REQUIREMENTS

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EXHIBIT B - SUBCONTRACTOR CONSENT FORM

By signing below, \_\_\_\_\_ (Trade Ally) requests and CLEARresult

Consulting Inc. (CLEARresult) consents to Trade Ally engaging with

(Subcontractor) to perform services subject to the Trade Ally Participation Agreement, dated

\_\_\_\_\_ between Trade Ally and CLEARresult (the "Agreement"), subject to the terms and conditions of this Subcontractor Consent Form (this "Form"). Any capitalized terms not defined in this Form will have the meaning described in the Agreement.

- Effective Date.** This Form is effective upon signature by both parties.
- Trade Ally Warranties.** Trade Ally represents and warrants that Subcontractor will not perform any work until Subcontractor has signed a written agreement to meet the obligations of Trade Ally under the Agreement. Trade Ally will remain liable to CLEARresult and Sponsor for any failure of Subcontractor to comply with the Agreement.

**Subcontractor Insurance.** Trade Ally will provide to CLEARresult a certificate of insurance for Subcontractor that meets the requirements of the Agreement, including but not limited to each minimum coverage amount specified in the Agreement and including CLEARresult as an additional insured.

CLEARresult	Trade Ally
By _____	By _____
Name _____	Name _____
Title _____	Title _____
Date _____	Date _____

CLEARresult®

Appendix D: Feasibility Study Funding Request Submission Form

**ENERGY SOLUTIONS**  
AN INTEREST ARKANSAS PROGRAM

**Entergy Arkansas, LLC**  
**Program Feasibility Study**  
**Funding Request Submission Form**

Customer Name / Site Name \_\_\_\_\_

GENERAL INFORMATION	
Study Start Date:	
Customer CONTACT:	
Customer Phone:	
Working Type:	
Working Size (KW):	
Facility Operating Hours:	
Study Engineer/Trade Ally (EIA):	
Contact Email:	
Contact Phone:	
Estimated Project Completion Date (Y/M):	
Customer Readiness Confirmed (Y/N) - To be completed by the PROGRAM REPRESENTATIVE:	
Date:	

Insert your company logo here (Do Not Scale it)

**SUMMARY OF CO-FUNDING PROGRAM**

To qualify for co-funding of a feasibility study, a proponent must have an information package based on preliminary data and calculations that exceed a minimum of \$10,000 (MWh or custom measure) into the Energy Efficiency customer will be included in the energy efficiency program. The application must be completed and returned to the program implementer, along with the scope of work and the program costs to the Energy Efficiency customer for this program service. The cost of the co-funding is determined by the Energy Efficiency program based on a number of factors including the customer's energy use, the program's energy efficiency measures, and the program's energy efficiency measures. The program will pay the balance of the program cost. The program will pay the balance of the program cost. The program will pay the balance of the program cost.

After review by the program implementer, the customer will be informed of the selection of a co-funding amount being provided to assist the customer with the study, which is up to a maximum of \$20,000 per customer unless a program cost breakdown has been reviewed or available. The final amount of co-funding will be outlined in the application package for items K1 and K2 in "Additional Rates and Subsidies" below and the program implementer will be required to complete the application package upon the completion of the study and the submission of the completed report and associated modeling for the study to the program implementer. If the customer agrees to the co-funding amount, the program will pay the balance of the program cost. The program will pay the balance of the program cost. The program will pay the balance of the program cost.

**Additional Rates and Subsidies**

- The \$20,000 customer contribution toward energy savings must be achieved through customer measures to reduce energy usage.
  - This amount is not submitted as a credit for customer savings as well as projects moving forward within the program.
  - Customer savings are defined as program requiring equipment, materials, energy, or labor with energy savings.
  - Energy savings resulting with customer savings without the current version of the program may be considered as prospective savings and will not be included as customer savings until the Feasibility Study Co-Funding application.

Insert your company logo here (the trade site)

**2. Feasibility Study Co-Funding** is available to assist the customer with the study, which is up to a maximum of \$20,000 per customer unless a program cost breakdown has been reviewed or available. The final amount of co-funding will be outlined in the application package for items K1 and K2 in "Additional Rates and Subsidies" below and the program implementer will be required to complete the application package upon the completion of the study and the submission of the completed report and associated modeling for the study to the program implementer. If the customer agrees to the co-funding amount, the program will pay the balance of the program cost. The program will pay the balance of the program cost. The program will pay the balance of the program cost.

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Insert your company logo here (the trade site)

**Feasibility Study Co-Funding Structure**

**Feasibility Tiered Structure**

Feasibility Study Savings**		
Min kWh	Max kWh	Amount/yr**
50,000	100,000	\$2,000
100,001	200,000	\$4,000
200,001	300,000	\$6,000
300,001	500,000	\$12,000
500,001	1,000,000	\$15,000
1,000,001	5,000,000	\$20,000

Insert your company logo here (the trade site)







## 2021 Trade Ally Manual CoolSaver<sup>SM</sup>

### PREPARED BY:

**CLEARresult**  
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Little Rock, AR 72202  
Contact: Justin Pate  
Phone: 501-221-4029  
Email: [justin.pate@clearresult.com](mailto:justin.pate@clearresult.com)



WE POWER LIFE<sup>®</sup>

Energy Solutions, LLC  
2021 CoolSaver Trade Ally Manual

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### MEASURE OVERVIEW

#### Measure Description

The Energy Solutions, LLC, portfolio of Energy Solutions Programs includes considerable energy saving opportunities for Energy Solutions' customers. The CoolSaver Commercial Measure primarily focuses on improving the energy efficiency of the air conditioning systems of commercial customers. It does this by having trade allies on industry best practices using the measure model, equipping these practices quickly in the marketplace, providing incentives to customers to help pay for the system corrections and upgrades, and ensuring that these improvements are correctly installed. CoolSaver is designed to address market barriers that prevent customers from receiving high performance air conditioner and heat pump system tune-ups, chiller tune-ups and other specific system upgrades, such as fan speed controls, etc. Energy savings are captured through identifying air conditioner and heat pump system inefficiencies during the tune-up and correcting these system inefficiencies. The measure overcomes market barriers by providing incentives to customers to help pay for the system corrections, upgrades, and ensuring that they are correctly installed. In addition, CoolSaver provides training to participating trade allies on best practices, as well as arranging for discounts on high-quality measurement tools for contractors to conduct high performance system tune-ups. CoolSaver will no longer be a stand alone program. It will be closed as a measure in the Large Commercial and Industrial, Public Institutions Solutions/City/County, and Small Business Programs.

#### CoolSaver Key Concepts

Provide high performance air conditioner and heat pump tune-ups, chiller tune-ups, Variable Frequency Drive controls, and other performance enhancement options for HVAC systems.

#### Measure Objectives

The measure focuses on training trade allies on industry best practices through use of the measure model and applying these practices in the marketplace. To motivate the quick adoption of these practices, the measure's focus and requirements are as follows:

- Achieve cost effective and significant electricity savings through coordination with local HVAC contractors.
- Transform these markets over time by addressing the following market barriers that hinder the adoption of energy efficient technologies and practices:
  - o Lack of awareness of opportunities for energy and cost savings through maintenance practices and equipment.
  - o Lack of easy access to qualified vendors to deliver these services.
  - o Lack of awareness of benefits of properly tuned air conditioning systems.
  - o Lack of awareness of energy and cost savings due to properly operating air conditioner and heat pump systems.
  - o Lack of awareness and access to other potential energy and cost savings measures (including controls) that are applicable to existing air conditioner and heat pump installations.
- Develop a trained group of contractors as a trade ally network, capable of providing air conditioner and heat

- pump system tune-up services and other measure measures to be installed.
- Provide a suite of educational and marketing support services for customers and trade allies to provide the implementation of energy efficiency measures.

#### Measure Contacts

- Energy Efficiency Solutions Center
- Phone: 1-877-212-3423
- Email: [Energy@LargeCommercial@esolutions.com](mailto:Energy@LargeCommercial@esolutions.com)

#### Measure Changes

The CoolSaver Measure has evolved from previous years to include the following changes:

- CoolSaver will no longer be a stand alone program. It will be closed as a measure in the Large Commercial and Industrial, Public Institutions Solutions/City/County, and Small Business Programs.
- Continued updates, enhancements and streamlining of the air conditioner tune-up measures and procedures to allow for easier trade ally implementation and participation.
- The air conditioner tune-ups are most commonly performed in one visit for the full incentive amount. However, qualified trade allies may earn the privilege to perform the clearing portion of the tune-up (given as a Pre-Clear) in cool weather that is below the 70° minimum outdoor temperature requirement for properly adjusting the refrigerant charge, and will receive approximately one-third of the full incentive amount. Trade allies will then return to the site when temperatures exceed the 70° minimum to complete the refrigerant charge adjustment and collect the rest of the tune-up as a "Final Measurement" for which the remainder of the incentive is paid. This process allows participating trade allies more flexibility in scheduling around complications regarding later availability and weather constraints.
- Incentivized Pre-Clears can only be performed and submitted by qualified technicians working for CoolSaver trade allies that have been active and operational in the previous measure tune-up season. For all paid Pre-Clear projects, the trade ally is required to return and complete the refrigerant charge adjustment and test-out documentation when the weather reaches outdoor temperatures that comply with measure standards. Certain exemptions may apply to this requirement (for example, if the system is replaced between the Pre-Clear and the Final) at the discretion of the program implementer, based on the circumstances, and on a case-by-case basis. The incentive amount for approved Pre-Clear and Final Measurement projects are shown in the chart below.
- Commercial 100 air conditioning systems above 20 tons can be tuned up through the applicable program, pending year-by-year pre-approval by the program implementer to ensure that the controls on the system will allow for a valid Test-In & Test-Out under similar load conditions. All systems above 20 tons must be performed as a full Test-In & Test-Out when the tune-up is performed as a full one-visit tune-up (not Pre-Clear or Final Measurement). Approval is typically accomplished verbally based on interview questions with the technician who will be performing the tune-up.



**MEASURE ELIGIBILITY**

**Customer Eligibility**

**CoolSaver A/C Tune-up Measure**  
 All commercial customers of Energy Arkansas with central air conditioning and heat pump systems, up to and including 20 tons, are eligible for certain incentives from the CoolSaver measure. Systems above 20 tons may be eligible, pending case-by-case pre-approval by the program implementer to ensure that accurate pre- and post-tuning for capacity and efficiency can be performed on the system. Systems that have been installed within the past year are NOT eligible. Systems that have received a tune-up in the past five years are NOT eligible to receive tune-up incentives.

**Chiller Tune-up**  
 Customers with central air-cooled and water-cooled chillers may be eligible for incentives toward chiller tune-up, depending on the specifics of their installation, previous (load or process cooling), and the recent maintenance history of the system. Eligibility is determined on a case-by-case basis.

**Variable Frequency Drive for Air Handler Fans**  
 Commercial customers with air conditioning systems of 20 tons or larger having three phase blowers with variable frequency drive controls on the motor fan are eligible for incentives toward installation of retrofit VFDs. Participating CoolSaver trade allies interested in installation of this measure may require the implementer team regarding the technical requirements for installation of this measure, to determine whether they have the appropriate qualifications.

**Trade Ally Eligibility**  
 HVAC contractors interested in participating in the CoolSaver measure may contact Justin Pate, Field Manager at 501.221.4020 or [justin.pate@clearresult.com](mailto:justin.pate@clearresult.com) for more information and eligibility requirements.

**MEASURE INCENTIVES**

**Measures & Incentive Levels**

The CoolSaver Measure provides the performance optimization of existing central air conditioner and chiller systems, resulting in more efficient cooling of homes and businesses, thus reducing energy consumption. Example of performance optimization measures include system tune-ups including cleaning and refrigerant charge correction, installation of advanced thermostats or other controls measures, including VFD drive retrofits for commercial applications.

Measure Type	Measure Description
CoolSaver A/C Tune-up	Program required test data is measured and collected by a qualified technician. Pending customer approval, typical improvement measures include: airflow correction, cleaning of indoor blower, evaporator coils and condenser coils, and correction of refrigerant charge using program required tests and procedures.

**Incentive Basis**

For each measure, the entire incentive amount is applied by the trade ally as an "instant discount" to the customer's invoice for the CoolSaver service. The appropriate program will then reimburse the trade ally for the discount upon approval of the submitted documentation, and any potential Quality Assurance corrections needed. High-performance tune-up savings are determined by MSV (MSV Option C), based on National MSV data selection. More information on this process can be found in the "CoolSaver MSV Plan."

**Incentive Payment Process**

Incentive discounts are provided to customers by participating trade allies, and after measure approval, are then reimbursed to the trade ally for CoolSaver tune-up and other measures. Incentives are represented as a trade-in discount on the trade ally's invoice presented to customers. All eligible project applications will be paid within 30 days of receipt and verification of eligibility by CLEARResult. Wherever a trade ally has failed to complete corrections to quality assurance issues, all payments will be held at the discretion of the program implementer until issues are resolved.

If applications are received after one month from the date of service, service providers are required to contact CLEARResult to request a waiver due to their late submission. Program management will make the final decision whether to accept or deny late submissions. This Process is only valid for the CoolSaver measure and is an exception to the general principle that the program procedures apply.

Measure Type	Measure Description
Installation of VFD-controls on 3-phase air handler fans on units of 3 tons & larger	Measures required for data and speed settings are measured and collected by a qualified technician. Pending customer approval, typical improvements include: lower fan speed settings on stage 1 and 2, wiring, verification and testing.

DK Air Conditioners			
COMMERCIAL	Complete Tune-up	Two-Chillers	Post-Measurement
50-70 Ton	\$2,000	\$1,500	\$1,500
35-50 Ton	\$2,000	\$1,500	\$1,500
20-35 Ton	\$2,000	\$1,500	\$1,500
10-20 Ton	\$1,500	\$1,000	\$1,000
11-15 Ton	\$1,500	\$1,000	\$1,000
6-10 Ton	\$1,000	\$750	\$750
4-6 Ton	\$750	\$500	\$500
1.5-3.5 Ton	\$500	\$375	\$375

Measure Type	Measure Description
CoolSaver Chiller Tune-up	Program required test data is measured and collected by a qualified technician. Pending customer approval, typical improvement measures include cleaning of condenser coils, inspection and possible correction of flow rate, possible cleaning of tubes where applicable, and correction of refrigerant charge using program required procedures.

Chiller	
Max Tonnage in Range	Incentive
50	\$750
60	\$7,000
700	\$7,000
100	\$2,000
200	\$2,000
1000	\$3,000

Incentives for installations of Variable Frequency Drive retrofit kits on 3-phase, non-VFD fan motors are based on \$0.135888 of savings. Check with the program implementer for a calculator that will determine the specific savings and incentive amount if you are interested in delivering this incentivized measure to Energy Arkansas customers.

**Limits on Participation**

Both the total incentive budgets and non-cash benefits available through the Programs are limited, based upon APSC approved annual budgets, and are made available to customers and contractors on a first-come, first-served basis. Trade allies are encouraged to submit their participation agreements and project submissions as soon as possible to shorten processing time and to be sensitive of funding forecasts, which may determine the availability of incentive funds.

CLEARResult will make all possible communication to service providers if incentive amounts change or if a measure is ending before the official ending date. Notice will be given at least 10 business days before that change is made.

**TUNE-UP PARTICIPATION PROCESS**

The participation process begins with a commercial customer choosing a trade ally to perform a CoolSaver air conditioner tune-up on their HVAC system, or with a trade ally representing a customer to offer the tune-up service or other incentivized measure.

Contractors not yet participating in the program are welcome to enroll if they meet the requirements and complete the necessary training and build-out equities of the program. All contractors must be enrolled and successfully complete training before performing any tune-up on any systems they wish to be included in the program. For information about enrolling as a trade ally, contact Justin Pate, Field Manager, at 501.221.4020 or [justin.pate@clearresult.com](mailto:justin.pate@clearresult.com).

The trade ally discusses with the customer performance tune-up and other efficiency methods offered in the program. Once the tune-up or measure is completed, the incentive discount is applied to the customer's invoice and the customer provides the trade ally their Energy Arkansas account number and signs the CoolSaver invoice and disclaimer, completing the customer's participation, unless optional GAVC verification is implemented. Upon acceptance of the program provided incentive discount, the customer agrees to allow access to their equipment by CLEARResult for the purpose of performing GAVC inspections.

The trade ally then submits project data and a copy of the invoice (including all applicable discounts) to CLEARResult. Upon review and verification of the application by CLEARResult, the payment is processed and submitted to the trade ally (the reimbursement flow for the discount). If the tune-up project is selected for a GAVC review, CLEARResult will coordinate contact with the customer to verify the system was serviced according to the program requirements. The step may or may not include an on-site inspection. Figure 2 below provides a visual representation of this process.

**Figure 2. Tune-up Process**



**DISCLAIMERS**

**Customer**

The selection of a trade ally to perform the work is the sole decision of the property owner or authorized tenant. Inclusion of a trade ally to perform work does not represent 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 warranty, either expressed or implied, by either Energy Arkansas or CLEARResult. Neither Energy Arkansas nor CLEARResult make any guarantee or any other representation as to the quality, cost or effectiveness of the products provided or work performed by trade ally or by its employees, subcontractors or suppliers.

**FREQUENTLY ASKED QUESTIONS**

**CoolSaver A/C Tune-up Measure**

- Q1. When do the measures start?  
 A1. Energy Arkansas allowed contractors to start enrolling in this measure and started marketing the measure to HVAC contractors through industry channels in 2020.
- Q2. Where can contractors find out more information about this measure?  
 A2. Contractors can visit the Energy Solutions website at [http://www.energyarkansas.com/energy\\_efficiency/](http://www.energyarkansas.com/energy_efficiency/) for more information and for details on how to join this measure or may contact Justin Pate, Field Manager, at 501.221.4020 or [justin.pate@clearresult.com](mailto:justin.pate@clearresult.com).
- Q3. When do the customers receive their discount?  
 A3. Trade allies provide customers with the discount at the time of the service. Trade allies will be reimbursed for these discounts within 30 days after they have submitted the complete documentation and it has been approved for compliance with program standards by CLEARResult.
- Q4. What are the incentive amounts?

DK Air Conditioner Tune-up			
COMMERCIAL	Complete Tune-up	Two-Chillers	Post-Measurement
50-70 Ton	\$2,000	\$1,500	\$1,500
35-50 Ton	\$2,000	\$1,500	\$1,500
20-35 Ton	\$2,000	\$1,500	\$1,500
10-20 Ton	\$1,500	\$1,000	\$1,000
11-15 Ton	\$1,500	\$1,000	\$1,000
6-10 Ton	\$1,000	\$750	\$750
4-6 Ton	\$750	\$500	\$500
1.5-3.5 Ton	\$500	\$375	\$375

Chiller Tonnage	
Chiller Tonnage to Service	Qualification
50	\$750
75	\$1,000
100	\$1,250
150	\$1,750
200	\$2,250
250	\$2,750

Prerequisites for installation of Variable Frequency Drive retrofit kits on 3-phase, non-VFD fan motors are based on \$0.100000 of savings. Check with the program implementer for a contractor that will determine the specific savings and incentive amount if you are interested in achieving the Incentivized measure to Energy Solutions customers.

Q8. What are the tune-up activities that receive discount?  
 A8. The recommended and qualified efficiency repairs include cleaning dirty condenser and evaporator coils, cleaning dirty filters and adjusting refrigerant charge to manufacturer's specifications. In addition to tune up, certain commercial air conditioning systems sized 3 tons or larger may be eligible for incentives toward installation of VFD retrofit kits for the indoor blowers.

Q9. What is involved for a high-performance tune-up?  
 A9. A technician will evaluate the condition of your equipment using program required tests and diagnostic procedures and recommend improvements based on the results of the evaluation. Improvements eligible for the measure incentives include the professional cleaning of evaporator coils and filters, and precision adjustment of refrigerant charge. Condenser coil cleaning is required.



## 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 CitySmart<sup>SM</sup> - SCORE<sup>SM</sup> 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.

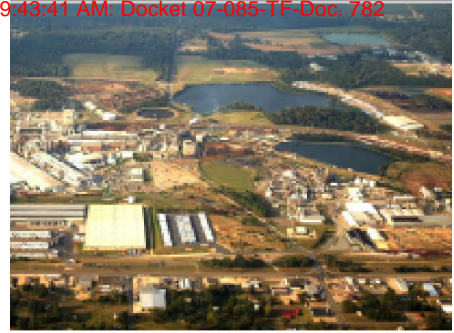
### THE RESULTS

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](http://entergyarkansas.com/citysmart).

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## PROJECT AT A GLANCE

5,037 Annual kWh savings

5,343 Annual kW reduction

0,601 Estimated annual savings

years Payback period

was able to secure funding for guidance to improve its overall energy efficiency, various pump upgrades and improving

and energy efficiency of its facility, energy cost savings and an incentive energy savings are equivalent to the carbon

to help your business, contact the [entergy.commercial](mailto:entergy.commercial).

Energy Solutions, LLC.  
an entergy  
company





### PROJECT AT A GLANCE

27,867 Annual kWh savings

19,345 Total incentives paid

16,229 Estimated annual savings

85 kW Annual kW savings

4,232 Total fixtures replaced

1.5 years Payback period

...ures were still necessary.) In addition, ...h the exterior security lighting system

...electricity a year, equivalent to ...ccording to Environmental Protection

...nergy Efficiency Solutions Center

...ses, LLC.  
...gency  
...LC.





# 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 CO<sub>2</sub> emissions from 36.8 homes' energy use for one year, according to U.S. Environmental Protection Agency calculations.

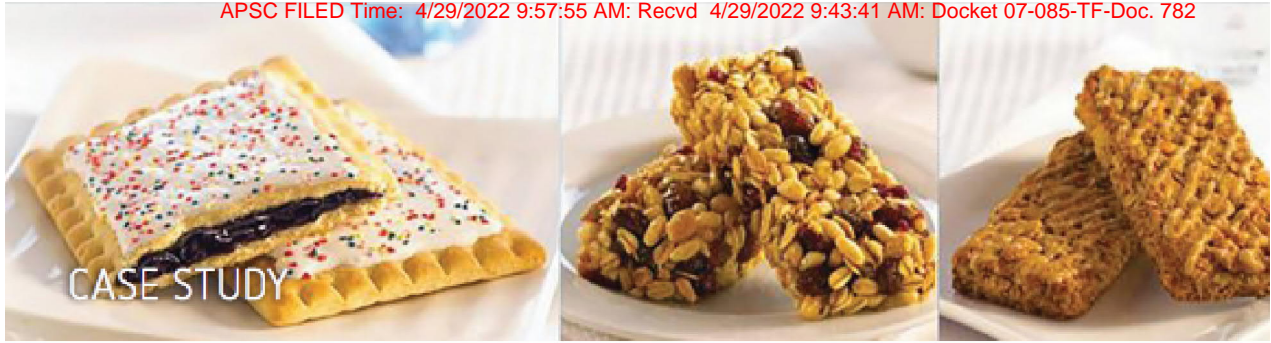
The company is so pleased with these results it already has further projects planned, including new construction, a CoolSaver<sup>SM</sup> A/C Tune-up and a compressed air installation.

**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](http://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.

### 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

### 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.

**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](http://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.

## 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

**Questions?** Contact the Energy Efficiency Solutions Center at **877-212-2420** or visit [entergyarkansas.com/commercial](http://entergyarkansas.com/commercial).

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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 CO<sub>2</sub> 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](http://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](mailto:cei.central@clearesult.com).

For all the ways we can help your business save, visit [entergyarkansas.com/commercial](http://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](tel:501-265-0249) or [cei.central@clearesult.com](mailto:cei.central@clearesult.com).

For all the ways we can help your business save, visit [entergyarkansas.com/commercial](http://entergyarkansas.com/commercial) or call our Energy Efficiency Solutions Center at [877-212-2420](tel: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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## PUT OUR ENERGY SOLUTIONS TO WORK.

The future may be uncertain, but Entergy Arkansas' commitment to businesses like yours remains as strong as ever. Last year, our Large Commercial & Industrial Program alone awarded over \$13 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.
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 back into your business.
6. **Incentives**—Entergy Arkansas incentives may help cover the cost of your energy-saving upgrades.

[Let's get started ▶](#)

Or give us a call at 877-212-2420.



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### 3.6.18 EA CI Email 2021 Large CI – Build Better Email

**3.6.19 EA CI Email 2021 Large CI – Savings Are In the Air Email**



## SAVINGS ARE IN THE AIR.

Air leaks in your compressed air system could add up to thousands of dollars in wasted energy costs each year. Get in touch with our Large Commercial & Industrial team today, and we'll help you find and fix leaks, recommend upgrades and **cover up to 100% of your repair costs.**

[Email Us ▶](#)

Or give us a call at **877-212-2420**.

### Advantages of fixing air leaks:

- **Increased production.** Fluctuating system pressure can impact production by causing air tools and other air-operated equipment to function less efficiently.
- **Reduced costs.** 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.



[Discover more ▶](#)



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### 3.6.20 EA CI Email 2021 Large CI – 2021 Incentives Email



## REDEEM YOUR 2021 INCENTIVES.

From energy-saving process improvements at large industrial facilities to energy-saving comfort improvements within schools, government entities and commercial businesses —the Entergy Solutions program connects customers with the technical know-how and financial support to implement qualifying energy efficiency projects to improve facility performance.

Contact us ►

Not only does this program help facility supervisors understand the technical and financial benefits of investing in energy efficiency upgrades, but it also provides financial incentives for qualifying projects.

As of Oct. 31, 82% of 2021 non-residential incentive funds have been reserved. Do you have a facility improvement you'd like to discuss?

Email us ►

Or call 877-312-2420.

### REMINDER: Dec. 31 is only 52 days away.

To obtain 2021 incentive funds, all qualifying energy-saving projects must be installed and post-inspected by Dec. 31, 2021.



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### 3.6.21 EA CI Email 2021- CoolSaver Email Don't Sweat Cooling Costs



## DON'T SWEAT COOLING COSTS.

Could 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 Wi-Fi Smart Thermostat.

[Schedule now ▶](#)

Or call 877-212-2420.

In addition to saving energy and money, high-performance HVAC systems offer:

- Improved air quality.
- Greater occupant comfort.
- Quieter system operations.
- Increased efficiency.
- Reduced cooling costs.
- Extended equipment life.
- Better humidity control.

[Schedule now ▶](#)

Or call 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. [Learn more](#)



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A message from Entergy Arkansas, LLC, 5207 Energy Services, LLC, 44 Energy Services, The Energy Solutions program is an energy efficiency program and not affiliated with Entergy Solutions, LLC.



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ipate:

arkansas.com/commercial or contact 2420 to enroll in one of the Entergy energy efficiency programs.

an on-site inspection of your existing equipment at no cost to you.

customized project recommendations, tailored to your company's needs.

receive a list of qualified participating trade professionals trained in the Entergy Arkansas energy efficiency programs.

Energy upgrades will be installed.

cash incentives for all qualifying energy efficiency projects.





# 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.\*



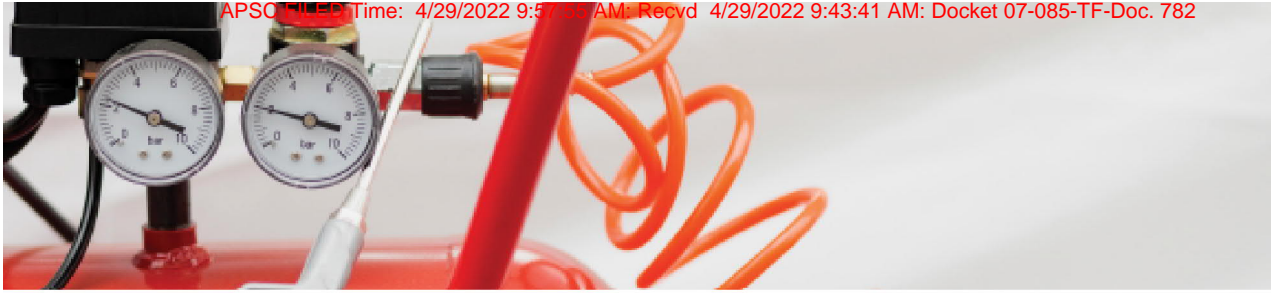
\*Source: U.S. Department of Energy  
\*\*Source: ENERGY STAR®

**Ready to save?** Contact the Energy Efficiency Solutions Center at **877-212-2420** or visit **entergyarkansas.com/commercial**.



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# ENERGY 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](http://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.

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### 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](http://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 CitySmart™ - SCORE™ 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](http://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](http://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](http://entergyarkansas.com/citysmart).



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## A LESSON IN ENERGY EFFICIENCY



The CoolSaver<sup>SM</sup> 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



### 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](http://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](http://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 100-watt LED.	\$157	\$95
Installing weather stripping on exterior doors.	No charge	\$100
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](http://entergyarkansas.com/commercial).



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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? Entergy Arkansas can help you use less.

Our Large Commercial & Industrial Program and Small Business Program help restaurant owners like you invest in cost-effective, lasting 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: [energy.gov](http://energy.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](http://entergyarkansas.com/commercial).



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WE POWER LIFE™

## 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
<b>Refrigeration</b>		
Installing an anti-sweat heater control on a refrigerated display case with five doors.	2,737	\$246
Equipping a 3' x 2' 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
<b>HVAC controls</b>		
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.		
<b>Lighting Controls</b>		
Installing a two-fixture fluorescent or LED occupancy sensor in one of your bathrooms.	68	\$6
<b>Lighting</b>		
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
<b>Other</b>		
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](http://entergyarkansas.com/commercial).



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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](http://entergyarkansas.com/commercial).



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# ENERGY ARKANSAS COMMERCIAL COOLSAVER<sup>SM</sup> 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.

## What are the benefits?

- Instant discount.
- Use of precision digital instruments to increase system efficiency.
- Reduced cooling costs.
- Extended equipment life.
- Better humidity control.

## 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.

## How to participate

1. Contact the Energy Efficiency Solutions Center at **877-212-2420** or visit [entergyarkansas.com/commercial](http://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"> <li>• Cleaning evaporator coil.</li> <li>• Cleaning outdoor condenser.</li> <li>• Cleaning blower.</li> <li>• Adjusting refrigerant charge to manufacturer specification.</li> </ul>	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:	\$900		

**Questions?** Contact the Energy Efficiency Solutions Center at **877-212-2420** or visit [entergyarkansas.com/commercial](http://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 customers. 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 JCI Energy Team, as well as enabled us to build teamwork by inclusion of others across our plant in saving energy!"  
 Matt Truitt, UPG EHS Manager, Building Efficiency  
 Johnson Controls



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### 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												
Other Activities	Monthly Check-in Calls												
	Milestones												

### Questions?

Contact Richard Gregg at 501-221-4011 or [richard.gregg@clearresult.com](mailto:richard.gregg@clearresult.com).

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## RESERVE YOUR CONTINUOUS ENERGY IMPROVEMENT COHORT SEAT.

Energy 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.

**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. Energy Arkansas and CLEAResult 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 Energy 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](mailto:richard.gregg@clearresult.com).

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## Large Commercial & Industrial Program

**Overview**

The Large Commercial & Industrial Program is offered to commercial and industrial customers of Energy 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 Energy 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**

You	Program implementer
1. Sign participation agreement.	
2. Pre-inspects your facility for energy-saving opportunities.	
3. Signs project application.	
4. Installs recommended improvements.	
5. Submits your project invoice.	
6. Performs post-inspection and submits closeout documents.	
7. Receives incentive check.	



**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](http://entergyarkansas.com/commercial).

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### 3.6.34 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 pressures 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 [ontergyarkansas.com/commercial](http://ontergyarkansas.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 \$0.08 per kWh.

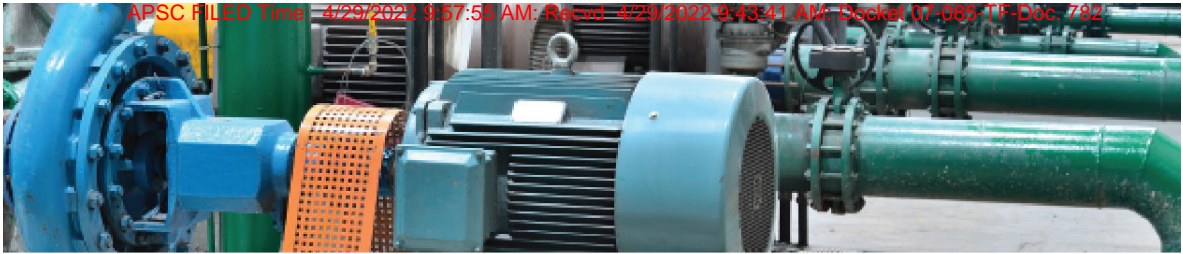
Compressor (HP)	Est. Capacity (ACFM)	Available Incentives	Est. Annual Savings
200	1,000	Up to 100%	\$10,800
150	750	Up to 100%	\$8,100
100	500	Up to 100%	\$5,400
50	250	Up to 100%	\$2,700

### Let's get started.

Find a list of trade allies at [ontergyarkansas.com/commercial](http://ontergyarkansas.com/commercial), or contact our Energy Efficiency Solutions Center at 877-212-2420.

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# 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](http://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](http://www.eere.energy.gov)

Ready to save? Contact the Energy Efficiency Solutions Center at 877-212-2420 or visit [entergyarkansas.com/commercial](http://entergyarkansas.com/commercial).



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## 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](http://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. **Repair.** You or your trade ally replaces existing motors with Q-Sync motors. You or your trade ally documents the material cost and labor or sends 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*				
9–12 Watt	\$14.96	\$20.35	\$40.62	\$48.97
38–50 Watt	\$39.91	\$63.06	\$88.32	\$128.06
Freezer space—estimated annual energy costs per motor*				
9–12 Watt	\$17.77	\$24.18	\$48.25	\$58.17
38–50 Watt	\$47.41	\$64.10	\$81.16	\$140.61

\*This cost type assumes an electricity rate of \$0.10 per kWh.

### Let's sync up.

Visit [entergyarkansas.com/commercial](http://entergyarkansas.com/commercial) to find a trade ally near you, or call 877-212-2420.

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## 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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## 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](http://entergyarkansas.com/commercial)**.

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**ENERGY SOLUTIONS**  
AN ENTERGY ARKANSAS PROGRAM



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### 3.7 Small Business Solutions

#### 3.7.1 Small\_Business\_Program\_Manual.pdf





## 2021 Program Manual Small Business

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### PROGRAM OVERVIEW

#### Program Description

The Energy Arkansas portfolio of Business Solutions Programs includes attractiv 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 electric 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 analyze 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 direct capital resources 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 businesses 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 efficiency technologies and practices:
  - Small business owners may not have the technical expertise or time to devote to energy efficiency improvements, particularly since most of these businesses have few, limited staff, most of which do not necessarily have adequate time or resources to focus on overall energy management.
  - Limited ability to effectively source 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 first 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.

### Program Management & Contacts

Ashley Scott  
 Phone: 501-221-4010  
 Email: [ascott@clearresult.com](mailto:ascott@clearresult.com)  
 Energy Efficiency Solutions Center ("ESC")  
 Phone: 1-877-272-0463

### Program Roles & Responsibilities

Program Operator: Energy Arkansas, LLC

Website: <http://www.energyarkansas.com/smallbusiness>

- Provide all funding for the energy efficiency program and the program incentives
- Manage the energy efficiency program and oversee implementation

#### Program Evaluation: Tera 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 valuation methodologies through annual DSM 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

- Perform outreach and educate about the energy efficiency program
- Provides energy efficiency assistance to program participants (at no cost)
- Assist program participants and trade allies with program documentation
- Perform all required on-site inspections and documentation
- Provide valuations on energy savings potential for identified projects
- Assist in evaluation of financial metrics for energy efficiency projects (payback, ROI, etc.)
- Process and deliver incentive checks for successful projects

#### Program Participant: Customer

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 proper application to reserve incentives for qualifying energy efficiency projects
- Event base 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 implementer 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 baseline and/or the post-retrofit conditions as required.

#### Trade Ally

To participate in the program as a trade ally, the trade ally must:

- Execute the trade ally agreement
- Complete required background and allow 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-installation data provided to the program implementer is correct and validate 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 Arkansas 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 on-site, on-site, and in-field training as required to comply with program guidelines. Follow-up training will be provided as needed to ensure trade ally 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 allies. 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 training.
  - Business Requirements
    - Demonstrate the capability to conduct business successfully by providing ONE of the following:
      - Satisfactory Dun and Bradstreet Rating, or
      - Specific evidence of business acuity 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, etc.
        - Confirmation that the principals in the business have a satisfactory individual credit score with no outstanding liens or judgments.

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- **Tools**
  - 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 receipt from CLEARcut, 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 CLEARcut. 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 Alliance service territory. Any program documentation submitted for a proposed project within the Energy Alliance program will be treated with care 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 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 participants.

**PROGRAM INCENTIVES**  
**Measure & 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 CLEARcut.
- Direct installed equipment including pre-rinse spray valves, low flow shower heads, weather stripping, LEDs and venting mirrors (note: pre-rinse spray valves, faucet aerators, and low flow shower heads are for customers with electric water heat only).

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- **Lighting measures such as:**
  - High-Efficiency Interior Lighting
  - Interior Lighting Controls
  - High-Efficiency Exterior Lighting
  - Refrigerated Case Lighting
- **Refrigeration measures such as:**
  - Electronically Commutated Motors (ECM)
  - Airt Seal Heat Exchanger Controls
  - Noctuary Cooler Shut-Off Controls
  - ECM Controls
  - Shades and Strip Curtains

**Figure 1: Incentive Levels**

Measure Type	Value (per kW)
All Lighting (including refrigeration lighting)	\$0.17
Interior Lighting Controls	\$0.17
HVAC Replacement	\$0.17
Direct Install**	Per Cost
Window Film	\$0.20
All Refrigeration**	\$0.20
Heat Stripping***	\$0.20
Ceiling Installation***	\$0.20

*Note: Project incentives other than direct install measure or refrigerated shades and strip curtains will be capped at 50% of the total incremental project costs. Any additional measures approved by the program will be paid at a rate of \$0.17 per kW.*

*\*\*Pre-rinse spray valves, low flow shower heads, weather stripping, LEDs and venting mirrors*

*\*\*\*Refrigeration savings other than shades and strip curtains in the Program will be capped at \$30,000 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.*

*\*\*\*\*Commercial residential only*

**Figure 2: Program Measures**

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<b>Lighting Retrofit</b>	Lighting retrofit projects involve 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. For instance, T8 fluorescent lamps and electronic ballasts can be replaced with more efficient lighting systems such as qualified LED lamps or fixtures. Metal halides may be replaced with systems such as T5 fluorescent lamps with electronic ballasts or compact fluorescents. There are a variety of lamp and ballast combinations that are eligible for this Program depending on the current technology installed at a facility. 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), ultrasonic, infrared occupancy sensors, photoeyes, which can be coupled with a variety of control strategies including day lighting controls, occupancy controls (door sensors and time clocks).
<b>Lighting Controls</b>	For certain conditions, light reduction and automatic controls are necessary 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.
<b>Exterior Lighting</b>	Energy savings opportunities exist for both improved lighting performance and advanced 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 Alliance Programs:
<b>Refrigeration</b>	<ul style="list-style-type: none"> <li>- Gasket replacement</li> <li>- Strip curtains</li> <li>- Evaporator fan retrofits</li> <li>- Noctuary cooler controls</li> <li>- Refrigerator fan controls</li> <li>- Airt-sealed door heater controls</li> </ul>

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<b>Lighting (Commercial/Residential Only)</b>	Existing 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.
<b>Heat Stripping (Commercial/Residential Only)</b>	Heat stripping will seal leaks that exist in supply and return ducts of existing homes. Heat stripping or a blower door test is required before and after the measure installation. Only pre-approved sealing materials will be allowed by the Program.
<b>HVAC Replacement</b>	For existing buildings, inefficient (non-ENERGY STAR) heat pumps and air conditioning units are eligible to be replaced with ENERGY STAR qualified units. High-efficiency units for replacement include central air systems and single package air conditioners and heat pumps.
<b>Non-Commutability (IEC/CA/LE)</b>	This is a prescriptive approach to building automation services developed to better meet the needs of the small and medium business. The program identifies "find and fix" measures to improve building operation with savings that are calculated within IEC/CA/LE Workflows. Trade allies will be trained to perform the IEC/CA/LE surveys, enter the information into the IEC/CA/LE Workflows, create the reports and submit to the program for approval and installation.

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**Non-Cash Benefits**

During 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 Aerator, Pre-rinse Spray Valve, Venting Mirrors, LEDs, and Low Flow Shower Heads.

	Low flow aerators reduce the amount of water used to enter hard working faucets while reducing the energy needed to heat the water.
	Pre-rinse spray valves are used in commercial or institutional settings to remove food waste from dishes prior to cleaning in a dishwasher. The Program installs pre-rinse spray valves with a flow rate of 1.20 gpm, which offers both high performance and substantial energy savings.
	A standard 60-watt incandescent LED provides 80 lumens and requires 90-watt incandescent (incandescent) bulbs for use in table lamps, floor lamps, wall scones, and desk lighting applications. Most Compact LED and an advanced cooling system provides for 10,000 hours of LED life. Medium screw base Energy Star rated product (S1122). Suitable for outdoor use, strong weather, when installed in fixture and not directly exposed to weather.

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	Low flow showerheads and handheld showerheads use pressure compensating technology to ensure the feeling of great force while using less water. Typically, these showerheads use up to 40% less water, thus 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: Projects must have a net-efficiency goal to realize 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. If considered eligible to the program, 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 indicated signatures and other necessary information.
  - Legible.
  - Submitted with a verified Energy Alliance account number.
  - Submitted with all necessary accompanying documents.

- CLEARwill will pay eligible small business rebates within 30 days of substantial or necessary documentation.
- CLEARwill will pay verified rebates to the appropriate party (typically, in 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 reauthorization 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 Office by visiting 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 existing Energy Arkansas eligible customer.

After the customer is qualified, the trade ally completes an energy assessment of eligible facilities. As part of the 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 overall 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.

Once the work is completed at the customer site, the trade ally must secure all the appropriate information and signatures from the customer, and then submit required documentation to the program for review. The program will process invoice checks for the trade ally within 30 business days of receipt of the necessary information, subject to customer and measurement activity. Before payment, the program may select 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 customer in order to take advantage of the incentives and rebates available through the program.



**QUALITY MANAGEMENT SYSTEM**

**Quality Assurance**

IS(1) Program Process Trainings	Trade allys that choose to participate in the program will attend training that explains the program process and technical aspects of participation. Where the training instructor 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 receive an incentive.
IS(2) Application Review	Incomplete proposals will be rejected and sent back to you for completion. You may not receive a reservation of incentive funding notice until the program is completed appropriately and confirmed by the program implementer.

**Quality Control**

IS(3) Post-Installation Inspections	We will inspect 100% of the largest 10% of projects identified by kWh savings values. For Small Business, that would mean one single project/season estimated over 80,000 kWh savings will be inspected. We will inspect 10% of all other projects/accounts under 80,000 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 proposed scope of work will be deemed to be a failed project and will cause that Trade Ally to be removed from the relevant inspection rate for that CLEARwill will maintain. Once a Trade Ally is removed, that contractor will need to complete 3 consecutive projects without "failures" as defined above to be returned to the relevant inspection rate. In order to qualify immediately for the relevant inspection rate, a Trade Ally must have completed 3 consecutive projects without a failure determined by the program implementer.
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Customer Communication

Program Contacts  
CLEARcut - Program Implementation Contractor  
- Customer service: 1-877-270-2400  
- Email: SmallBusiness@CLEARcut.com  
Energy - Energy Arkansas Program Manager  
- Gale Murray - Energy Arkansas

Trade Ally Performance Standards

- Protection and/or suspension:  
- Program implementer will facilitate issues that may require trade ally's production, suspension, or program exclusion on a case-by-case basis.  
- Trade ally acknowledges that failure to follow program requirements and provisions, including providing 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 rebate 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 as a 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 conversation with a customer or in print.  
- Trade ally should treat program participants fairly and respectfully, and deliver promised 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 commits to follow up communication with each customer to ensure customer satisfaction.

DISCLAIMERS

Energy Arkansas and/or CLEARcut

The selection of a trade ally to perform work is the sole decision 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 CLEARcut 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 CLEARcut. Neither Energy Arkansas nor CLEARcut 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 employee, subcontractor or supplier. Energy efficiency gains are subject to a number of variable conditions and circumstances. While it is the intent of the program to address energy efficiency, neither Energy Arkansas nor CLEARcut 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 CLEARcut, 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) each trade ally's breach of any provision of this 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, shipment, 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 CONTRIBUTOR NEGLIGENCE, ACTIVE OR PASSIVE, OF ANY OR ALL INDENTIFIEDS. Indemnified, respectively, at their option exercisable by written notice to each trade ally, may require such trade ally to defend any or all claims or claims concerning the foregoing.

**Participant Agreement:** A non-binding document that one submitted by the participant, will allow them into the Incentive Program 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 TRM (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 Evaluator:** An independent party that reviews the documentation and calculations completed by the Program Implementer and provides additional guidance on the program.

**Program Implementer:** Technical and administrative consultants hired by the Program Sponsor to operate the energy efficiency program.

**Program Location:** The utility funding and operating the energy efficiency program.

**Project:** A planned set of energy efficiency measures for a single Participant location at a single facility or multiple facilities as proposed by Program Staff or a Trade Ally.

**Project Evaluation:** 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 timeline. Acknowledged receipt of this form by the Program Implementer will reserve the listed incentive for the Participant.

**Rate:** A unique measure for 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 of members of the program staff are expected to respond professionally to customer inquiries at all times.  
- Staff will always provide accurate, up to date information to customers. Be sure that follow up activities are completed as promised.  
- Responses 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 smoke on customer premises.  
- Do not lead customer 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 100% customer compliance. However, you should always notify 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

**Carbon Footprint:** 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

**EMV:** Evaluation, Measurement and Verification, often referred to as Measurement and Verification.

**Energy Market Program:** The process of reducing 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 (based 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 can be used as a tool for Energy Market 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 lifecycle cost 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.

**Funding:** 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.

**kWh:** 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 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 program who will accept 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 this Program?**  
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 facility.  
- Enhance sales and/or customer satisfaction.  
- Discover 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	Timeline of Projects

PROGRAM PARTICIPATION AGREEMENT

Energy Arkansas Commercial Program. Energy Arkansas is pleased to announce the Energy Arkansas - Small Business Energy Solutions Program. Energy Arkansas is pleased to announce the Energy Arkansas - Small Business Energy Solutions Program. Energy Arkansas is pleased to announce the Energy Arkansas - Small Business Energy Solutions Program.

TO PARTICIPATE IN THESE PROGRAMS, YOU WILL NEED TO UNDERSTAND AND AGREE TO THESE TERMS:

- 1. Participant acknowledges that the program is a voluntary program and that participation is at the discretion of the participant.
2. Participant acknowledges that the program is a voluntary program and that participation is at the discretion of the participant.
3. Participant acknowledges that the program is a voluntary program and that participation is at the discretion of the participant.

DISCLAIMER: The success of participating Trade Ally programs with active load reduction of the program varies and cannot be guaranteed. Energy Arkansas is not responsible for any losses or damages resulting from participation in the program.

These terms are subject to the Energy Arkansas - Small Business Energy Solutions Program Manual. Energy Arkansas is not responsible for any losses or damages resulting from participation in the program.

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CUSTOMER ACKNOWLEDGMENT

I acknowledge that I agree to participate in the Energy Arkansas - Small Business Energy Solutions Program. I understand that I am responsible for any losses or damages resulting from participation in the program.

TRADE ALLY ACKNOWLEDGMENT

I acknowledge that I agree to participate in the Energy Arkansas - Small Business Energy Solutions Program. I understand that I am responsible for any losses or damages resulting from participation in the program.

Energy Arkansas Commercial Program
TRADE ALLY PARTICIPATION AGREEMENT

TRADE ALLY PARTICIPATION AGREEMENT
TRADE ALLY PARTICIPATION AGREEMENT

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Appendix A: Proposal

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Appendix B: Trade Ally Agreement

Energy Arkansas Commercial Program
TRADE ALLY PARTICIPATION AGREEMENT

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## BUSINESS OWNERS – WE’VE GOT YOU COVERED

Last year, we awarded nearly \$3 million to help small business customers across Arkansas get their energy efficiency goals off the ground. This year, it’s your turn.

From HVAC tune-ups and replacements to LED upgrades, smart thermostats and more, we’ll help you discover energy-saving opportunities that lower your overhead and make your business safer, healthier and more comfortable all year. Start by scheduling a no-cost energy assessment today.

Start saving ▶

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**Your no-cost assessment includes energy-efficient product installations such as:**

- Showerheads.
- Low-flow aerators.
- Pre-rinse spray valves (electric water heater customers only).
- LEDs.
- Weatherstripping.

Plus, we’ll cover up to 100% of your project’s costs when you choose to move forward with your first recommended upgrade. As your energy savings grow, so will your incentives.

Discover more ▶

Or schedule now at 877-212-2420.




WE POWER LIFE™

The Small Business Energy Solutions Program is available to any current Entergy Arkansas small business customer with a peak demand of less than 100kW. Call 877-212-2420 for details.

This email is sent by Entergy Arkansas, LLC or an Affiliated Company. Little Rock, Arkansas 72201.

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## 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](http://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? Entergy 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](http://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](http://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
<b>Refrigeration</b>		
Installing an anti-evaporator 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.	1,182	\$107
<b>HVAC controls</b>		
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.		
<b>Lighting Controls</b>		
Installing a two-fixture fluorescent or LED occupancy sensor in one of your bathrooms.	68	\$6
<b>Lighting</b>		
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
<b>Other</b>		
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

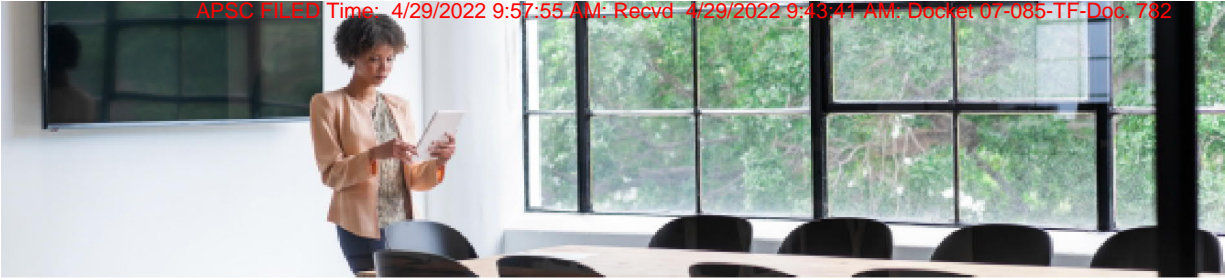
Other energy-saving measures are also eligible for incentives, including high-efficiency HVAC units, water heaters, gaskets and strip curtains.

To start saving, contact the Energy Efficiency Solutions Center at 877-212-2420 or visit [entergyarkansas.com/commercial](http://entergyarkansas.com/commercial).



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# ENERGY ARKANSAS RETROCOMMISSIONING-LITE



## Optimize your building (and your savings).

The Energy 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 Energy 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](http://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](http://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)	\$0.26
Ceiling Insulation (Converted Businesses Only)	\$0.26
HVAC Replacement	\$0.17

\*Total savings allocation for refrigeration savings will be capped at \$0,000 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-sweat heater controls and refrigerated door gaskets.
Direct Install Measures	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 blown-in door seal 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.
CoolSaver™ A/C 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. Plus, churches, restaurants and small office customers may qualify for additional energy-saving upgrades—including a smart thermostat.

\*Please see the CoolSaver Fact Sheet for details on the CoolSaver measures and incentive levels available under this program.

### Questions?

Contact the Energy Efficiency Solutions Center at 877-212-2420 or visit [entergyarkansas.com/smallbusiness](http://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
<b>Elementary Schools</b>				
Hurricane Creek	Electricity	▼	A	20.80%
Collegedale	Natural Gas	►	A	16.70%
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	6.00%
Bryant	Electricity	▲	A	5.30%
Hill Farm	Natural Gas	►	A	5.20%
Springhill	Electricity	▲	C	2.00%
Collegedale	Electricity	▲	D	1.10%
Springhill	Natural Gas	►	F	-4.30%
Parkway	Natural Gas	►	F	-13.10%
Parkway	Electricity	▲	F	-19.60%
Hurricane Creek	Natural Gas	►	F	-113.40%
<b>Middle Schools</b>				
Bryant	Electricity	▲	A	25.70%
Bryant	Natural Gas	►	A	11.10%
Bethel	Electricity	▲	A	5.80%
Bethel	Natural Gas	►	F	-12.30%
<b>High Schools</b>				
Bryant High (Bldg. 10 Only)	Electricity	▲	A	5.5%
<b>Miscellaneous</b>				
Central Office	Electricity	▲	A	27.00%
Business Office	Natural Gas	►	A	26.70%
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%

**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

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**

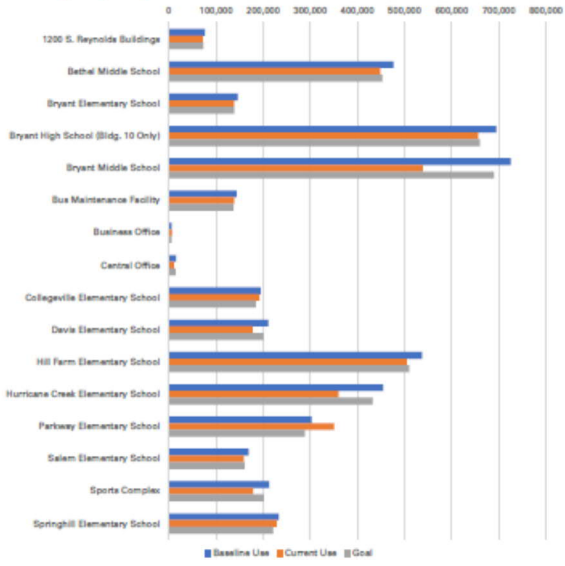
- Turn off lights in unoccupied rooms and use sunlight where possible.
- Shut down computer monitors and other devices when not in use (most devices still use power even when they are "asleep").
- Fully close all doors and windows, and double check for gaps and drafts.
- Turn off ice machines, fridges 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.



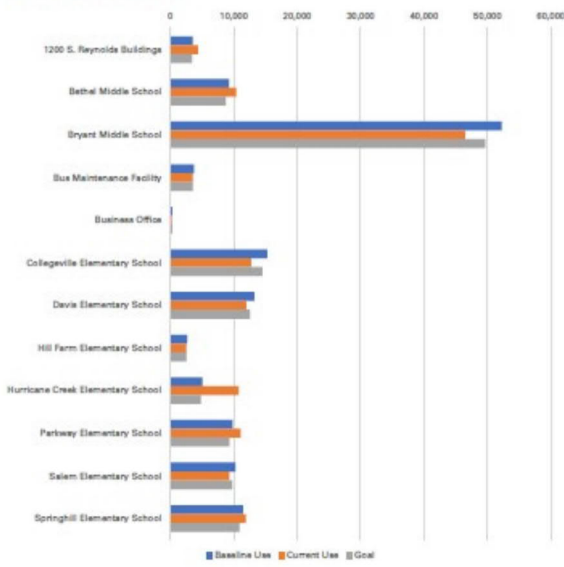
**BRYANT SCHOOL DISTRICT ENERGY EFFICIENCY REPORT CARD**  
 Cumulative Report: Electric Data Through April 2020; Natural Gas Data Through February 2020

**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)**

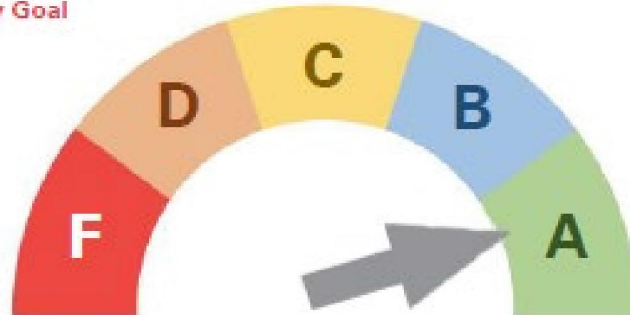




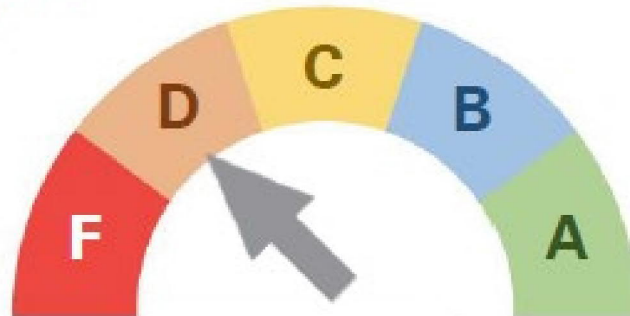
### BRYANT SCHOOL DISTRICT ENERGY EFFICIENCY REPORT CARD

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](mailto:tsellers@bryantschools.org).

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## 2021 Program Manual CitySmart<sup>SM</sup> – SCORE

### PREPARED BY:

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### PROGRAM OVERVIEW

#### Program Description

The CitySmart – SCORE Program is offered to governments, government-owned institutions and public/private education facilities that are customers of Entergy Arkansas. Designed to help facility supervisors that you also want to operate facilities more efficiently, the CitySmart – SCORE Program outlines the technical and financial benefits of investing in energy efficiency and developing a plan to make energy efficiency improvements to your facilities. By enrolling in the program, you will be offered to use 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 uses to participants, but instead provides a framework through which you can realize incentives for implementing and installing a wide range of measures at your sites.

#### Program Benefits Include

Participants receive technical assistance to help identify energy efficiency opportunities.

#### 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 inherent 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.
  - Ease 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.
  - Provide 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.

- 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, ROI, etc.).
- Process and deliver incentive checks for successful projects.

#### Program Participant: Energy Arkansas Customer

- To participate in the program, participants must:
  - 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.
  - Submit best efforts to approve, fund, install and report projects before the end of program year.
  - Contact the program implementer when projects are completed and allow staff to perform a post-inspection.
  - Provide access to program implementer staff (as well as O&M/inspector staff) to facilities both before and after project completion for inspection of the baseline and post-installation 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 this program manual.
  - Provide verification of adequate insurance coverage.
  - Work with program implementation staff to take advantage of program marketing materials and technical assistance.
  - When developing a possible 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 on 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 accurately 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.

- 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 Energy Arkansas 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

##### Ashley Scott

Phone: 501-271-4512

Email: [ascott@clearresult.com](mailto:ascott@clearresult.com)

Energy Efficiency Solutions Center

Phone: 1-877-273-3920

#### Program Roles & Responsibilities

##### Program Sponsor: Energy Arkansas, LLC

Website: [www.energysolutions.com/clearresult](http://www.energysolutions.com/clearresult)

- Provides all funding for the energy efficiency program and the program incentives.
- Manages the energy efficiency programs and oversees implementation.

##### Program Evaluation: Table Tech

- Provides oversight of program implementation to verify that savings claimed in the program are correct, valid and adequately documented.
- May perform post-installation audits, inspections, measurements or phone conversations to collect data for program savings verification.
- Provides updates to program calculation 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

- Perform 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 ally with program documentation.

### 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 address energy management practices in their organization and implement operational and maintenance changes to address energy savings. This measure will leverage virtual-based structure to provide group workshops, one-on-one activities, and energy modeling services to increase customer engagement and measure operational and maintenance energy savings.
- **Retro-commissioning the RCx Lite:** This is a prescriptive approach to building automation services designed to better meet the needs of the small and medium load cases. The program identifies “fit and fix” measures to improve building operation with savings that are calculated within the RCx Lite Workbook. Trade ally will be trained to perform the RCx Lite surveys, enter the information into the RCx Lite Workbook, make the repairs and submit data to the program for approval and incentive.

#### Participant Eligibility

Any public or private entity customer (e.g., K-12 schools, government, higher education and municipalities) that receives retail service from Energy Arkansas is eligible for the CitySmart – SCORE Program. Organizations with multiple locations are thereby 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 ally are members of various trades that meet all program qualifications and standards (listed below). Trade ally are eligible to participate in the program and will have their company name on a list of eligible trade ally that may be given to you. Trade ally may continue to participate in the program as long as they remain in compliance with all program requirements.

To participate, trade ally 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 in which 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, book 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



Energy Advances LLC  
2021 Customer - ESCM Program Manual

• 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 work.
- Confirmation that the participants in the business have a satisfactory individual credit score with no outstanding liens or judgments.

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 future work 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 Advances service territory. Any program documentation submitted for a proposed project within the Energy Advances program will be retained 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 submitted will be handled with the greatest care relating to the program participant.

**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 the program. The combined total projects for a single participant should target to create a minimum of 20,000 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 (kWh).
- 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 that 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 tiered incentive approach will be used to provide additional incentives for multiple measures at each location in order to steer 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 tiered incentives are:

- If an energy efficiency measure is installed at a single facility or at multiple facilities for the same participant, that measure will still be considered a single measure.
- If multiple measures are eligible for incentives, but they do not meet the target of 20,000 kWh of annual savings to qualify as "Tier eligible," then they can be grouped together to qualify as a single measure in order to qualify the project for an additional tier of incentive as long as the total of the individual measures add up to more than the 20,000 kWh of annual savings target. Only one such grouping is allowed per project.
- If, during the peak heating months, the participant completed measures that could qualify for tiered incentives, those projects can be awarded incentives meeting tiered 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 tiered incentive rate. However, measures will be prorated from the January 1st of the previous program year until necessary funding for the current program year. Note that sequential tiered 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 there are incentive funds still available after September 1, 2021, you may exceed the 90 percent cap in order to fully utilize the program.

Figure 1: Incentive Table

Measure Type	Customer - ESCM Incentive Matrix (per kWh)				Incentive Cap
	1 measure	2 measures	3 measures	4+ measures	
EC Power Management, Load and Set-Point Controls	\$0.10	\$0.10	\$0.10	\$0.10	100%
	Paid per kWh (or 50% of damaged/gateability curtailer replaced)				
All other measures	\$0.12	\$0.13	\$0.14	\$0.15	100%

\* Measures must be 20,000 kWh each for tier credit  
 \* Measure credits for tier are only retroactive for 12 months  
 \* Program tiered based measures will count as only one tier even if different and same cost  
 \* House incentive can be leveraged against other projects (up to the cap) in same program year  
 \* Residential incentive can be leveraged against other projects (up to the cap) in same program year

To exemplify these objectives, the table above has been developed and the hypothetical examples below help illustrate how the tiered 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. In that case, the applicable incentive will be \$0.12/kWh for the one measure in the current program year (based on one qualifying measure) and \$0.14/kWh for the other measures for the next program year (based on three qualifying measures, one from the current year and two from the next year).

**Example 3:** You identify three 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:

- a) \$0.12/kWh for the current program year for the prescriptive measures
- b) \$0.13/kWh for the additional prescriptive measure for the next program year (based on four qualifying measures)

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- c) \$0.13/kWh for the other projects based on four qualifying measures, applied progressively only once all four qualifying measures are installed.

**Hypothetical Wastewater Project**

The hypothetical example illustrates the calculation associated with a specific set of facts that are assumed to exist at a reasonably large wastewater facility. Simulated loading conditions and various program metrics 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 Customer - ESCM program.

Scenario	Program Measure	Annual Energy Savings (kWh)	Annual Incentive (kWh)	Simple Payback (Years)	Net Present Value (\$)	Internal Rate of Return (%)	Payback Period (Years)	Net Present Value (\$)	Internal Rate of Return (%)
100,000 gal of wastewater (100,000 lbs) of wastewater	Scenario 1: 100,000 gal of wastewater (100,000 lbs) of wastewater	100,000	10,000	10.0	10,000	10.0%	10.0	10,000	10.0%
	Scenario 2: 100,000 gal of wastewater (100,000 lbs) of wastewater	100,000	10,000	10.0	10,000	10.0%	10.0	10,000	10.0%
100,000 gal of wastewater (100,000 lbs) of wastewater	Scenario 3: 100,000 gal of wastewater (100,000 lbs) of wastewater	100,000	10,000	10.0	10,000	10.0%	10.0	10,000	10.0%
	Scenario 4: 100,000 gal of wastewater (100,000 lbs) of wastewater	100,000	10,000	10.0	10,000	10.0%	10.0	10,000	10.0%

The total annual savings would be approximately 100,000 kWh, resulting in an estimated \$10,000 in annual utility savings. The estimated cost of this project (using the above simulation) is \$204,750, with an estimated incentive of \$30,000. If the facility were to make these upgrades, the net project cost to you (after incentives) would be \$174,750, yielding an approximate 6.30- year payback.

**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 project. The program implementer will select and implement an appropriate savings measurement and verification plan including installing field monitoring equipment where applicable. Customers may submit suggested measures, along with a suggested EMSV approach, to the program implementer. Note that any such approach must include adequate calculations or monitoring to justify savings as determined by the Program Implementer in order for the measure to be considered for incentives under this program.

**PARTICIPATION PROCESS**

The program is designed to encourage individuals who wish to participate from energy efficiency, cost program participants and technical resources. 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 certified as a program participant 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 when EMMV is required. Once the participant has selected the projects to implement and funding has been reserved, program staff will help you to fill out the technical 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 participants 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 or re-evaluate equipment installation. This may be conducted 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. Complete applications that include a range of measure types are encouraged. Note that you may not exceed the participation agreement to include the process. Ultimately, a project application will be completed by you and sent to the program implementer for final approval and reservation of incentive funding.

All projects should meet the following requirements:

- Targeted Minimum Project Size: Each project for which an application is submitted, on combination of projects, should target a like-retained energy reduction of at least 2000 kWh of annual savings.
- Project Costs: Projects must meet a cost-effectiveness ratio in order to be eligible for incentives. In order to calculate this, projects must be submitted to the program implementer before incentive funding can be applied for and reserved. This includes the cost of the equipment and installation.

**Incentive Reservation/Application Process**

Upon receipt of a signed participation agreement, the program implementer will review the application for completeness and eligibility then send notification that incentive funding has been reserved for the projects. 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 submitted to the program implementer, which will provide adequate time for final project verification and post-installation inspection prior to receiving the incentive payment. The completion date of a project should not extend beyond December 31, 2021 unless

approved in writing by the program implementer. If a contribution to the program should arise, participants will be placed on a waiting list in the order of when the project application, including the executed participation agreement, was received.

Participants on the waiting list may be able to receive incentive funding for the current program year for other projects for which funding was reserved 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**

Desired 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 projects are installed, documented and verified. You are encouraged to contact the program implementer prior to installation of additional measures and 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.

EMMV projects: you will receive 60 percent of the total estimated incentive amount set forth in the verified project application after the projects are installed, documented and verified. The remaining incentive will be calculated based on the final EMMV report and will be paid once the EMMV efforts are complete. To the extent that additional measures are installed that were not identified in the application and confirmed for the pre-installation inspection, you may be eligible for additional incentive funds. You are encouraged to contact the program implementer prior to installation of such additional measures 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 Optimize program allows self-qualifying customers by self-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 software tools, logged data, simulation, modeling and/or computer simulated energy models to determine if cost-effective energy-saving opportunities exist within that facility or campus. However, it is understood that the wide range 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 review of opportunities within a facility, if more than one study is submitted for a single participant within a three-year time span, program management approval will be required for additional funding.

To qualify for an funding of feasibility study, a proposed study must have an estimated annual energy savings based on preliminary data and simulations 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 handled in the same way project applications in the case of re-submission (see the "Wait List Process" 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.

Feasibility Tiered Structure		
Feasibility Study Savings**		
Min kWh	Max kWh	Incentive*
16,000	100,000	\$3,000
100,001	200,000	\$6,000
200,001	500,000	\$9,000
300,001	500,000	\$12,000
500,001	1,500,000	\$15,000
1,500,001	5,000,000	\$20,000

\*Full project amount with a total feasibility budget of \$20,000  
 \*\*Range 60% for study submission and the remaining 40% upon project completion for cost savings  
 \*\*\*Minimum 1000 projects. Savings reserved "limited" resources from the current reserves of program funds

To request funding assistance, a participant needs to enroll in the program and submit the written consent form (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 prepared 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 cost and a list of the expected deliverables to date.

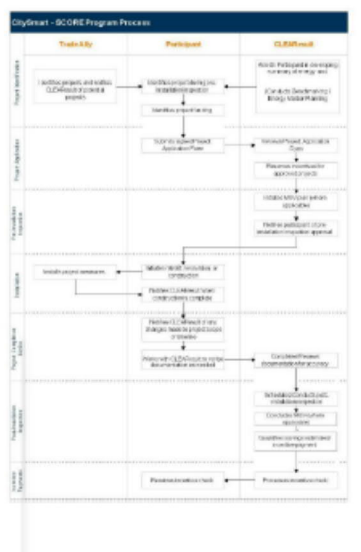
After review, if the feasibility study is selected for self-funding by the program implementer, the participant will be informed of the selection of the project and the self-funding amount being provided to assist the participant with the study. The program implementer will review the funding for the feasibility study on a case-by-case basis, but it is typically accepted to cover up to 100 percent of the cost of the study. Fully covered self-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 these projects are expected to adhere to the feasibility table above, then the program will pay the balance of the feasibility cost as an additional incentive when the projects are complete and final pre-installation 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 50 percent of the total self-funding budget during the program year.

**Limits on Participation**

To ensure incentives are available for multiple projects, you and your affiliates may not receive more than 50 percent of the Energy Advances program incentive budget in any funding year.

In the event that there are incentive funds still available after September 1, 2021, you may request the 50 percent cap in order to fully subscribe the program.

See the figure below for more details on the program process, which does not include any third-party EMMV procedures. The program process flow starts below (includes contact points and responsibilities of trade ally, participants, and the program implementer).



**TIMELINE OF PROJECTS**

- Submitted Project - 20 business days**
  - Pre-Inspection (SA-FIC) - CLS/Result will have five 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 report, 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 self-funding incentive reservation.
- Open project completion - 10 business days**
  - Trade ally notifies program team of project completion and submits documentation for review: final tracking and out orders. If complete, project will be added to post inspection queue within five business days.
  - Post-Inspection (SA-FIC) - CLS/Result will review post-inspection photos and review and perform project recalculation (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 issues check - 10 business days

**Quality Assurance**

**Program Process Tracking (SA)**

Trade ally that chooses to participate in the program will attend training that explains the program process and technical aspects of participation. When the trading partner has chosen not to participate as a trade ally in the program, the program implementer will notify you to ensure that all sites are later to receive an incentive.

**Application Review (SA)**

Thoroughly review applications will be required and sent back to you for completion. You may not receive a reservation of incentive funding unless all the project application is completed appropriately and confirmed by the program implementer.

**Quality Control**

**Post-Install Inspection Response (SA)**

We will inspect 100 percent of the largest 10 percent of projects identified by kWh savings value. For CitySmart - SCDF, that would mean 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. This inspection rate is based and verified on a trade ally on a site for the required inspection rate. Each trade ally will have a minimum of 70 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 70 percent of their projects inspected. Any project that is determined to have errors or discrepancies of 0 percent of the proposed scope of work will be deemed to be a failed project and will require that trade ally to be reworked from the required inspection rate (i.e. that CLS/Result will require). Once a trade ally is reworked, that participant will need to complete 3 consecutive projects without "failures" as defined above to be returned to the required inspection rate (i.e. in order to qualify immediately for the required 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: 1-800-200-2020  
 Email: CitySmart@EnergyAdvances.com  
 Energy Advances Program Manager  
 Heather Henderson

**ADDITIONAL NOTICES AND DISCLAIMERS**

**Energy 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 representative. 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 other than 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 efficiency gains 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 claims, 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 INDemnITY SHALL APPLY EVEN IN THE EVENT OF THE CONTRACTOR'S NEGLIGENCE, ACTIVE OR PASSIVE, OF ANY OR ALL INDemnITEES. Indemnitee, 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 commencing by the foregoing.

**DEFINITIONS**

**Active 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.

**AE** Energy Efficiency

**Audit** Evaluation, measurement and verification, often referred to as measurement and verification.

**Energy Service Provider** The process of meeting 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 for 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.

**Final Audit** A 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 motivate 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** A process of observation and measurements that establish energy use of a proposed energy efficiency measure for both pre-retail and post-retail conditions that allow the calculation of energy savings. This process may also require gathering data on surrounding 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 on the program.

**Program Subcontractor** Technical and administrative consultants hired by the program sponsor to operate the energy efficiency program.

**Program Sponsor** The utility funding and operating the energy efficiency program.

**Project** A planned 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 Subcontractor** 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 timeline. A completed receipt of this form by the program implementer will release the trade ally from liability for the participant.

**ROI** A return measure for verification of measures that when evaluated for an energy efficiency project, may provide estimated incentive value for an enterprise project.

**Trade Ally** A contractor, supplier or industry professional willing to accept full or low business model to utilize the energy efficiency programs to promote energy efficiency projects.

**FREQUENTLY ASKED QUESTIONS**

**What is the CitySmart - SC99 Program?**

The CitySmart - SC99 Program is designed for local public utilities that receive retail electric service in the Energy Arkansas territory. The program will help senior managers and facility managers like you at local public utilities operate your buildings more efficiently by understanding the individual and financial benefits of investing in energy efficiency and developing a plan to make energy efficiency improvements.

**Who is Eligible for the CitySmart - SC99 Program?**

Any local public utility customer receiving retail electric service from Energy Arkansas is eligible for the CitySmart - SC99 Program is eligible. A customer is defined by a single tax ID number. Multiple locations of an organization are treated as a single customer, regardless of how many Energy account numbers they may have. In general, cities having more facility square footage and higher energy usage receive greater program benefits.

**How Does a Customer Benefit from Participating in the Program?**

To join CitySmart - SC99, the participating local public utility signs a participation agreement with Energy Arkansas. The participation agreement describes program commitments required of the participant, which include agreement to the audit forms and processes set forth in this 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 I've Signed Up to Be a Participant?**

After the CitySmart - SC99 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 input 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 calculated, 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.

**How are Energy Efficiency Opportunities Determined?**

The program works with you to identify energy efficiency opportunities at this year's facilities. Once the opportunities are identified, the program works with you to find the right resources to assist you.

**How Much Time Should I Expect to Invest in the Program?**

We expect you to spend 30-60 hours on program activities over the course of a year. It has been our experience that the amount of time participants are engaged in the program is directly related to the benefits participants realize. The bottom line is that it is up to you to determine the amount of time you will invest, which ultimately will influence the results you expect to achieve.

**What are the Incentives?**

Non-cash benefits, such as energy measure identification, benchmarking, calculations support and assistance and EMS/IV monitoring projects are available to you. Cash incentives for eligible energy efficiency measures are based on kWh energy reductions and are listed on page 68.

**APPENDICES**

Appendix A:	Custom Project Application Example
Appendix B:	Priority/Pre-Project Application Example
Appendix C:	Participation Agreement Example
Appendix D:	Trade Ally Agreement Example

**Appendix A: Custom Project Application Example**

CitySmart Customer - Project Application

**GENERAL INFORMATION**

Participant Address: 7 Main Street, Suite 201, SCOR  
 Participant Contact: Fred Lee  
 Phone Number: 303 555 5555  
 Trade Ally: Alpha Company  
 Trade Ally Contact: Al 12345  
 Phone Number: 303 555 5557

**SUMMARY OF INCENTIVE PROGRAM**

The Energy Solutions Efficiency Program is designed for customers requiring technical assistance to support in energy efficiency projects. The incentives for the CitySmart Program range between \$3.00 and \$3.00 per saved kilowatt hour (kWh) for qualifying projects. The program links to measure the efficiency and performance of participating facilities while achieving significant, long-term energy savings. The foundation helps offset the cost of the energy efficiency upgrades.

While the savings calculated in this summary has been reviewed for technical accuracy, Energy Solutions and CitySmart do not guarantee the cost savings or the reduction in total energy consumption presented in the energy analysis and that will be able to be achieved. Potential energy savings are not achieved.



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 The Energy Solutions program is an energy efficiency program and not affiliated with Energy Solutions, LLC.

Measure ID	Measure Name	Category	Priority	Status	Start Date	End Date	Cost (\$)	Savings (kWh)	Incentive (\$)
MS-001	LED Lighting	Lighting	High	Completed	2021-01-15	2021-03-31	1500	12000	3600
MS-002	Variable Frequency Drives	Electrical	Medium	In Progress	2021-04-01	2021-06-30	2500	20000	6000
MS-003	Energy Management System	Control Systems	Low	Planned	2021-07-01	2021-09-30	3000	24000	7200
MS-004	Smart Thermostats	HVAC	Medium	Completed	2021-02-01	2021-04-30	800	6400	1920
MS-005	Power Factor Correction	Electrical	High	Completed	2021-01-01	2021-02-28	1200	9600	2880





These Revised Terms and Conditions ("Revised Terms") apply to the Energy Efficiency Programs... The Energy Efficiency Programs are implemented by Energy Solutions, LLC... The Energy Efficiency Programs are implemented by Energy Solutions, LLC...

Appendix C: Participation Agreement Example

Business Solutions Programs Participation Agreement. The Content of Your Energy Use. Energy Solutions Commercial offers commercial customers participating in the program... Large Commercial & Industrial Program. For non-manufacturing, non-Large Commercial & Industrial customers... Small Business Program. This program is designed to help small businesses save energy...

Business Solutions Programs Participation Agreement. These Revised Terms and Conditions ("Revised Terms") apply to the Energy Efficiency Programs... The Energy Efficiency Programs are implemented by Energy Solutions, LLC...

Appendix D: Trade Ally Agreement Example

Trade Ally Agreement form with fields for Business Name, Address, Phone, and checkboxes for program participation. Includes a table for program selection: Lighting Controls, HVAC Controls, etc.

Appendix E: Trade Ally Agreement Example

Trade Ally Agreement form with fields for Business Name, Address, Phone, and checkboxes for program participation. Includes a table for program selection: Lighting Controls, HVAC Controls, etc.



CLEARResult<sup>®</sup>
CLEARResult STANDARD TERMS AND CONDITIONS FOR PARTICIPATING CONTRACTORS

13. Assignment of Rights... This Party, its employees, agents and subcontractors, represent and warrant that all the...
14. Assignment of Rights... This Party, its employees, agents and subcontractors, represent and warrant that all the...
15. Assignment of Rights... This Party, its employees, agents and subcontractors, represent and warrant that all the...

CLEARResult<sup>®</sup>
EXHIBIT A - DATA SECURITY REQUIREMENTS

This Party agrees to the use of the information collection, management and use of CLEARResult Data, as defined in Section 1.1, during the term...
1. Definition of CLEARResult Data...
2. Definition of CLEARResult Data...
3. Definition of CLEARResult Data...

CLEARResult<sup>®</sup>
EXHIBIT A - DATA SECURITY REQUIREMENTS

1. Definition of CLEARResult Data...
2. Definition of CLEARResult Data...
3. Definition of CLEARResult Data...

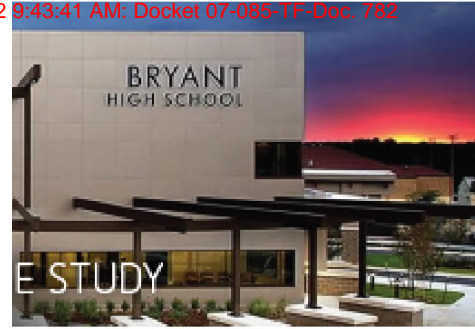
CLEARResult<sup>®</sup>
EXHIBIT A - DATA SECURITY REQUIREMENTS

1. Definition of CLEARResult Data...
2. Definition of CLEARResult Data...
3. Definition of CLEARResult Data...



Appendix E: Timeline of Projects

1. Submitted Projects - 20 business days
  - Pre-Inspection (SAC/DC) - 2 business days to respond, and determine if more information / documents are needed.
  - Pre-Inspection (CLEAR/DC) will have 5 days to add to the Queue, and an additional 10 business days to complete pre-inspection service.
  - Inspective Response - 3 business days to complete and send email to Trade Ally confirming inspection reservation.
2. Upon project completion - 10 business days
  - Trade Ally notifies program team of project completion and submits documentation for review final (visiting and out of street review). If complete project will be added to post inspection queue 8 business days.
  - Post-Inspection (SAC/DC) CLEAR/DC will review post-inspection and review post-inspection notes and perform project re-inspection (if necessary), 10 business days to complete if project passes post-inspection. If a failure occurs, project reverts to step previous step.
3. Inspective Approval and Processing - 20 business days
  - CLEAR/DC receives E-Design Approval - 10 business days.
  - CLEAR/DC issues check - 10 business days.



## PROGRESS TO DATE

7.8% Reduction in overall electricity use

\$26,262 Estimated annual cost savings

308,965 kWh Estimated annual energy savings

\$6,179 Estimated annual incentive



itysmart



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## 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 CitySmart<sup>SM</sup> - SCORE<sup>SM</sup> 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.

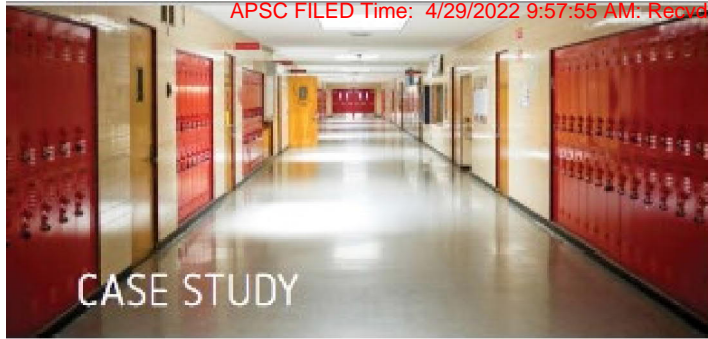
### The Results

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 CO<sub>2</sub> 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 [entergyarkansas.com/citysmart](http://entergyarkansas.com/citysmart).

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## CASE STUDY



# 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](http://entergyarkansas.com/citysmart).

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### FACT AT A GLANCE

15,260 Annual kWh savings

\$3,844 Total incentives paid

\$12,421 Estimated annual savings

1.5 years Payback period

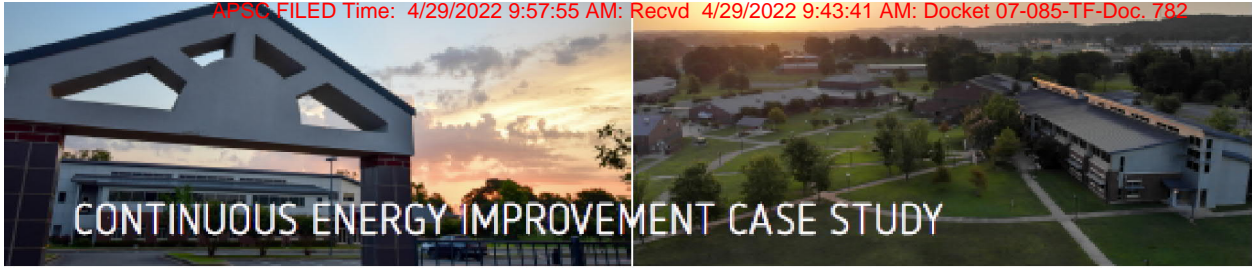
...st direct install and energy benchmarking.  
...age took its high efficiency even further  
...money to replace its lab science

...water use based on utility data. The direct  
...asure helped reduce the payback for the  
...0 kWh and \$12,421 in annual savings.  
...opes to begin retrofitting its T12 lamps

...nergy Efficiency Solutions Center

...ces, LLC.  
...nergy  
...LLC.





# 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<sup>SM</sup> 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](mailto:cei.central@clearesult.com).

For all the ways we can help your business save, visit [entergyarkansas.com/citysmart](http://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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## ENERGY ARKANSAS CITYSMART<sup>SM</sup> - SCORE<sup>SM</sup> PROGRAM FOR COLLEGES



Did you know that colleges and universities in the U.S. spend almost \$14 billion a year on energy?\*

You can help to lower this cost.

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:

- Contact us at **877-212-2420** or visit [energyarkansas.com/citysmart](http://energyarkansas.com/citysmart) to enroll in the CitySmart - SCORE Program.
- We'll perform an on-site inspection of your institution's end-use energy systems — at no cost to you.
- You'll receive customized project recommendations, tailored to your needs.
- We will provide a list of qualified participating trade allies who are trained in the Energy Arkansas energy efficiency programs.
- 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 [energyarkansas.com/citysmart](http://energyarkansas.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 improve 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 Entergy 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 end-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.

Sources: \* U.S. EPA, 2006; DOE, 2006/08/09 DOE, Updated U.S. EPA, 2008a Sources: \*\*energyark.com

Ready to save? Contact the Energy Efficiency Solutions Center at 877-212-2420 or visit [entergyarkansas.com/citysmart](http://entergyarkansas.com/citysmart).



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## 2020 CitySmart - SCORE Program Eligible Measures

Measure Type	Measure Description
<b>Lighting</b>	
<b>Retrofit</b>	Lighting retrofit projects replace existing 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. There are a variety of lamp and ballast combinations that are eligible for this program depending on the current technology installed at a facility.
<b>Controls</b>	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.
<b>Exterior</b>	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.
<b>HVAC</b>	
<b>Replacement</b>	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.
<b>Chiller Replacement</b>	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.
<b>Controls</b>	HVAC controls are eligible in the Entergy Arkansas programs when no other controls previously exist or when existing controls can be modified or upgraded 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.
<b>VFD Motor Drives</b>	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.
<b>Wastewater Treatment</b>	
<b>Fans/Blower Retrofits</b>	These measures are ideal for suction blowers that are greater than 100 HP and have no VFD controls. The replacement must be a single-stage centrifugal suction blower with automatic dissolved oxygen controls to be a cost effective project.
<b>Pump Retrofits</b>	Retrofits can be completed on pumps that are centrifugal pumps, do not have VFD or stop controls and pumps where total horsepower is greater than 100 HP and the operating hours are greater than 3,000 hours/year. Retrofit options include the installation of VFDs, starting controls, throttle valves and bypass controls.
<b>Other Measures</b>	
<b>Improved Building Design (New Construction Only)</b>	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 retrofits of 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 purposes of calculating bonus incentives.
<b>Refrigeration</b>	There are a number of refrigeration measures that are eligible for upgrade or replacement in Entergy Arkansas Programs: <ul style="list-style-type: none"> <li>Evaporator fans upgrade to electronically commutated motor</li> <li>Anti-sweat heater controls</li> <li>Refrigerated door gaskets</li> </ul>
<b>Kitchen and Plumbing Upgrades</b>	There are a number of kitchen measures that are eligible for upgrade or replacement in Entergy Arkansas Programs: <ul style="list-style-type: none"> <li>Low-flow pre-rinse spray valve</li> <li>Low-flow faucet aerators</li> <li>Low-flow shower heads</li> <li>Energy-efficient dishwashers</li> <li>High efficiency electric combination ovens</li> <li>High efficiency fryers</li> <li>ENERGY STAR™ steam cookers</li> </ul>
<b>Personal Computer Power Management (PCPM)</b>	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](http://entergyarkansas.com/citysmart).



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st benchmarking service from the  
art<sup>SM</sup> - SCORE<sup>SM</sup> Program, call us at  
[entergyarkansas.com/citysmart](http://entergyarkansas.com/citysmart).

registration process, a program  
ct data from your building and  
a benchmarking report. If you'd like  
energy master planning workshop,  
tentative.

with contact details for Entergy  
ho are qualified to install the  
i in the benchmarking report.

h incentives for any qualified  
you'll be eligible to receive follow-  
as every two years. To request  
call us at **877-212-2420**.

### nd Benchmarking Facts

tently subject their commercial  
marking can reduce their energy  
r three years, according to the U.S.  
Agency.

ewable energy sources have  
pularity in recent years, but  
R, energy efficiency remains  
t-effective way to reduce



3.8.11 1219-EAI SCS-1757472-Custodial Daily Shutdown Handout-clean.pdf



# 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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# Food Service

## 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

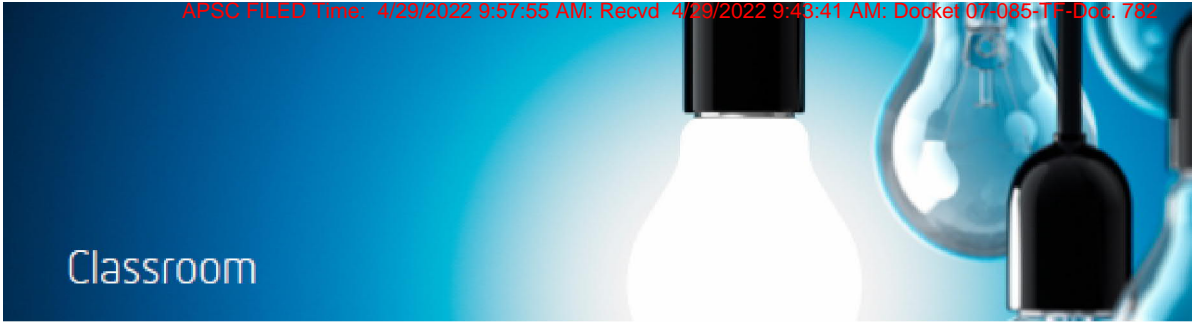
- Ensure that faucets are turned off when not in use.
- Report any water leaks immediately.
- Ensure dishwashing equipment is only on when washing is active.

### Facility-Specific Items

- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_

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# Classroom

## 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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## ENTERGY ARKANSAS CITYSMART<sup>SM</sup> | 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 machines and weather stripping).

### Who is eligible?

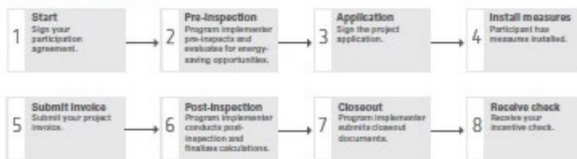
Institutional and public entities that receive electric service from Entergy Arkansas, including:

- 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

<b>Lighting and on/off controls</b> (interior, exterior, specialty lighting)	<b>Behavioral savings, strategic energy management</b>
<b>Advanced lighting controls</b> (multi-step controls, dimming, task-scheduled controls, etc.)	<b>Industrial controls and/or compressed air system controls</b> (installation or modification of process or compressor control)
<b>Comfort cooling HVAC/chiller replacement</b>	<b>Industrial pump/fan upgrades</b>
<b>CoolSaver HVAC/Chiller tune-up *</b>	<b>Injection molding system upgrades</b> (heater barrel upgrades, heater band replacement, heater barrel blankets, injection machine cooling, etc.)
<b>Motor replacement</b> (including DGM conversion and electronically commutated motors)	<b>Industrial heating</b> (boilers, over/heaters, drying processes, etc.)
<b>Building automation controls and retrocommissioning</b>	<b>Industrial cooling</b> (process chillers, industrial refrigeration, etc.)
<b>Motor drive or variable frequency drive upgrades</b>	<b>Other industrial process upgrades</b> (iron-heating/cooling)
<b>Computer power management</b> (personal computer power management, server virtualization, server consolidation, data center upgrades, unsustainable power supply upgrades)	<b>Compressed air upgrades</b> (leak fixes, demand aids, supply aids, air treatment, storage, distribution, VFD-driven compressors, etc.)
<b>Commercial refrigeration upgrades</b> (gaskets, strip curtains, anti-escape heater controls, energy-saving doors, night covers, open cases to solid doors)	<b>Other measurable and verifiable upgrades</b>
<b>Direct install</b> (leakets, pre-rinse spray valves, shower heads, screen LEDs, weather stripping)	

### Program Incentives

#### CitySmart | SCORE Incentive Rates (per kWh)

Number of Measures	1	2	3	4+	Cop
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 tier 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 end uses exist.
- 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 this program. CoolSaver measures are eligible for tier credit, provided they meet the program requirements for eligibility.

→ **Questions? Contact the Energy Efficiency Solutions Center at 877-212-2420 or visit [entergyarkansas.com/citysmart](http://entergyarkansas.com/citysmart).**



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WE POWER LIFE<sup>®</sup>

WE POWER LIFE<sup>®</sup>

## 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](http://entergyarkansas.com/agriculture) to learn more.



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 [agriculturaldeal@icf.com](mailto:agriculturaldeal@icf.com) or call 501-435-3010.



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E-02102

**WE POWER LIFE®**



Entergy Arkansas Agricultural Energy Solutions Program

Custom Application



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.

1. All applications for Incentives must be preapproved by Entergy Arkansas prior to purchasing and installing equipment. A pre-installation verification may be required.
2. Upon receipt of written approval, the customer may begin project installation. Projects must be completed by the date indicated on the preapproval letter.
3. 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.
4. A post-installation verification may be required.
5. 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"/> Other Row Crops <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			
<b>Pre-Installation</b> – 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:		
Signature:	Date:		
<b>Post-Installation</b> – 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:		
Signature:	Date:		
ADMINISTRATIVE USE ONLY			
Date Received:	Project Number:	Program Representative:	
Preapproved Date:	Program Manager:	Preapproved Incentive \$:	
Final Approval Date:	Program Manager:	Final Incentive \$:	

Important Information for Custom Applications	
1.	All applications for Incentives under the custom application require thorough and complete documentation of the proposed cost and projected electric usage and savings.
2.	Before beginning the application process, the customer or his or her trade ally should check with an Entergy Arkansas representative to determine the eligibility of the proposed project and to establish requirements for detailed savings projections and cost estimates. This information must be submitted to Entergy Arkansas for review and evaluation of potential incentives.
3.	If a project consists of multiple custom measures, the following sections must be completed for each proposed energy conservation measure. These sections are intended to provide a summary of each individual measure, with supporting documentation attached as appropriate.
Custom Specifications	
The custom application must be used for all energy efficiency measures that are not covered by the prescriptive applications. Custom applications 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 under which the equipment operates.	
Supporting documentation for each energy efficiency measure submitted with a custom application includes:	
<b>Project Overview:</b> Provide a brief overview of the proposed project. Include a basic description of the facility and its function, location of affected equipment and typical facility operation hours.	
<b>Existing System or Base Case Description:</b> For retrofit projects, describe the existing system or equipment that will be modified under this application and state how the current system is operating. For new construction or end-of-life replacement projects, applications should provide information for the base-efficiency system or equipment. This should include: <ul style="list-style-type: none"> <li>• Detailed description of the affected equipment, including system capacity, age, load profiles, capacity, production rate and hours of operation.</li> <li>• Number of existing units.</li> <li>• Manufacturer data sheets with equipment performance ratings (BHP, CFM, PSI, kW, efficiency rating, U-value, etc.). Provide appropriate data if manufacturer data sheets are unavailable.</li> <li>• Part-load performance data (where applicable).</li> <li>• Description of controls and sequence of operations.</li> </ul>	
<b>Proposed System Description:</b> Describe the measures that are proposed in detail. Include: <ul style="list-style-type: none"> <li>• Detailed description of high efficiency system or equipment and operating conditions.</li> <li>• Manufacturer data sheets for the materials or performance ratings for equipment being installed (BHP, CFM, PSI, kW, efficiency rating, U-value, etc.).</li> <li>• Description of controls and sequence of operations.</li> <li>• One-line diagrams (where applicable).</li> </ul>	
<b>Cost Estimates:</b> For retrofit projects, provide a detailed cost breakdown associated with the project, including written proposals from vendors and trade allies or itemized estimates of components from up-to-date estimating manuals. For new construction or end-of-life replacement projects, include cost data for base and high efficiency systems or equipment.	
<b>Energy Impacts:</b> Include a measure-by-measure summary of the calculated energy and demand savings associated with the project. Clearly indicate all assumptions used in the analysis. This includes all engineering formulas and documentation of all the factors, values and assumptions used in the formulas (Microsoft Excel® spreadsheet preferred).	
In cases where energy modeling is used to determine savings, approved modeling software must be used. Input and output data from the model must be provided.	
Show calculations used to determine baseline and proposed estimated electricity usage, including energy (kWh) consumption for the four time periods.	

Agricultural Energy Solutions Program Custom Application		
Attach project study including energy savings information and costs for each energy conservation measure. Briefly describe the project below.		
Project Overview		
Existing System or Base Case Description		
Proposed System Description		
Cost Estimates		
Provide backup documentation for all material and labor costs, broken down by major pieces of equipment and project components. Reported costs are limited to the installation of energy efficiency measures only. Costs associated with bringing existing equipment or installations up to current building codes and installing equipment or products that are not energy efficient are not eligible for this program. For example, on new construction, the cost of installing wiring, conduit, receptacles and breaker panels is required for conventional products and should not be considered as part of the efficiency upgrade. Sales tax may not be included. Adjust for salvage/resale value of equipment being replaced. Enter summarized costs in the table below.		
Measure	Baseline Costs	Proposed Costs
Estimated Material Cost:		
Estimated Labor Cost:		
Estimated Total Cost:		
Energy Impacts		
Please provide estimated annualized energy (kWh) usage and demand (kW) for each of the time periods listed below. Attach full documentation supporting energy and demand estimates. When a computer model is used for energy and demand calculations, please provide a complete description of input conditions for baseline and efficient states in addition to model outputs for both states.		

Measure	kWh		Total Penetration Energy Savings on Peak	
	Summer	Winter	kWh	%
Peak Energy kWh Percentage:	kWh	kWh	kWh	kWh
Off-Peak Energy:	kWh	kWh	kWh	kWh
Total Estimated Annual kWh Savings:				
	kW			
	June	July	August	December
Average Peak:				January

Terms and Conditions	
1. <b>PROGRAM OFFER:</b> 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.	6. <b>PROJECT VERIFICATION:</b> 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.
2. <b>ELIGIBILITY:</b> Incentives are available to Entergy Arkansas nonresidential customers for the purchase and installation of qualifying energy conservation measures in the 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 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.	7. <b>CUSTOMER TAX OBLIGATION:</b> The customer is responsible for documenting and paying any and all applicable federal, state and local taxes that may be owed on any incentive payment.
3. <b>AUTHORIZATION, PROGRAM CHANGES, SUSPENSION OR CANCELLATION:</b> Entergy Arkansas may change 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.	8. <b>COMPLIANCE:</b> The customer is responsible for obtaining any and all necessary incentives 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.
4. <b>PROJECT APPROVAL:</b> 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.	9. <b>REMOVAL OF EQUIPMENT:</b> 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.
5. <b>PROOF OF PURCHASE:</b> Prior to Entergy Arkansas' verification of the measure installation, the customer must provide copies of all invoices or other substantiated documentation that verify the costs 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.	10. <b>REPLACEMENT OF FAILED EQUIPMENT:</b> 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.
	11. <b>EVALUATION FOLLOW-UP VISITS:</b> 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 measure for "proof-of-life".
	12. <b>TRADE ALLY SELECTION:</b> 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 ally selection from program participation.
	13. <b>CUSTOMER COMMUNICATION:</b> Participant agree 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.
	14. <b>WARRANTIES:</b> 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 of 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, be provided by trade ally, vendors, etc. The customer acknowledges that neither Entergy Arkansas nor ICF nor any of its consultants are responsible for assuring 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). Entergy Arkansas and ICF do not make any representations of any kind regarding the results to be achieved by the measure or the adequacy of safety of such measures.
	15. <b>LIMITATION OF LIABILITY:</b> 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.
	16. <b>LIABILITY WAIVER:</b> By accepting an application, the Customer voluntarily agrees not to hold Entergy Arkansas, ICF, its trade ally 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.
	17. <b>RELEASE OF LIABILITY BETWEEN THE PARTIES:</b> The customer acknowledges that any damage to the customer is caused by the customer or 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 measure installed. Entergy 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.
	18. <b>MISCELLANEOUS:</b> These terms and conditions and this application constitute the entire agreement between the parties and supersede all other communications and representations.

Please complete this application and submit via one of the following methods:  
Email: agricultural@icf.com • Fax 501-325-0443

Contact us with any questions or concerns: 501-435-3010.

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**3.9.3 25894\_EAL\_AES\_Horticulture\_Flyer\_v05\_Release\_Web[2].pdf**





## 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](http://entergyarkansas.com/agriculture).

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The Entergy Solutions program is an energy efficiency program and not affiliated with Entergy Solutions, LLC.





Thank you for participating in the Agricultural Energy Solution Program. We value your opinion and would love to hear about your experience with Entergy Arkansas.

Please take a few minutes to complete our survey.

[Continue >](#)



### Agricultural Energy Solutions Program Satisfaction Survey

**Required Question(s)**

1. How satisfied were you with the Agricultural Energy Solutions Program?

	Very Satisfied	Satisfied	Neutral	Unsatisfied	Very Unsatisfied
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 customers' 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"/>

Comment:

500 characters left

2. How would you rate your level of satisfaction with Entergy Arkansas, LLC?

- Highly satisfied
- Somewhat satisfied
- Neutral
- Somewhat dissatisfied
- Highly dissatisfied

3. Were the financial incentives beneficial in providing the upgrades?

- Yes
- No

Comment:

500 characters left

4. Have you taken any other energy efficiency actions since you participated in the program? If yes, please explain.

- Yes
- No

Comment:

500 characters left

5. Are there energy efficiency measures/offerings that you would like to see added to the program? If yes, please explain.

- Yes
- No

Comment:

500 characters left

6. Do you have other Ag facilities or another business, that receives electricity from Entergy, that you would like to make energy efficiency improvements to? If yes, please explain.

- Yes
- No

Comment:

500 characters left

7. Do you have any suggestions for improving our program?

500 characters left

8. How likely are you to participate in the program again?

- Very likely
- Somewhat likely
- Neutral
- Somewhat unlikely
- Very unlikely

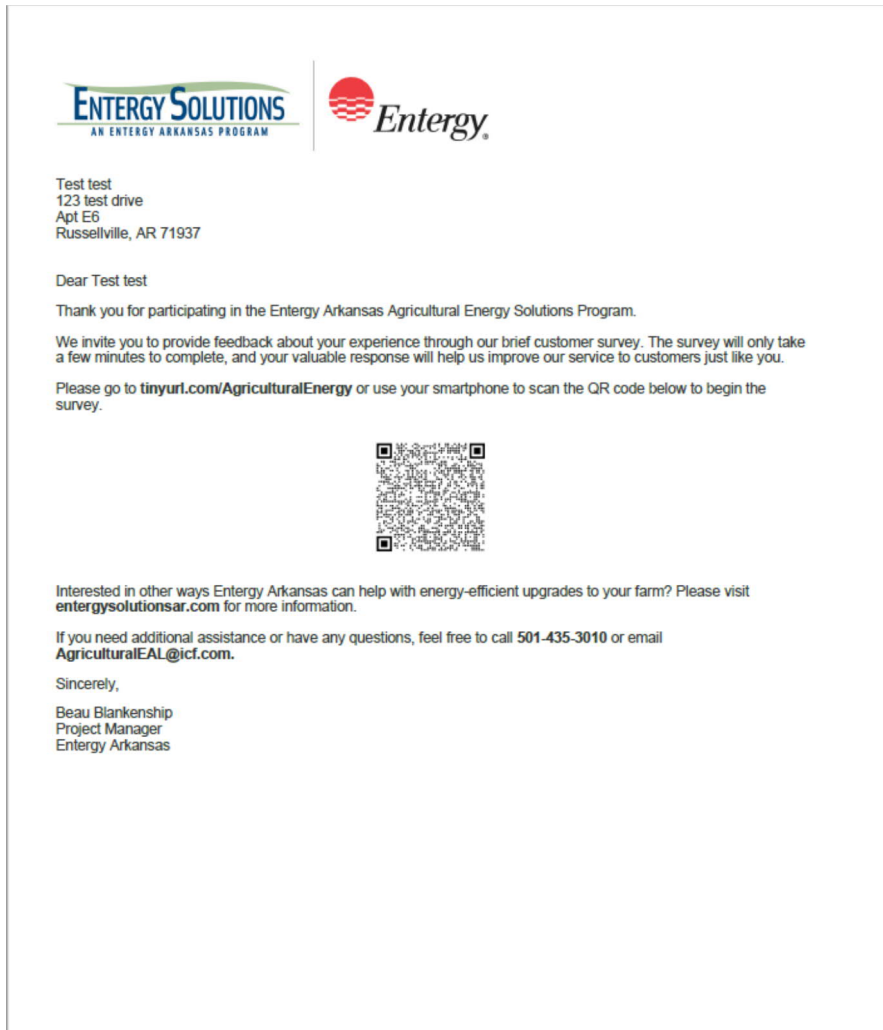
9. How likely is it that you would recommend this program to other farmers?

- Very likely
- Somewhat likely
- Neutral
- Somewhat unlikely
- Very unlikely

[Final](#)




### 3.9.5 AG Survey Letter



### 3.9.6 Survey Email

Thank you for participating in an Entergy Solutions program.

 donotreply@programprocessing.com  
Thu 10/15/2020 2:30 PM  
To: Goryachev, 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](mailto:AgriculturalEAL@icf.com).

Sincerely,

Beau Blankenship  
Project Manager  
Entergy Arkansas



[Privacy Policy](#)

### 3.9.7 EAL Homepage Banner Ad\_Poultry\_March\_2021.png

The banner advertisement is split into two sections. On the left is a photograph of a brown chicken with a prominent red comb, looking towards the left. On the right is a white background with text. The text reads: 'Reduce energy costs on your poultry farm.' followed by a horizontal line, then 'Get incentives covering up to 75% of project costs when you install energy-efficient measures through our Agricultural Energy Solutions program.' Below this text is a red rectangular button with the white text 'LEARN MORE' in all caps.

### 3.9.8 AES Guidebook\_2021\_RELEASE.pdf



**Entergy Arkansas  
2021 Agricultural Energy Solutions Program Guidebook**

Prepared by:  
ICF Life Risk  
  
Contact:  
501-436-3010  
agricultural@ent.com  
entergyarkansas.com/agriculture  
  
Version 1.0  
Jan. 25, 2021

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**Program Overview**

**Program Description**  
The Entergy Arkansas Agricultural Energy Solutions Program is available to all agribusiness 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 incentives 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 existing 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 invoices.
- + Receive payment processing letter and, within 5-6 weeks following, incentive payment.

  
**Trade Ally Roles and Requirements:**  

- + Provide verification of current licenses 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

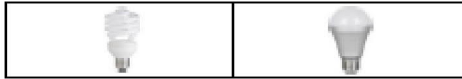
  
For purposes of this program, a customer is defined by a single Federal Tax ID number. Organizations with multiple locations are considered a single customer, regardless of how many Entergy Arkansas account numbers they may have.  
  
The Entergy Arkansas team will support farm customers and their trade 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 approves projects, not overall

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 waterers.
- + 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 drives.

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 agribusiness 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	Retrofit 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.

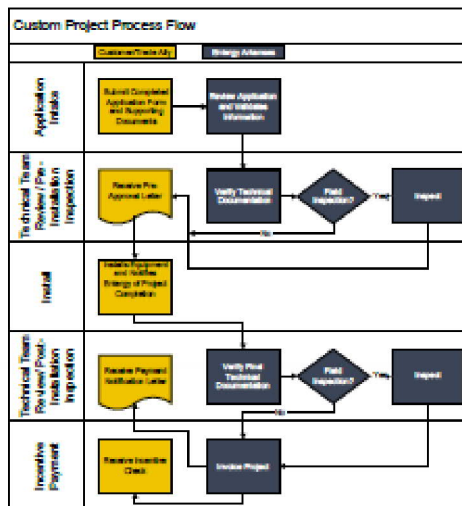
Lighting Controls	A variety of lighting controls incentives are available. These controls save energy by turning the lights off when a space is unoccupied. These incentives are not available for some new construction or major renovation projects.
-------------------	--

**Custom Incentive Basis**

Custom application incentives are determined on a case-by-case basis. In general, incentive 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: [agricultural@ef.com](mailto:agricultural@ef.com)
- + Mail: Agricultural Energy Solutions, 425 West Capital Ave, Suite 3110, Little Rock, AR 72201.
- + Fax: 501-686-4763.

**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.

Energy Arkansas 2021 Agricultural Energy Solutions Program Guidebook
<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><b>Pre-inspections</b></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, proposed 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 representatives and customers can make necessary adjustments to the application. Once the existing conditions are verified, the proper incentive can be determined for pre-approval.</p> <p><b>Installation</b></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 reserves the program funds through Nov. 30 of the current program year.</p> <p>Notification emails to the general program inbox that alert project completion should include:</p> <ul style="list-style-type: none"> <li>+ Any changes made to project scope.</li> <li>+ Final invoice.</li> <li>+ Signed (by customer) application, verifying equipment has been installed as listed on the application.</li> </ul> <p>Please note, Energy Arkansas must receive final project notification of completion prior to Nov. 30 of the current program year.</p> <p><b>Post-inspection</b></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>
9

Energy Arkansas 2021 Agricultural Energy Solutions Program Guidebook
<p><b>Incentive Payments</b></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 six to 10 weeks. Energy Arkansas must release all incentive payments prior to Dec. 31 of the current program year.</p> <p><b>Quality Management Systems</b></p> <p><b>Quality Assurance</b></p> <p>To increase the overall quality of the program, trade ally training courses will be provided for trade allies servicing 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><b>Quality Control</b></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, it 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><b>Participant Communications</b></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"> <li>+ Missing information letter if any information required to evaluate the project is missing.</li> <li>+ Project withdraw letter informing participant of the reasoning for cancellation of the application.</li> <li>+ Payment notification letter notifying the customer that the application process is complete.</li> </ul>
10

Energy Arkansas 2021 Agricultural Energy Solutions Program Guidebook
<p>and the request for payment has been initiated.</p> <p><b>Disclaimer</b></p> <p>The selection of a trade ally to perform work is the sole decision of the property owner, customer and/or authorized lease/occupant.</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><b>Trade Ally Offering</b></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 fans, 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 representatives. Program representatives will also outreach, educate, recruit and maintain regular contact with program participants. Program representatives work closely with local trade and professional associations (for end-users and product providers) to make them aware of the program.</p>
11

Energy Arkansas 2021 Agricultural Energy Solutions Program Guidebook
<p><b>Frequently Asked Questions</b></p> <p><b>Q: Who is ICF and why are they involved?</b> 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><b>Q: Are incentives available for gas-consuming devices?</b> The Energy Arkansas Agricultural Energy Solutions Program encourages more efficient use of electricity. While this 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><b>Q: Will the program change from year to year?</b> The program was designed using a best-practices 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><b>Q: Who can participate in the program?</b> Non-residential customers who receive electric distribution service through Energy Arkansas regardless of their electric or gas supplier.</p> <p><b>Terms and Conditions</b></p> <p><b>PROGRAM OFFER:</b> 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><b>ELIGIBILITY:</b> 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 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 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><b>AUTHORIZATION, PROGRAM CHANGES, SUSPENSION OR CANCELLATION:</b> Energy Arkansas may change the program requirements, incentives or terms and conditions, including suspending acceptance of applications or terminating the program,</p>
12



to customer facilities during the 36 months following the  
to provide Energy Arkansas with an opportunity to review  
program evaluation purposes.

customer may select any trade ally to perform the work  
whether an Energy Arkansas trade ally or not. However,  
right, in its sole reasonable discretion, to prohibit specific  
ation.

Energy Arkansas and ICF do not endorse, guarantee or warrant any  
products and services. Energy Arkansas and ICF are not  
responsible for the performance or omission of any company hired by the customer (if any)  
participating Energy Arkansas trade ally. The  
warranty is limited to any warranties that may arise from, or be  
related to, the products and services. The customer acknowledges that neither Energy  
Arkansas nor ICF are responsible for assuring the design,  
specification or installation of the measures is proper or  
(including patent laws), codes or industry standards,  
nor makes any representations of any kind regarding the  
safety or the adequacy of safety of such measures.

Energy Arkansas and program implementer ICF's sole  
qualified incentives specified herein. Energy  
Arkansas is liable to the customer or any other party for any indirect,  
consequential, or punitive damages, including lost profits, gas, regardless of the theory of recovery, caused by or  
resulting from this program.

Upon application, the Customer voluntarily agrees not to  
sue Energy Arkansas or any of their affiliates, directors, officers,  
agents, or employees for any claims or injury. Customer further agrees  
not to sue Energy Arkansas or any of their affiliates, directors, officers,  
agents, or employees or otherwise endanger the safety or health of

**WARRANTY:** The customer acknowledges that any trade  
ally or agent of Energy Arkansas is not an agent of Energy Arkansas and is an  
agent of the customer, and that Energy Arkansas does not  
guarantee the performance of any trade ally. Energy Arkansas shall have no obligation  
to provide any warranty on the measures installed. Energy  
Arkansas shall have no obligation to provide any warranty on the measures  
installed or for any failure to perform, for failure of the measures  
installed on the customer's premises caused by the trade ally or for any  
injury to persons caused by the measures.

Customer agrees that Energy Arkansas or Energy Arkansas'  
representative may contact the customer via mail, phone, text message or email in connection with  
this communication.

### Energy Solutions Program Case Study



**Program Spotlight: Tom Vandenburg**

#### ollar Count

When Tom Vandenburg started his new operation, he installed a solar-powered lighting system in 2020. He built the new poultry facility in 2019 and began full-time farming. Tom's been there for 10 years, and he's proud of the quality of the products he produces. He's also proud of the Energy Arkansas program.

Energy Solutions Program provides incentives to help up farmers and ranchers with new energy-efficient equipment. Tom's solar-powered lighting system is a great example of how the program can help farmers and ranchers save money on their energy bills. Tom's solar-powered lighting system is a great example of how the program can help farmers and ranchers save money on their energy bills.

"It's an investment you can't afford not to make. I've definitely seen a reduction in my energy bill because of the new lighting." - Tom Vandenburg

**Entergy Arkansas** January 11, 2021 · 🌐

Let our Agriculture Energy Solutions program help reduce energy costs on your farm. In addition to long-term energy savings, you can also get incentives that cover up to 75% of upgrade costs when you replace inefficient lighting and equipment. Learn more at <http://enter.gy/6186Hnulo>.




**Want to reduce energy costs at your farm?**

Entergy Arkansas Agricultural Energy Solutions can help.

9 1 Comment 1 Share

**Entergy Arkansas** July 7, 2021 · 🌐



**Save energy on your farm.**

4

**Entergy Arkansas** March 19, 2021 · 🌐


Celebrate National Poultry Day by saving energy on your farm. Through our Agricultural Energy Solutions program, get incentives covering up to 75% of project costs when you install energy-efficiency measures at your poultry farm. Visit <http://enter.gy/6183HiJU> or call 501-435-3010 to learn more.



6 3 Shares

**Entergy Arkansas** November 5, 2021 · 🌐

By switching to energy-efficient LED lighting and irrigation equipment your farm can reap the benefits for years to come. Plus, cash incentives from our Agricultural Energy Solutions Program cover up to 75% of the project costs. Learn more at <http://enter.gy/6187JXfxx>.



12 1 Comment 1 Share

**Entergy Arkansas**  October 12, 2021 · 🌐

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 <http://enter.gy/6188JGmHe> to learn more.



👍 19      8 Shares

**Entergy Arkansas**  @EntergyArk · Jan 11, 2021

Let our Agriculture Energy Solutions program help reduce energy costs on your farm. In addition to long-term energy savings, you can also get incentives that cover up to 75% of upgrade costs when you replace inefficient lighting and equipment. [enter.gy/6015HnuW](http://enter.gy/6015HnuW).



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**Entergy Arkansas**  @EntergyArk · Jul 7, 2021



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**Entergy Arkansas** @EntergyArk · Nov 5, 2021

By switching to energy-efficient LED lighting and irrigation equipment your farm can reap the benefits for years to come. Plus, cash incentives from our Agricultural Energy Solutions Program cover up to 75% of the project costs. Learn more at [enter.gy/6016JFXa](https://enter.gy/6016JFXa).



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**Entergy Arkansas** @EntergyArk · Oct 12, 2021

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 [enter.gy/6015JGmHb](https://enter.gy/6015JGmHb) to learn more.




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# Turn up the savings.

Enroll your business thermostat in the Smart Direct Load Control Program and get cash incentives for enrolling and participating every year.




Looking for an easy way to lower your energy costs? Join our Smart Direct Load Control Program. It's simple.

[Learn more ▶](#)




Entergy Arkansas is helping its commercial customers save energy and money the smart way. Enroll your qualifying smart thermostat in our Smart Direct Load Control Program and earn up to **\$100** for enrolling and up to **\$100** every year for participating in demand response events.


From June through September, when electricity demand is highest, we will automatically send a signal to your thermostat to raise its temperature to a set point for a period of time.



You'll save energy, help prevent outages and earn a cash incentive at the end of each year – up to \$100.



The more you participate, the more you earn. So, make the most of your opportunities to save.



Ready to get started? Visit us [online](#) or call 833-807-7882 for details.



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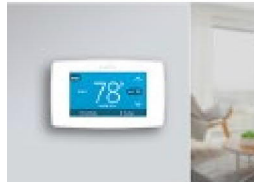
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Want to increase your home comfort and save? No sweat. Our new Smart Direct Load Control Program has got you covered.

[Learn more >](#)



We'll give you a smart thermostat with professional installation at no additional cost – a \$225 value. Or, if you'd prefer to install it yourself, we'll ship the thermostat to you and guide you through the installation.

From June through September, when electricity demand is highest, we will automatically send a signal to your thermostat to raise its temperature to a set point for a period of time.



You'll save energy, help prevent outages and earn a cash incentive at the end of each year – up to \$40 (residential customers) or \$100 (business customers).

The more you participate, the more you earn. So, make the most of your opportunities to save.



Already have a smart thermostat? Great. Sign up with **your qualifying thermostat** and receive an enrollment incentive up to \$50 (residential) or \$100 (business).

Ready to get started? Visit us [online](#) or call 833-887-7682 for details.





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Entergy.com




# Smart, Simple Savings


Save money and energy, and enjoy the convenience of a smart thermostat at no additional cost.

Looking for a way to lower your energy costs while increasing comfort? Join our Smart Direct Load Control Program.


[Learn more >](#)




We'll give you a smart thermostat with professional installation at no additional cost – a \$225 value. Or, if you'd prefer to install it yourself, we'll ship the thermostat to you and guide you through the installation.




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 \$400 at the end of each year.




The more you participate, the more you earn. So make the most of your opportunities to save.



Already have a smart thermostat? Great. Sign up with **your qualifying thermostat** and receive an enrollment incentive of up to \$50.

Ready to get started? Visit us [online](#) or call 833-807-7882 for details.



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**ENERGY SOLUTIONS** AN ENTERTAINMENT PROGRAM | **Entergy**


# Smart, Simple Savings




Save money and energy, and enjoy the convenience of smart thermostats for your business at no additional cost.

Looking for an easy way to lower your company's energy costs? Join our Smart Direct Load Control Program. It's simple.


[Learn more >](#)

 We'll give you smart thermostats with professional installation at no additional cost – a \$225 value. Or, if you'd prefer to install them yourself, we'll ship the thermostats to you and guide you through the installation.


On a few hot days from June through September (except 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.

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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 Arkansas business customers receive a smart thermostat at no additional cost when they participate in the Smart Direct Load Control Program.



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Smart thermostat  
Zero cost\*

Save money and energy and enjoy the convenience of a smart thermostat at no additional cost.



Looking for a way to save energy while increasing comfort? Join our Smart Direct Load Control Program to turn up your savings.

[Learn more >](#)



We'll give you 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 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.



Already have a smart thermostat? Great. Sign up with **your qualifying thermostat** and receive an enrollment incentive up to \$50.

Ready to get started? Visit us [online](#) or call 833-897-7682 for details.

\*Eligible Entergy Minnesota customers receive a smart thermostat at no additional cost when they participate in the Smart Direct Load Control Program.




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## 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.

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# Our gift to you: a smart thermostat at zero cost.\*

Save money and energy and enjoy the convenience of a smart thermostat at no additional cost.

Looking for a way to save energy while increasing comfort?  
Join our Smart Direct Load Control Program to turn up your savings.

[Learn more >](#)



We'll give you 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.



Already have a smart thermostat? Great. Sign up with **your qualifying thermostat** and receive an enrollment incentive of up to \$50.

Ready to get started? Visit us [online](#) or call 833-807-7682 for details.

\*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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**3.10.12 EAL\_DLC\_Rebate\_Email\_December.pdf**



Thank you for participating in the Smart Direct Load Control Program. A total of seven 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 2021 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	\$25	\$0
Nonresidential Customers	\$100	\$100	\$50	\$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.

Click [here](#) to begin the survey.

Again, thank you for participating in this energy-saving program. If you have any questions, please contact us at the email address or phone number below.

Sincerely,  
 Your Entergy Smart Direct Load Control Team  
[ThermostatEAL@icf.com](mailto:ThermostatEAL@icf.com) | 833-807-7682





|\*if Subscriber.FirstName != ""\*|Dear [\*Subscriber.FirstName\*]  
[\*Subscriber.LastName\*],|\*else\*|Dear Customer,|\*endif\*|

Thank you for participating in the Entergy Arkansas Smart Direct Load Control Program.

With the demand response season starting soon we wanted to provide you with a few important reminders. When you signed up for this program you agreed to participate in demand response events which can be scheduled from June 1 through Sept. 30.

**Enhanced Temperature Control** - During a demand response event, if the temperature in your home rises more than four degrees above your desired setting, your thermostat will turn on your air conditioner to limit the indoor temperature from rising any further.

**Flexible Event Opt-out** - You will be able to "opt-out" of participation—but remember, the more events you participate in, the higher your participation incentive will be. If you choose to opt-out of more than three events, this could result in not qualifying for a participation incentive. If you ever decide you want to cancel participation in an event, you simply opt-out. To opt out of a mandatory event, you must call **833-807-7682**.

**Estimated Length of Events** - For the upcoming season, events will last no more than four hours and will be issued between 12 p.m. and 7 p.m. While it is hard to predict what time of day these events will occur, in the past, events have started around midday. In 2020, there were three days in which events were called and they averaged approximately two hours in duration.

**Participation Incentive** - By participating in this program, in addition to a new thermostat or an enrollment incentive, you are also eligible for a participation incentive that will be mailed out after the demand response season is over. As long as you keep your thermostat continuously connected to your Wi-Fi and participate in the events, you'll receive this additional incentive.

Thank you for participating in this energy-saving program. If you have any questions, please contact us at the phone number or email address below.

Sincerely,  
Your Entergy Smart Direct Load Control Team  
**833-807-7682** | [ThermostatEAL@icf.com](mailto:ThermostatEAL@icf.com)  
[enteryarkansas.com/thermostat](http://enteryarkansas.com/thermostat)

[Privacy Policy](#)



John Q. Smith  
1234 Main Street  
Anytown, US 01776-8771

Entergy Arkansas welcomes you to your new home.



## Entergy Arkansas welcomes you to your new home.

The previous resident at your address participated in the Entergy Arkansas Summer Advantage Program, an energy efficiency program that helps stabilize electricity demand and supply during the summer, when tens of thousands of central air conditioners and heat pumps turn on at the same time.

The program pays you for your help in keeping the power flowing to everyone. During summer weekdays when there is increased demand for electricity, the program may engage for a few hours on select afternoons. Your home is equipped with a device that enables us to strategically cycle your cooling equipment during these times, helping to reduce our need for high cost electric generation.

If you are interested in participating in Summer Advantage, please read the enclosed Customer Agreement and Program Rules and contact us at **866-224-7812**. You can set your participation to 50% equipment cycling and receive an annual check for **\$25** or choose 75% equipment cycling and get an annual check for **\$40**. **Participation is voluntary and you can opt out of the program at any time.** If you choose not to participate in Summer Advantage and wish to have the device removed, please call us at **866-224-7812**.

We hope you'll stay and join more than **16,000** Entergy Arkansas households that are making our area a better place to live. Please read the enclosed Customer Agreement and Program Rules.

More information is available at [enteryarkansas.com/summeradvantage](http://enteryarkansas.com/summeradvantage).

Learn more about our other energy efficiency programs that you may qualify for at [energysolutionsar.com](http://energysolutionsar.com).

Promo Code ENRGL2004



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**3.10.15 21\_ENRPS2101\_050\_PRESEASON\_POSTCARD-020521.pdf Summer Advantage Postcard**

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 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.

06/25/22



250 S McCain Blvd., Ste. 3, Box #300  
North Little Rock, AR 72110-7800

John G. Smith  
1234 Main Street  
Anytown, US 01770-6778



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Ready. Set. SAVE.



### 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 **866-224-7812**. Before calling, please check your digital cycling unit 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**.

ENRFS2102



2913 McCain Blvd, Ste. 2, Box #380  
North Little Rock, AR 72118-7600

John G. Smith  
1234 Main Street  
Anytown, US 01776-6771



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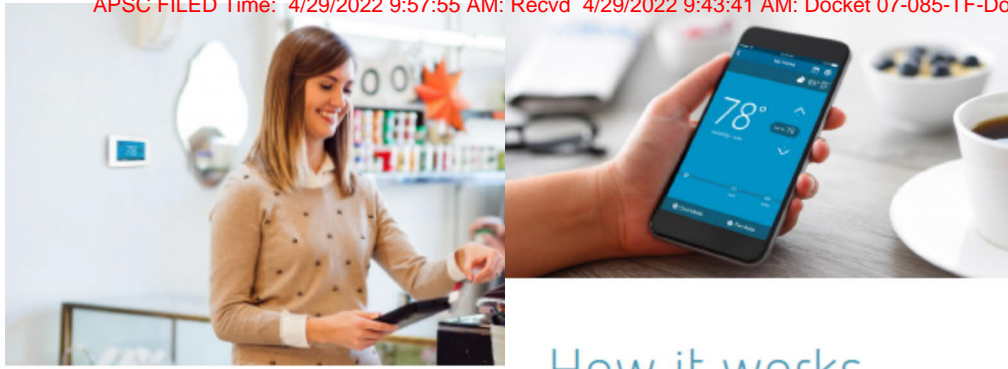


## Ready. Set. SAVE.



### 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](http://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](http://entergyarkansas.com/thermostat).



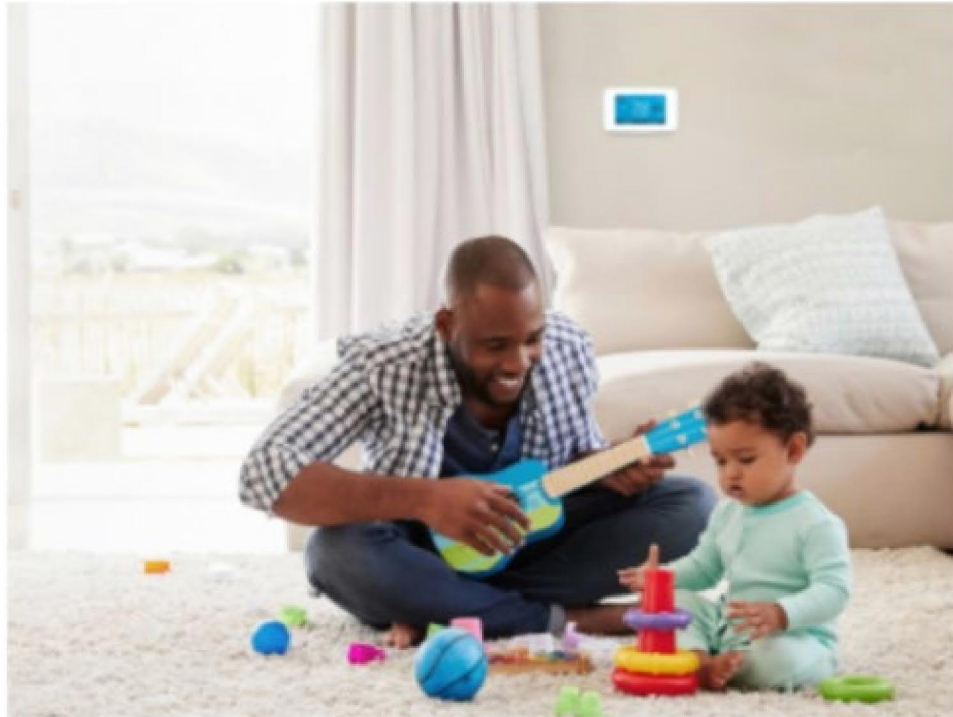
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E-072102

**WE POWER LIFE®**

ARTICLE

## Smart thermostats save energy and money.



A smart thermostat can provide convenience, insight and 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 heating and cooling 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:

- **Keep your vents clear** to help your heating system work more efficiently.
- **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.
- **Curb daytime use of big appliances** like washers, dryers and dishwashers.

Enjoy smart, simple savings. Visit [energyarkansas.com/thermostat](http://energyarkansas.com/thermostat) or call **833-807-7682** to learn more.

## Enhance your home's comfort and savings with a smart thermostat.



Smart thermostats are great tools for controlling your home's comfort level and energy use. These thermostats can 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 tablet or smartphone. Smart thermostats provide convenience, insight and control of your home's comfort and energy use.

According to [energystar.gov](https://energystar.gov), if everyone used an ENERGY STAR® certified smart thermostat, collective savings would grow to:

- 56 trillion BTUs of energy.
- 740 million dollars per year.
- 13 billion pounds of greenhouse gas emissions.

### 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. It's a smart, simple way to save energy and money.

Already have a smart thermostat? Great. 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.

Enjoy smart, simple savings. Visit [entergyarkansas.com/thermostat](https://entergyarkansas.com/thermostat) or call **833-807-7682** 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.)				
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)?				
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 #:		
	C-Wire installed? <input type="checkbox"/> Yes <input type="checkbox"/> No	Cover Plate installed? <input type="checkbox"/> Yes <input type="checkbox"/> No		
	HVAC Manufacturer:	Tonnage:	# of Compressors:	Area ft <sup>2</sup> :
	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 #:		
	C-Wire installed? <input type="checkbox"/> Yes <input type="checkbox"/> No	Cover Plate installed? <input type="checkbox"/> Yes <input type="checkbox"/> No		
	HVAC Manufacturer:	Tonnage:	# of Compressors:	Area ft <sup>2</sup> :
	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"> <li>Customer invoice showing installation cost and incentive for each thermostat.</li> <li>Photo(s) of manufacturer nameplate(s) on outdoor compressor unit.</li> <li>Photo(s) of the replaced thermostat.</li> </ul>				

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3.11.6 23706\_EAL\_SmartDLC\_BYOD\_Flyer\_Residential\_v04\_RELEASE\_print.pdf

3.11.7 23706\_EAL\_SmartDLC\_BYOD\_Flyer\_Commercial\_v04\_RELEASE\_print.pdf



## 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.

**How it works**

The Smart Direct Load Control Program helps reduce high energy demand in the business, when lots of thermostats all control air conditioning and heat pumps are all running at the same time, putting a strain on the power system. 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 credit/incentives when you enroll and annually for participation. If you already own an eligible device, all you have to do is sign up.
- Be paid part for the environmental by saving energy.

**Who's eligible?**

Energy Arkansas commercial customers who own businesses, have central 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, T5, T5, 9000 Smart, Wireless RoundPro and Round Smart.

**How to enroll**

To enroll your eligible thermostat or learn more, visit [energyarkansas.com/thermostat](http://energyarkansas.com/thermostat) or call 800-867-4462.

**Enrollment incentive**

Get up to \$100 for enrolling your qualifying smart thermostat.

**Annual participation incentive**

Get up to \$100 every year for participating in demand response events. The more you participate, the more you earn.

**ENERGY SOLUTIONS**  
AN ENERGY ARKANSAS PROGRAM

**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 is only about once a week. Typically, they occur on a few hot or humid weekdays between June 1 and Sept. 30. Events are not activated on weekends or holidays.

**What are the advantages of a smart thermostat?**

Smart thermostats save you energy all year long by learning from your business response to weather conditions and adjusting the temperature. You can also access the thermostat from mobile devices or computers and receive reports to track your business's energy usage and savings. Health, 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 time 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.

**What can I tell an event is occurring?**

In most instances, you will receive a notification to enroll and on your thermostat the day prior to a scheduled event. Please note that in order to participate in demand response events and be eligible for 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 866-867-4462.

Save energy and earn cash incentives by enrolling your smart thermostat in the Smart Direct Load Control Program. Visit [energyarkansas.com/thermostat](http://energyarkansas.com/thermostat) or call 800-867-4462 to enroll.

**Energy**

**WE POWER LIFE™**

3.11.8 SDLC Live Survey



### 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 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

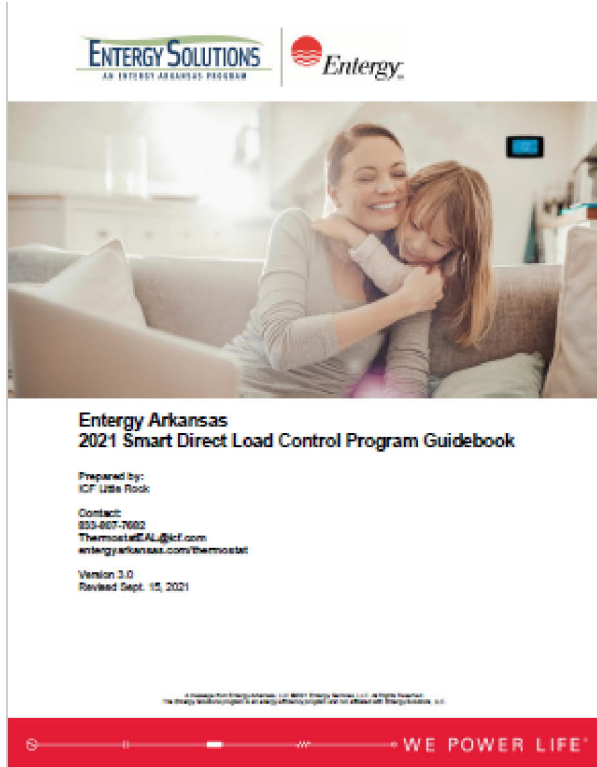
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**Entergy Arkansas**  
2021 Smart Direct Load Control Program

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**Entergy Arkansas**  
2021 Smart Direct Load Control Program

**Program Overview**

**Program Description**

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 and 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.

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.

**Program Objectives & Benefits**

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.

**How It Works**

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 services 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.

**Program Contacts**

**Main Office**

Terry Hestinger	Senior Director, Residential	ThermostatEAL@icf.com
Cody Allen	Deputy Portfolio Manager	
Lisa Lucas	Smart DLC Manager	

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**Entergy Arkansas**  
2021 Smart Direct Load Control Program

**Program Eligibility**

This offer is available 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 qualifying smart thermostat or a qualifying thermostat that can be replaced at no additional cost to the customer for an Emerson Sensi Touch 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.

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.

Renter must certify that he/she has received consent from the landlord or homeowner for receipt of the direct installation of equipment.

For more information about other Entergy Arkansas programs, please visit [entergysolutionsar.com](http://entergysolutionsar.com).

**Program Participation**

Customers can enroll in the program through the enrollment portal located at [entergyarkansas.com/thermostat](http://entergyarkansas.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).

Customers may also enroll during the Tier 1 or Tier 2 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 855-807-7692.

**Incentives**

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.

For those who already have a qualifying Sensi or Honeywell Thermostat, the customer will receive an enrollment incentive up to \$50 for residential and \$100 for nonresidential for participating in the program. An additional annual participation incentive will also be issued to

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qualifying customers after the demand response event season with incentives up to \$40 for residential customers and \$100 for business customers.

**First Enrollment Incentive:**

First Enrollment Incentive	
Path	Incentive
Direct Installation Residential and Nonresidential	No additional cost Professionally Installed Thermostat (\$225 value)
Bring Your Own Qualifying Device Residential	\$50
Bring Your Own Qualifying Device Nonresidential	\$100
Received Thermostat Through Other Energy Solutions Program (i.e. Home Energy Solutions, Point of Purchase Solutions or Small Business Solutions)	\$25

**Annual Participation Incentive:**

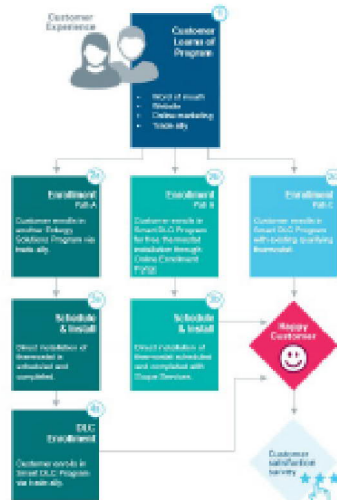
Customer Type	Annual Participation Incentive			
	Zero-Event Opt Out	One-Event Opt Out	Two or Three-Event Opt Out	Four or More-Event Opt Out
Residential Customers	\$40	\$40	\$25	\$0
Nonresidential Customers	\$100	\$100	\$50	\$0

**Smart Thermostat**

Advanced smart thermostats are devices that can be used with home automation and are responsible for controlling a home's heating and/or air conditioning. They perform the same functions as a programmable thermostat, as they allow the user to control the temperature of their home throughout the day using a schedule, such as setting a different temperature at night. Like a connected thermostat, they are connected to the Internet and allow users to adjust heating settings from other Internet-connected devices, such as smartphones. This allows users to easily adjust the temperature remotely. This ease of use is essential for ensuring energy savings.

Advanced thermostats also record internal/external temperatures, the amount of time the HVAC system has been running, and can even notify you when your air filter needs to be replaced. This information is typically displayed on an internet-connected device.

**Customer Journey**



**Conservation Periods**

Conservation periods will occur during June 1 through Sept. 30 on non-holiday weekdays (Monday-Friday), noon to 7 p.m. Central Standard time. Outside of the conservation periods, you may set your thermostat to any temperature or schedule you wish. Conservation periods will typically last approximately four hours in any single day and usually occur for no more than three consecutive days. The customer may override conservation periods, i.e. change the thermostat setting for nonmandatory events; overriding conservation periods may reduce annual participation incentive. To opt out of a mandatory event, you must call 800-607-7682.

**Potential Curtailment Methods**

The customer understands that, by participating, the customer is permitting Energy Arkansas to control the smart thermostat during demand response events to adjust the thermostat's temperature set points.

**Program Quality Management**

**Post-Verification**

Completed projects are subject to a post-installation verification, selected on a random basis. Typically, 10% of all participants who participated in the program will be selected for the verification and subject to installation of a Measure and Verification device to validate thermostat data and energy savings. No warranty is expressed or implied by this 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**

**DESCRIPTION:** The Energy Arkansas Smart Direct Load Control Program seeks to engage Energy Arkansas, LLC residential and nonresidential Customers with qualifying thermostats (as set forth below) or installation (either by customer or by ICF or Scope Services) of a free thermostat to replace qualifying baseline thermostats at no additional cost to the Customer. Participants authorize Energy Arkansas 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." The program currently runs through the 2022 season but may be extended. These terms and conditions are only valid for service completed on or after Jan. 1, 2020.

**SMART DIRECT LOAD CONTROL PROGRAM:** The Energy Arkansas Smart Direct Load Control Program service includes two installation options. One is the installation of a smart thermostat at the time of the site visit by either an ICF representative, Scope Service or an Energy Arkansas participating trade ally. The other installation option ("direct ship/install") involves a thermostat being shipped to the customer and their installing the thermostat with support from Scope Service. Service also includes facilitating the Customer enrollment for Customers who qualify and agree to enroll in the Smart Direct Load Control Program with a qualifying Emerson Sensi Touch, Sensi WiFi, Honeywell Lyric T5, T5 Plus, T6, T6 or T10 thermostat.

**ELIGIBILITY:** Funds are limited, and services are available in select geographic areas on a first-come, first-served basis. Participants must meet the following eligibility criteria:

- Open to Energy Arkansas residential and nonresidential Customers who have central heating and air conditioning.
- Have an in-home or in-business VMT service.
- Have an existing Emerson Sensi Touch, Sensi WiFi, Honeywell Lyric T5, T5 plus, T6, T6

Energy Arkansas 2021 Smart Direct Load Control Program	
<p>and T10 smart thermostat or a thermostat that qualifies for a replacement with a Smart Touch at no additional cost to the Customer.</p> <ul style="list-style-type: none"> <li>Are not already enrolled in the Summer Advantage Program. If enrolled, Customers must unenroll from the Summer Advantage Program to participate.</li> <li>Must have a qualifying HVAC system.</li> </ul>	
<p><b>ACCESS, INSTALLATION AND VERIFICATION:</b> 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 cycle it during conservation periods 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 service 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 incentives, Energy Arkansas reserves the right to verify sales transactions. 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 this 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&amp;V) to validate thermostat data and energy savings. No warranty is expressed or implied by the verification.</p>	
<p><b>RENTER'S CERTIFICATION:</b> Renter certifies that he/she has received consent from the landlord or homeowner for receipt of the direct installation or direct ship of equipment.</p>	
<p><b>CONSERVATION PERIODS:</b> Conservation periods will occur from June 1 through September 30 on non-holiday weekdays (Monday-Friday), noon to 7 p.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.</p>	
<p><b>POTENTIAL CURTAILMENT METHODS:</b> The Customer understands that, by participating, the Customer is permitting Energy Arkansas to control the thermostat during demand response events.</p>	
<p><b>INCENTIVES:</b> The incentive the Customer will receive in consideration for participation are as described on the next page. 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</p>	

Energy Arkansas 2021 Smart Direct Load Control Program																				
<p>the Customer disconnects or removes the Equipment, an action which will terminate the Customer's eligibility for incentives. The Agreement is not assignable or otherwise transferable by the Customer.</p>																				
<p><b>• First Enrollment Incentive:</b></p> <table border="1"> <thead> <tr> <th>First Enrollment Incentive</th> <th>Incentive</th> </tr> </thead> <tbody> <tr> <td>First Installation</td> <td>\$100</td> </tr> <tr> <td>Rebate and Verification</td> <td>\$100</td> </tr> <tr> <td>Energy Star Thermostat Incentive</td> <td>\$100</td> </tr> <tr> <td>Smart Thermostat Incentive</td> <td>\$100</td> </tr> <tr> <td>Smart Thermostat Incentive (for Smart Thermostat Program)</td> <td>\$100</td> </tr> </tbody> </table>		First Enrollment Incentive	Incentive	First Installation	\$100	Rebate and Verification	\$100	Energy Star Thermostat Incentive	\$100	Smart Thermostat Incentive	\$100	Smart Thermostat Incentive (for Smart Thermostat Program)	\$100							
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<p><b>TAX LIABILITY:</b> 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 Energy Efficiency Measures (EEM). Please contact your tax professional for more information.</p>																				
<p><b>REMOVAL OF EQUIPMENT:</b> 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.</p>																				
<p><b>ENDORSEMENT:</b> Energy Arkansas does not endorse any system design, claim, trade ally or service in promoting this program.</p>																				
<p><b>INFORMATION RELEASE:</b> 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 evaluation as confidential, and the information in the reports will be in the aggregate, where practicable.</p>																				

Energy Arkansas 2021 Smart Direct Load Control Program	
<p><b>LIMITATION OF LIABILITY:</b> 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.</p>	
<p>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.</p>	
<p><b>LIABILITY WAIVER:</b> By executing an enrollment, 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 fines or injury. Customer further agrees not to engage in any inappropriate actions or otherwise endanger the safety or health of same.</p>	
<p><b>WARRANTIES:</b> 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 limitation, warranties of merchantability or fitness for a particular purpose regarding Energy Efficiency Measure (EEM). Energy Arkansas and ICF make no guarantee of energy-saving results by installing measure 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 measure is proper or complete 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><b>PROPERTY RIGHTS:</b> 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.</p>	
<p><b>CUSTOMER'S CERTIFICATION:</b> 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.</p>	
<p><b>RIGHT TO REFUSE:</b> 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</p>	

Energy Arkansas 2021 Smart Direct Load Control Program	
<p>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 abusive 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.</p>	
<p><b>TERMINATION OF SERVICE:</b> 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 833-437-7822. 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.</p>	
<p><b>CUSTOMER COMMUNICATION:</b> 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.</p>	
<p><b>AUTHORIZATION, PROGRAM CHANGES, SUSPENSION OR CANCELLATION:</b> 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><b>MARKETING WAIVER:</b> 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/revell photo productions, project information, and/or copies of me and/or copies 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/revell photocopied 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 image, project information and/or audio to Energy Arkansas.</p>	
<p><b>MISCELLANEOUS:</b> 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.</p>	
<p><b>Disclaimer</b></p> <p>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.</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</p>	

**Entergy Arkansas**  
 April 5, 2021 · 🌐

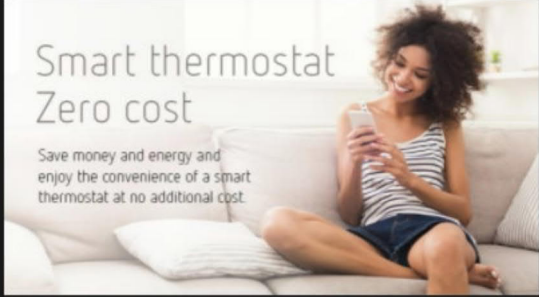
Looking for an easy way to save energy and money? The solution may already be on your wall. Our Smart Direct Load Control Program offers incentives for enrolling your existing qualifying smart thermostats. Residential customers can get up to \$50 and businesses can get up to \$100 – per thermostat. To learn more visit <http://enter.gy/6188Hahxo>.



2      2 Shares

**Entergy Arkansas**  
 August 6, 2021 · 🌐

Looking for a way to save energy while increasing comfort? Our Smart Direct Load Control Program is helping customers save energy with a smart thermostat and professional installation – a \$225 value – at no additional cost to you when you enroll. Visit <http://enter.gy/6189yVqU> for more information.



Smart thermostat  
 Zero cost

Save money and energy and enjoy the convenience of a smart thermostat at no additional cost.

3      1 Comment 3 Shares

**Entergy Arkansas**  
 December 8, 2021 · 🌐


Save smart this holiday season with a \$0 Sensi Touch thermostat with free professional installation when you enroll in our Smart Direct Load Control Program. Visit <http://enter.gy/6184JSjne> for details.



5      1 Share

**Entergy Arkansas**  
 February 9, 2021 · 🌐


Increasing your home's comfort while saving money and energy couldn't be easier with our Smart Direct Load Control Program. We'll do the heavy lifting. Enroll to get a smart thermostat, with professional installation or guided self-installation, at no additional cost. Visit <http://enter.gy/6189HdhNL> for details.



6      2 Shares

**Entergy Arkansas** January 12, 2021 · 🌐


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 or guided self-installation, at no additional cost. Visit <http://enter.gy/6181Hnuqc> to enroll.



3 2 Shares

**Entergy Arkansas** July 8, 2021 · 🌐


Save smart with a smart thermostat. Our Smart Direct Load Control Program is helping customers save energy with a smart thermostat with professional installation – a \$225 value – at no additional cost to you when you enroll. Visit <http://enter.gy/6186yVcRG> for more information and to enroll.



9 1 Comment 1 Share

**Entergy Arkansas** March 5, 2021 · 🌐

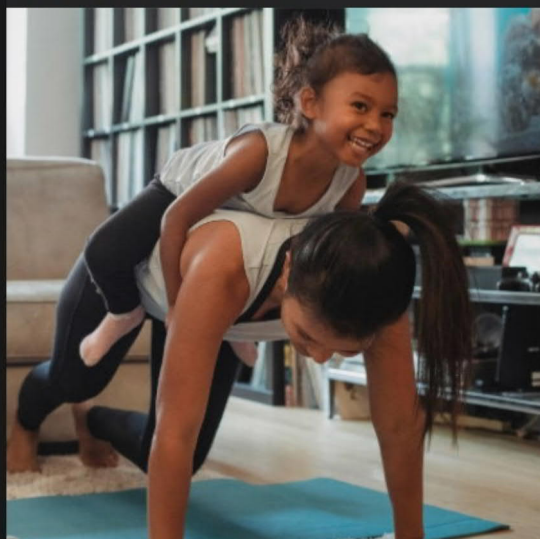
Go green with a smart thermostat that uses less energy and improves inside comfort. Claim one for your home or business at no additional cost by enrolling in our Smart Direct Load Control Program. Visit <http://enter.gy/6181HIi3B> for details.



4 2 Comments 2 Shares

**Entergy Arkansas** May 6, 2021 · 🌐


Increasing your home's comfort while saving energy and money couldn't be easier with our Smart Direct Load Control Program. We'll do the heavy lifting. Enroll to get a smart thermostat, with professional installation or guided self-installation, at no additional cost. Visit <http://enter.gy/6186HANnw> for details.



4 2 Comments 3 Shares

**Entergy Arkansas** November 11, 2021 · 🌐

Gobble up savings this holiday season with a \$0 Sensi Touch thermostat plus free professional installation when you enroll in our Smart Direct Load Control program. Visit <http://enter.gy/6180JX2Rn> for details.



4


Like Comment Share

Write a comment...

**Entergy Arkansas** October 6, 2021 · 🌐

We can't think of a better way to celebrate Energy Efficiency Day than with an ENERGY STAR® certified smart thermostat. Enroll in our Smart Direct Load Control Program and get one for \$0. Visit <http://enter.gy/6189JGmDW> for details.

**SAVE TODAY.  
SAVE TOMORROW.  
SAVE FOR GOOD.**



Start Your Savings with ENERGY STAR® Certified Smart Thermostats.


1 1 Share

**Entergy Arkansas** @EntergyArk · Apr 5, 2021

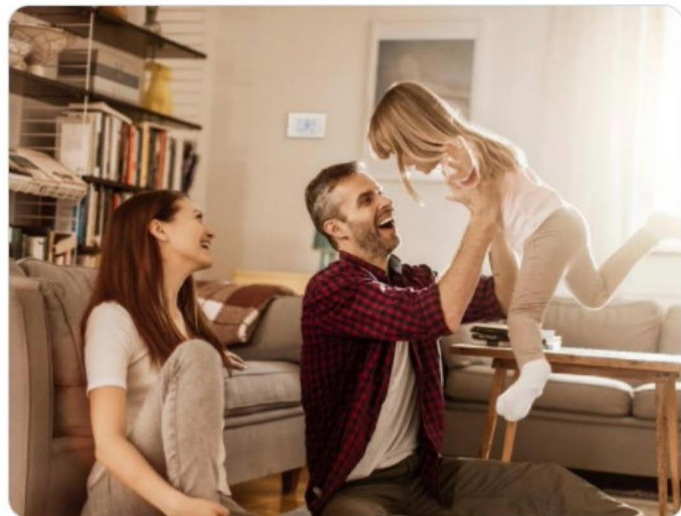
Looking for an easy way to save energy and money? The solution may already be on your wall. Our Smart Direct Load Control Program offers incentives for enrolling your existing qualifying smart thermostats. To learn more visit [enter.gy/6015Hahxl](http://enter.gy/6015Hahxl).

**Entergy Arkansas** September 13, 2021 · 🌐

Let our Smart Direct Load Control Program help you pull in the savings. Get a smart thermostat and professional installation for \$0 when you enroll. Visit <http://enter.gy/6185yf9e5> for more information.



5 1 Share



1 2



**Entergy Arkansas** @EntergyArk · Aug 6, 2021

Our Smart Direct Load Control Program is helping customers save energy with a smart thermostat and professional installation – a \$225 value – at no additional cost to you when you enroll. Visit [enter.gy/6018yIVqo](https://enter.gy/6018yIVqo) for more information.



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**Entergy Arkansas** @EntergyArk · Dec 8, 2021

Save smart this holiday season with a \$0 Sensi Touch thermostat with free professional installation when you enroll in our Smart Direct Load Control Program. Visit [enter.gy/6013JSjnd](https://enter.gy/6013JSjnd) for details.



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**Entergy Arkansas** @EntergyArk · Feb 9, 2021

Increasing your home's comfort while saving couldn't be easier with our Smart Direct Load Control Program. We'll do the heavy lifting. Get a smart thermostat, with professional installation or guided self-installation, at no additional cost. [enter.gy/6018HdhNI](https://enter.gy/6018HdhNI)



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**Entergy Arkansas** @EntergyArk · Jan 12, 2021

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 or guided self-installation, at no additional cost. [enter.gy/6010Hnuqi](https://enter.gy/6010Hnuqi)



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**Entergy Arkansas** @EntergyArk · May 6, 2021

Increasing your home's comfort while saving couldn't be easier with our Smart Direct Load Control Program. We'll do the heavy lifting. Get a smart thermostat, with professional installation or guided self-installation, at no additional cost. [enter.gy/6015HANnZ](https://enter.gy/6015HANnZ)



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**Entergy Arkansas** @EntergyArk · Jul 8, 2021

Save smart with a smart thermostat. Our Smart Direct Load Control Program is helping customers save energy with a smart thermostat with professional installation – a \$225 value – at no additional cost to you when you enroll. Visit [enter.gy/6015yVcR1](https://enter.gy/6015yVcR1) for details.



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**Entergy Arkansas** @EntergyArk · Mar 5, 2021

Go green with a smart thermostat that uses less energy and improves inside comfort. Claim one for your home or business at no additional cost by enrolling in our Smart Direct Load Control Program. Visit [enter.gy/6010HII36](https://enter.gy/6010HII36) for details.



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Entergy Arkansas @EntergyArk · Nov 11, 2021

Gobble up savings this holiday season with a \$0 Sensi Touch thermostat plus free professional installation when you enroll in our Smart Direct Load Control program. Visit [enter.gy/6016JX2Ry](https://enter.gy/6016JX2Ry) for details.



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Entergy Arkansas @EntergyArk · Sep 13, 2021

Let our Smart Direct Load Control Program help you pull in the savings. Get a smart thermostat and professional installation for \$0 when you enroll. Visit [enter.gy/6016yF9en](https://enter.gy/6016yF9en) for more information.



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Entergy Arkansas @EntergyArk · Oct 6, 2021

We can't think of a better way to celebrate Energy Efficiency Day than with an ENERGY STAR® certified smart thermostat. Enroll in our Smart Direct Load Control Program and get one for \$0. Visit [enter.gy/6016JGmDY](https://enter.gy/6016JGmDY) for details.

**SAVE TODAY.  
SAVE TOMORROW.  
SAVE FOR GOOD.**

Start Your Savings with ENERGY STAR® Certified Smart Thermostats.

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### 3.12 Agricultural Irrigation Load Control

#### 3.12.1 2021 First Chance Fall Enrollment FINAL v.0.docx



Entergy Arkansas, LLC  
P.O. Box 2937  
Little Rock, AR 72203

Farmer Business Name % person  
Address  
City, State Zip

Dear Farmer:

Entergy Arkansas is offering your farm a First Chance opportunity to add previously unenrolled wells into the Agricultural Irrigation Load Control program and earn larger incentive checks in 2022. You currently manage active irrigation wells that are not participating in the AILC program or receiving cash incentives. These additional wells have been listed below for your review. **This First Chance enrollment opportunity is being offered to active AILC program farmers only, and participation is currently limited to 150 new enrollments in 2022.**

If you wish to enroll any of the wells listed below, all you need to do is review the materials enclosed, sign the enclosed Confirmation Agreement form and mail it back in the envelope provided. You also may choose to fax the form to **585-625-3466** or e-mail the form back to **farmers@entergy.com**. All of your qualified wells are listed.

Thank you for doing your part in helping to reduce peak energy load for all Entergy Arkansas customers. Your participation in the Entergy AILC program will help keep your community cool when drought and severe weather threaten to cause community-wide blackouts.

**If you have any questions, please feel free to call us today at 855-664-3276.**

Sincerely,

Santiago Asimbaya  
Entergy Arkansas, LLC

P.S. Please **sign and return the form today** – so we can help you make 2022 a more profitable year.

#### NEW ENROLLMENT

Entergy Arkansas, LLC

#### Agricultural Irrigation Load Control Program Confirmation Agreement

Attention customer: Based on our information, the wells listed below are eligible to be fitted with the new equipment for the 2022 season. It is imperative that you sign and return this document to reserve your spaces now.

Feel free to include additional wells if you wish to enroll them in the program and receive incentive checks for them, too.

We look forward to continuing to work with you.

If you have questions, please do not hesitate to call **855-664-3276**.

You may fax the signed form to **585-625-3466**, e-mail a scanned copy to **farmers@entergy.com**, or mail it to:

AILC Customer Operations Support  
Entergy Arkansas, LLC  
P.O. Box 3797  
Little Rock, AR 72203

Please review and update all the information below and return as soon as possible.

#### Review and/or complete all items.

Customer or Farm Name to be Printed on Checks (should match Entergy account name):
Entergy BP#:
Billing Address:
What is your well status notification preference? (Please circle one) Email      Text      No Notice What email address or phone number should be used for sending the status notices? Email: _____ Text Phone #: _____ Signature***: _____ DATE: _____ Print Name: _____
<b>***YOUR SIGNATURE IS REQUIRED</b>

#### 3.12.2 2021 First Chance Enrollment Letter to Active Participants FINAL v.0.docx



### 3.12.3 2021 AILC Incentive Letter FINAL - August.docx



Entergy Arkansas, LLC  
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 2021 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](http://entergyarkansas.com/irrigation)**

The end of August marks the end of this program year for AILC which means no additional load control events will be called. Please note that your remote switching capability will now extend year round as a courtesy for your participation in our program. Also, your participation will automatically renew each program year.

Thanks again for working with Entergy on this valuable program.

Sincerely,

Santiago Asimbaya  
Entergy Arkansas, LLC

### 3.12.4 2021 AILC Incentive Letter FINAL - July.docx

ergy Arkansas, LLC  
Box 3797  
Rock, AR 72203

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Control

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in the

**3.12.5 2021 AILC Incentive Letter FINAL - June.docx**



Entergy Arkansas, LLC  
P.O. Box 3797  
Little Rock, AR 72208

Dear AILC Participant:

We are pleased to provide the attached incentive check to you for your farm's participation in the Entergy Arkansas 2021 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:

**[entergyarkansas.com/irrigation](http://entergyarkansas.com/irrigation)**

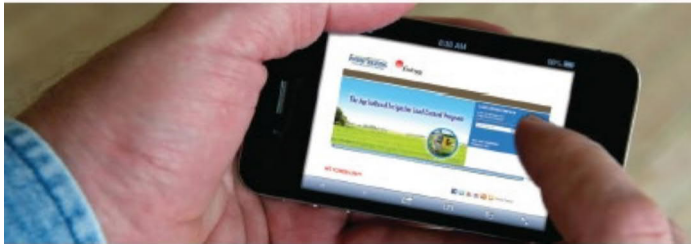
Thanks again for your participation in this valuable program.

Sincerely,

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](mailto: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.cnrg.com](http://entergy-fp.cnrg.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.cnrg.com](http://entergy-fp.cnrg.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](mailto: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.cnrg.com](http://entergy-fp.cnrg.com).

A message from Entergy Arkansas, LLC. ©2021 Entergy Services, LLC. All Rights Reserved. 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 (AIRC) 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:

	Tier 1	Tier 2	Tier 3	Tier 4	Tier 5	Tier 6	Tier 7	Tier 8	Tier 9
<b>Motor HP</b>	10-25	26-50	51-75	76-100	101-125	126-150	151-175	176-200	Larger
<b>Monthly Incentive*</b>	\$ 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 AIRC 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**

BPL 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 2006-2013 may now upgrade your AIRC equipment by having a new CNRG controller installed. These participants must re-register using the remote AIRC website (<https://air-crg.com>) to operate these locations. All program equipment remains property of the AIRC program, and any maintenance issues should be reported to the Entergy Arkansas LLC Irrigation Desk at 1-800-324-4709 or Entergy Outage at 1-800-9OUTAGE. For specific controller questions or to gain farmer portal access, participants may call Connected Energy's farmer help line at 1-855-664-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 AIRC 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 AIRC website (<https://air-crg.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 AIRC 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 AIRC 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 AIRC 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 AIRC 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

Pump Horsepower	10-25	26-50	51-75	76-100	101-125	126-250	251-775	776-200	Large HP
Monthly incentive*	\$50	\$100	\$200	\$250	\$350	\$450	\$550	\$650	Upon Request

\*Incentives will be based on the amount of monthly runtime required during AIC Program months.

- The Agricultural Irrigation Lead Control 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 5 p.m., excluding holidays.
- Cashback is mailed approximately two weeks following end of month – an average of \$100 per pump, per month for the AIC 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 Control 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

- 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.
- 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 855-864-FARM (3276) or email [farmers@entergy.com](mailto:farmers@entergy.com) now to get more information. Also visit [entergyarkansas.com/irrigation](http://entergyarkansas.com/irrigation).

\*To receive 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](http://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 AIC 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 least central interruption. Otherwise, you can manage your well's 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 AIC 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 5 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 AIC Program anytime during June, July or August. You may end your participation for a specific well or for all of your wells by calling 855-864-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 AIC Program months.

### Are there any installation fees?

There are no installation fees. To participate, you must allow Entergy Arkansas contractors access to the meter control panel.

### Have participating farmers been satisfied with your program?

Yes. We polled 101 farmers at the end of the 2015 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 855-864-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 855-864-FARM (3276). During nights, weekends and holidays, call 800-SOUTAGE (800-565-8242).



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