April 2, 2012

Ms. Jan Sanders
Secretary to the Commission
Arkansas Public Service Commission
P.O. Box 400
Little Rock, AR 72203

Re: APSC Docket No. 08-049-RP
Annual Report of Approved Conversation and Energy Efficiency Programs
Oklahoma Gas and Electric Company

Dear Ms. Sanders:

Please find enclosed for filing on behalf of Oklahoma Gas and Electric Company ("OG&E") the annual report (Arkansas Energy Efficiency Portfolio) for the Quick Start Energy Efficiency Program. This annual report is being 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.

Should you have any questions regarding this matter, please do not hesitate to contact me.

Yours very truly,

CHISENHALL, NESTRUD & JULIAN, P.A.

/s/ Lawrence E. Chisenhall, Jr.

Lawrence E. Chisenhall, Jr.

LEC:am
Enclosures

OKLAHOMA GAS and ELECTRIC COMPANY

2011 Arkansas Energy Efficiency Program Portfolio Annual Report

Section 9: Annual Reporting Requirements, and Order No. 18 in Docket No. 06-004-R.
Version 2.0 March 1, 2012

March 31, 2012

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1.0 Executive Summary

Executive Summary

OG&E is pleased to present to the Arkansas Public Service Commission, The Arkansas Energy Efficiency Program Portfolio Annual Report for 2011. This report is required to be filed by April 1, 2012 per the Annual Reporting Requirements Order No. 18 in Docket No. 06-004-R.

OG&E's energy savings goal for 2011 were 6,751,758 kWh or 0.25% of 2010 weather adjusted sales. During Plan Year (PY) 2011 two separate Comprehensive Energy Efficiency Plans were utilized to produce energy savings toward meeting our goal. The total budget for PY 2011 year was $2,679,852. The 2011 actual results achieved for energy savings were 4,985,328 kWh; at a cost of $2,071,159.

HISTORY:
OG&E began implementation of the Energy Efficiency Programs in December 2007. The initial program was known as the Quick-Start Program. This portfolio contained seven programs, and continued through December 31, 2009. Quick Start allowed OG&E to build a framework to deliver programs to over 65,000 customers in the Arkansas jurisdiction. The Comprehensive Energy Efficiency Program was approved and implemented on February 3, 2010. The Comprehensive Energy Efficiency program ended on June 30, 2011 and the new Comprehensive Plan for Energy Efficiency was approved on June 30, 2011 for the remainder of 2011 and 2012 and 2013 were approved on December 30, 2011.

COMPANY STATISTICS:
During 2011 OG&E achieved a savings of .18% of the energy sales due to the energy efficiency programs. This on-going energy saving will continue over the next 10 to 12 years without any additional investment.

Company Statistics

Program Year	Revenue and Expense					Energy				
		RBudget		Actual			Plan		Evaluated	
	Total Revenue (a) ($000's)	RBudget EE Portfolio Spending (b) ($000's)	Spending as % of Revenue (% = b/a)	Actual EE Portfolio Spending (c) ($000's)	Spending as % of Revenue (% = c/a)	Total Annual Energy Sales (d) MWh	EE Net Annual Energy Savings (e) MWh	Savings as % of Energy Sales (% = e/d)	EE Net Annual Energy Savings (e) MWh	Savings as % of Energy Sales (% = f/d)
2008	$ 236,811	$ 385	0.2%	$ 211	0.1%	4,126,501	21,399	0.52%	24,402	0.59%
2009	$ 277,835	$ 421	0.2%	$ 177	0.1%	3,956,345	42,798	1.08%	56,109	1.42%
2010	$ 223,389	$ 1,364	0.6%	$ 1,305	0.6%	3,629,139	2,667	0.07%	4,143	0.11%
2011	$ 227,408	$ 2,680	1.2%	$ 2,172	1.0%	2,802,634	6,991	0.25%	4,985	0.18%

NOTE: This schedule should report program year data, when available. This schedule should not report forecasted data.

EE PORTFOLIO SUMMARY:

The Energy Efficiency program expenses were managed to 77% of budget with 93% of the expenses going directly to the customers' energy efficiency improvements.

EE Portfolio Summary by Cost Type

EE Program Cost Summary	2011 Total Cost			
Type	% of Total	RBudget ($)	Actual ($)	% of Total
Planning / Design	0%	13,097	0	0%
Marketing & Delivery	3%	87,471	54,921	3%
Incentives / Rebates	78%	2,085,527	2,013,774	97%
Evaluation, Measurement, and Verification	6%	150,000	0	0%
Administration	10%	268,757	2,463	0%
Regulatory	3%	75,000	0	0%
Total	100%	**2,679,852**	**2,071,159**	100%

Oklahoma Gas & Electric Company
07-075-TF
EE Portfolio Summary by Program

Program Name	Program Type	Market	2011 RBudget ($)	2011 Actual ($)	% of RBudget
Weatherization	Weatherization	Res (All)	1,964,321	1,645,000	84%
LivingWise/Student Energy Efficiency	Public Education	Res (Single-Family)	87,963	74,373	85%
Custom Energy Report	Energy Audit or Evaluation	Res (All)	3,500	646	18%
Commercial Lighting	Lighting	Small C&I (All)	118,763	66,689	56%
Commercial Motors	Motors, Pumps	Large C&I (All)	4,250	2,025	48%
Energy Efficiency AR (Collaborative)	Public Education	Res (All)	39,319	24,435	62%
HVAC Tune Up & Duct Repair	HVAC Inspection or Tune-up	Res (All)	35,443	11,442	32%
Window Unit A/C	HVAC	Res (All)	6,460	402	6%
Commercial Tune-Up	HVAC Inspection or Tune-up	Small C&I (All)	50,884	6,370	13%
C&I Standard Offer Program	Standard Offer	Large C&I (All)	141,589	109,419	77%
Multi-Family	HVAC	Res (Multi-family)	37,778	0	0%
AWP Weatherization	Weatherization	Res (Single-Family)	114,582	130,358	114%
CFL's (Quick Start ONLY)	Lighting	Res (All)	0	0	-
Regulatory	-	-	75,000	0	0%
		Total	**2,679,852**	**2,071,159**	**77%**

ENERGY SAVINGS:
The 2011 portfolio produced 4,985,328 kWh or 74% of the energy savings goal. These on-going energy savings will accumulate over the life of the measures.

EXPENDITURES:
The Energy Efficiency Program expenses of $2,172,145 for 2011 were 77% of the approved annual budget of $2,679,851. $2,015,744 or 97% was spent on inducements, $57,993 or 2.8%

on Administration, $75,000 or 3.4% on Regulatory and $23,378 or 1.1% for Marketing and Delivery.

IMPLEMENTATION:
OG&E had one employee working in the Quick Start Program and this individual has continued to work in the Comprehensive Energy Efficiency Program and the Comprehensive Plan for Energy Efficiency. OG&E partnered with Arkansas Oklahoma Gas (AOG) for the weatherization program in July of 2011, Frontier Associates created a weatherization data base (EnerTrek) for data collection and coordinates payments to the contractors. Contracts were executed by our two weatherization contractors, DK Construction and Total Home Efficiency. Direct Options has created an on- line commercial lighting input form for our customers to fill out when requesting a lighting rebate. A rebate form was created for customers that install Energy Efficient Window Units and these forms were placed with various retailers.

EVALUATION, MEASUREMENT & VERIFICATION:
ENER**NOC** Utility Solutions was selected to perform the EM&V for all of the Energy Efficiency programs in the portfolio except Weatherization. ADM Associates, Inc. was selected through an RFP process for both the Arkansas Weatherization Program (AWP) and for the OGE/AOG Weatherization Program. Using the same contractor for both weatherization programs ensures consistency in evaluation. Over the course of the 3 year program period, the EM&V contractors will perform detailed evaluations on each of the programs. Because of the limited amount of time the EM&V contractors had to evaluate the 2011 programs, it was decided by the IEM that a desk review would be appropriate for 2011. Included in this report are their findings and recommendations for Program Year 2011.

LOST CONTRIBUTION TO FIXED COST:
As part of the approved Comprehensive Plan for Energy Efficiency, OG&E is allowed to recover "lost contribution" for all of the Energy Efficiency programs. OG&E has reported $20,038 in lost contributions for the Energy Efficiency programs during 2011.

INCENTIVE:
The incentive is calculated using the Total Resource Cost Test (TRC) for each program, OG&E was allowed to earn a shared incentive of 10%, based on the net benefit TRC of the programs and the program costs, assuming 80% of the kWh savings targets were met. OG&E was only able to achieve 74% of the kWh savings target during 2011.

RESULTS:
While we are disappointed with not reaching our energy savings target during 2011 we are encouraged by the successes we did see in some of our programs. The Motors program in the first half of 2011 was rolled into the C&I SOP program and we were able to achieve 87% of our goal and our Commercial Lighting program achieved 85% of its goal. We fell far short of our goal with the Commercial Tune-Up program achieving only 9% of goal. The OGE/AOG weatherization program was a successful collaborative effort even though OG&E's reported energy savings were only 59% of our target. We weatherized 250 homes in the first half of 2011 and our goal to weatherize 1,050 homes in last half of the year was very aggressive as we were only able to weatherize just over 800 homes in that time period. The extremely hot weather in

July and August got us off to a slow start by keeping our contractors from going into attics due to safety concerns. In addition, we have only reported energy savings on 703 homes for the last half of 2011. Because of the tight timelines with this first EM&V effort, we have not had time to reconcile the differences in the number of homes our in-house records show (801) compared to the number of homes that were evaluated (703). We chose out of an abundance of caution to include only the energy savings associated with evaluated homes. Once we reconcile the differences we will review changes, if any, to our energy savings numbers with the IEM and will then determine the best course of action to take with regard to adjusting the energy savings numbers in this report. Even if such a change would put us over the 80% threshold to be eligible for an incentive we would forego any incentive until next year's EECR true up. Our remaining residential programs did not meet their targets due to not meeting participation levels and the fact that our deemed savings values used in our filing were much higher than the deemed savings values from the TRM. Once we applied the TRM deemed savings values, our energy savings per participant was greatly reduced from what we filed.

COST EFFECTIVENESS:
OG&E is required annually to provide the Arkansas Public Service Commission with an update to the Cost Effectiveness of each of the Energy Efficiency programs. OG&E engaged Frontier Associates to provide this analysis. Based on Frontier Associates new calculations, the report shows that the total portfolio of programs continues to be cost effective and the results of the Total Resource Cost Test show the present value net benefits to be $1,321,190; $1,229,710 from Commercial/Industrial and $91,480 from Residential.

TRAINING:
OG&E provided training to over 580 individuals in 2011. The training included our weatherization contractors and their crews, hosting seminars to explain how the residential program works and educating the commercial and industrial customers on the benefits of energy efficient lighting.

CHANGES:
After careful examination and visits with local HVAC contractors it was determined that the physical limitations of equipment size to meet the SEER requirements would require major structural changes to the interior of each multi-family unit. It was determined that this would not be cost effective for the customer and thus OG&E asked for, and received permission to remove this program from the portfolio.

CONCLUSION:
The Comprehensive Energy Efficiency Program was approved February 3, 2010, for an 18 month term ending June 30, 2011. The Comprehensive Plan for Energy Efficiency was approved on June 30, 2011 only for the remainder of 2011. OG&E was required to re-file for program years 2012 and 2013 because in our initial filing, OG&E interpreted the required savings numbers as ordered by the Commission in Docket 08-144-U Order 17 to be cumulative rather than incremental.
Overall the Energy Efficiency Portfolio did not perform well in 2011; however we understand where and why we fell short and are developing strategies to address each program. By making the necessary changes we believe the portfolio goals are still attainable.

2.0 Portfolio Impact

2.1 Annual Program Costs

Annual Program Cost

RBudget ($)	2009			2010			2011		
Program Name	RBudget ($)	Actual ($)	% of RBudget	RBudget ($)	Actual ($)	% of RBudget	RBudget ($)	Actual ($)	% of RBudget
Weatherization	137,410	117,776	86%	1,129,500	1,103,808	98%	1,964,321	1,645,000	84%
LivingWise/Student Energy Efficiency	37,213	34,135	92%	61,000	49,405	81%	87,963	74,373	85%
Custom Energy Report	53,000	23,244	44%	7,000	61	1%	3,500	646	18%
Commercial Lighting	54,482	81,963	150%	55,440	38,104	69%	118,763	66,689	56%
Commercial Motors	65,550	44,600	68%	7,500	11,244	150%	4,250	2,025	48%
Energy Efficiency AR (Collaborative)	43,956	50,267	114%	32,045	30,950	97%	39,319	24,435	62%
HVAC Tune Up & Duct Repair	0	0	-	0	0	-	35,443	11,442	32%
Window Unit A/C	0	0	-	0	0	-	6,460	402	6%
Commercial Tune-Up	0	0	-	0	0	-	50,884	6,370	13%
C&I Standard Offer Program	0	0	-	0	0	-	141,589	109,419	77%
Multi-Family	0	0	-	0	0	-	37,778	0	0%
AWP Weatherization	0	0	-	72,000	72,000	100%	114,582	130,358	114%
CFL's (Quick Start ONLY)	28,893	339	1%	0	0	-	0	0	-
Regulatory	0	0	-	0	0	-	75,000	0	0%
Total	**420,504**	**352,324**	**84%**	**1,364,485**	**1,305,572**	**96%**	**2,679,852**	**2,071,159**	**77%**

2.2 Net Annual Savings (Energy & Demand)

Net Annual Savings (Energy & Demand)

ENERGY kWh	2009 Energy Savings			2010 Energy Savings			2011 Energy Savings		
	kWh		% of	kWh		% of	kWh		% of
Program Name	Plan	Evaluated	Plan	Plan	Evaluated	Plan	Plan	Evaluated	Plan
Weatherization	4,645,930	1,845,000	40%	20,207,010	25,934,298	128%	2,721,699	1,595,413	59%
LivingWise/Student Energy Efficiency	2,427,430	4,845,750	200%	1,156,820	213,682	18%	160,441	76,175	47%
Custom Energy Report	13,575,950	3,268,400	24%	1,680,757	178,640	11%	84,034	6,406	8%
Commercial Lighting	16,230,580	46,061,370	284%	15,000,750	14,465,848	96%	1,797,729	1,531,936	85%
Commercial Motors	1,088,295	88,485	8%	740,704	1,389,835	188%	37,931	424,220	1118%
Energy Efficiency AR (Collaborative)	0	0	-	0	0	-	0	0	-
HVAC Tune Up & Duct Repair	0	0	-	0	0	-	43,720	17,049	39%
Window Unit A/C	0	0	-	0	0	-	1,260	206	16%
Commercial Tune-Up	0	0	-	0	0	-	227,991	20,845	9%
C&I Standard Offer Program	0	0	-	0	0	-	1,688,328	1,080,273	64%
Multi-Family	0	0	-	0	0	-	27,655	0	0%
AWP Weatherization	0	0	-	0	0	-	205,519	232,805	113%
CFL's (Quick Start ONLY)	4,829,734	0	0%	0	0	-	0	0	-
Total	**42,797,919**	**56,109,005**	**131%**	**38,786,041**	**42,182,303**	**109%**	**6,996,307**	**4,985,328**	**71%**

DEMAND kW	2009 Demand Savings			2010 Demand Savings			2011 Demand Savings		
	kW		% of	kW		% of	kW		% of
Program Name	Plan	Evaluated	Plan	Plan	Evaluated	Plan	Plan	Evaluated	Plan
Weatherization	178.1	66.5	37%	611.0	782.2	128%	642.0	544.2	85%
LivingWise/Student Energy Efficiency	27.4	53.3	194%	11.0	11.1	101%	15.3	8.4	55%
Custom Energy Report	489.3	106.0	22%	55.0	5.8	11%	27.0	2.1	8%
Commercial Lighting	449.3	694.1	154%	280.0	431.7	154%	451.0	413.3	92%
Commercial Motors	26.3	1.5	6%	13.0	21.3	164%	8.0	69.4	868%
Energy Efficiency AR (Collaborative)	0.0	0.0	-	0.0	0.0	-	0.0	0.0	-
HVAC Tune Up & Duct Repair	0.0	0.0	-	0.0	0.0	-	29.4	8.7	29%
Window Unit A/C	0.0	0.0	-	0.0	0.0	-	1.1	0.2	15%
Commercial Tune-Up	0.0	0.0	-	0.0	0.0	-	33.0	10.4	32%
C&I Standard Offer Program	0.0	0.0	-	0.0	0.0	-	402.4	349.0	87%
Multi-Family	0.0	0.0	-	0.0	0.0	-	13.0	0.0	0%
AWP Weatherization	0.0	0.0	-	0.0	0.0	-	27.0	114.6	425%
CFL's (Quick Start ONLY)	854.5	0.0	0%	0.0	0.0	-	0.0	0.0	-
Total	**2,024.8**	**921.3**	**46%**	**970.0**	**1,252.0**	**129%**	**1,649.2**	**1,520.2**	**92%**

2.3 Methodology for Calculating Energy Savings

Methodology for Calculating Energy Savings

	Total Savings	Deemed Savings		Custom Savings		Other Savings	
	Net Energy Savings (a)	Net Energy Savings (b)	% of a	Net Energy Savings (c)	% of a	Net Energy Savings (d)	% of a
Program Name	kWh	kWh		kWh		kWh	
Weatherization	1,595,413	1,595,413	100.0%	0	0.0%	0	0.0%
LivingWise/Student Energy Efficiency	76,175	76,175	100.0%	0	0.0%	0	0.0%
Custom Energy Report	6,406	6,406	100.0%	0	0.0%	0	0.0%
Commercial Lighting	1,531,936	1,531,936	100.0%	0	0.0%	0	0.0%
Commercial Motors	424,220	424,220	100.0%	0	0.0%	0	0.0%
Energy Efficiency AR (Collaborative)	0	0	-	0	-	0	-
HVAC Tune Up & Duct Repair	17,049	17,049	100.0%	0	0.0%		0.0%
Window Unit A/C	206	206	100.0%	0	0.0%	0	0.0%
Commercial Tune-Up	20,845	20,845	100.0%	0	0.0%	0	0.0%
C&I Standard Offer Program	1,080,273	1,080,273	100.0%	0	0.0%	0	0.0%
Multi-Family	0	0	-	0	-	0	-
AWP Weatherization	232,805	232,805	100.0%	0	0.0%	0	0.0%
CFL's (Quick Start ONLY)	0	0	-	0	-	0	-
Total Portfolio:	**4,985,328**	**4,985,328**	**100.0%**	**0**	**0.0%**	**0**	**0.0%**

3.0 Portfolio Programs

Program Overview

OG&E develops energy efficiency programs to reduce overall energy consumption and to reduce load during periods of high peak demand. The programs allow OG&E the ability to alleviate potential power shortages and achieve energy savings by enabling customers to change their behavior, attitudes, awareness and knowledge about energy savings and the use of energy efficient technologies.

By implementing energy efficiency programs, demand for electricity will slow which in turn avoids emissions that would otherwise be produced by increased power generation. Energy efficiency programs have the potential to significantly reduce the effect power generation has on the environment by reducing two pollutants emitted during the process of generating electricity, sulfur dioxide and nitrogen oxides. These energy efficiency programs decrease electric demand thereby decreasing power production which in turn produces carbon dioxide emissions.

All customer classes benefit from energy efficient programs. Hard-to-reach residential customers benefit by keeping more of their disposable income, maintaining the same quality of lifestyle and adopting a more energy efficient philosophy. Energy efficiency programs lower operating costs and enable the efficient use of energy throughout all customer classes. With lower operating costs and enhanced productivity, Arkansas businesses remain competitive in the global economy and avoid the outsourcing of jobs and services.

OG&E has actively managed its energy efficiency portfolio since receiving APSC approval of its Quick Start Program in October 2007.

The following Program Impact Section details the savings achieved and costs expended through 2011.

- Section 1 – Program Savings and Costs

3.1 OG&E Weatherization Program

3.1.1 Program Description

The OG&E Weatherization Program is designed to promote a standalone program. The weatherization contractors have made this energy efficiency program very successful. Designed to target residential customers and allow them to participate in the program for free, this program allows customers the opportunity to participate in managing energy costs and to begin to be able to participate in price response tariffs. The program targeted to all residential customers of single family homes which were built before 1997, and specifically those that were severely energy inefficient. The program is design to upgrade and improve the thermal envelope of the dwelling and the use of energy efficient appliances. Homes in all of the OG&E service territory were targeted to participate by having an energy audit performed on the structure to help capitalize on specific weatherization techniques.

OG&E serves more than 54,504 residential customers in the Arkansas Region and has estimated as many as 30,000 homes in need of weatherization improvements. OG&E views the Weatherization Program as a key component in the DSM area, and through the use of two independent contractors, DK Construction, based in Crawford County and Total Home Efficiency, based in Sebastian County. OG&E was able to weatherize a total of 949 homes in the 18 month program, making 104% of the goal for the six months of the program or a total of 127% of the overall goal while finishing under budget for the year. DK Construction and Total Home Efficiency employees were schooled in over 60 hours of training on weatherization techniques and were audited on 10% of homes completed. In the field training by OG&E personnel, was also conducted throughout the course of the program and will be continued into the new program. Some of the key components that were installed includes: ceiling insulation, caulking, insulating foam sealer, weather stripping, replacement of glass, and / or windows, doors, ground cover for vapor barrier, compact fluorescent lighting, duct and plenum repair, return air cavity sealing, CO detectors, smoke detectors, HVAC tune-ups and indoor coil cleaning. OG&E continues to audit the program in the field on a regular basis to ensure proper installation techniques. Contractors are encouraged to attend and receive additional training both online and in classrooms for improvement in proper home weatherization techniques. Additional training is scheduled as well as National Certifications for each contractor.

In the second half of 2011, OG&E along with Arkansas Oklahoma Gas Corporation joined forces in the weatherization program in an effort to combine resources as well as to reach out to more consumers in their adjoining market place. OG&E and AOG worked to create an atmosphere of transparency with the existing contractors already enrolled in the program. OG&E and AOG along with the efforts of Frontier Associates, help to create a software package designed to capture more accurate field data as well as

a split payment process for each of the utilities to pay the individual contractors assigned to the program. The contractors continue the process of weatherizing homes in the hottest summer on record, while helping our joint consumers to instantly reap the benefits of maintaining or lowering their overall utility bills and raising the comfort of their home.

3.1.2 Program Highlights

- The Comprehensive Weatherization Program was launched February 3, 2010.
- Civic and community presentations highlighting the program were conducted throughout each town served by OG&E promoting the Weatherization Program.

3.1.3 Program Budget, Savings and Number of Measures

Weatherization

2009			Plan Savings		Evaluated Savings		% of Plan		2009		
Annual RBudget	Actual Expenses	% of Budget	Demand* kW	Energy* kWh	Demand* kW	Energy* kWh	Demand* kW	Energy* kWh	Number of Participants Plan	Actual	% of Plan
$137,410	$117,776	86%	178	4,645,930	67	1,845,000	37%	40%	29	50	172%

2010			Plan Savings		Evaluated Savings		% of Plan		2010		
Annual RBudget	Actual Expenses	% of Budget	Demand* kW	Energy* kWh	Demand* kW	Energy* kWh	Demand* kW	Energy* kWh	Number of Participants Plan	Actual	% of Plan
$1,129,500	$1,103,808	98%	611	20,207,010	782	25,934,298	128%	128%	500	699	140%

2011			Plan Savings		Evaluated Savings		% of Plan		2011		
Annual RBudget	Actual Expenses	% of Budget	Demand* kW	Energy* kWh	Demand* kW	Energy* kWh	Demand* kW	Energy* kWh	Number of Participants Plan	Actual	% of Plan
$1,964,321	$1,645,000	84%	642	2,721,699	544	1,595,413	85%	59%	1,300	953	73%

3 Year Program Average			Plan Savings		Evaluated Savings		% of Plan		2009 - 2011		
Annual RBudget	Actual Expenses	% of Budget	Demand* kW	Energy* kWh	Demand* kW	Energy* kWh	Demand* kW	Energy* kWh	Number of Participants Plan	Actual	% of Plan
$1,077,077	$955,528	89%	477	9,191,546	464	9,791,570	97%	107%	610	567	93%

*Net Annual Savings

3.1.4 Program Events and Training

Highlights of Events:

- Training events that included updates and additional weatherization techniques were held for contractors throughout the year.

- Training was held for DK Construction on John Krigger Residential Energy book in September and December.
- Civic and community presentations promoting the OG&E Weatherization Program were conducted throughout various towns served by OG&E.
- OG&E audited homes on a monthly basis for completion, proper application, and verification of work performed through program.

Program and Member Certification:

- Attended Training in Oklahoma City for maintaining certification of RESNET Rater Status.
- OG&E member is RESNET certified HERS home auditor.

3.1.5 Savings

- The deemed savings realized for each Weatherization Project was calculated using 1.119 kW and 2,854 kWh per home from January 1, 2011 to June 30, 2011.
- The deemed savings realized for each Weatherization Project was calculated using 0.320 kW and 1,854 kWh per home from July 1, 2011 to December 31, 2011. These numbers were initially supplied and identified by Frontier Associates.
- The OG&E Weatherization Program weatherized 953 homes in 2011. This resulted in an annual energy (kWh) net savings of 1,595,413 and demand (kW) net savings of 544.18.

3.1.6 Challenges and Opportunities

- Working in conjunction with the Community Clearinghouse, OG&E has been able to maintain a steady pace in obtaining and qualifying customers' homes for timely manner for weatherization. As OG&E evaluated the opportunity to complete the desired number of home in this program, we are prepared to bring new contractors on board, if needed, to help meet the growing demand.

3.1.7 Outlook for Continuation, Expansion, Reduction or Termination

- The OG&E Weatherization Program showed growth by performing more audits in 2011 than the prior 18 months of the Quick Start Program. Using the Quick Start to launch this program showed that the program will be able to provide good opportunities for 2011-2013.

3.1.8 Planned or Proposed Changes to Program and Budget

- This Comprehensive program ended on June 30, 2011, and a new Energy Efficiency Program was accepted on June 30, 2011 for the program years 2011-2013. The program was enhanced to include duplexes, condos, rental property or any residential customer in the Arkansas Territory. OG&E plans on exceeding the overall program goals for weatherization by performing an additional 3240 homes by the end of the program.

3.2 OG&E LivingWise®/Student Education Program

3.2.1 Program Description

The program provides the teachers and their classes of 6th grade students a curriculum on home energy efficiency. At the end of the curriculum a LivingWise® education kit, (which includes a CFL, air filter, aerator, low-flow shower head, LED night light, thermometer, a student handbook on energy efficiency in the home and community), provides the students the opportunity to participate with their families on energy awareness. The students take the LivingWise® kit home and install the energy efficiency measures with the assistance of their parents.

The LivingWise® Program provided Energy Efficiency and Awareness training for 1,199 students from January 2010 through December 31, 2010, targeting 9 school districts in Arkansas.
OG&E agreed to provide list of schools, each semester, to Resource Action Programs (RAP), for potential participation in the LivingWise® Program. RAP contacts the school, enrolls the teacher and quantifies the number of students. A list of enrolled schools and participation information is sent to OG&E each month. There was an overwhelming consensus from all participating teachers that it was an informative and easy curriculum and each teacher felt that with the uncertain environmental and energy situation, the teaching materials were both timely and important. A total of 59% of sixth grade students in public schools participated in the program in the OG&E service territory.

3.2.2 Program Highlights

- 59% of all eligible students participated in the program.
- Created OG&E customized box to improve the generic look for the LivingWise® Kits.
- OG&E utilized Community Coordinators along with key contact personnel for promotion of the program.
- The Comprehensive Program was approved in February 2010 which continued the same program as the Quick-Start Program.
- The selection process for LivingWise® begins with a list of potential elementary public schools for 6th grade classes that OG&E sends to LivingWise®. This is a turn-key program, where the following services are performed by LivingWise®:
  - Contact the school
  - Verify school address
  - Speak with the teacher(s)
  - Produce and mail the required number of kits for students and teachers

- Follow up with teachers on the class participation during the curriculum and then on the activities provided in the kit for the students to take home and interact with their parents.
  A report is then submitted to OG&E at the end of each semester detailing the activity, the results and the participation level and acceptance of the program.
- OG&E has had a 100% return rate from teacher's responding to the follow-up surveys.

3.2.3 Program Budget, Savings and Number of Measures

LivingWise/Student Energy Efficiency

2009			Plan Savings		Evaluated Savings		% of Plan		2009		
Annual RBudget	Actual Expenses	% of Budget	Demand* kW	Energy* kWh	Demand* kW	Energy* kWh	Demand* kW	Energy* kWh	Number of Participants Plan	Actual	% of Plan
$37,213	$34,135	92%	27	2,427,430	53	4,845,750	194%	200%	125	1,065	852%

2010			Plan Savings		Evaluated Savings		% of Plan		2010		
Annual RBudget	Actual Expenses	% of Budget	Demand* kW	Energy* kWh	Demand* kW	Energy* kWh	Demand* kW	Energy* kWh	Number of Participants Plan	Actual	% of Plan
$61,000	$49,405	81%	11	1,156,820	11	213,682	101%	18%	1,200	1,199	100%

2011			Plan Savings		Evaluated Savings		% of Plan		2011		
Annual RBudget	Actual Expenses	% of Budget	Demand* kW	Energy* kWh	Demand* kW	Energy* kWh	Demand* kW	Energy* kWh	Number of Participants Plan	Actual	% of Plan
$87,963	$74,373	85%	15	160,441	8	76,175	55%	47%	1,840	1,813	99%

3 Year Program Average			Plan Savings		Evaluated Savings		% of Plan		2009 - 2011		
Annual RBudget	Actual Expenses	% of Budget	Demand* kW	Energy* kWh	Demand* kW	Energy* kWh	Demand* kW	Energy* kWh	Number of Participants Plan	Actual	% of Plan
$62,059	$52,638	85%	18	1,248,230	24	1,711,869	136%	137%	1,055	1,359	129%

*Net Annual Savings

3.2.4 Program Events and Timing

Sample of Events:

- 04-22-2010 - Presentation to Carnall Elementary sixth grade students on LivingWise® information.
- 08-04-2010 – Presentation to the Partners in Education held at Ramsey Junior High for all Fort Smith District Schools on LivingWise® program for all sixth grade students.

3.2.5 Savings

- The stipulated savings realized for each LivingWise® kit provided to students was calculated at 0.0058 kW per kit and 52.52 kWh per kit for the Comprehensive and Energy Efficiency programs.
- OG&E provided 1,813 kits to 6th Grade students, for an annual kWh net savings of 76,175 and net demand savings of 8.40 kW.

3.2.6 Challenges and Opportunities:

- OG&E success with this program has been through key contacts in each of the school districts. Each of the participating schools within the OG&E territory have embraced the concept and curriculum provided through Resource Actions.

3.2.7 Outlook for Continuation, Expansion, Reduction or Termination:

- OG&E will continue the LivingWise® curriculum through the program year with no major changes.

3.2.8 Planned or Proposed Changes to Program and Budget:

- This Comprehensive program ended on June 30, 2011, and a new Energy Efficiency Program was accepted on June 30, 2011 for the program years 2011-2013. OG&E plans to continue its support for the Student Energy Education Program.

3.3 OG&E Custom Energy Report (CER) Program

3.3.1 Program Description:

The Custom Energy Report (CER) is a self-guided on-line home energy audit offered through the OG&E website. Customers are prompted to input items pertaining to the appliances and energy consuming devices (i.e. ceiling insulation, windows, doors, direction of home, number of individuals living in home, appliances, etc.) in their home. Upon completion of the survey, the customer will receive an e-mail of their personalized energy report providing analysis and recommendations on how to save energy.

This report is specific to their house, living styles and choices. The energy savings tips are customized to their individual criteria and needs. Recommendations are provided that will direct the customer, (in order of highest savings opportunities), on ways to save energy.

The goal of the CER is to aid residential customers in improving comfort while lowering energy costs in their homes. A mailed energy survey or online survey provides a personalized report showing where the home uses energy and recommends actions for saving energy. The report also includes a 12-month comparison of electricity use, energy costs and the trend for costs and breakdown of electricity used. The report is free of charge to OG&E customers.

Marketing efforts included direct mailings, media coverage, and OG&E website promotion.

Direct Options is the program administrator. They mail the surveys, receive the responses and prepare the report for OG&E residential customers.

3.3.2 Program Highlights:

- The CER program began in October, 2007 in the Quick Start Program and continued in the Comprehensive Program.
- The Custom Energy Report is provided to customers, free of charge, after they complete the home information survey. The report contains electric usage information and cost comparisons based on the information they provide to us.
- The Custom Energy Report also includes recommendations to help customers use energy wisely and save money on their monthly bills. The report contains specific energy savings tips for their home.
- A follow up survey is sent to those requesting a report, asking for comments and suggestions for improving this service.
- 43 customers took advantage of this free energy audit during 2011.

3.3.3 Program Budget, Savings and Number of Measures:

Custom Energy Report

2009			Plan Savings		Evaluated Savings		% of Plan		2009		
Annual RBudget	Actual Expenses	% of Budget	Demand* kW	Energy* kWh	Demand* kW	Energy* kWh	Demand* kW	Energy* kWh	Number of Participants Plan	Actual	% of Plan
$53,000	$23,244	44%	489	13,575,950	106	3,268,400	22%	24%	1,033	1,060	103%

2010			Plan Savings		Evaluated Savings		% of Plan		2010		
Annual RBudget	Actual Expenses	% of Budget	Demand* kW	Energy* kWh	Demand* kW	Energy* kWh	Demand* kW	Energy* kWh	Number of Participants Plan	Actual	% of Plan
$7,000	$61	1%	55	1,680,757	6	178,640	11%	11%	500	697	139%

2011			Plan Savings		Evaluated Savings		% of Plan		2011		
Annual RBudget	Actual Expenses	% of Budget	Demand* kW	Energy* kWh	Demand* kW	Energy* kWh	Demand* kW	Energy* kWh	Number of Participants Plan	Actual	% of Plan
$3,500	$646	18%	27	84,034	2	6,406	8%	8%	250	43	17%

3 Year Program Average			Plan Savings		Evaluated Savings		% of Plan		2009 - 2011		
Annual RBudget	Actual Expenses	% of Budget	Demand* kW	Energy* kWh	Demand* kW	Energy* kWh	Demand* kW	Energy* kWh	Number of Participants Plan	Actual	% of Plan
$21,167	$7,984	38%	190	5,113,580	38	1,151,149	20%	23%	594	600	101%

*Net Annual Savings

3.3.4 Program Events and Training:

Sample of Events:

- New CER website that is connected with the OG&E website went live on February 13, 2009. The new web link follows the design of our new Positive Energy logo and is more user-friendly.
- http://www.oge.com/residential-customers/save-energy-and-money/EnergyEfficiency/Pages/CEROpenWP.aspx

3.3.5 Savings:

- The deemed savings realized for each Residential Energy Audit (CER) was calculated at 0.10 kW per report and 308 kWh per report.
- OG&E completed 26 Residential Energy Reports for an annual kWh net savings of 6,406 and annual demand net savings of 2.08 kW.

3.3.6 Challenges and Opportunities:

- CER Program requires the customer to have internet access to perform the online energy audit. Customers must have a basic understanding of home energy usage and how to apply these assumptions in the model in order to receive a valuable audit.

3.3.7 Outlook for Continuation, Expansion, Reduction or Termination:

- OG&E will continue to offer the CER through the program year with no major changes.

3.3.8 Planned or Proposed Changes to Program and Budget:

- Due to this program ending on June 30, 2011, no significant changes are planned and no budget adjustments were made.

3.4 Commercial Lighting Program

3.4.1 Program Description

The purpose of the Commercial Lighting program is to provide incentives to the OG&E Commercial and Industrial customers during change outs. To encourage high efficiency lighting re-placement, and incentive of $2.00 per T-12 lamp replaced by a T-8 or T-5 lamp will be paid once a project is completed and verified.

The Comprehensive Commercial Lighting program was a continuation of the Quick Start Measure. This measure was designed to reach existing customers including large school districts, commercial, and industrial complexes. OG&E personnel continued to recruit and educate commercial customers on the advantages of upgrading their lighting system. Working hand in hand with lighting manufacture representatives, audits were performed on various commercial applications. The program was well received by OG&E commercial and industrial consumers. This program was 111% of goal and finished under budget for the program year.

The Energy Efficiency Commercial lighting program introduced with the new filing enhanced the existing lighting program by introducing additional lighting items for rebates. Approved in the new filing was the payment of 400-1000 watt HID's, incandescent to hard wired compact fluorescent, exit lighting, sensors, controls as well as new construction installation and other lighting options. With the addition of the new standards this measure is able to reach a greater concentration of OG&E consumers with rebates to help offset the installation cost of the fixture. OG&E will continue to recruit and educate customers with additional presentations on the advantages of high efficiency lighting.

3.4.2 Program Highlights

- The Comprehensive Commercial Program was launched February 3, 2010.
- Presentations were made at supply and distributor warehouses throughout the year.
- Civic and community presentations highlighting the program were conducted throughout each town served by OG&E promoting the lighting program.

3.4.3 Program Budget, Savings and Number of Measures:

Commercial Lighting

2009			Plan Savings		Evaluated Savings		% of Plan		2009		
Annual RBudget	Actual Expenses	% of Budget	Demand* kW	Energy* kWh	Demand* kW	Energy* kWh	Demand* kW	Energy* kWh	Number of Participants Plan	Actual	% of Plan
$54,482	$81,963	150%	449	16,230,580	694	46,061,370	154%	284%	13	10	77%

2010			Plan Savings		Evaluated Savings		% of Plan		2010		
Annual RBudget	Actual Expenses	% of Budget	Demand* kW	Energy* kWh	Demand* kW	Energy* kWh	Demand* kW	Energy* kWh	Number of Participants Plan	Actual	% of Plan
$55,440	$38,104	69%	280	15,000,750	432	14,465,848	154%	96%	15	23	153%

2011			Plan Savings		Evaluated Savings		% of Plan		2011		
Annual RBudget	Actual Expenses	% of Budget	Demand* kW	Energy* kWh	Demand* kW	Energy* kWh	Demand* kW	Energy* kWh	Number of Participants Plan	Actual	% of Plan
$118,763	$66,689	56%	451	1,797,729	413	1,531,936	92%	85%	35	24	69%

3 Year Program Average			Plan Savings		Evaluated Savings		% of Plan		2009 - 2011		
Annual RBudget	Actual Expenses	% of Budget	Demand* kW	Energy* kWh	Demand* kW	Energy* kWh	Demand* kW	Energy* kWh	Number of Participants Plan	Actual	% of Plan
$76,228	$62,252	82%	393	11,009,686	513	20,686,385	130%	188%	21	19	90%

*Net Annual Savings

3.4.4 Program Events and Training

Highlights of Events:

- Open house events at Lighting Distributor warehouses were worked in the Fort Smith area.
- Civic and community presentations promoting the OG&E Lighting Program were conducted throughout various towns served by OG&E.
- OG&E audited the lighting installations for completion, proper application, and verification of work performed through program.
- Attended lighting presentation in Oklahoma City at the OG&E Technology Center.

3.4.5 Savings

- The OG&E Commercial Lighting Program had 24 participants in 2011. This resulted in an annual energy net (kWh) savings of 1,531,936 and demand net (kW) savings of 413.26.

3.4.6 Challenges and Opportunities

- Notification of distributors and contractor on program advantages and opportunities.
- DOE regulations.

3.4.7 Outlook for Continuation, Expansion, Reduction or Termination

- The OG&E Commercial Lighting Program plans on continuation of the program throughout the program years approved by the Arkansas Public Service Commission. No plans for expansion are anticipated at this time.

3.4.8 Planned or Proposed Changes to Program and Budget

- This Comprehensive program ended on June 30, 2011, and a new Energy Efficiency Program was accepted on June 30, 2011 for the program years 2011-2013. OG&E plans on continuing the program through the approved program years.

3.5 Motor Replacement Program

3.5.1 Program Description:

The program, which targets commercial and industrial customers and motor distributors, is designed to educate customers and motor distributors about the operating cost benefits of high efficiency motors and also provide an incentive to purchase such motors.

The OG&E Motor Replacement Program targeted commercial and industrial customers on the benefits of high efficiency motor replacements. This program was well received in the market place for the first half of 2011. OG&E paid $5 per horsepower on NEMA Premium standards on 10 to 100 Horsepower upgrades.

3.5.2 Program Highlights:

- OG&E personnel made field visits to various industrial and commercial customers.
- OG&E continue to promote and work with manufacturers and distributors in the Arkansas territory.

3.5.3 Program Budget, Savings and Number of Measures:

Commercial Motors

2009			Plan Savings		Evaluated Savings		% of Plan		2009		
Annual RBudget	Actual Expenses	% of Budget	Demand* kW	Energy* kWh	Demand* kW	Energy* kWh	Demand* kW	Energy* kWh	Number of Participants Plan	Actual	% of Plan
$65,550	$44,600	68%	26	1,088,295	1	88,485	6%	8%	25	3	12%

2010			Plan Savings		Evaluated Savings		% of Plan		2010		
Annual RBudget	Actual Expenses	% of Budget	Demand* kW	Energy* kWh	Demand* kW	Energy* kWh	Demand* kW	Energy* kWh	Number of Participants Plan	Actual	% of Plan
$7,500	$11,244	150%	13	740,704	21	1,389,835	164%	188%	25	21	84%

2011			Plan Savings		Evaluated Savings		% of Plan		2011		
Annual RBudget	Actual Expenses	% of Budget	Demand* kW	Energy* kWh	Demand* kW	Energy* kWh	Demand* kW	Energy* kWh	Number of Participants Plan	Actual	% of Plan
$4,250	$2,025	48%	8	37,931	69	424,220	868%	1118%	15	10	67%

3 Year Program Average			Plan Savings		Evaluated Savings		% of Plan		2009 - 2011		
Annual RBudget	Actual Expenses	% of Budget	Demand* kW	Energy* kWh	Demand* kW	Energy* kWh	Demand* kW	Energy* kWh	Number of Participants Plan	Actual	% of Plan
$25,767	$19,290	75%	16	622,310	31	634,180	195%	102%	22	11	52%

*Net Annual Savings

3.5.4 Program Events and Training:

- Field visits were made in the first quarter of 2011 to perspective commercial and industrial customers.

3.5.5 Savings:

- The savings realized for each Motor Replacement Project was calculated at the individual completed project level.

- OG&E completed 10 motor projects for an annual net kWh savings of 424,220 and annual demand net savings of 69.42 kW.

3.5.6 Challenges and Opportunities:

- This program was well received in the market place for 2011. Due to a small turn around in the economy and a change in procedure of payment from 10 to 100 horsepower, the program moved from sluggish to surpasses goals. Industrial and commercial customers' additional capital along with rebates and new government regulations help to increase the awareness of higher efficiency applications relating to fuel savings.

3.5.7 Outlook for Continuation, Expansion, Reduction or Termination:

- OG&E's stand-alone motor program was discontinued in June 2011. The Standard Offer Program includes motor replacement as an enhancement to the motor program.

3.5.8 Planned or Proposed Changes to Program and Budget:

- Due to this program ending on June 30, 2011, no significant changes are planned and no budget adjustments were made.

3.6 Energy Efficiency Education Program

3.6.1 Program Description:

The Energy Efficiency Education Program provides information to all customers, of all classes, allowing them to make informed decisions about how they use energy and to look at alternatives to improve their consumption, thereby decreasing demand and energy usage.

OG&E has continued its support to the EEA Comprehensive Plan through three components: 1), Residential Education and Information Outreach; 2) Media Promotion; 3) – Commercial and Industrial Education and Outreach, provided by the Arkansas Energy Office, (MO, for the Comprehensive Program Plan For Energy Efficiency Arkansas, April 1, 2009.

The Arkansas Energy Office, (AEO), administered the collaborative efforts of the Arkansas utilities educational profile in training opportunities. The AEO also provided educational pamphlets, DVDs, and training materials to homeowners throughout the OG&E service territory. Multiple classes were held throughout the State of Arkansas on residential, commercial, and industrial energy efficient usage and design. Area industry plant engineers as well as CEO's, CFO's, and purchasing agents were updated on techniques of how to manage energy consumption in their plants. Courses on Refrigeration and Compressed Air were held in the Fort Smith area to update individual businesses on energy efficiency operations within the industrial segment.

3.6.2 Program Highlights:

- The Arkansas Energy office provides various methods of reaching all classifications of OG&E customers through radio, print, and seminars.

- Additional information is submitted by the Arkansas Energy Office annual report.
- Comprehensive Program began February 3, 2010, and ended on June 30, 2011. The Energy Efficiency Program began on July 1, 2011.and continues on through December 2013.

3.6.3 Program Budget, Savings and Number of Measures:

Energy Efficiency AR (Collaborative)

2009			Plan Savings		Evaluated Savings		%of Plan		2009		
Annual RBudget	Actual Expenses	%of Budget	Demand* kW	Energy* kWh	Demand* kW	Energy* kWh	Demand* kW	Energy* kWh	Number of Participants Plan	Actual	%of Plan
$43,956	$50,267	114%	n/a	0	n/a	0	-	-	n/a	n/a	-

2010			Plan Savings		Evaluated Savings		%of Plan		2010		
Annual RBudget	Actual Expenses	%of Budget	Demand* kW	Energy* kWh	Demand* kW	Energy* kWh	Demand* kW	Energy* kWh	Number of Participants Plan	Actual	%of Plan
$32,045	$30,950	97%	n/a	0	n/a	0	-	-	1	1	100%

2011			Plan Savings		Evaluated Savings		%of Plan		2011		
Annual RBudget	Actual Expenses	%of Budget	Demand* kW	Energy* kWh	Demand* kW	Energy* kWh	Demand* kW	Energy* kWh	Number of Participants Plan	Actual	%of Plan
$39,319	$24,435	62%	n/a	n/a	n/a	n/a	-	-	n/a	n/a	-

3 Year Program Average			Plan Savings		Evaluated Savings		%of Plan		2009 - 2011		
Annual RBudget	Actual Expenses	%of Budget	Demand* kW	Energy* kWh	Demand* kW	Energy* kWh	Demand* kW	Energy* kWh	Number of Participants Plan	Actual	%of Plan
$38,440	$35,217	92%	-	0	-	0	-	-	1	1	100%

*Net Annual Savings

3.6.4 Program Events and Training

Highlights of Events:

- Continued use of existing marketing materials including Tighten-Up Arkansas, radio and television ad campaign.
- Continued use of a website to educate and promote energy efficiency throughout Arkansas.
- Publishing of printed material for water heating, cooling, heating, air sealing, etc.
- As administrators of the program, the Arkansas Energy Office was able to accomplish a successful campaign utilizing the funds from the participating utilities.

Sample of Training Provided:

- March 3, 2011: Motors and Drives, U of A, Fayetteville, training dealing with the understanding the process of energy conservation in motors and drives, and how to find opportunities in optimizing your systems to save energy.

- April 19, 2011: Refrigeration Energy Management, U of A, Fayetteville, workshop addressing the concepts of energy consumption in the industrial refrigeration systems.

- May 25, 2011: Process Heating Assessment, Fort Smith, workshop reviewed combustions and heating methods, heat transfer in furnaces, waste heat recovery, common used process heating controls and emissions from heating.

- June 21-23, 2011, Boiler Operation Safety, Fort Smith, training objective is to teach safety and energy efficiency techniques with proper maintenance of a steam boiler.

- August 9, 2011: Effective Energy Management: U of A, Fayetteville, Training to help manufactures develop a systematic approach to energy management.

- September 13-15, 2011: Commercial HVAC Training, Russellville, training designed to encourage and improve installation and energy efficient practices for the heating, ventilation and air conditioning equipment.

3.6.5 Savings

- The deemed savings realized for Education Projects was zero kW and kWh per home.

3.6.6 Challenges and Opportunities

- OG&E, along with the AEO, has continued to provide updated material to all classifications of consumers throughout the OG&E territory. Challenges to residential, commercial and industrial consumers will be to initiate timely and important energy improvements to homes and businesses. Cost effective measures should be implemented in a timely manner to maintain lower utilities. Education to the consumer is essential in stressing the importance of energy efficiency in all applications.

3.6.7 Outlook for Continuation, Expansion, Reduction or Termination

- OG&E proposes to continue to support and contribute to the Arkansas Energy Office in its effort to promote and grow energy awareness throughout the Arkansas Territory for the remainder of the program.

3.6.8 Planned or Proposed Changes to Program and Budget

- This Comprehensive program ended on June 30, 2011, and a new Energy Efficiency Program was accepted on June 30, 2011 for the program years 2011-2013. OG&E plans to continue its support for the Energy Efficiency Arkansas Program.

3.7 HVAC Tune-Up and Duct Repair Program

3.7.1 Program Description:

The HVAC Tune-Up and Duct Repair is a comprehensive long term energy efficiency program. The Residential A/C tune and Duct Repair program is targeted to residential customers who need assistance in improving the efficiency of their existing HVAC equipment and / or assistance in sealing or repairing HVAC ductwork. Many homeowners' financial resources are limited and homeowners choose lesser efficient options were not installed or energy efficient options were not available. This program will allow customers to maximize efficiency of existing equipment.

3.7.2 Program Highlights:

- The HVAC Tune-Up and Duct Repair program was initiated with a contractor meeting on July 22, 2011, with 15 contractors in attendance.
- OG&E signed an agreement with 6 contractors to participate in the program.
- OG&E promoted the program through civic presentations across the Fort Smith Territory.
- Audits were performed in the field with the service technician at the customer's residence.

3.7.3 Program Budget, Savings and Number of Measures:

HVAC Tune Up & Duct Repair

2009			Plan Savings		Evaluated Savings		% of Plan		2009		
Annual RBudget	Actual Expenses	% of Budget	Demand* kW	Energy* kWh	Demand* kW	Energy* kWh	Demand* kW	Energy* kWh	Number of Participants Plan	Actual	% of Plan
n/a	n/a	-	n/a	n/a	n/a	n/a	-	-	n/a	n/a	-

2010			Plan Savings		Evaluated Savings		% of Plan		2010		
Annual RBudget	Actual Expenses	% of Budget	Demand* kW	Energy* kWh	Demand* kW	Energy* kWh	Demand* kW	Energy* kWh	Number of Participants Plan	Actual	% of Plan
n/a	n/a	-	n/a	n/a	n/a	n/a	-	-	n/a	n/a	-

2011			Plan Savings		Evaluated Savings		% of Plan		2011		
Annual RBudget	Actual Expenses	% of Budget	Demand* kW	Energy* kWh	Demand* kW	Energy* kWh	Demand* kW	Energy* kWh	Number of Participants Plan	Actual	% of Plan
$35,443	$11,442	32%	29	43,720	9	17,049	29%	39%	50	77	154%

1 Year Program Average			Plan Savings		Evaluated Savings		% of Plan		2011		
Annual RBudget	Actual Expenses	% of Budget	Demand* kW	Energy* kWh	Demand* kW	Energy* kWh	Demand* kW	Energy* kWh	Number of Participants Plan	Actual	% of Plan
$35,443	$11,442	32%	29	43,720	9	17,049	29%	39%	50	77	154%

*Net Annual Savings

3.7.4 Program Events and Timing:

Sample of Events:

- Training was held with each contractor on expectations of the program.
- Presentations were performed for local civic groups in various areas of the OG&E territory.

3.7.5 Savings:

- The stipulated savings per project is the actual reported energy and demand savings base on project specific savings and verified by an on-site audit.
- OG&E completed 77 tune-ups and 10 electric duct seals 31 gas duct seal. The annual net kWh savings of 14,515 and annual demand net savings of 7.81 kW for the A/C tune. These annual savings have an average life of 3 years on the tune-up for a lifetime net energy savings of 43,545 kWh. The annual net kWh savings of the electric duct seal is 1,272 and an annual demand net savings of 0.21 kW. These annual savings have an average life of 20 years for a lifetime net energy savings of 25,440 kWh. The annual net kWh savings of the gas duct seal is 1,262, and an annual demand net savings of 0.65 kW.

3.7.6 Challenges and Opportunities:

- Meeting with each technician on the program qualifications and expectations.

3.7.7 Outlook for Continuation, Expansion, Reduction or Termination:

- OG&E will continue its Residential HVAC Tune-Up and Duct Repair through 2013.

3.7.8 Planned or Proposed Changes to Program and Budget:

- This Energy Efficiency program will continue to be implemented through the budget years of 2012-2013.

3.8 Window Unit A/C Program

3.8.1 Program Description:

The objective of the Comprehensive Energy Efficient Window Unit A/C Program is to provide OG&E single family residential customers without central HVAC systems incentives for purchasing and installing high-efficiency window air conditioners. The program is designed to help increase energy efficiency of window unit sales, while reducing energy consumption, lowering energy costs, and increasing the comfort of the residential customers' home with window units.

3.8.2 Program Highlights:

OG&E has partnered with a local family owned Hardware Store which has outlets in 4 major areas of the Fort Smith Territory, to help promote the program.

OG&E has made initial contact with additional supply houses to promote the program in 2012.

3.8.3 Program Budget, Savings and Number of Measures:

Window Unit A/C

2009			Plan Savings		Evaluated Savings		% of Plan		2009		
Annual RBudget	Actual Expenses	% of Budget	Demand* kW	Energy* kWh	Demand* kW	Energy* kWh	Demand* kW	Energy* kWh	Number of Participants Plan	Actual	% of Plan
n/a	n/a	-	n/a	n/a	n/a	n/a	-	-	n/a	n/a	-

2010			Plan Savings		Evaluated Savings		% of Plan		2010		
Annual RBudget	Actual Expenses	% of Budget	Demand* kW	Energy* kWh	Demand* kW	Energy* kWh	Demand* kW	Energy* kWh	Number of Participants Plan	Actual	% of Plan
n/a	n/a	-	n/a	n/a	n/a	n/a	-	-	n/a	n/a	-

2011			Plan Savings		Evaluated Savings		% of Plan		2011		
Annual RBudget	Actual Expenses	% of Budget	Demand* kW	Energy* kWh	Demand* kW	Energy* kWh	Demand* kW	Energy* kWh	Number of Participants Plan	Actual	% of Plan
$6,460	$402	6%	1	1,260	0	206	15%	16%	13	1	8%

1 Year Program Average			Plan Savings		Evaluated Savings		% of Plan		2011		
Annual RBudget	Actual Expenses	% of Budget	Demand* kW	Energy* kWh	Demand* kW	Energy* kWh	Demand* kW	Energy* kWh	Number of Participants Plan	Actual	% of Plan
$6,460	$402	6%	1	1,260	0	206	15%	16%	13	1	8%

*Net Annual Savings

3.8.4 Program Events and Timing:

Sample of Events:

July 22, 2011: OG&E presented details of the program through HVAC contractor meeting.

September 22, 2011: OG&E presented details and qualifications standards for Senior Citizen Group.

November 1, 2011: OG&E presented details and qualifications standards to the Noon Rotary Club in Fort Smith.

December 6, 2011: OG&E presented a program to the Fort Smith Golden Agers Club at First Baptist Church on all residential programs.

3.8.5 Savings:

- OG&E completed 1window unit for an annual net kWh savings of 206 and annual demand net savings of 0.218 kW.

3.8.6 Challenges and Opportunities:

OG&E estimates that only 700 homes are cooled with window units in the Fort Smith territory.

OG&E will continue to pursue additional avenues to help promote and meet target market areas for window unit sales.

Consumers will continue to be educated on the benefits of high efficiency window units and encouraged to participate in the program through civic presentations in 2012.

Big box stores do not allow for educational material or rebate slips to be placed in their stores.

3.8.7 Outlook for Continuation, Expansion, Reduction or Termination:

- OG&E will continue the Window Unit A/C Program for the remainder of the approved filing through 2013, with no significant changes.

3.8.8 Planned or Proposed Changes to Program and Budget:

- This Energy Efficiency program will continue to be implemented through the budget years of 2012-2013 with no changes to the format or additional budget.

3.9 Commercial Tune-Up Program

3.9.1 Program Description:

This is a comprehensive long term energy efficiency program targeted to commercial and industrial customers. The Commercial Tune-Up program will offer financial incentives for air conditioning, foodservice, refrigeration and/or ventilation systems upgrades in efficiency. The intention of the program is to provide inducements for energy savings and peak demand reductions produced through any measured, verified, and inspected efficiency improvements. The program was initiated with a contractor presentation and had over 15 contractors participating in the meeting.

3.9.2 Program Highlights:

- The Commercial Tune-Up program was initiated with a contractor meeting on July 22, 2011, with 15 contractors in attendance.
- Contractors and customers embraced the program with HVAC equipment upgrades.
- OG&E promoted the program through civic presentations and customer calls across the Fort Smith Territory.

3.9.3 Program Budget, Savings and Number of Measures:

Commercial Tune-Up

2009			Plan Savings		Evaluated Savings		% of Plan		2009		
Annual RBudget	Actual Expenses	% of Budget	Demand* kW	Energy* kWh	Demand* kW	Energy* kWh	Demand* kW	Energy* kWh	Number of Participants Plan	Actual	% of Plan
n/a	n/a	-	n/a	n/a	n/a	n/a	-	-	n/a	n/a	-

2010			Plan Savings		Evaluated Savings		% of Plan		2010		
Annual RBudget	Actual Expenses	% of Budget	Demand* kW	Energy* kWh	Demand* kW	Energy* kWh	Demand* kW	Energy* kWh	Number of Participants Plan	Actual	% of Plan
n/a	n/a	-	n/a	n/a	n/a	n/a	-	-	n/a	n/a	-

2011			Plan Savings		Evaluated Savings		% of Plan		2011		
Annual RBudget	Actual Expenses	% of Budget	Demand* kW	Energy* kWh	Demand* kW	Energy* kWh	Demand* kW	Energy* kWh	Number of Participants Plan	Actual	% of Plan
$50,884	$6,370	13%	33	227,991	10	20,845	32%	9%	3	2	67%

1 Year Program Average			Plan Savings		Evaluated Savings		% of Plan		2011		
Annual RBudget	Actual Expenses	% of Budget	Demand* kW	Energy* kWh	Demand* kW	Energy* kWh	Demand* kW	Energy* kWh	Number of Participants Plan	Actual	% of Plan
$50,884	$6,370	13%	33	227,991	10	20,845	32%	9%	3	2	67%

*Net Annual Savings

3.9.4 Program Events and Timing:

Sample of Events:

- Training was held with each contractor on expectations of the program.
- Presentations were performed for local civic groups in various areas of the OG&E Territory.
- Open house event was held at Wholesale Electric Supply in Fort Smith for contractors with over 300 in attendance.

3.9.5 Savings:

- The stipulated savings per project is the actual reported energy and demand savings base on project specific savings and verified by an on-site audit.

- OG&E completed 2 HVAC tune-ups for an annual net kWh savings of 20,845 and annual demand net savings of 10.42 kW.

3.9.6 Challenges and Opportunities:

- Meeting with each technician and HVAC companies on the program qualifications and expectations.

3.9.7 Outlook for Continuation, Expansion, Reduction or Termination:

- OG&E will continue its Commercial HVAC Tune-Up and Duct Repair through 2013.

3.9.8 Planned or Proposed Changes to Program and Budget:

- This Energy Efficiency program will continue to be implemented through the budget years of 2012-2013 with no changes to the format or additional budget.

3.10 Commercial/Industrial Standard Offer Program

3.10.1 Program Description:

This is comprehensive long term energy efficiency program targeted to commercial and industrial Power and Light rate customers. The program provides inducements for energy savings and peak demand reductions produced through energy efficiency improvements. There is no specified program listing because the projects are and will be customized to each unique facility and the improvements. It has proven to be successful in helping to not only manage but to assist in upgrading equipment to higher efficiency.

3.10.2 Program Highlights:

- The Commercial/Industrial Standard Offer program was initiated with a contractor meeting on July 22, 2011, with 15 contractors in attendance.
- Contractors, Public School Districts, and customers embraced the program with HVAC equipment upgrades.
- OG&E promoted the program through civic presentations across the Fort Smith Territory.

3.10.3 Program Budget, Savings and Number of Measures:

C&I Standard Offer Program

2009			Plan Savings		Evaluated Savings		% of Plan		2009		
Annual RBudget	Actual Expenses	% of Budget	Demand* kW	Energy* kWh	Demand* kW	Energy* kWh	Demand* kW	Energy* kWh	Number of Participants Plan	Actual	% of Plan
n/a	n/a	-	n/a	n/a	n/a	n/a	-	-	n/a	n/a	-

2010			Plan Savings		Evaluated Savings		% of Plan		2010		
Annual RBudget	Actual Expenses	% of Budget	Demand* kW	Energy* kWh	Demand* kW	Energy* kWh	Demand* kW	Energy* kWh	Number of Participants Plan	Actual	% of Plan
n/a	n/a	-	n/a	n/a	n/a	n/a	-	-	n/a	n/a	-

2011			Plan Savings		Evaluated Savings		% of Plan		2011		
Annual RBudget	Actual Expenses	% of Budget	Demand* kW	Energy* kWh	Demand* kW	Energy* kWh	Demand* kW	Energy* kWh	Number of Participants Plan	Actual	% of Plan
$141,589	$109,419	77%	402	1,688,328	349	1,080,273	87%	64%	5	6	120%

1 Year Program Average			Plan Savings		Evaluated Savings		% of Plan		2011		
Annual RBudget	Actual Expenses	% of Budget	Demand* kW	Energy* kWh	Demand* kW	Energy* kWh	Demand* kW	Energy* kWh	Number of Participants Plan	Actual	% of Plan
$141,589	$109,419	77%	402	1,688,328	349	1,080,273	87%	64%	5	6	120%

*Net Annual Savings

3.10.4 Program Events and Timing:

Sample of Events:

- Training was held with each contractor on expectations of the program.
- Presentations were performed for Evans Enterprises and local civic groups in various areas of the OG&E territory.

3.10.5 Savings:

- The stipulated savings per project is the actual reported energy and demand savings base on project specific savings and verified by an on-site audit.
- OG&E completed 6 Standard Offer program incentives for an annual net kWh savings of 1,080,273 and annual demand net savings of 349.02 kW.

3.10.6 Challenges and Opportunities:

- Meeting with each technician on the program qualifications and expectations.

3.10.7 Outlook for Continuation, Expansion, Reduction or Termination:

- OG&E will continue its Commercial/Industrial Standard Offer through 2013.

3.10.8 Planned or Proposed Changes to Program and Budget:

- This Energy Efficiency program will continue to be implemented through the budget years of 2012-2013.

3.11 Multi-Family Program

3.11.1 Program Description:

- The Multi-Family program was intended to target multi-family complex owners and or managers who needed assistance in improving the efficiency of their existing HVAC equipment. With the program OG&E would offer to incentive payments to apartment complex owners to upgrade from an existing air conditioning to a 16 SEER heat pump unit or a 16 SEER air conditioner with a 90+ AFUE furnace.

3.11.2 Program Highlights:

- Due to the size restrictions and characteristics of new equipment to be installed this program was closed at the end of 2011.

3.11.3 Program Budget, Savings and Number of Measures:

Multi-Family

2009			Plan Savings		Evaluated Savings		% of Plan		2009		
Annual RBudget	Actual Expenses	% of Budget	Demand* kW	Energy* kWh	Demand* kW	Energy* kWh	Demand* kW	Energy* kWh	Number of Participants Plan	Actual	% of Plan
n/a	n/a	-	n/a	n/a	n/a	n/a	-	-	n/a	n/a	-

2010			Plan Savings		Evaluated Savings		% of Plan		2010		
Annual RBudget	Actual Expenses	% of Budget	Demand* kW	Energy* kWh	Demand* kW	Energy* kWh	Demand* kW	Energy* kWh	Number of Participants Plan	Actual	% of Plan
n/a	n/a	-	n/a	n/a	n/a	n/a	-	-			-

2011			Plan Savings		Evaluated Savings		% of Plan		2011		
Annual RBudget	Actual Expenses	% of Budget	Demand* kW	Energy* kWh	Demand* kW	Energy* kWh	Demand* kW	Energy* kWh	Number of Participants Plan	Actual	% of Plan
$37,778	n/a	-	13	27,655	n/a	n/a	-	-	25	n/a	-

1 Year Program Average			Plan Savings		Evaluated Savings		% of Plan		2011		
Annual RBudget	Actual Expenses	% of Budget	Demand* kW	Energy* kWh	Demand* kW	Energy* kWh	Demand* kW	Energy* kWh	Number of Participants Plan	Actual	% of Plan
$37,778	-	-	13	27,655	-	-	-	-	25	-	-

*Net Annual Savings

3.11.4 Program Events and Timing:

Sample of Events:

- Presentation was made with the Fort Smith HVACR group on expectations of the program.
- Presentations were performed for local River Valley Landlords Association and other various community groups on the program.

3.11.5 Savings:

- N/A

3.11.6 Challenges and Opportunities:

- The physical limitations of equipment size to meet the SEER requirements would require major structural changes to the interior to the interior of each multi-family unit.

3.11.7 Outlook for Continuation, Expansion, Reduction or Termination:

- OG&E will not be continuing with the program.

3.11.8 Planned or Proposed Changes to Program and Budget:

- This Energy Efficiency program was discontinued.

3.12 Arkansas Weatherization Program (AWP)

3.12.1 Program Description:

The Arkansas Weatherization Program was designed to promote energy efficiency in homes throughout the Fort Smith Territory. This Program is monitored by the Arkansas Community Action Agencies Association. The Energy Efficiency Program targeted to residential customers that allows the customer to participate in programs to assist in managing energy costs and to begin to be able to utilize price response tariffs. This program focused on customers who owned their home and who have homes that were severely energy inefficient. The program design is to upgrade and improve the thermal envelope of the dwelling and the energy use of appliances.

OG&E continued their participation with the Arkansas Weatherization Program in conjunction with other utilities across the state. The Central Arkansas Development Council has control of the disbursement of funding for the collaborative. OG&E serves over 54,504 residential customers in the Arkansas Region and has estimated as many as 30,000 homes needing weatherization improvements, with an estimate of 10,000 severely energy efficient homes in the service territory. OG&E views the Weatherization Program as a key component in the DSM area. Presentations on the Weatherization Program were made to Civic and Senior Citizen Groups throughout the OG&E territory to inform customers of the program. Agency contractor crews installed key weatherization components in the homes to help upgrade the homes from energy inefficient to modern day standards. Some of the components that were installed are as follows: ceiling insulation, caulking, insulating foam, weather stripping, replacement of glass, and or windows, doors, ground cover, compact fluorescent lighting, duct and plenum repair, return air cavity sealing, CO detectors, Smoke detectors, HVAC tune-ups, replacements, and indoor coil cleaning.

OG&E provided funding for the Arkansas Community Action Agency Associations to weatherize severely energy inefficient homes in the Fort Smith Territory. Working with the Crawford-Sebastian Community Development Council, Inc., located in Fort Smith, and the Universal Housing Authority based in Russellville, weatherized 89 severely energy inefficient residential homes in 2011. Many of these homes also utilized DOE monies, as well as LIHEAP funding and additional grants, for improvements to the home. Area counties served by the agencies are Crawford, Sebastian, Franklin, Johnson, and Logan.

3.12.2 Program Highlights:

- Comprehensive Weatherization Program was launched on February 3, 2010.
- Arkansas Weatherization program weatherized 89 homes in 2011 at an average cost per home of $1,154.34.

- Civic and community presentations on the program were conducted throughout each town served by OG&E promoting the Arkansas Weatherization Program.
- The Arkansas Weatherization Program was administered through the Central Arkansas Development Council.
- The Universal Housing Corporation and Crawford-Sebastian Community Development Council Inc., performed audits and jobs in the OG&E District.

3.12.3 Program Budget, Savings and Number of Measures:

AWP Weatherization

2009			Plan Savings		Evaluated Savings		% of Plan		2009		
Annual RBudget	Actual Expenses	% of Budget	Demand* kW	Energy* kWh	Demand* kW	Energy* kWh	Demand* kW	Energy* kWh	Number of Participants Plan	Actual	% of Plan
n/a	n/a	-	n/a	n/a	n/a	n/a	-	-	n/a	n/a	-

2010			Plan Savings		Evaluated Savings		% of Plan		2010		
Annual RBudget	Actual Expenses	% of Budget	Demand* kW	Energy* kWh	Demand* kW	Energy* kWh	Demand* kW	Energy* kWh	Number of Participants Plan	Actual	% of Plan
$72,000	$72,000	100%	n/a	n/a	n/a	n/a	-	-	n/a	n/a	-

2011			Plan Savings		Evaluated Savings		% of Plan		2011		
Annual RBudget	Actual Expenses	% of Budget	Demand* kW	Energy* kWh	Demand* kW	Energy* kWh	Demand* kW	Energy* kWh	Number of Participants Plan	Actual	% of Plan
$114,582	$130,358	114%	27	205,519	115	232,805	425%	113%	59	89	151%

2 Year Program Average			Plan Savings		Evaluated Savings		% of Plan		2010 - 2011		
Annual RBudget	Actual Expenses	% of Budget	Demand* kW	Energy* kWh	Demand* kW	Energy* kWh	Demand* kW	Energy* kWh	Number of Participants Plan	Actual	% of Plan
$93,291	$101,179	108%	27	205,519	115	232,805	425%	113%	59	89	151%

*Net Annual Savings

3.12.4 Program Events & Training:

Highlights of Events:

- Civic and community presentations on the program were conducted throughout the various towns served by OG&E promoting the Arkansas Weatherization Program.
- Met with key personnel from Crawford-Sebastian Community Development Council Inc., and Universal Housing Corporation on weatherization projects.

Program & Member Certification:

- N/A

3.12.5 Savings:

- The AWP completed 89 homes in 2011 for an annual net kWh savings of 442,447 and annual demand net savings of 1140.62 kW.

3.12.6 Challenges & Opportunities:

- The ability to process lead generation in a timely manner continues to be a challenge in the program.

3.12.7 Outlook for Continuation, Expansion, Reduction or Termination:

- The Weatherization Program continued to show growth by performing more audits in 2011.

3.12.8 Planned or Proposed Changes to Program & Budget:

- This Comprehensive program ended on June 30, 2011, and a new Energy Efficiency Program was accepted on June 30, 2011 for the program years 2011-2013. OG&E plans to continue its support for the Arkansas Weatherization Program.

3.13 OG&E CFL Program

3.13.1 Program Description:

The purpose of the Compact Fluorescent Light (CFL) measure is to help reduce energy use and demand for residential customers by displacing conventional incandescent light bulbs with lower wattage CFLs.

Compact Fluorescent Lighting usage continues to grow throughout the OG&E territory. Civic presentations along with television and radio campaigns help inform the public about the importance of installing CFL's in the home.

3.13.2 Program Highlights:

- The CFL Program was **terminated during** the Quick Start program on April 8, 2009.

3.13.3 Program Budget, Savings and Number of Measures:

CFL's (Quick Start ONLY)

2009			Plan Savings		Evaluated Savings		% of Plan		2009		
Annual RBudget	Actual Expenses	% of Budget	Demand* kW	Energy* kWh	Demand* kW	Energy* kWh	Demand* kW	Energy* kWh	Number of Participants Plan	Actual	% of Plan
$28,893	$339	1%	854	4,829,734	0	n/a	0%	-	0	0	-

2010			Plan Savings		Evaluated Savings		% of Plan		2010		
Annual RBudget	Actual Expenses	% of Budget	Demand* kW	Energy* kWh	Demand* kW	Energy* kWh	Demand* kW	Energy* kWh	Number of Participants Plan	Actual	% of Plan
n/a	n/a	-	0	n/a	0	n/a	-	-	n/a	n/a	-

2011			Plan Savings		Evaluated Savings		% of Plan		2011		
Annual RBudget	Actual Expenses	% of Budget	Demand* kW	Energy* kWh	Demand* kW	Energy* kWh	Demand* kW	Energy* kWh	Number of Participants Plan	Actual	% of Plan
n/a	n/a	-	n/a	n/a	n/a	n/a	-	-	n/a	n/a	-

1 Year Program Average			Plan Savings		Evaluated Savings		% of Plan		2011		
Annual RBudget	Actual Expenses	% of Budget	Demand* kW	Energy* kWh	Demand* kW	Energy* kWh	Demand* kW	Energy* kWh	Number of Participants Plan	Actual	% of Plan
$28,893	$339	1%	427	4,829,734	0	-	0%	-	0	0	-

*Net Annual Savings

3.13.4 Program Events and Training:

- N/A

3.13.5 Savings:

- N/A

3.13.6 Challenges and Opportunities:

- N/A

3.13.7 Outlook for Continuation, Expansion, Reduction or Termination:

- No current plans exist to bring this program back in the promotions as a standalone program. Benefits here can be claimed in the Commercial Lighting Program.

3.13.8 Planned or Proposed Changes to Program and Budget:

- No future plans exist.

4.0 Benefit Cost Results

Benefit Cost

BENEFIT COST

Cost-Effectiveness Test	2011 Program Year						
	Annual Energy Savings			Lifetime Energy Savings	Total Resource Cost (TRC)		TRC Levelized Cost
	Net	Gross	Effective Net-To-Gross Ratio (NTGR)				
Program	kWh	kWh		MWh	Net Benefits ($000's)	Ratio	$ / kWh
Weatherization	1,595,413		0.80	19,632,761	-42	0.96	-0.000002
LivingWise/Student Energy Efficiency	76,175		0.80	761,460	-26	0.56	-0.000034
Custom Energy Report	6,406		0.80	64,060			
Commercial Lighting	1,531,936		0.80	18,383,224	556	3.33	0.000030
Commercial Motors	424,220			4,666,420			0.000000
Energy Efficiency AR (Collaborative)	0			0	0	0.00	
HVAC Tune Up & Duct Repair	17,049		0.80	94,227	-3	0.88	-0.000035
Window Unit A/C	206		0.80	2,676	0	0.88	-0.000019
Commercial Tune-Up	20,845		0.80	312,672	6	1.47	0.000019
C&I Standard Offer Program	1,080,273		0.80	18,053,914	668	5.63	0.000037
Multi-Family	0		0.00	0	0	0.00	
AWP Weatherization	232,805		1.00	6,585,546	163	2.23	0.000025
CFL's (Quick Start ONLY)	0			0	0	0.00	
EE Portfolio Total	**4,985,328**			**68,556,960**	**1,321**		**0.0000**

Cost-Effectiveness Test	2011 Program Year							
	Participant Cost Test (PCT)		Ratepayer Impact Measure (RIM)		Program Administrator Cost (PAC)		Societal Test (ST)	
Program	Net Benefits ($000's)	Ratio	Net Benefits ($000's)	Ratio	Net Benefits ($000's)	Ratio	Net Benefits ($000's)	Ratio
Weatherization	1,144	1.92	-1,134	0.35	-633	0.49	-2,435.00	0.98
LivingWise/Student Energy Efficiency	50	1.70	-70	0.28	-47	0.37	-24.65	0.58
Custom Energy Report								
Commercial Lighting	1,268	5.57	-257	0.72	581	9.61	580.75	3.43
Commercial Motors								
Energy Efficiency AR (Collaborative)								
HVAC Tune Up & Duct Repair	22.34	1.70	-13.77	0.19	-9.07	0.28	-3.18	0.88
Window Unit A/C	0.21	5.21	-0.27	0.49	-0.14	0.65	-0.04	0.89
Commercial Tune-Up	14	1.96	-6	0.70	7	2.16	6.31	1.50
C&I Standard Offer Program	1,401	8.92	-278	0.70	545	5.81	691.89	5.79
Multi-Family								
AWP Weatherization	317	3.40	-106	0.68	98	1.74	170.91	2.29
CFL's (Quick Start ONLY)								
EE Portfolio Total	**4,217**	**30.38**	**-1,864**	**4.11**	**541**	**21.11**	**-1,013.01**	**16.34**

5.0 Supplemental Requirements

5.1 Training

EXTERNAL TRAINING (contractors, trade allies, consumer groups, etc.)

Event No.	Date	Class	Class Description	Training Location	Sponsor	No. of Attendees (A)	Length of Session (B)	Training Session Man-hours (A x B)	Any Certificates Awarded? (Y or N)	# of Certificates Awarded
1	07/06/11	Weatherization Qualification	Weatherization Changes Update	Community Clearinghouse	OGE	6	2 Hours	12	n	
2	07/07/11	Weatherization Contractors	DSM Programs	OGE	OGE	21	7 Hours	84	n	
3	07/19/11	AWP Updates	CAP Conference	NWACC	ACAAA	95	2 Hours	190	n	
4	07/22/11	DSM Programs	SOP / Comm HVAC	Phoenix Expo	OGE	15	2 Hours	30	n	
5	09/21/11	Residential Energy	Krigger Energy Guidelines	OGE	OGE	13	5 Hours	65	n	
6	09/22/11	Residential Programs	DSM Programs	Grand Avenue Baptist	OGE	68	1 Hour	68	n	
7	10/03/11	DSM Lighting Program	Lighting Upgrades	WES Supply	WES	300	3 hours	900	n	
8	11/01/11	DSM Programs	AR OGE DSM Programs	Holiday Inn	OGE	37	1 Hour	37	n	
9	11/17/11	DSM Programs	Ar OGE DSM Programs	Golden Corrall	OGE	28	1 Hour	28	n	
Totals:	*Sessions:*	9				583		1414		

INTERNAL TRAINING (Utility or Administrator Staff)

Event No.	Date	Class	Class Description	Training Location	Sponsor	No. of Attendees (A)	Length of Session (B)	Training Session Man-hours (A x B)	Any Certificates Awarded? (Y or N)	# of Certificates Awarded
Totals:	*Sessions:*									

5.2 Lost Contribution to Fixed Cost

Lost Contribution to Fixed Cost (LCFC)

Program Name	LCFC Energy Savings MWh			LCFC ($)		
	2011	2012	2013	2011	2012	2013
Weatherization	656	1,595	1,595	$ 6,688	$ 16,261	$ 16,261
LivingWise/Student Energy Efficiency	37	76		$ 309	$ 635	$ 635
Custom Energy Report	6	6	6	$ -	$ -	$ -
Commercial Lighting	713	1,532	1,532	$ 4,643	$ 9,976	$ 9,976
Commercial Motors	154	424	424	$ -	$ -	$ -
Energy Efficiency AR (Collaborative)	0	0	0	$ -	$ -	$ -
HVAC Tune Up & Duct Repair	5	17	17	$ 174	$ 592	$ 592
Window Unit A/C	0.1	0.2	0.2	$ 2	$ 6	$ 6
Commercial Tune-Up	5	21	21	$ 155	$ 651	$ 651
C&I Standard Offer Program	217	1,080	1,080	$ 5,612	$ 27,931	$ 27,931
Multi-Family	0	0	0	$ -	$ -	$ -
AWP Weatherization	251	442	442	$ 2,455	$ 4,233	$ 4,233
CFL's (Quick Start ONLY)	0	0	0	$ -	$ -	$ -
LCFC Total:				$ 20,038	$ 60,285	$ 60,285
Total Actual Portfolio Expense:				$ 2,071,159	$ -	$ -
LCFC as a % of Portfolio Total:				1.0%	-	-

5.3 Utility Performance Incentives

Utility Performance Incentives

2010 Annual Energy Sales (MWh)	Sales as Adjusted for SD Exemptions		
	2011	2012	2013
2,700,703	2,700,703		

Portfolio Level Summary	2011	2012	2013
RBudget ($)	$ 2,679,852	$ 3,524,157	$ 3,938,015
Actual Expense ($)	$ 2,071,159		

Net Savings	2011	2012	2013
Commission Established % Goal	0.25%	0.50%	0.75%
MWh Goal	6,752	0	0
MWh Achieved	4,985		
% of Goal Achieved	74%	-	-

Incentive Calculations	2011	2012	2013
Portfolio Net Benefits ($)	$ 1,321		
10% of Portfolio Net Benefits ($)	$ 132	$ -	$ -
Incentive Cap	0.00%	-	-
Maximum Allowed Incentive $	$ -	$ -	$ -
Eligible Incentive $'s	$ -	$ -	$ -

5.4 Challenges and Opportunities

Program Name	Program Challenges	Program Enhancements	Process Evaluations
OGE Weatherization	Lead Generation	Blower door testing to establish air infiltration rate on home and greater CFM reduction to residence.	ADM, and 10% internal audits done on homes.
Arkansas Weatherization Program	Consumer Education / Back log of homes	less cost to homeowners to participate, less stringent of program qualifications,	Audit by the State Office along with spot checks by utility.
LivingWise®	Teacher acceptance and usage on a timely basis.	None	Teacher response has been favorable towards the program along with ease of the teaching materials.
CER	Customer must have access to the internet.	Evaluate additional means and opportunities for the consumer to enroll and participate in the program.	
	Misapplied Inputs to Screen	Qualify with Direct options on new methodologies available on limiting key entry errors or cross checking against accumulated statistics.	No
	Consumer not educated on Home Energy Usage or Products	Provide additional resources, literature and documentation that support energy efficiency within the home.	
Commercial Motors	Industrial budgets and economic downturns.	Upgrading program with enhancements of $5.00 per horsepower on 10-100 horsepower. Program ended 06-2011	EPAC rules have helped in the education of Industrial consumers on the advantages of high efficiency motor upgrades. 10% of all applications were verified.
Residential HVAC Tune-UP and Duct Repair Program	Lead Generation	None	10% Audits along with EnerNoc, Inc. Company for EMV.
Window AC Unit Program	Lead Generation / Consumer Education	None	10% Audits along with EnerNoc, Inc. Company for EMV.
Multi-Family Program	Limited space for Proper Application	Program was ended 12-31-2011.	None
Commercial Lighting	Meeting with Contractors / Distributors / Manufacture Representatives on rebate opportunities.	Lighting controls, sensors, incadescent, HID upgrades, LED Exit lighting.	Commercial lighting has an upward growth as local commercial accounts and industrial consumers continue to look to reducing their demand through the upgrading of lighting in the facility. 10% of the installations along with EnerNoc, Inc. Company
Commercial & Industrial Standard Offer Program	Meeting with Plant Engineers, Plant Operations, Managers, CEO's.	None	10% of the installations are audited along with EnerNoc, Inc. Company.
Commercial Tune-Up Program	Lead Generation / Contractor Education	None	10% of the installations are audited along with EnerNoc, Inc. Company.
CFL	closed program April 8,2009		
Education Cooperative	Influencing contractors and consumers to participate in active programs.	Focus and enhanced education to consumers and contractors.	No

5.5 Market Maturity

Program Name	Market Assessment		
	Present Program	**Future Comprehensive Program**	**Maturity 10-Year Outlook**
OGE Weatherization	Impacted 5/10ths of 1% of the available homes in the OGE Service Territory that are eligible to participate in the program.	In the OGE Comprehensive program and the additional 3240 homes to be impacted in the current program, this would leave an additional 24,000+ homes to be weatherized.	At a rate of 1620 homes weatherized per year, OG&E can effectively cover the Fort Smith Area in 19 years. OGE would need to increase the market size to homes built before 2000 in the mix to help generate additional leads, which would open the market penetration of homes.
Arkansas Weatherization	This program reaches out to the hard to reach, severely energy efficient homes across the Fort Smith OGE service area.	Upgrades in program standards and procedures and with the changes made to the participate cost to participate in the program, the AWP should be able to reach the goals for 2012-2013 program. Crawford-Sebastian Community Development and Universal Housing has been beneficial to utilizing the tools offered through the AWP collaborative funding.	A Saturation level will never be achieved with the housing stock in the OGE Fort Smith market. The number of participates will continue to grow in need of assistance as the job market and economy remain stagnate to growth.
LivingWise®	The LivingWise® Program reaches 1800 students each year. This accounts for 80% of the 6th grade students and teachers in the Fort Smith Service Territory.	The LivingWise® Program has been expanded to reach 1800 students each year, capturing 80% of the available 6th grade students.	A saturation level will never be achieved. The market will continue to produce new students each year, all having the need to learn more about Energy Efficiency.
CER	Program Suspended in 2010.		
Commercial Motors	OGE had a low impact with the motor program with even the addition of upgrades from 10-100 horsepower.	Motor Upgrades have been placed in the Standard Offer Program	Premium efficient will become the new standard with the Energy Policy Act of 1992 and the Energy Independence and Security Act of 2007 Standards on 1-500HP. Utilizing the SOP program to include motor upgrades should have a positive impact in decision making in the Industrial Market.
Residential HVAC Tune Up / Duct Repair	The Residential Tune-Up has been received in a positive manner. Education of homeowner proves critical on proper care of HVAC equipment and duct work.	Program was enhanced with an additional 200 homes in the market place.	A market saturation will never be achieved. New homeowners will need to be educated on the advantages of properly charged and correct sizing of the equipment for ultimate performance in the home.
Window A/C Unit	The Window Unit A/C market has a narrow window of opportunity.	Marketing Energy Star® window units in big box stores as well as local hardware stores will be critical on the success of the program.	Education on the advantages of installing Energy Star® window units will be a must in all future advertising as well as the market place. This market is seasonal at best and provides a narrow window for achievement.
Commercial Lighting	The Commercial Lighting Program was enhanced with the new filing in July 2011. With the enhancements and the new lighting regulations, sales of more efficient lighting will continue to grow in the market.	Lighting upgrades will continue to grow as the market is evolving with the new Energy Standards enacted by the Federal Government. OGE will continue to reach out to educate the public authority, small commercial and light industrial customers with new and innovative lighting needs.	A Saturation level will never be achieved in the Commercial Lighting area. The addition of energy efficient LED fixtures in the market, will help the consumer to have a variety of choices for the future lighting needs. Along with new and innovative lighting controls, appliances and fixtures are in an ever changing environment for energy efficiency. This will continue to help lower overall operating cost and increase building efficiency.

Program Name	Market Assessment		
	Present Program	Future Comprehensive Program	Maturity 10-Year Outlook
Commercial & Industrial Standard Offer	The Commercial & Standard Offer program has allowed Industrial consumers the choice of variety of changes packaged together, if needed, to target applications in need of energy efficiency upgrades.	OGE has increased the program kW and kWh reductions for 2012-2013 program, in anticipation of a larger window to help Commercial and Industrial customers to help make energy efficiency upgrades in their businesses.	The Energy Policy Act of 1992 and the Energy Independence and Security Act of 2007 standards, will have an impact on the applications of motor upgrades. As premium efficiency motors become the new standard in energy efficiency a market saturation will allow incentives to go away
Commercial HVAC Tune-Up	The Commercial HVAC Tune-Up Program has allowed contractors to offer upgrades before and after tuning up HVAC equipment.	OGE has increased the kW and kWh reductions for the 2012-2013 program, in order to reach more commercial businesses to improve the efficiency of their existing equipment and or to upgrade their HVAC equipment to higher EER's.	A saturation level will never be achieved as Commercial businesses continue to explore ways to reduce over all energy cost. Education of proper maintained and equipment operation will be key to help move consumers to maintain their HVAC equipment in their business.
CFL	program closed April 8,2009		
Education Cooperative	The focus on Education is continual. There must be a constant marketing presence in educating the Consumer on advantages to managing their cost in utility usage.	Continue marketing to the consumer through both cooperative and self direct marketing tactics on management of utility usage.	A saturation level will never be achieved. The market will continue to produce new home owners, and energy users each year, all having a need to be educated on Energy usage in their homes, businesses, and industries.

5.6 Staffing

Names	Hours per week spent on Arkansas Programs	FTE
Program Management	40	1
DSM Management	7.5	.1875
Back Office Support	5	.125
Education Support	5	.125
Total	57.5	1.4375

Current staffing levels are sufficient to support the existing program. The 1 FTE working full time is able to meet the obligations a need to promote this program.

5.7 Stakeholder Activities

Date	Stakeholder	Number of Attendees	Purpose
4/19/2011	Community Clearinghouse	9	To train Clearinghouse Volunteers on proper sign up and information on upcoming program.
7/7/2011	Weatherization Contractors	21	Update contractors on weatherization requirements and promotion of program.
7/22/2011	HVAC Contractors	15	Promotion of Arkansas Energy Efficiency Programs for Residential and Commercial Programs.
9/21/2011	Weatherization/ Education	13	Training for Weatherization Contractor on Krigger Residential Book.
9/22/2012	Civic Group	68	Educational meeting on new OG&E residential programs.
11/1/2011	Fort Smith HVACR Group	37	Promoting Energy Efficiency programs to area HVACR Contractors.
11/17/2011	Kiwanis International	28	Promoting Energy Efficiency programs to area HVACR Contractors.
12/6/2011	Senior Citizen Group FBC Fort Smith	72	Promoting Energy Efficiency Programs for residential homeowners.
12/29/2011	Weatherization Contractor	15	Training for Weatherization Contractor on Krigger Residential Book.

5.8 Estimation of EE Resources Potential

OG&E uses demand side measures in the IRPs filed each year. One option of the demand side management includes the EE programs. The IRP filed in early 2010 outlined the EE program savings in both energy and peak reduction for the next 10 years. Combining the EE programs with other OG&E demand side programs (load Curtailment, Real-Time Pricing, Smart Power and Capacitor Controls) provides a comprehensive plan to reduce load through conservation efforts. These opportunities allow customers to receive savings on their utility bills or receive EE rebates for efficiency improvements. This IPR filing included the program goals for the EE program in both Oklahoma and Arkansas. As new EE programs are designed and approved, they will be integrated into the IRP planning to meet the systems energy requirements. These savings will continue over the lifetime of the improvements. This table shows the values included in the 2010 IRP plan.

	2011	2012
Peak Reduction (MW)	1.5	1.5
Energy Savings (MWH)	4,738	4,738

5.9 Information Provided to Consumers to Promote EE

Refer to the appendix 6.0 for examples used in the promotion of EE Programs.

6.0 Appendix A: EM&V Contractor Report

Attach as an appendix, any materials or documentation which is deemed useful in explaining or clarifying the results or performance of any program conducted during the program year. At minimum, the appendix should include any study or research relied upon in the delivery or EM&V of any program conducted during the program year. If any such items **include confidential information shall be redacted** in the public version of the document.

Evaluation of 2011 Arkansas Weatherization Program

Submitted to:

Arkansas Community Action Agencies Association
Arkansas Oklahoma Gas Corporation
CenterPoint Energy
Oklahoma Gas and Electric
American Electric Power – Southwestern Electric Power Company
Empire District Electric Company
Entergy
SourceGas Arkansas

March 2012

Final Report

Prepared by:

ADM Associates, Inc.

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1. Executive Summary

This report is to provide a summary of the evaluation effort of the 2011 Arkansas Weatherization Program. This report provides verified gross savings estimates for the evaluated program, as well as a process and documentation review.

1.1 Summary of Arkansas Weatherization Program

In 2011, the Arkansas Weatherization Program (AWP) provided residential energy audits and energy efficiency installations to customers within the following gas and electric utility service territories:

- Oklahoma Gas and Electric (OG&E);
- American Electric Power – Southwestern Electric Power Company (AEP-SWEPCO);
- Entergy;
- Empire District Electric Company (EDEC);
- Arkansas Oklahoma Gas Corporation (AOG);
- CenterPoint Energy (CenterPoint); and
- SourceGas Arkansas (SGA).

Participating homes were evaluated in order to determine potential energy efficiency measures that would improve overall building efficiency and reduce energy usage. The AWP is designed to use both gas utility and electric utility funds to assist customers with the costs of the in-home audit and installation of energy efficiency improvements. Under the AWP, customers are responsible for a portion of the audit cost, as well as any resulting equipment or measures to be installed in the home. The program is offered in conjunction with the Department of Energy (DOE) weatherization program which provided federal assistance to fund the customer co-payment in the AWP for income-qualified households. Customers are able to pay their own co-payment or, if eligible, receive these federal funds for the energy efficiency improvements in their homes.

In order to qualify for the AWP, customer homes must meet specific criteria indicating that the residence is severely energy-inefficient. The AWP is designed based on the "whole home" approach to residential energy efficiency, where energy efficiency measures are chosen and implemented based on total cost and energy savings rather than focusing on a specific fuel type or measure category.

Local community action agencies work with customers to enroll in the program and determine AWP and WAP eligibility. After the customer is approved and the in-home

audit is performed, optimal energy efficiency measures for AWP and WAP fund recipients are identified through the use of National Energy Audit Tool (NEAT) software. Contractors chosen by the local agencies then install these measures in the home. Resulting savings are calculated and recorded for the purposes of EM&V and cost-effectiveness testing.

1.2 Evaluation Objectives

As per the guidance of the Independent Evaluation Monitor (IEM), the evaluation of the 2011 Arkansas Weatherization Program (AWP) was somewhat limited in scope due to time constraints. The objectives of this evaluation include:

- Documentation review of deemed savings calculations. The evaluators reviewed all savings calculations for measures included in the Technical Reference Manual Version 1.0 (TRM), in order to ensure that measure savings were properly calculated according to TRM protocols.

- Tracking database review. The evaluators conducted a tracking database review according to the guidelines defined in Protocol A of the TRM.

- Conduct program staff interviews. The 2011 evaluation includes what constitutes "light" process evaluation. Process evaluation activities were limited to interviews with utility staff and third-party implementation staff. These interviews served to provide a history of the programs, allowed for initial recommendations for program improvement, and provided a starting point for further process evaluation activities

1.3 Summary of Findings

Table 1-1 and Table 1-2 present gross savings for electric utilities and gas utilities, respectively. Table 1-3 presents the gross impact by measure. The net-to-gross ratio for the current program year is stipulated as 100%.

Table 1-1 Gross Savings by Electric Utility

Electric Utility	*# of Homes*	*Peak Demand Savings (kW)*	*Annual Savings (kWh)*	*Lifetime Savings (kWh)*
AEP-SWEPCO	31	63.34	178,650	2,354,518
EDEC	-	-	-	-
Entergy	559	669.08	1,991,412	27,947,114
OG&E	89	114.62	442,428	6,585,546
Municipal/Co-Op	131	163.56	373,991	5,360,989
Total	810	1,010.61	2,986,482	42,248,167

Table 1-2 Gross Savings by Gas Utility

Electric Utility	*# of Homes*	*Peak Demand Savings (Therms)*	*Annual Savings (Therms)*	*Lifetime Savings (Therms)*
AOG	43	376.97	21,728	337,897
CenterPoint	498	3,854.07	198,734	2,836,457
SGA	47	315.83	21,317	375,230
Municipal/Co-Op	221	590.70	34,096	548,994
Total	810	5,137.58	275,875	4,098,579

Table 1-3 Gross Savings by Measure Type

Measure	*Peak Demand Savings (kW)*	*Annual Savings (kWh)*	*Lifetime Savings (kWh)*	*Peak Demand Savings (Therms)*	*Annual Savings (Therms)*	*Lifetime Savings (Therms)*
AC Tune-Up	4.75	10,563	52,814	-	-	-
Air Infiltration	400.39	1,015,592	10,155,916	3,395.18	137,045	1,370,452
Ceiling Insulation	410.41	810,578	16,211,551	769.05	47,501	950,013
Central AC Replacement	1.55	3,347	50,205	-	-	-
Central HP Replacement	1.18	6,197	92,955	-	-	-
CFL	46.18	529,794	3,973,453	-	-	-
Duct Efficiency	0.55	1,126	11,260	2.37	114	1,137
Energy Star Refrigerator	14.96	110,057	2,091,083	-	-	-
Floor Insulation	-	109,960	2,199,194	209.93	15,311	306,213
Foundation	-	8,039	160,780	12.06	8,897	177,940
Gas Furnace Replacement	-	-	-	305.78	16,604	332,085
Gas Furnace Tune-Up	-	-	-	14.39	666	1,997
Low Flow Showerhead	1.41	13,113	131,135	1.01	968	9,677
Refrigerator Replacement	5.91	43,433	825,227	-	-	-
Storm Windows	4.04	8,039	160,780	12.66	2,746	54,920
Wall Insulation	23.34	122,400	2,447,993	300.89	18,117	362,332

Measure	*Peak Demand Savings (kW)*	*Annual Savings (kWh)*	*Lifetime Savings (kWh)*	*Peak Demand Savings (Therms)*	*Annual Savings (Therms)*	*Lifetime Savings (Therms)*
Water Heater Jacket	0.71	9,586	124,618	1.54	864	11,233
Water Heater Pipe	2.56	8,052	104,676	1.84	1,932	21,248
Water Heater Replacement	-	-	-	0.95	323	3,553
Window AC Replacement	8.88	10,632	135,026	-	-	-
Window Replacement	83.79	165,975	3,319,500	109.94	24,789	495,780
Total	1,010.61	2,986,482	42,248,167	5,137.58	275,875	4,098,579

Following a review of present program offerings and interviews with utility and third party implementation staff, the evaluators found that:

- The AWP has made efforts to provide education, training, and marketing in order to reduce barriers to increased energy efficiency. However, some community action agencies involved with the AWP are having difficulties engaging the customer market. The AWP is promoted in different manners, and to varying degrees, depending on the local agency involved. This suggests that while program operations staff is very familiar with program operations and procedures, there are likely customer segments that have not been informed of the AWP or the energy-efficiency improvements available for their homes.
- For the most part, the AWP has sufficient budget and staff to meet its goals. Utility staff members have indicated that some members of implementation staff have taken on several additional responsibilities in order to increase program success and maintain smooth operations. Utility staff members also reported that it is often difficult to predict or control whether the program will meet utility goals, as the local community action agencies are responsible for the majority of program management and implementation. Interviewed staff stated that these agencies are able to determine their own staffing levels and degree of involvement with the program.
- The offerings through the AWP address all typical and available end-uses. Equipment offered within the program includes lighting, HVAC, water heating, and a full complement of building envelope measures including insulation, duct repair, air sealing, ENERGY STAR windows, and others. In addition to providing full weatherization services, the program involves a wide range of residential measures which are directed towards general energy efficiency.
- The AWP is effectively addressing the comprehensive needs of its residential customers. The program is designed to identify the lowest-cost, highest-efficiency measures and provide them to customers where the measures will be most effective. The AWP is able to target severely inefficient homes and accurately select the most effective measures from a wide range of options. As

the objective of the program is to expense available funds. This minimizes "cream skimming", as the measures are typically chosen on behalf of the customer based on specific customer needs, cost, and resulting energy savings.

- The marketing and outreach efforts of the AWP may not be effectively targeting all relevant market segments within each service territory. Participation by customers not receiving WAP federal funding has been very limited thus far, and it appears that the program is having difficulty engaging customers who are financially able to pay for a portion of their home weatherization. The AWP is effectively utilizing non-utility program resources in the form of WAP funding that is conjointly provided to eligible customers participating in the AWP. These resources have been leveraged with utility funds in order to offset the costs of energy efficiency improvements to the customer.
- The AWP enables the delivery of cost-effective energy efficiency to utility customers throughout Arkansas. The program is designed to identify and implement the most cost-effective and energy efficient measures available for customer residences, and leverages federal funding for energy efficiency projects. The federal waiting list for customers intending to receive WAP funding in addition to AWP utility funds likely increases lead times for prospective participants, but the overall implementation time frames are adequate in generating net energy savings in each participating service territory.
- There are sufficient EM&V procedures to allow for support of the implementation process and calculation of energy savings. The AWP internal M&V process was largely adequate and accurate in savings calculations. There were shortfalls particularly in two areas. First, the tracking data was not stratified to fall within TRM strata for central AC replacement, central HP replacement, and CFLs. Second, insufficient tracking data was provided to perform the calculations according to TRM protocols for gas furnace replacement, low-flow showerheads, and window replacement. For most of the measures, these shortfalls did not significantly affect the overall savings. However, window replacement savings could not be verified and represent six percent of the overall kWh savings and nine percent of the overall therms savings.

Additionally, the evaluators make the following recommendations in order to improve program operations and overall performance for future program years:

- Ensure an understanding of program software and calculation methodology. It is important for all relevant program staff to ensure that they understand any specific characteristics of the program software that would affect their interpretation of the data they receive. Additionally, it would be beneficial for the local agencies to continually provide up-to-date participation data and to retain all program documentation for the purposes of error-checking.

- Continue to standardize the savings approach for each measure in order to promote program-wide consistency and reduce the potential for data discrepancies. There are some measures that appear in the NEAT software but do not match Arkansas TRM values or are not contained within the TRM, such as foundation insulation. As mentioned by interviewed program operations staff members, modifications and additions to the TRM will create a more comprehensive program resource.
- Consider modifications to program marketing methods in order to appeal to a wider customer base. Such considerations may include utilities cross-promoting the AWP with their other energy-efficiency programs or providing marketing materials to equipment contractors. Additionally, promoting the AWP as a separate program from the WAP may emphasize the fact that the AWP is not exclusively for WAP-eligible customers.
- Take advantage of the multi-territory program structure to develop program best practices over time. There is an opportunity for each utility and community action agency to observe program operation in different service territories and identify effective marketing approaches, program management characteristics, and other operational aspects that may improve program success if properly employed.
- Maintain active communication throughout the program year. Interviewed staff members indicated that if there are errors within data entries or other program documentation, the situation is much easier to address if it is discovered before the error is repeated for a large number of participants. This suggests that more active communication among all parties would assist in the early identification of any issues or inconsistencies that require attention.

1.4 Report Organization

The report is organized as follows:

- Chapter 2 presents the impact findings and discusses the methods used for, and the results obtained from, estimating gross savings for the program;
- Chapter 3 presents and discusses the methods used for, and results obtained from, the process evaluation of the program; and
- Chapter 4 presents key conclusions and recommendations from the evaluation of the program.

2. Impact Findings

This section presents the results of the gross savings verification and savings calculation review for the Arkansas Weatherization Program (AWP) in the 2011 program year.

2.1 Gross Savings Calculation Methodology

For equipment and retrofits rebated through the 2011 program, calculation methodologies were performed as described in the TRM. Table 2-1 identifies the sections in the TRM that were used for verification of measure-level savings under the AWP.

Table 2-1 TRM Sections by Measure Type

Measure	*Section in TRM*
AC Tune up	3.1
Air Infiltration	2.19
Ceiling Insulation	2.12
Central AC Replacement	2.6
Central HP Replacement	2.8
CFL	2.28
Duct Efficiency	4.1
Energy Star Refrigerator	2.27
Floor Insulation	2.14
Foundation	N/A
Gas Furnace Replacement	2.3
Gas Furnace Tune up	2.4
Low Flow Showerhead	2.24
Refrigerator Replacement	2.27
Storm Windows	N/A
Wall Insulation	2.13
Water Heater Jacket	2.21
Water Heater Pipe	2.22
Water Heater Replacement	2.20
Window AC Replacement	2.10
Window Replacement	2.17

Three measures accounted for the majority of the gross savings for the AWP: air infiltration reduction, ceiling insulation, and the replacement of incandescent lamps with compact fluorescent lamps (CFLs). The calculation methodologies for these measures are detailed in the following sections. In these examples, energy units are expressed in kWh.

2.2 Air Infiltration Reduction Savings Calculations

The deemed savings values for air infiltration reduction were developed through EnergyGauge, a simulation software program. Multiple equipment configurations were simulated in each of the four Arkansas weather zones in developing savings values denominated in deemed savings per CFM_{50} of air leakage rate reduction. Table 2-2 summarizes the deemed savings values for Weather Zone 7.

Table 2-2 Deemed Savings Values for Air Infiltration Reduction, Zone 7

Equipment Type	*kWh Savings / CFM50*	*kW Savings / CFM50*	*Therm Savings / CFM50*	*Peak Therms / CFM50*
Electric AC with Gas Heat	0.2387	0.0002171	0.0790	0.001853
Gas Heat Only (no AC)	0.565	n/a	0.0790	0.001853
Elec. AC with Resistance heat	1.7891	0.0001584	n/a	n/a
Heat Pump	1.1295	0.0001584	n/a	n/a

For example, consider a residence in Weather Zone 7 with electric AC and gas heat. If the residence had a leakage rate of 16,100 CFM_{50} before air infiltration reduction and a leakage rate of 7,220 CFM_{50} after, then the residence would have an annual gross savings of 2,120 kWh.

$$Air\ Infiltration\ Savings = 0.2387 \frac{kWh\ Savings}{CFM_{50}} \cdot \left(16{,}100\ CFM_{50\ pre} - 7{,}220\ CFM_{50\ post}\right)$$

$$Air\ Infiltration\ Savings = 2{,}120\ kWh$$

2.3 Ceiling Insulation Savings Calculations

The deemed savings values for ceiling insulation were developed through EnergyGauge, a simulation software program. Multiple equipment configurations were simulated in each of the four Arkansas weather zones in developing savings values denominated in deemed savings per square footage of ceiling area. Table 2-3 summarizes the deemed savings values for Weather Zone 8.

Table 2-3 Deemed Savings Values for Ceiling Insulation, Zone 8

Ceiling Insulation Base R- Value	*AC/Gas Heat kWh/sq ft*	*Gas Heat (no AC) Therms/sq ft*	*AC/Electrical Resistance kWh/sq ft*	*Heat Pump kWh/sq ft*	*AC Peak Savings kW/ sq ft*	*Peak Gas Savings Therms/sq ft*

Ceiling Insulation Base R- Value	*AC/Gas Heat kWh/sq ft*	*Gas Heat (no AC) Therms/sq ft*	*AC/Electrical Resistance kWh/sq ft*	*Heat Pump kWh/sq ft*	*AC Peak Savings kW/ sq ft*	*Peak Gas Savings Therms/sq ft*
0 to 4	1.53	0.145	4.8	2.83	0.00115	0.00244
5 to 8	0.756	0.0841	2.65	1.53	0.00038	0.00140
9 to 14	0.451	0.0547	1.68	0.969	0.00029	0.0090
15 to 22	0.28	0.0359	1.1	0.629	0.00013	0.00059

For example, consider a residence in Weather Zone 8 with a heat pump, and a pre-retrofit R-value of ceiling insulation in the range of 9 to 14. If the residence has a ceiling area of 1,200 sq. ft., then the residence would have an annual gross savings of 1,163 kWh.

$$Ceiling\ Insulation\ Savings = 0.969 \frac{kWh}{ft^2} \cdot (1{,}200\ ft^2) = \ 1{,}163\ kWh$$

2.4 Compact Fluorescent Lamps (CFLs) Savings Calculations

Initially, the TRM savings values for CFLs were based off an assumption of 2.28 hours per day. This was revised to 2.20 hours per day in a stipulated agreement to amend the TRM in February 2012. Table 2-4 summarizes the deemed savings values for CFLs.

Table 2-4 Deemed Savings Values for CFLs

Average CFL (Watt)	*Measure CFL Range (Watts)*	*Comparable Incandescent Light (Watts)*	*Daily Usage (Hrs/Day)*	*Annual Energy Savings (kWh)*	*Demand Savings (kW)*
11	9-12	40	2.20	23.16	0.0026
15	13-17	60	2.20	35.70	0.0041
23	18-25	75	2.20	41.49	0.0047
27	26-32	100	2.20	58.86	0.0066

For example, if a residence replaced (5) 75W incandescent lamps with (5) 23W CFLs, then the residence would have an annual gross savings of 207.5 kWh.

$$CFLs\ Savings = 5 \cdot 41.49 kWh = 207.5\ kWh$$

2.5 Verified Savings by Measure

After reviewing the tracking data and inputs for savings calculations, the evaluators provided verified gross savings according to TRM protocols. Savings from the following measures were verified and matched the calculations provided by Frontier Associates:

- AC Tune Up;
- Air Infiltration;
- Ceiling Insulation;
- Floor Insulation;
- Gas Furnace Tune Up;
- Wall Insulation;
- Water Heater Jackets;
- Water Heater Pipe; and
- Water Heater Replacements.

The savings calculated in this evaluation differed from Frontier Associates' calculations for several items in the TRM. The evaluators verified measure-level savings according to TRM guidelines and obtained results that differed from Frontier Associates' calculations for the following measures:

- Central AC Replacement and Central HP Replacement
  - Frontier Associates reported savings for units with a seasonal energy efficiency ratio (SEER) of less than 14.00, while the minimum accepted SEER within the TRM is 14.50. Measures having a SEER lower than 14.00 were given zero savings in the verification process.
  - In sections 2.6 and 2.8 of the TRM, the lowest savings stratum is SEER 14.50-14.99, while the tracking data received by the evaluators includes a stratum of SEER 14.00-14.99. This suggests that some of the units within the 14.00-14.99 range have a SEER of less than 14.50 and do not qualify for savings under the TRM guidelines. As the evaluators did not have enough information to determine the precise SEER for measures within the 14.00-14.99, it is unclear how many of these measures would qualify for savings within the TRM. The evaluators used the TRM values for the 14.50-14.99 stratum for all of these measures, which resulted in a higher savings level than what was reported by Frontier Associates.
- CFLs
  - In section 2.28, the TRM has four strata depending on the CFL range in watts. One stratum in the tracking data received from Frontier Associates (14-18 watts) overlaps two of the strata in the TRM (13-17 watts and 18-25 watts). In order to have a conservative estimate, the evaluators calculated savings using the lower of the two strata from the TRM (13-17 watts). However, the resulting kWh savings estimate was greater than Frontier Associates' calculations by a factor of 1.70.

  - For the 19-21 watts stratum, the evaluators calculated kWh savings values that were greater than Frontier Associates' calculations by a factor of 1.26.
  - For the 22-25 and 26-28 watts strata, the evaluators calculated kWh savings values that matched those provided by Frontier Associates.
  - For the lower two strata (14-18 watts and 19-21 watts), the evaluators calculated higher kW values than those provided by Frontier Associates. For the remaining strata (22-25 watts and 26-28 watts), the evaluators calculated lower kW values than those provided by Frontier Associates.

- Energy Star Refrigerator and Refrigerator Replacement
  - In section 2.27, the TRM provides deemed savings values based on retrofit type. The tracking data received by Frontier Associates provide the retrofit type; however, the savings reported by Frontier Associates differs from the values in the TRM.
- Gas Furnace Replacement
  - In section 2.3, the TRM provides savings values denominated by deemed savings per kBTUh output of the furnace. However, the savings values presented by Frontier Associates are values from the TRM that have not been multiplied by the kBTUh output. In addition, the tracking data did not provide the kTBUh outputs of the furnaces. The evaluators averaged kBTUh values obtained from an analysis of a similar program to calculate savings.
- Low-flow Showerheads
  - In section 2.24, the TRM provides tables with savings based on the quantity of showerheads installed and the number of showers present in the residence. However, the tracking data received by the evaluators did not include the quantity of showerheads or the number of showers in each residence. The evaluators assumed a 100% installation rate of 1.5 gpm showerheads, and calculated savings based on the maximum allowable savings in the TRM.
- Window AC Replacement
  - In section 2.10, the TRM provides savings based on weather zone and unit size (BTU/hr). Savings provided by Frontier Associates matched the evaluators' calculations for the majority of installations, although differences were found for some of installations. The evaluators used the values from the TRM to calculate savings.

Savings for some of the measure types could not be verified due to a lack of information within the tracking data received or within the TRM. These measures include:

- Duct efficiency

  - In section 4.1, the TRM provides information regarding the calculation of savings, but the actual formula used does not appear to be present within the main document. This measure represented only 0.04% of the overall kWh savings and 0.04% of the overall therms savings.

- Foundation Insulation and Storm Windows
  - These measures are not detailed in the TRM. Foundation insulation represented only 0.3% of the overall kWh savings and three percent of the overall therms savings. Storm windows only represented 0.3% of the overall kWh savings and one percent of the overall therms savings.
- Window Replacement
  - In section 2.17, the TRM provides savings based on weather zone, equipment type, and whether the window is single or double paned. The tracking data received by the evaluators did not include the square footage of windows or information regarding whether the windows were single or double paned. This measure accounted for a relatively large percentage of overall savings, at nearly six percent of the overall kWh savings and nine percent of the overall therms savings.

Table 2-5 presents the savings results of the evaluation of the 2011 Arkansas Weatherization Program, by measure. Total savings summarizes the savings calculations performed as per TRM protocols for the AWP. The net-to-gross ratio for the AWP is stipulated at 100% for the program year.

Table 2-5 Verified Savings by Measure Type

Measure	*Peak Demand Savings (kW)*	*Annual Savings (kWh)*	*Lifetime Savings (kWh)*	*Peak Demand Savings (Therms)*	*Annual Savings (Therms)*	*Lifetime Savings (Therms)*
AC Tune-Up	4.75	10,563	52,814	-	-	-
Air Infiltration	400.39	1,015,592	10,155,916	3,395.18	137,045	1,370,452
Ceiling Insulation	410.41	810,578	16,211,551	769.05	47,501	950,013
Central AC Replacement	1.55	3,347	50,205	-	-	-
Central HP Replacement	1.18	6,197	92,955	-	-	-
CFL	46.18	529,794	3,973,453	-	-	-
Duct Efficiency	0.55	1,126	11,260	2.37	114	1,137
Energy Star Refrigerator	14.96	110,057	2,091,083	-	-	-
Floor Insulation	-	109,960	2,199,194	209.93	15,311	306,213
Foundation	-	8,039	160,780	12.06	8,897	177,940
Gas Furnace Replacement	-	-	-	305.78	16,604	332,085
Gas Furnace Tune-Up	-	-	-	14.39	666	1,997
Low Flow Showerhead	1.41	13,113	131,135	1.01	968	9,677

Measure	Peak Demand Savings (kW)	Annual Savings (kWh)	Lifetime Savings (kWh)	Peak Demand Savings (Therms)	Annual Savings (Therms)	Lifetime Savings (Therms)
Refrigerator Replacement	5.91	43,433	825,227	-	-	-
Storm Windows	4.04	8,039	160,780	12.66	2,746	54,920
Wall Insulation	23.34	122,400	2,447,993	300.89	18,117	362,332
Water Heater Jacket	0.71	9,586	124,618	1.54	864	11,233
Water Heater Pipe	2.56	8,052	104,676	1.84	1,932	21,248
Water Heater Replacement	-	-	-	0.95	323	3,553
Window AC Replacement	8.88	10,632	135,026	-	-	-
Window Replacement	83.79	165,975	3,319,500	109.94	24,789	495,780
Total	1,010.61	2,986,482	42,248,167	5,137.58	275,875	4,098,579

2.6 Verified Savings for Electric Utilities

The Arkansas Weatherization Program is designed to use both electric and gas utility funds to assist customers with the cost of the in-home audit and energy efficient measures. The participating electric utilities are AEP-SWEPCO, EDEC, Entergy, and OG&E. Savings not attributable to these utilities are from municipal and Co-Op providers not participating in the AWP. Table 2-6 presents the savings results of the evaluation of the 2011 AWP for electric utilities. Table 2-7 through Table 2-11 summarize the savings by measure for each electric utility.

Table 2-6 Verified Savings for Electric Utilities

Electric Utility	# of Homes	Peak Demand Savings (kW)	Annual Savings (kWh)	Lifetime Savings (kWh)
AEP-SWEPCO	31	63.34	178,650	2,354,518
EDEC	-	-	-	-
Entergy	559	669.08	1,991,412	27,947,114
OG&E	89	114.62	442,428	6,585,546
Municipal/Co-Op	131	163.56	373,991	5,360,989
Total	810	1,010.61	2,986,482	42,248,167

Table 2-7 Verified Savings for AEP-SWEPCO

Measure	Peak Demand Savings (kW)	Annual Savings (kWh)	Lifetime Savings (kWh)
AC Tune-Up	-	-	-
Air Infiltration	42.22	97,566	975,661
Ceiling Insulation	14.91	33,759	675,172
Central AC Replacement	-	-	-
Central HP Replacement	-	-	-
CFL	1.39	18,214	136,603
Duct Efficiency	-	-	-

Measure	*Peak Demand Savings (kW)*	*Annual Savings (kWh)*	*Lifetime Savings (kWh)*
Energy Star Refrigerator	0.40	2,972	56,468
Floor Insulation	-	4,166	83,311
Foundation	-	(149)	(2,980)
Low Flow Showerhead	0.06	558	5,580
Refrigerator Replacement	-	-	-
Storm Windows	0.61	1,380	27,600
Wall Insulation	2.10	16,760	335,209
Water Heater Jacket	0.01	136	1,768
Water Heater Pipe	0.11	352	4,576
Window AC Replacement	0.32	437	5,550
Window Replacement	1.21	2,500	50,000
Total	63.34	178,650	2,354,518

Table 2-8 Verified Savings for EDEC

Measure	*Peak Demand Savings (kW)*	*Annual Savings (kWh)*	*Lifetime Savings (kWh)*
AC Tune-Up	-	-	-
Air Infiltration	-	-	-
Ceiling Insulation	-	-	-
Central AC Replacement	-	-	-
Central HP Replacement	-	-	-
CFL	-	-	-
Duct Efficiency	-	-	-
Energy Star Refrigerator	-	-	-
Floor Insulation	-	-	-
Foundation	-	-	-
Low Flow Showerhead	-	-	-
Refrigerator Replacement	-	-	-
Storm Windows	-	-	-
Wall Insulation	-	-	-
Water Heater Jacket	-	-	-
Water Heater Pipe	-	-	-
Window AC Replacement	-	-	-
Window Replacement	-	-	-
Total	-	-	-

Table 2-9 Verified Savings for Entergy

Measure	*Peak Demand Savings (kW)*	*Annual Savings (kWh)*	*Lifetime Savings (kWh)*
AC Tune-Up	4.15	9,419	47,094
Air Infiltration	272.41	673,365	6,733,651
Ceiling Insulation	266.77	548,911	10,978,225
Central AC Replacement	1.10	2,375	35,625
Central HP Replacement	0.54	2,543	38,145
CFL	33.35	371,841	2,788,811

Measure	*Peak Demand Savings (kW)*	*Annual Savings (kWh)*	*Lifetime Savings (kWh)*
Duct Efficiency	0.32	415	4,150
Energy Star Refrigerator	10.60	77,985	1,481,715
Floor Insulation	-	82,327	1,646,538
Foundation	-	3,907	78,140
Low Flow Showerhead	0.99	9,207	92,073
Refrigerator Replacement	3.99	29,346	557,574
Storm Windows	2.91	5,567	111,340
Wall Insulation	11.06	46,613	932,267
Water Heater Jacket	0.52	7,010	91,130
Water Heater Pipe	1.75	5,500	71,500
Window AC Replacement	4.84	5,817	73,876
Window Replacement	53.77	109,263	2,185,260
Total	669.08	1,991,412	27,947,114

Table 2-10 Verified Savings for OG&E

Measure	*Peak Demand Savings (kW)*	*Annual Savings (kWh)*	*Lifetime Savings (kWh)*
AC Tune-Up	0.27	504	2,520
Air Infiltration	21.59	146,062	1,460,618
Ceiling Insulation	63.13	126,702	2,534,046
Central AC Replacement	-	-	-
Central HP Replacement	0.64	3,654	54,810
CFL	4.22	55,984	419,882
Duct Efficiency	0.03	291	2,910
Energy Star Refrigerator	2.02	14,860	282,340
Floor Insulation	-	15,358	307,164
Foundation	-	1,442	28,840
Low Flow Showerhead	0.15	1,395	13,951
Refrigerator Replacement	1.11	8,143	154,717
Storm Windows	0.18	314	6,280
Wall Insulation	5.68	36,146	722,911
Water Heater Jacket	0.10	1,386	18,018
Water Heater Pipe	0.43	1,364	17,732
Window AC Replacement	2.06	2,418	30,709
Window Replacement	13.01	26,405	528,100
Total	114.62	442,428	6,585,546

Table 2-11 Verified Savings for Municipal/Co-Op

Measure	*Peak Demand Savings (kW)*	*Annual Savings (kWh)*	*Lifetime Savings (kWh)*

Measure	*Peak Demand Savings (kW)*	*Annual Savings (kWh)*	*Lifetime Savings (kWh)*
AC Tune-Up	0.33	640	3,200
Air Infiltration	64.17	98,599	985,986
Ceiling Insulation	65.60	101,205	2,024,108
Central AC Replacement	0.45	972	14,580
Central HP Replacement	-	-	-
CFL	7.22	83,754	628,158
Duct Efficiency	0.19	420	4,200
Energy Star Refrigerator	1.94	14,240	270,560
Floor Insulation	-	8,109	162,182
Foundation	-	2,839	56,780
Low Flow Showerhead	0.21	1,953	19,531
Refrigerator Replacement	0.81	5,944	112,936
Storm Windows	0.34	778	15,560
Wall Insulation	4.50	22,880	457,606
Water Heater Jacket	0.08	1,054	13,702
Water Heater Pipe	0.27	836	10,868
Window AC Replacement	1.66	1,960	24,892
Window Replacement	15.79	27,807	556,140
Total	163.56	373,991	5,360,989

2.7 Verified Savings for Gas Utilities

The Arkansas Weatherization Program is designed to use both electric and gas utility funds to assist customers with the cost of the in-home audit and energy efficient measures. The participating gas utilities are AOG, CenterPoint, and SourceGas. Savings not attributable to these utilities are from municipal and Co-Op providers not participating in the AWP. Table 2-12 presents the savings results of the evaluation of the 2011 AWP for gas utilities. Table 2-13 through Table 2-16 summarize the savings by measure for each gas utility.

Table 2-12 Verified Savings for Gas Utilities

Electric Utility	*# of Homes*	*Peak Demand Savings (Therms)*	*Annual Savings (Therms)*	*Lifetime Savings (Therms)*
AOG	43	376.97	21,728	337,897
CenterPoint	498	3,854.07	198,734	2,836,457
SGA	47	315.83	21,317	375,230
Municipal/Co-Op	221	590.70	34,096	548,994
Total	810	5,137.58	275,875	4,098,579

Table 2-13 Verified Savings for AOG

Measure	*Peak Demand Savings (Therms)*	*Annual Savings (Therms)*	*Lifetime Savings (Therms)*
Air Infiltration	228.63	9,361	93,609

Measure	*Peak Demand Savings (Therms)*	*Annual Savings (Therms)*	*Lifetime Savings (Therms)*
Ceiling Insulation	62.22	3,748	74,954
Duct Efficiency	-	-	-
Floor Insulation	31.52	2,250	45,000
Foundation	0.51	396	7,920
Gas Furnace Replacement	5.65	315	6,309
Gas Furnace Tune-Up	0.45	25	75
Low Flow Showerhead	0.13	121	1,210
Storm Windows	0.77	151	3,020
Wall Insulation	30.12	1,795	35,896
Water Heater Jacket	0.02	11	139
Water Heater Pipe	0.14	150	1,646
Water Heater Replacement	-	-	-
Window Replacement	16.81	3,406	68,120
Total	376.97	21,728	337,897

Table 2-14 Verified Savings for CenterPoint

Measure	*Peak Demand Savings (Therms)*	*Annual Savings (Therms)*	*Lifetime Savings (Therms)*
Air Infiltration	2,743.23	110,179	1,101,792
Ceiling Insulation	533.84	33,019	660,376
Duct Efficiency	1.36	64	642
Floor Insulation	83.01	6,029	120,587
Foundation	3.68	2,706	54,120
Gas Furnace Replacement	164.99	8,872	177,431
Gas Furnace Tune-Up	13.29	614	1,843
Low Flow Showerhead	0.59	570	5,702
Storm Windows	10.94	2,376	47,520
Wall Insulation	213.01	12,789	255,782
Water Heater Jacket	1.09	610	7,928
Water Heater Pipe	1.40	1,470	16,166
Water Heater Replacement	0.70	239	2,629
Window Replacement	82.93	19,197	383,940
Total	3,854.07	198,734	2,836,457

Table 2-15 Verified Savings for SGA

Measure	*Peak Demand Savings (Therms)*	*Annual Savings (Therms)*	*Lifetime Savings (Therms)*
Air Infiltration	112.75	4,691	46,912
Ceiling Insulation	73.29	4,493	89,863
Duct Efficiency	0.99	49	485
Floor Insulation	49.30	3,490	69,797
Foundation	3.05	2,148	42,960

Measure	*Peak Demand Savings (Therms)*	*Annual Savings (Therms)*	*Lifetime Savings (Therms)*
Gas Furnace Replacement	48.70	2,694	53,889
Gas Furnace Tune-Up	-	-	-
Low Flow Showerhead	0.14	138	1,382
Storm Windows	0.95	219	4,380
Wall Insulation	15.99	926	18,520
Water Heater Jacket	0.19	106	1,383
Water Heater Pipe	0.12	123	1,355
Water Heater Replacement	0.16	53	583
Window Replacement	10.20	2,186	43,720
Total	315.83	21,317	375,230

Table 2-16 Verified Savings for Municipal/Co-Op

Measure	*Peak Demand Savings (Therms)*	*Annual Savings (Therms)*	*Lifetime Savings (Therms)*
Air Infiltration	310.56	12,814	128,139
Ceiling Insulation	99.70	6,241	124,821
Duct Efficiency	0.02	1	10
Floor Insulation	46.09	3,541	70,829
Foundation	4.82	3,647	72,940
Gas Furnace Replacement	86.43	4,723	94,455
Gas Furnace Tune-Up	0.65	26	79
Low Flow Showerhead	0.14	138	1,382
Storm Windows	-	-	-
Wall Insulation	41.77	2,607	52,135
Water Heater Jacket	0.25	137	1,783
Water Heater Pipe	0.18	189	2,081
Water Heater Replacement	0.09	31	341
Window Replacement	-	-	-
Total	590.70	34,096	548,994

3. Process Findings

In 2011, the Arkansas Weatherization Program (AWP) provided residential energy audits and energy efficiency installations to customers within the following gas and electric utility service territories:

- Oklahoma Gas and Electric (OG&E);
- American Electric Power – Southwestern Electric Power Company (AEP-SWEPCO);
- Entergy;
- Empire District Electric Corporation (EDEC);
- Arkansas Oklahoma Gas Corporation (AOG);
- CenterPoint Energy (CenterPoint); and
- SourceGas (SGA).

Participating homes were evaluated in order to determine potential energy efficiency measures that would improve overall building efficiency and reduce residential energy usage. The AWP provided funds for the installation of various measures, including:

- Attic, floor and wall insulation;
- Duct insulation and repair;
- Window sealing and replacement;
- Furnace, air conditioner, and heat pump tune-up and replacement;
- Water heater insulation and replacement;
- Lighting retrofits; and
- Low flow shower heads.

The AWP is designed to use both gas utility and electric utility funds to assist customers with the costs of the in-home audit and energy efficient measures. Under the AWP, customers are responsible for a portion of the audit cost, as well as any resulting equipment or measures to be installed in the home. The program is offered in conjunction with the Department of Energy (DOE) weatherization program which provided federal assistance to fund the customer co-payment in the AWP. Customers are able to pay their own co-payment or, if eligible, receive these federal funds for the energy efficiency improvements in their homes.

In order to qualify for the AWP, customer homes must meet specific criteria indicating that the residence is severely energy-inefficient. Participants must be a residential customer of at least one utility that is involved in the AWP. The program applies only to residences built prior to 1997, and the current owner must have occupied the home for at least one year. There are seven additional criteria determining eligibility; homes built prior to 1983 must meet three of these criteria, while homes built from 1983 to 1996 must meet four of these criteria[1]:

- Attic insulation less than or equal to R-12;
- Wall insulation equal to R-0;
- Floor insulation equal to R-0;
- Single pane windows with no storm windows attached;
- Heating system less than 70% AUE;
- Cooling system with SEER of 8 or less; and
- Air infiltration problems identified through a) visual inspection of duct-work, walls, floors, ceilings, doors, and windows; or b) pre-blower door test.

The AWP is designed based on the "whole home" approach to residential energy efficiency, where energy efficiency measures are chosen and implemented based on total cost and energy savings rather than focusing on a specific fuel type or measure category. Participating homes are serviced by one or more of the participating utilities, and may also be serviced by municipal co-ops. If the home has natural gas and electric service provided by participating utilities, or is all-electric, the participant receives the maximum funds through the program. In order to maintain cost-effectiveness, homes that are neither all-electric nor serviced by two participating utilities receive a lower level of assistance through the program.

Local community action agencies work with customers to enroll in the program and determine AWP and WAP eligibility. After the customer is approved and the in-home audit is performed, optimal energy efficiency measures for AWP and WAP fund recipients are identified through the use of National Energy Audit Tool (NEAT) software. Contractors chosen by the local agencies then install these measures in the home. Resulting savings are calculated and recorded for the purposes of EM&V and cost-effectiveness testing. These include planning, training, marketing, and other implementation activities performed by participating utilities, ACAAA, and local community action agencies.

[1] Eligibility requirements are taken from AWP application documentation. Obtained from: http://www.cadc.com/intranet/docs/applications/AWP%20Application.pdf

Table 3-1 identifies core program stages and includes key activities performed throughout the program process. These include planning, training, marketing, and other implementation activities performed by participating utilities, ACAAA, and local community action agencies.

Table 3-1 Key Activities and Program Stages

Program Stage	***Key Activities***
Program Design Planning	• ACAAA and utilities discuss program delivery and make design changes. • Necessary modifications made to program structure and operations. • Key parties meet to discuss program expectations and goals.
Training and Implementation Planning	• Community action agencies, contractors, and other program operations staff attend program-relevant training sessions. • ACAAA and local agencies discuss implementation and program updates.
Program Promotion	• Community action agencies market the program to local customers. • Utility representatives may cross-promote the AWP with other programs.
Program Participation	• Customers apply for the AWP. • WAP eligibility is determined. • Participants receive in-home audits and measures are identified. • Contractors install measures that are either stipulated based on NEAT software or are agreed upon with the customer (depending on WAP status).
Data Processing and Monitoring	• Measures and associated savings are calculated and recorded. • Agencies update ACAAA and utilities with participation data throughout the year. • Utilities, ACAAA, and local agencies continue to communicate regarding program progress and participation.

3.1 Arkansas Weatherization Program 2011 Participation

In 2011, the Arkansas Weatherization Program serviced a total of 810 homes. Services provided to residences included in-home energy audits as well as the installation of various energy efficiency measures. The program was promoted and implemented through local community action agencies, which were responsible for communicating with potential participants and enrolling them in the program. *Table 3-2* displays total participation disaggregated by the community agency associated with the participant.

Table 3-2 Total Participation by Community Action Agency

Agency Name	*Percentage of Participating Homes*
Central Arkansas Development Council	33%
Universal Housing Corporation	28%
Crowley's Ridge Development Council, Inc.	17%

Agency Name	*Percentage of Participating Homes*
Pine Bluff Jefferson County Economic Opportunities Commission, Inc.	6%
Crawford-Sebastian Community Development Council, Inc.	6%
Community Action Program for Central Arkansas, Inc.	5%
Southwest Arkansas Development Council, Inc.	4%
Mid-Delta Community Services, Inc.	1%
Office of Human Concern	0.1%
N	810

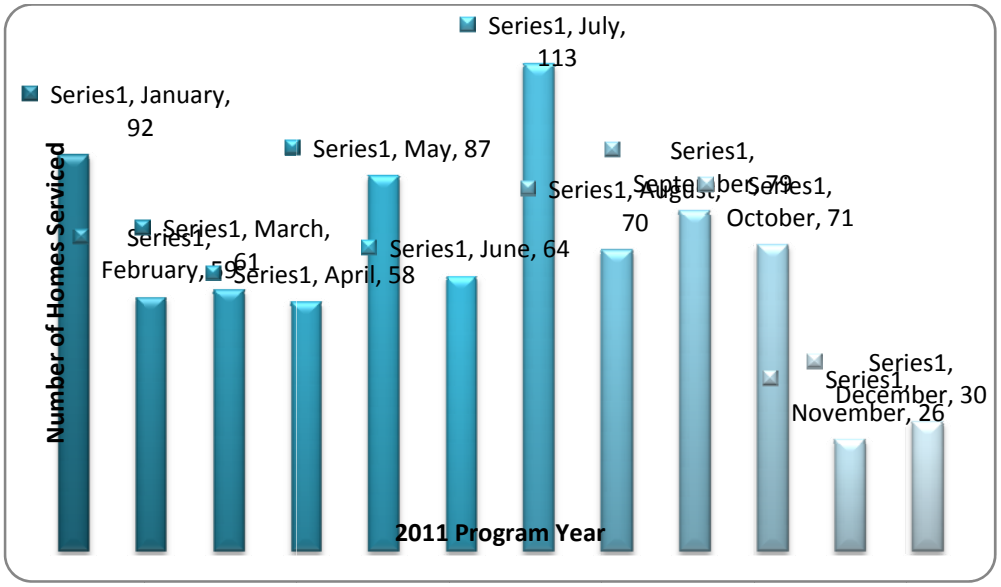
The AWP is offered in multiple utility service territories and is funded by gas utilities and electric utilities throughout Arkansas. Depending on the location of customers and the fuel sources used in their homes, services for each customer are funded by one gas utility, one electric utility, or both a gas and an electric utility. Table 3-3 cross-tabulates participation by the gas and/or electric utility associated with the participant.

Table 3-3 Participation by Associated Utility

Electric Utility	Gas Utility			
	Arkansas Oklahoma Gas	*CenterPoint*	*Source Gas*	*N/A*
Entergy	-	367	-	192
OG&E	37	3	24	25
AEP-SWEPCO	5	21	-	5
N/A	1	107	23	-

Figure 3-1 illustrates participation rates by month over the course of the 2011 year. Participation in the AWP fluctuated throughout the program year, with relatively higher participation levels between May and September and lower participation towards the end of the year.

Figure 3-1 Participation Rates by Month, 2011



A total of 4,736 separate measure installations were performed in the 2011 program year. Table 3-4 displays the number of installations by measure type, arranged by the most commonly installed measures. CFL installations were the most common measure type, followed by air infiltration. Air conditioning and gas furnace tune-ups accounted for a small number of installations.

Table 3-4 Total Installations by Measure

Measure	*Number of Installations*
CFL	823
Air Infiltration	804
Water Heater Pipe	622
Ceiling Insulation	527
Window Replacement	448
Water Heater Jacket	356
Gas Furnace Replacement	165
Energy Star Refrigerator	149
Floor Insulation	113
Low Flow Showerhead	103
Wall Insulation	89
Storm Windows	87
Window AC Replacement	87
Foundation	82
Refrigerator Replacement	61
Water Heater Replacement	49
Duct Efficiency	48
Central AC Replacement	39
Central HP Replacement	30

Measure	*Number of Installations*
AC Tune-Up	28
Gas Furnace Tune-Up	26
Total	4,736

The average square footage of participating residences was 1,273 while the median square footage was 1,214. Homes ranged from 264 square feet to 2,982 square feet.

3.2 Tracking Database Review

The evaluators received a tracking database developed by Frontier Associates, a consulting firm working with the implementation contractor and participating utilities. This tracking database was evaluated for overall organization and content.

3.2.1 Energy Savings Calculation Data

The tracking data was found to include sufficient information for the majority of the measures. However, the tracking data did not include sufficient information for the following measures:

- Central AC Replacement & Central HP Replacement
  - The tracking data presented two season energy efficiency ratio (SEER) strata: “SEER: Less than 14.00” and “SEER: 14.00-14.99”. However, the minimum efficiency standard in the TRM is a SEER of 14.50. Furthermore, deemed savings values are presented in the TRM for a SEER of 14.50-14.99, not for a SEER of 14.00-14.99. The evaluators calculated savings for the SEER 14.00-14.99 stratum with the deemed savings values from the SEER 14.50-14.99 stratum in the TRM. This results in a liberal estimate that could overestimate the true savings for this stratum.
- CFLs
  - The tracking data presented four strata for CFL wattage range. One stratum in the tracking data (14-18 watts) overlaps two strata in the TRM (13-17 and 18-25 watts). The evaluators calculated savings for this stratum based on the lower of the two TRM strata. This results in a conservative estimate that could underestimate the true savings for this stratum.
- Gas Furnace Replacement
  - The TRM presents savings values denominated by deemed savings per BTUh output of the furnace. The tracking data did not present the BTUh output of each furnace.
- Low-flow Showerheads

  - The TRM presents savings values as a function of the number of low-flow showerheads installed and the number of showers per household. The tracking data did not present the number of showerheads installed or the number of showers per household.

- Window Replacement
  - The TRM presents savings values denominated by deemed savings per square footage of the window area for both single and double pane windows. The tracking data did not present the square footage of the window area or whether the windows were single or double paned.

In addition, the weather zone of each household is necessary for many of the savings calculations. This information was used by Frontier Associates to calculate savings; however, it was not presented in the tracking data. In summary, the recommended changes to the tracking data include:

- Stratifying the tracking data to fall within strata presented in the TRM;
- Providing a complete set of necessary data; and
- Providing the weather zone of each household.

3.3 Program Process Review

The Arkansas Weatherization program began in 2007. The program provides utility funds to partially offset the cost of energy audits and associated energy efficiency measures. Initially, participants conducting a private co-payment for their energy audit were required to pay up to 75% of the $456 audit cost upfront, while the utilities would cover between 25% and 50% of the cost. In July of 2011, the program pricing structure was modified so that private co-pay customers would pay between $50 and $196 for the audit upfront depending on how many participating utilities the customer had. This change was made in order to make the audit more affordable for customers. For customers qualifying for WAP funding, the combined federal and utility sources fully cover the cost of the initial energy audit, and up to approximately $8,000 can be spent on associated energy efficiency measures (previously the cap was $3,000).

Energy efficiency measures for WAP and AWP participants are identified through the use of National Energy Audit Tool (NEAT) software, which determines the most cost-effective and energy-saving measures for each home. Several changes have been made to database tracking and savings documentation over the course of the program. These changes have primarily been related to overall data organization and accuracy, with further tracking improvements planned for the 2012 year.

The evaluators conducted telephone interviews with program staff members including utility staff and ACAAA staff. These interviews provided insight into the overall process of the AWP and key issues relevant to program structure, potential program changes, and overall program success.

3.3.1 Program Coordination

Interviewed program operations staff reported that the structure of the AWP involves many entities (utilities, contractors, and local agencies) working fairly independently of one another, which can cause barriers to active and continued communication among all parties. Staff members noted that it is important for these parties to be mutually aware of program details, goals, and updates, in order to ensure that the program operates smoothly.

Utility staff members explained that the program is structured such that program goals are mainly determined and required by the utilities, while much of the operational control of the program is handled by local community action agencies. As these agencies are able to choose whether to participate in the program and to set the level of resources that they will allocate to the program, each agency likely has significant influence on program performance in their respective local area. Some utility staff members indicated that this structure can create challenges in setting program expectations and contributing to overall program success throughout the year. Interview respondents indicated that some individuals are making efforts to coordinate all relevant parties and maintain program consistency, and that this would be a substantial task for one person to undertake.

3.3.2 Communication and Best Practices

Interview respondents commonly stated that while the utilities, local agencies, and ACAAA have planning meetings and training sessions, communication during the program year could be improved. Utility staff members explained that utilities and local agencies typically have minimal communication regarding program updates and participation throughout the year, which makes it difficult to identify any operational or data issues early in the program. Interviewed staff members indicated that if there are errors within data entries or other program documentation, the situation is much easier to address if it is discovered before the error is repeated for a large number of participants. This suggests that more active communication among all parties would assist in the early identification of any issues or inconsistencies that require attention.

The AWP's multifaceted delivery structure can be used to develop program best practices over time, which will contribute to program consistency and organization. The structure of the AWP involves many local agencies with different program delivery approaches, which causes program marketing and implementation to vary by region. Several interviewed utility staff members stated that the contractors working for local agencies have conducted high-quality installations, and that their local agencies appeared to be very successfully operating the program. This suggests that certain regions may offer insight into effective program operating procedures and approaches. This provides an opportunity for each utility and community action agency to observe program operation in different service territories and identify effective marketing

approaches, program management characteristics, and other operational aspects that may improve program success if properly employed.

3.3.3 Data Records and Savings Calculations

Interview respondents stated that there have been some issues with data consistency and calculations within the software used for program tracking. These staff members explained that changes had been made to the software since 2007 in order to address tracking issues and data input errors, but that some such issues still exist. Interview participants indicated that inconsistencies or delays with the data can cause difficulties in record-keeping and internal savings calculations. It is important for the local agencies to continually provide up-to-date participation data and to retain all program documentation for the purposes of error-checking. Additionally, it would be beneficial for all relevant program staff to ensure that they understand any specific characteristics of the program software that would affect their interpretation of the data they receive.

3.3.4 Program Marketing and Participation Profile

The AWP is structured such that the program is able to leverage federal funding along with utility funds to provide energy efficiency installations to eligible customers. While AWP eligibility criteria do not specify participant income levels, the federal funding component contains income level requirements. As nearly all of the AWP participants thus far have received the federal WAP funding, AWP participation has primarily consisted of customers with lower income levels. Interviewed utility and ACAAA staff members explained that it is important for the AWP to engage a broad range of customer segments, including customers who are able to provide private co-pays for AWP services. Several interview respondents indicated that certain aspects of program structure and operations have created challenges in engaging private co-pay customers. Currently, local community action agencies and ACAAA serve as the face of the program, and many customers may not be aware that the AWP is funded by their electric and gas utilities. Unlike with other utility energy-efficiency programs, customers who do not typically interact with local community action agencies are less likely to hear about the program or seek out AWP services. Modifications to program marketing methods, such as utilities cross-promoting the AWP with their other energy-efficiency programs or providing marketing materials to equipment contractors, may be beneficial in successfully appeal to a wider customer base.

Interview participants indicated that reductions in government ARRA funding will likely shift program participation and affect the ability of some customers to participate in the AWP. Due to income level requirements, customers who would be eligible for WAP funding may be financially unable to provide private co-pays under the AWP. This will likely cause a need for active engagement of customers who are able and willing to contribute their private funds towards their program participation.

3.4 Survey Documentation Review

The evaluators reviewed the community development agencies current efforts to survey participants in the Arkansas Weatherization Program (AWP). Four different survey forms have been used by the agencies. Three of these forms were tailored to the AWP but the fourth form, administered by one agency, was a standard client survey. The information provided to us by the development agencies indicated that nine of the agencies have administered at least one of these survey forms to participants and some agencies have administered two or three of the forms.

The content of the three AWP-focused surveys varied but they all solicited participants opinions of the program to varying levels of detail.

- The Arkansas Weatherization Client Form asked participants five Yes/No response questions about the effectiveness of the weatherization of their home and whether or not they would recommend the program to others. The form also asked respondents where they heard about the program and if they had any additional comments.
- The Home Weatherization Program Satisfaction Survey asked participants to rate their level of satisfaction with various program components and the program overall on a four-point scale. Respondents were asked to elaborate on aspects of the program that they gave low ratings for. They were also asked where they heard about the program and if they had any additional comments.
- The Client Response form asked participants to confirm that work done through the AWP was completed and if any measures were not implemented at the request of the client. One question asked participants to rate the quality of materials and workmanship involved in the program. Participants are also asked if they had any additional comments.

The fourth survey form, the Client Survey, did not focus on the weatherization program specifically, but appear to be applicable to any service provided by the agency. Participants responding to this survey were asked eight Yes/No response questions about the services they have received, whether or not they have volunteered with the agency, the effectiveness of the agency, and whether or not the respondents felt like a member of the community. Additional comments were also solicited.

Summaries of the survey data at the agency level were provided to the evaluators. A review of the survey data indicated that participants were satisfied with the weatherization services provided. Although differences in the forms did not allow for direct comparisons across the agencies, for all agencies, respondents gave favorable responses to the questions asked. That is, nearly all participants appeared to be satisfied with the program and there did not appear to be any agencies with more or less satisfied participants. The positive experience of participants was further substantiated by the written comments provided. Nearly all comments provided were

favorable and they praised the program in general, the measures implemented, and the workers who installed the measures.

The survey data provided by one agency included responses to a question about where participants heard about the program. A review of these responses found that participants typically heard about the program from friends or family, the agency, television or newspaper advertising, other community service organizations (e.g., unemployment office), news reports, or through church.

Some data was provided about measures that clients declined to have installed. Clients rejected a wide variety of measures including low-flow shower heads, refrigerators, thermostats, water heater blankets, wall insulation, window replacements and light bulbs.

It is the evaluators' understanding that the agencies intend to develop a single survey form that will be administered by all agencies. Greater consistency in the survey approach used could be an improvement over the current efforts. In developing a single survey form, the agencies should leverage their current efforts to determine what information is most useful for program monitoring and improvement purposes.

3.5 Training Session Activity Review

The evaluators reviewed a list of training courses attended in 2011 by the community development agencies that participated in the Arkansas Weatherization Program. Training courses were held in a variety of locations including the cities of Bentonville, Little Rock, and Rogers, and at a community and technical college campus located in Central Arkansas. A few trainings were held at out of state in New Orleans, LA and Golden, CO.

In total there were 495 attendees at 202 training sessions, with between one and 10 attendees were per class. About half of the courses offered certificates and, in total, 263 certificates were awarded. The training sessions averaged over 14 hours in length and resulted in more than 8,000 person-hours of training. Training sessions were held throughout the year but a third of the classes were held in the month of July.

Classes covered a wide variety of topics including courses on weatherization (e.g., weatherization in general, wall insulation, and home site types), health issues (e.g., mold and moisture, lead, and radon), energy audits, HVAC, and on the NEAT and MHEA software. A number of courses also pertained to more administrative topics such as leadership, grants, and health and safety courses. There were also classes for contractors such as general orientation courses and weatherization courses.

The training courses were sponsored by a number of groups including the community development agencies, a community and technical college, and the Arkansas Community Action Agencies Association (ACAAA).

Training sessions and associated certifications are typically an effective method of increasing familiarity with energy efficiency and program offerings in the market environment. Such courses are useful for promoting communication among contractors, agencies, and customers. It is recommended that further use of training sessions be emphasized throughout the state of Arkansas in order to develop skills and knowledge that will likely improve program operations and participation over time.

3.6 Waiting List and Deferral Records Review

In addition to the utility funding that partially offset the costs of in-home audits and measure installations, the majority of customers were eligible to receive federal funds through the Department of Energy Weatherization Assistance Program (WAP). This funding was available to customers who met specific socioeconomic criteria, and was used to cover the costs of equipment installation and servicing. Due to the large number of applicants for the federal WAP funds, customers were assigned to waiting lists after working with local community action agencies to determine eligibility.

The evaluators reviewed information related to the number of customers who were placed on waiting lists to receive WAP federal funding; some of these customers pursued WAP funding in conjunction with their participation in the AWP. At the end of the 2011 calendar year, there were more than 6,000 customers on the WAP waiting list who were associated with community action agencies in Arkansas. Participating agencies had between 51 and 1,070 prospective participants in the waiting list phase, suggesting that the 2012 program year will begin with many customers in the pipeline for AWP participation. As nearly all of the participants in the AWP have moved through WAP channels to receive federal funding, there is likely high potential for engaging customers who have a broader range of socioeconomic characteristics. Additionally, reductions in federal funding or other market factors may make it necessary to recruit customers who are able to participate in the AWP without assistance from the WAP.

Some of the participating community action agencies provided information related to the number of deferrals they have experienced with customers who were seeking to participate in the WAP. Deferrals typically occur when a residence is in a condition that would largely reduce or negate the effectiveness of weatherization measures. Such conditions include substantial roof leakage, otherwise damaged building structure, or other characteristics that prevent the home from satisfying program criteria. In 2011, at least 800 deferrals were made. In order to accurately identify the deferral rate and waiting list population specifically for customers who are participating in the AWP along with the WAP, it is recommended that the agencies keep updated indicating which customers are part of both the AWP and WAP components.

4. Conclusions & Recommendations

After reviewing the Arkansas Weatherization Program for 2011, the evaluators conclude that:

- The AWP has made efforts to provide education, training, and marketing in order to reduce barriers to increased energy efficiency. Program management staff, participating community action agencies, and contractors have attended various trainings in order to become familiar with both program procedures and energy efficiency measures over the course of the program. However, some community action agencies involved with the AWP are having difficulties engaging the customer market. Additionally, the AWP is generally marketed and promoted through channels that are separate from all other utility-funded energy efficiency programs. The AWP is promoted in different manners, and to varying degrees, depending on the local agency involved. This suggests that while program operations staff is very familiar with program operations and procedures, there are likely customer segments that have not been informed of the AWP or the energy-efficiency measures available for their homes.
- For the most part, the AWP has sufficient budget and staff to meet its goals. Utility staff members have indicated that some members of implementation staff have taken on several additional responsibilities in order to increase program success and maintain smooth operations. Utility staff members also reported that it is often difficult to predict or control whether the program will meet utility goals, as the local community action agencies are responsible for the majority of program management and implementation. Interviewed staff stated that these agencies are able to determine their own staffing levels and degree of involvement with the program.
- The offerings through the AWP address all typical and available end-uses. Equipment offered within the program includes lighting, HVAC, water heating, and a full complement of building envelope measures including insulation, duct repair, air sealing, ENERGY STAR windows, and others. In addition to providing full weatherization services, the program involves a wide range of residential measures which are directed towards general energy efficiency.
- The AWP is effectively addressing the comprehensive needs of its residential customers. The program is designed to identify the lowest-cost, highest-efficiency measures and provide them to customers where the measures will be most effective. The AWP is able to target severely inefficient homes and accurately select the most effective measures from a wide range of options. As the objective of the program is to expense available funds. This minimizes “cream skimming”, as the measures are typically chosen on behalf of the customer based on specific customer needs, cost, and resulting energy savings.

- The marketing and outreach efforts of the AWP may not be effectively targeting all relevant market segments within each service territory. Participation by customers not receiving WAP federal funding has been very limited thus far, and it appears that the program is having difficulty engaging customers who are financially able to pay for a portion of their home weatherization. The AWP is effectively utilizing non-utility program resources in the form of WAP funding that is conjointly provided to eligible customers participating in the AWP. These resources have been leveraged with utility funds in order to offset the costs of energy efficiency improvements to the customer.
- The AWP enables the delivery of cost-effective energy efficiency to utility customers throughout Arkansas. The program is designed to identify and implement the most cost-effective and energy efficient measures available for customer residences, and leverages federal funding for energy efficiency projects. The federal waiting list for customers intending to receive WAP funding in addition to AWP utility funds likely increases lead times for prospective participants, but the overall implementation time frames are adequate in generating net energy savings in each participating service territory.
- There are sufficient EM&V procedures to allow for support of the implementation process and calculation of energy savings. The AWP internal M&V process was largely adequate and accurate in savings calculations. There were shortfalls particularly in two areas. First, the tracking data was not stratified to fall within TRM strata for central AC replacement, central HP replacement, and CFLs. Second, insufficient tracking data was provided to perform the calculations according to TRM protocols for gas furnace replacement, low-flow showerheads, and window replacement. For most of the measures, these shortfalls did not significantly affect the overall savings. However, window replacement savings could not be verified and represent six percent of the overall kWh savings and nine of the overall therms savings.

The current program year consisted of a “limited” process evaluation, involving documentation review and interviews with key utility staff members and ACAAA staff members. For the 2012 process evaluation, the evaluators propose conducting additional evaluation activities including:

- Interviews with staff members of participating community action agencies;
- Interviews with contractors performing energy efficiency improvements in homes;
- Surveys of customer participants to gather further information regarding customer satisfaction and energy efficiency behaviors; and
- Field visits to serviced homes in order to conduct verification of installed measures.

Additionally, the evaluators make the following recommendations in order to improve program operations and overall performance for future program years:

- Ensure an understanding of program software and calculation methodology. It is important for all relevant program staff to ensure that they understand any specific characteristics of the program software that would affect their interpretation of the data they receive. Additionally, it would be beneficial for the local agencies to continually provide up-to-date participation data and to retain all program documentation for the purposes of error-checking.
- Continue to standardize the savings approach for each measure in order to promote program-wide consistency and reduce the potential for data discrepancies. There are some measures that appear in the NEAT software but do not match Arkansas TRM values or are not contained within the TRM, such as foundation insulation. As mentioned by interviewed program operations staff members, modifications and additions to the TRM will create a more comprehensive program resource.
- Consider modifications to program marketing methods in order to appeal to a wider customer base. Such considerations may include utilities cross-promoting the AWP with their other energy-efficiency programs or providing marketing materials to equipment contractors. Additionally, promoting the AWP as a separate program from the WAP may emphasize the fact that the AWP is not exclusively for WAP-eligible customers.
- Take advantage of the multi-territory program structure to develop program best practices over time. There is an opportunity for each utility and community action agency to observe program operation in different service territories and identify effective marketing approaches, program management characteristics, and other operational aspects that may improve program success if properly employed.
- Maintain active communication throughout the program year. Interviewed staff members indicated that if there are errors within data entries or other program documentation, the situation is much easier to address if it is discovered before the error is repeated for a large number of participants. This suggests that more active communication among all parties would assist in the early identification of any issues or inconsistencies that require attention.

Evaluation of 2011 AOG/OG&E Weatherization Program

Submitted to:

Arkansas Oklahoma Gas Corporation
Oklahoma Gas and Electric

March 2012

Final Report

Prepared by:

ADM Associates, Inc.

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1. Executive Summary

The purpose of this report is to provide a summary of the evaluation effort of the 2011 AOG/OG&E Weatherization Program. This report provides verified gross savings estimates for the evaluated program, as well as a process and documentation review.

1.1 Overview of AOG/OG&E Weatherization Program

In 2011, the AOG/OG&E Weatherization Program provided residential energy audits and energy efficiency installations to customers within the service territory of Arkansas Oklahoma Gas Corporation (AOG) and Oklahoma Gas and Electric (OG&E). Participating homes were evaluated in order to determine potential energy efficiency measures that would improve overall building efficiency and reduce residential energy usage. The program provided funds for the installation of various measures, including insulation, lighting, air infiltration, and refrigerator replacement.

The AOG/OG&E Weatherization Program is designed to provide utility funds to customers in order to assist customers with the costs of the in-home audit and installation of energy efficiency improvements. Eligible customers receive funds from both AOG and OG&E in this co-funded program, covering up to $3,000 of services.

Qualifying participants must be homeowners and leaseholders of a single family home, duplex, or mobile home built before 1997, and must meet three of the following eligibility criteria[2]:

- Attic insulation less than or equal to R-11;
- Wall insulation equal to or less than R-4;
- Floor insulation equal to R-0;
- Single pane windows with no storm windows attached;
- Heating system less than or equal to 78% AFUE;
- Cooling system with SEER of 10 or less; and
- Air infiltration problems identified through either a pre-blower door test or visual inspection procedures.

These criteria are designed to target severely energy inefficient residences; this helps to ensure that each participating home has the potential to generate a substantial amount of energy savings through the program.

[2] Eligibility requirements are taken from AOG informational materials. Obtained from: https://www.aogc.com/energyefficiency.aspx#aogwp

1.2 Evaluation Objectives

As per the guidance of the Independent Evaluation Monitor (IEM), the evaluation of the 2011 AOG/OG&E Weatherization Program was somewhat limited in scope due to time constraints. The objectives of this evaluation include:

- Documentation review of deemed savings calculations. The evaluators reviewed all savings calculations for measures included in the Technical Reference Manual Version 1.0 (TRM), in order to ensure that measure savings were properly calculated according to TRM protocols.
- Tracking database review. The evaluators conducted a tracking database review according to the guidelines defined in Protocol A of the TRM.
- Conduct program staff interviews. The 2011 evaluation includes what constitutes "light" process evaluation. Process evaluation activities were limited to interviews with utility staff and third-party implementation staff. These interviews served to provide a history of the programs, allowed for initial recommendations for program improvement, and provided a starting point for further process evaluation activities

1.3 Summary of Findings

Table 1-1 and Table 1-2 present gross savings for AOG and OG&E, respectively. The net-to-gross ratio for the current program year is stipulated as 80%.

Table *1-3* presents the net savings by utility. Table 1-4 presents the gross impact by measure for all program and non-program utilities.

Table 1-1 Gross Savings, Gas

Utility	*# of homes*	*Peak Demand Savings (Therms)*	*Annual Savings (Therms)*	*Lifetime Savings (Therms)*
AOG	482	1,738.70	84,697	1,245,942
Non-Program	249	493.48	25,157	383,703
Total	731	2,232.19	109,855	1,629,645

Table 1-2 Gross Savings, Electric

Utility	*# of homes*	*Peak Demand Savings (kW)*	*Annual Savings (kWh)*	*Lifetime Savings (kWh)*
OG&E	703	400.47	1,280,766	19,632,761
Non-Program	28	12.30	24,896	430,797
Total	731	412.77	1,305,662	20,063,558

Table 1-3 Net Savings for AOG and OG&E

Utility	*Peak Demand Savings (kW)*	*Annual Savings (kWh)*	*Lifetime Savings (kWh)*	*Peak Demand Savings (Therms)*	*Annual Savings (Therms)*	*Lifetime Savings (Therms)*
AOG	-	-	-	1,390.96	67,758	996,754
OG&E	320.38	1,024,613	15,706,209	-	-	-
Total	320.38	1,024,613	15,706,209	1,390.96	67,758	996,754

Table 1-4 Gross Savings by Measure Type

Measure	*Peak Demand Savings (kW)*	*Annual Savings (kWh)*	*Lifetime Savings (kWh)*	*Peak Demand Savings (Therms)*	*Annual Savings (Therms)*	*Lifetime Savings (Therms)*
Air Infiltration	67.99	282,827	2,828,272	1,353.27	55,245	552,447
Ceiling Insulation	307.15	708,789	14,175,780	877.30	52,944	1,058,885
CFL	28.13	248,325	1,862,438	-	-	-
Energy Star Refrigerator	7.78	57,211	1,087,009	-	-	-
Low Flow Showerhead	0.03	190	1,900	0.02	8	85
Water Heater Jacket	0.29	3,876	50,388	0.04	20	223
Water Heater Pipe	1.41	4,444	57,772	1.56	1,637	18,005
Total	412.77	1,305,662	20,063,558	2,232.19	109,855	1,629,645

After reviewing the AOG/OG&E Weatherization Program for 2011, the evaluators conclude that:

- The AOG/OG&E Weatherization Program has made efforts to provide education, training, and marketing in order to reduce barriers to increased energy efficiency. Program operations staff and participating contractor firms have completed training sessions in order to become proficient in their implementation activities. Although the marketing of the program has been somewhat limited in scope, participation levels reflect a customer base that is aware of the program and interested in taking advantage of the services offered. Further use of contractor-driven marketing will likely maintain or increase program awareness and participation over time.
- The AOG/OG&E Weatherization Program has sufficient budget and staff to meet its goals. The program utilizes two contracting firms with a somewhat flexible number of servicing crews depending on participation demands. OG&E's partnership with AOG has increased both program funding resources and staffing resources. Program management staff are able to make modifications to staff or contractor levels based on estimated participation and other considerations within the program.
- The program offerings address most common and effective energy efficiency end-uses. Equipment offered within the program includes lighting, insulation, refrigeration, water heating, and others. The program is not focused on a "whole

home" approach, but instead provides a range of high-savings residential measures.

- The AOG/OG&E Weatherization Program is effectively addressing the comprehensive needs of its residential customers. The program is designed to implement high-impact energy efficiency measures that significantly reduce residential energy use. The program is able to target severely inefficient homes, thus selecting participants who have a high potential for energy savings. The program minimizes "cream skimming", as the measures chosen for installation are directly based on cost-effectiveness and resulting energy savings in severely energy inefficient homes.
- The marketing and outreach efforts of the AOG/OG&E Weatherization Program appear to be reaching the relevant customer segments within both AOG and OG&E service territories. Participation levels have been adequate, and the program is gaining participation from customers with a range of socioeconomic backgrounds. The program is able to target all severely energy inefficient homes and jointly provide funds from both utilities to fully offset the costs of energy efficiency improvements to the customer.
- The AOG/OG&E Weatherization Program enables the delivery of cost-effective energy efficiency to utility customers in AOG and OG&E service territories. The program is designed to identify and implement cost-effective and energy efficient measures through the use of gas and electric utility funding. Although some savings generated through the program are not attributed to either AOG or OG&E, the majority of savings directly reduce energy use for either AOG or OG&E customers.
- There are sufficient EM&V procedures to allow for support of the implementation process and calculation of energy savings. The AOG/OG&E Weatherization Program's internal M&V process was largely adequate and accurate in savings calculations. There were shortfalls particularly in two areas. First, there were delays in receiving the tracking data from Frontier Associates. Second, there was insufficient information in the tracking data to verify savings for several minor measures. However, data received allowed for verification of the majority of savings generated through the program.

The current program year consisted of a "limited" process evaluation, involving documentation review and interviews with key utility staff members. For the 2012 program evaluation, the evaluators propose conducting additional evaluation activities including:

- Interviews with contractors performing energy efficiency improvements in homes;
- Surveys of customer participants to gather further information regarding customer satisfaction and energy efficiency behaviors; and

- Field visits to serviced homes in order to conduct verification of installed measures.

Though the goals for comprehensiveness were largely met, the evaluators make the following recommendations in order to improve program operations and overall performance for future program years:

- Continue to standardize the savings approach for each measure in order to promote program-wide consistency and reduce the potential for data discrepancies. As mentioned by interviewed program operations staff members, modifications and additions to the TRM will create a more comprehensive program resource.
- Consider researching potential program marketing methods in order to appeal to a wider customer base. Although program participation is currently steady, future program years may require additional or modified outreach efforts. Such considerations may include cross-promotion of the AOG/OG&E Weatherization Program with the utilities' other energy-efficiency programs or providing marketing materials to equipment contractors.
- As mentioned by utility staff members, program eligibility requirements may be slightly modified in order to target a more broad range of customers. This may be a beneficial area of research to pursue in future program years. Based on program objectives, it will be important to ensure that any such changes preserve the program's focus on severely energy inefficient homes that will receive significant benefit from the available measures.

1.4 Report Organization

The report is organized as follows:

- Chapter 2 presents the impact findings and discusses the methods used for, and the results obtained from, estimating gross savings for the program;
- Chapter 3 presents and discusses the methods used for, and results obtained from, the process evaluation of the program; and
- Chapter 4 presents key conclusions and recommendations from the evaluation of the program.

2. Impact Findings

This section presents the results of the gross savings verification and savings calculation review for the AOG/OG&E Weatherization Program in the 2011 program year.

2.1 Gross Savings Calculation Methodology

For equipment and retrofits rebated through the 2011 program, calculation methodologies were performed as described in the TRM. Table 2-1 identifies the sections in the TRM that were used for verification of measure-level savings under the AOG/OG&E Weatherization Program.

Table 2-1 TRM Sections by Measure Type

Measure Type	*Section in TRM*
Air Infiltration	2.19
Ceiling Insulation	2.12
CFL	2.28
Energy Star Refrigerator	2.27
Low Flow Showerhead	2.24
Water Heater Jacket	2.21
Water Heater Pipe	2.22

Three measures were responsible for nearly all of the gross savings for the AOGWP: air infiltration reduction, ceiling insulation, and the replacement of incandescent lamps with compact fluorescent lamps (CFLs). The calculation methodologies for these measures are detailed in the following sections. In these examples, energy units are expressed in kWh.

2.2 Air Infiltration Reduction Savings Calculations

The deemed savings values for air infiltration reduction were developed through EnergyGauge, a simulation software program. Multiple equipment configurations were simulated in each of the four Arkansas weather zones in developing savings values denominated in deemed savings per CFM_{50} of air leakage rate reduction. Table 2-2 summarizes the deemed savings values for Weather Zone 7.

Table 2-2 Deemed Savings Values for Air Infiltration Reduction, Zone 7

Equipment Type	*kWh Savings / CFM50*	*kW Savings / CFM50*	*Therm Savings / CFM50*	*Peak Therms / CFM50*
Electric AC with Gas Heat	0.2387	0.0002171	0.0790	0.001853
Gas Heat Only (no AC)	0.565	n/a	0.0790	0.001853
Elec. AC with Resistance heat	1.7891	0.0001584	n/a	n/a
Heat Pump	1.1295	0.0001584	n/a	n/a

For example, consider a residence in Weather Zone 7 with electric AC and gas heat. If the residence had a leakage rate of 16,100 CFM_{50} before air infiltration reduction and a leakage rate of 7,220 CFM_{50} after, then the residence would have an annual gross savings of 2,120 kWh.

$$\text{Air Infiltration Savings} = 0.2387 \frac{\text{kWh Savings}}{\text{CFM}_{50}} \cdot \left(16{,}100\ \text{CFM}_{50\ \text{pre}} - 7{,}220\ \text{CFM}_{50\ \text{post}}\right)$$

$$\text{Air Infiltration Savings} = 2{,}120\ \text{kWh}$$

2.3 Ceiling Insulation Savings Calculations

The deemed savings values for ceiling insulation were developed through EnergyGauge, a simulation software program. Multiple equipment configurations were simulated in each of the four Arkansas weather zones in developing savings values denominated in deemed savings per square footage of ceiling area. Table 2-3 summarizes the deemed savings values for Weather Zone 8.

Table 2-3 Deemed Savings Values for Ceiling Insulation, Zone 8

Ceiling Insulation Base R- Value	*AC/Gas Heat kWh/sq ft*	*Gas Heat (no AC) Therms/sq ft*	*AC/Electrical Resistance kWh/sq ft*	*Heat Pump kWh/sq ft*	*AC Peak Savings kW/ sq ft*	*Peak Gas Savings Therms/sq ft*
0 to 4	1.53	0.145	4.8	2.83	0.00115	0.00244
5 to 8	0.756	0.0841	2.65	1.53	0.00038	0.00140
9 to 14	0.451	0.0547	1.68	0.969	0.00029	0.0090
15 to 22	0.28	0.0359	1.1	0.629	0.00013	0.00059

For example, consider a residence in Weather Zone 8 with a heat pump, and a pre-retrofit R-value of ceiling insulation in the range of 9 to 14. If the residence has a ceiling

area of 1,200 sq. ft., then the residence would have an annual gross savings of 1,163 kWh.

$$\text{Ceiling Insulation Savings} = 0.969 \frac{\text{kWh}}{\text{ft}^2} \cdot (1{,}200\ \text{ft}^2) = \ 1{,}163\ \text{kWh}$$

2.4 Compact Fluorescent Lamps (CFLs) Savings Calculations

Initially, the TRM savings values for CFLs were based on an assumption of 2.28 hours per day. This was revised to 2.20 hours per day in a stipulated agreement to amend the TRM in February 2012. Table 2-4 summarizes the deemed savings values for CFLs.

Table 2-4 Deemed Savings Values for CFLs

Average CFL (Watt)	*Measure CFL Range (Watts)*	*Comparable Incandescent Light (Watts)*	*Daily Usage (Hrs/Day)*	*Annual Energy Savings (kWh)*	*Demand Savings (kW)*
11	9-12	40	2.20	23.16	0.0026
15	13-17	60	2.20	35.70	0.0041
23	18-25	75	2.20	41.49	0.0047
27	26-32	100	2.20	58.86	0.0066

For example, if a residence replaced (5) 75W incandescent lamps with (5) 23W CFLs, then the residence would have an annual gross savings of 207.5 kWh.

$$\text{CFLs Savings} = 5 \cdot 41.49\text{kWh} = 207.5\ \text{kWh}$$

2.5 Verified Savings by Measure

After reviewing the tracking data and inputs for savings calculations, the evaluators provided verified gross savings according to TRM protocols. Savings from the following measures were verified and matched the calculations provided by Frontier Associates:

- Air Infiltration
- Ceiling Insulation

The savings calculated in this evaluation differed from Frontier Associates' calculations for several items in the TRM. The evaluators verified measure-level savings according to TRM guidelines and obtained results that differed from Frontier Associates' calculations for the following measures:

- CFLs
  - In section 2.28, the TRM has four strata depending on the CFL range in watts. The CFLs installed were 20W and fall within the 18-25 watts stratum in the TRM. However, Frontier Associates used values from the 13-17 watts stratum in the TRM instead of values from the 18-25 watts stratum.

- Energy Star Refrigerator
    - In section 2.27, the TRM provides deemed savings values based on retrofit type. However, the savings Frontier Associates reports differs from the values in the TRM.

Savings for some of the measure types could not be verified due to a lack of information within the tracking data received. These measures include:

- Low-flow Showerheads
    - In section 2.24, the TRM provides tables with savings based on the quantity of showerheads installed and the number of showers present in the residence. However, the tracking data received by the evaluators did not include the quantity of showerheads or the number of showers in each residence. The evaluators assumed the savings Frontier Associates reports because this measure represented only 0.01% of the total gross kWh savings and 0.01% of the total gross therm savings.
- Water Heater Jacket
    - In section 2.21, the TRM provides tables with savings values based on jacket thickness, type of water heating, and tank size. However, the tracking data received by the evaluators did not include sufficient information. The evaluators assumed the savings Frontier Associates reports because this measure represented only 0.3% of the total gross kWh savings and 0.01% of the total gross therm savings.
- Water Heater Pipe
    - In section 2.22, the TRM provides savings values based on whether the water heater is electric of gas. However, the tracking data received by the evaluators did not indicate which water heaters were electric and which were gas. The evaluators assumed the savings Frontier Associates reports because this measure represented only 0.4% of the total gross kWh savings and 1.5% of the total gross therm savings.

Table 2-5 presents the savings results of the evaluation of the 2011 AOG/OG&E Weatherization Program, by measure type. Total savings summarizes the savings calculations performed by TRM protocols for the program. Table 2-5 includes savings by measure for both program utilities and non-program utilities. The net-to-gross ratio for the AOG/OG&E Weatherization Program is stipulated at 80% for the program year.

Table 2-5 Verified Gross Savings by Measure Type

Measure	*Peak Demand Savings (kW)*	*Annual Savings (kWh)*	*Lifetime Savings (kWh)*	*Peak Demand Savings (Therms)*	*Annual Savings (Therms)*	*Lifetime Savings (Therms)*
Air Infiltration	67.99	282,827	2,828,272	1,353.27	55,245	552,447
Ceiling Insulation	307.15	708,789	14,175,780	877.30	52,944	1,058,885
CFL	28.13	248,325	1,862,438	-	-	-
Energy Star Refrigerator	7.78	57,211	1,087,009	-	-	-
Low Flow Showerhead	0.03	190	1,900	0.02	8	85
Water Heater Jacket	0.29	3,876	50,388	0.04	20	223
Water Heater Pipe	1.41	4,444	57,772	1.56	1,637	18,005
Total	412.77	1,305,662	20,063,558	2,232.19	109,855	1,629,645

2.6 Verified Savings by Utility

In the AOG/OG&E Weatherization Program, the participating utilities are AOG and OG&E. Savings not attributable to either of these utilities are listed as “Non-Program”. These utilities may have included municipal utilities, Co-Ops, or non-participating investor owned utilities. Table 2-6 presents the gross savings results of the evaluation of the 2011 AOG/OG&E Weatherization Program for each utility. Table 2-7 presents the net savings results for each utility, and Table 2-13 through Table 2-9 summarize the gross savings by measure for each utility.

Table 2-6 Verified Gross Savings by Utility

Utility	*Peak Demand Savings (kW)*	*Annual Savings (kWh)*	*Lifetime Savings (kWh)*	*Peak Demand Savings (Therms)*	*Annual Savings (Therms)*	*Lifetime Savings (Therms)*
AOG	-	-	-	1,738.70	84,697	1,245,942
OG&E	400.47	1,280,766	19,632,761	-	-	-
Non-Program	12.30	24,896	430,797	493.48	25,157	383,703
Total	412.77	1,305,662	20,063,558	2,232.19	109,855	1,629,645

Table 2-7 Verified Net Savings for AOG and OG&E

Utility	*Peak Demand Savings (kW)*	*Annual Savings (kWh)*	*Lifetime Savings (kWh)*	*Peak Demand Savings (Therms)*	*Annual Savings (Therms)*	*Lifetime Savings (Therms)*
AOG	-	-	-	1,390.96	67,757	996,753
OG&E	320.38	1,024,613	15,706,209	-	-	-
Total	320.38	1,024,613	15,706,209	1,390.96	67,757	996,753

Table 2-8 Verified Gross Savings for AOG

Measure	*Peak Demand Savings (Therms)*	*Annual Savings (Therms)*	*Lifetime Savings (Therms)*
Air Infiltration	1,078.68	43,606	436,062
Ceiling Insulation	658.74	39,765	795,309
CFL	-	-	-
Energy Star Refrigerator	-	-	-
Low Flow Showerhead	0.02	8	85
Water Heater Jacket	0.02	10	112
Water Heater Pipe	1.25	1,307	14,375
Total	1,738.70	84,697	1,245,942

Table 2-9 Verified Gross Savings for OG&E

Measure	*Peak Demand Savings (kW)*	*Annual Savings (kWh)*	*Lifetime Savings (kWh)*
Air Infiltration	65.24	276,115	2,761,151
Ceiling Insulation	297.60	690,605	13,812,103
CFL	28.13	248,325	1,862,438
Energy Star Refrigerator	7.78	57,211	1,087,009
Low Flow Showerhead	0.03	190	1,900
Water Heater Jacket	0.29	3,876	50,388
Water Heater Pipe	1.41	4,444	57,772
Total	400.47	1,280,766	19,632,761

Table 2-10 Verified Gross Savings for Non-Program Utilities

Measure	*Peak Demand Savings (kW)*	*Annual Savings (kWh)*	*Lifetime Savings (kWh)*	*Peak Demand Savings (Therms)*	*Annual Savings (Therms)*	*Lifetime Savings (Therms)*
Air Infiltration	2.75	6,712	67,121	274.59	11,639	116,385
Ceiling Insulation	9.55	18,184	363,676	218.56	13,179	263,576
CFL	-	-	-	-	-	-
Energy Star Refrigerator	-	-	-	-	-	-
Low Flow Showerhead	-	-	-	-	-	-
Water Heater Jacket	-	-	-	0.02	10	112
Water Heater Pipe	-	-	-	0.31	330	3,630
Total	12.30	24,896	430,797	493.48	25,157	383,703

3. Process Findings

In 2011, the AOG/OG&E Weatherization Program provided residential energy audits and energy efficiency installations to customers within the service territory of Arkansas Oklahoma Gas Corporation (AOG) and Oklahoma Gas and Electric (OG&E). Participating homes were evaluated in order to determine potential energy efficiency measures that would improve overall building efficiency and reduce residential energy usage. The program provided funds for the installation of various measures, including insulation, lighting, air infiltration, and refrigerator replacement.

The AOG/OG&E Weatherization Program is designed to provide utility funds to customers in order to fully offset the costs of energy efficiency audits and resulting energy efficiency measures and installations. Eligible customers receive funds from both AOG and OG&E in this co-funded program, covering up to $3,000 of services.

Qualifying participants must be homeowners and leaseholders of a single family home, duplex, or mobile home built before 1997, and must meet three of the following eligibility criteria[3]:

- Attic insulation less than or equal to R-11;
- Wall insulation equal to or less than R-4;
- Floor insulation equal to R-0;
- Single pane windows with no storm windows attached;
- Heating system less than or equal to 78% AFUE;
- Cooling system with SEER of 10 or less; and
- Air infiltration problems identified through either a pre-blower door test or visual inspection procedures.

These criteria are designed to target severely energy inefficient residences; this helps to ensure that each participating home has the potential to generate a substantial amount of energy savings through the program.

Customers who are interested in participating in the program contact program staff members to sign up for the in-home audit. Program contractors contact customers within 48 hours of receiving customer information, and the audit is scheduled. During the in-home audit, contractors determine customer eligibility and identify potential energy efficiency measures for the residence. After the measures are installed, utility

[3] Eligibility requirements are taken from AOG informational materials. Obtained from: https://www.aogc.com/energyefficiency.aspx#aogwp

staff members perform post-inspections in order to verify that all measures have been properly implemented. In 2011, staff members performed these quality control procedures with 10% of participating homes.

These include planning, training, marketing, and other implementation activities performed by participating utilities, ACAAA, and local community action agencies.

Table 3-1 identifies core program stages and includes key activities performed throughout the program process.

Table 3-1 Key Activities and Program Stages

Program Stage	*Key Activities*
Program Design Planning	• AOG and OG&E discuss program objectives and make any necessary modifications to program design. • Utilities work with regulatory environment to approve any necessary aspects of the program.
Program Training and Promotion	• Contractors and other program operations staff attend program-relevant training sessions. • Contractors promote the program through the use of service trucks, uniforms, and in-person promotion.
Program Participation	• Customers apply for the program. • Participants receive in-home audits and potential measures are identified. • One of the two participating contractor firms installs measures, with total utility funds not to exceed $3,000.
Data Processing and Monitoring	• Measures and associated savings are calculated and recorded by Frontier Associates. • AOG and OG&E monitor program progress and cooperate to make program improvements and maintain customer satisfaction. • Program is evaluated through the use of measurement and verification activities

3.1 Arkansas Weatherization Program 2011 Participation

In 2011, the AOG/OG&E Weatherization Program serviced a total of 731 homes. Services provided to residences included in-home energy audits as well as the installation of various energy efficiency measures. AOG and OG&E implemented the program through the use of local contracting firms, and performed post-inspections in a sample of homes to verify the installation of measures.

The AOG/OG&E Weatherization Program is offered in the service territories of both utilities, which have a significant overlap. Depending on the location of customers and the fuel sources used in their homes, services for each customer are funded by AOG, OG&E, or both AOG and OG&E. Table 3-3 cross-tabulates the number of participating homes by utility. As participants were only required to be customers of one of the two

participating utilities, some residences in the program were serviced by utilities other than AOG and OG&E. These utilities may have included municipal utilities, Co-Ops, or non-participating investor owned utilities.

Table 3-2 Participation by Associated Utility

Electric Utility	Gas Utility	
	AOG	*Other*
OG&E	454	249
Other	28	-

More than 2,500 energy-saving measure implementations were performed in the 2011 program year. Table 3-4 displays the number of installations by measure type, arranged by the most commonly installed measures. Air infiltration was the most common measure type, followed by ceiling insulation.

Table 3-3 Total Implementations by Measure

Measure Type	*Quantity Installed*
Air Infiltration	718
Ceiling Insulation	668
CFL	538
Water Heater Pipe	473
Refrigerator	77
Water Heater Jacket	63
Shower Head	2
Total	2,539

3.2 Tracking Database Review

The evaluators received a tracking database developed by Frontier Associates, a consulting firm working with AOG and OG&E utilities. This tracking database was evaluated for overall organization and content.

3.2.1 Energy Savings Calculation Data

The content of tracking data was found to include sufficient information for the majority of the measures. However, the tracking data did not include sufficient information for the following measures:

- Low-flow Showerheads
  - The TRM presents savings values as a function of the number of low-flow showerheads installed and the number of showers per household. The

tracking data did not present the number of showerheads installed or the number of showers per household.

- Water Heater Jackets
  - The TRM presents savings values as a function of jacket thickness, type of water heating, and tank size. The tracking data did not present jacket thickness, type of water heating, or tank size.
- Water Heater Pipe
  - The TRM presents savings values as a function of whether the water heating is gas or electric. The tracking data did not present the type of water heating.

It should be noted that these measures only accounted for 0.7% of the total gross kWh savings and 1.6% of the total gross therm savings, and that all measures associated with a high level of energy savings included sufficient tracking information.

The tracking database was for the most part well-organized; however, several measures were mislabeled. The recommended changes to the tracking data include providing a complete set of calculation inputs and accurately labeling each measure.

3.3 Program Process Review

The program provides utility funds to fully offset the cost of energy audits and associated energy efficiency measures. The OG&E Weatherization Program began in 2010, and was created as a separate program from the Arkansas Weatherization Program (AWP). OG&E decided to establish its own utility-managed weatherization program in order to create a local focus for weatherization services, and to have the ability to modify the program as needed. Additionally, a similar OG&E program had been offered in Oklahoma as a low-income weatherization program. After the OG&E weatherization program was approved, OG&E established its own program structure and weatherization services for customers in its service territory. OG&E continued to participate in the AWP while concurrently offering its utility-managed weatherization program. The requirements and program offerings for the OG&E Weatherization Program were designed to be very similar to those of the AWP. While the AWP is offered concurrently with Department of Energy (DOE) funds that target low-income customers, the OG&E Weatherization Program was designed without a low-income eligibility requirement.

In 2011, Arkansas Oklahoma Gas Corporation (AOG) partnered with OG&E in offering and managing the program, which both expanded the available customer base and increased program operational resources. The AOG/OG&E Weatherization Program is funded by the utilities via ratepayers, where program participants receive no-cost in-home energy audits and energy-efficiency improvements. Utility funding for each home

was initially set to $2,500 but was increased to $3,000, allowing for further improvements to be made.

The evaluators conducted telephone interviews with AOG and OG&E staff members. These interviews provided insight into the overall process of the AOG/OG&E Weatherization Program and identified key issues relevant to program structure, potential program changes, and overall program success.

3.3.1 AOG and OG&E Program Partnership

Interviewed program staff indicated that while the process of establishing a partnership between AOG and OG&E had been successful and beneficial, there were a few challenges in the initial stages of this process. These challenges included structuring overall program management and responsibilities, as well as more specific details such as ensuring that each utility was contributing the appropriate level of funds to the program. Interview respondents reported that by the end of the 2011 year, both utilities had become more proficient with operating under the program partnership, and that the process had been very beneficial for the program.

3.3.2 Program Design Considerations

During interviews, utility staff members explained some of the notable differences between the AOG/OG&E Weatherization Program and the Arkansas Weatherization Program (AWP). For example, the AWP is a “whole home” program that provides a wide range of measures designed to fully service the residence, the AOG/OG&E program focuses on a more specific set of measures such as air infiltration and ceiling insulation. In terms of eligibility requirements for residences, the AWP and AOG/OG&E program are very similar, but the AOG/OG&E program was designed to have a more localized focus for its respective customers. It should be noted that due to the structure of the AWP and its associated federal assistance component, the two programs operate within the same service territory but generally target different customer segments. The AOG/OG&E Weatherization Program is designed to target a broad range of customers and is not offered in conjunction with a federal income-eligibility assistance program. It is likely that the AOG/OG&E local focus and program funding structure directly contributed to the relatively high participation levels for the 2011 program year.

Although AOG and OG&E are the only two utilities involved in management and funding of the program, they service territories do not completely overlap. This resulted in a small percentage of total energy savings that were not attributed to either AOG or OG&E, as some customers were serviced by a non-program gas or electric utility. The program is designed to minimize these effects, as each participating customer must be serviced by either AOG or OG&E and many of the participating homes are serviced by both utilities.

3.3.3 Program Contractors

In the AOG/OG&E Weatherization Program, contractors conduct energy audits of customer homes and complete energy efficiency improvements for qualifying participants. The program currently uses two contracting firms whose staff members have been trained for the program. Contractor crews were trained with multiple full-day training sessions and have become sufficiently experienced with program procedures over time. Interviewed utility staff indicated that if program participation were to increase substantially, it would likely be more efficient to add crews within the current contracting firms rather than select and train additional firms. These trained contractors are a form of organizational capital that will likely be a valuable resource in future program years.

3.3.4 Market Reach and Participation

When asked about program marketing, utility staff members reported that the AOG/OG&E Weatherization Program has a fairly limited marketing structure. The majority of program marketing is the participating contractors, whose trucks and uniforms indicate their involvement with the program. Utility staff members stated that while the marketing strategy is basic, it appears to be fairly effective. Program staff currently receives more than 100 inquiries per week from prospective program participants, and indicated that further marketing methods have not yet been necessary. Utility staff members indicated that the utility-run program is able to generate much more participation for AOG and OG&E than they were experiencing with the AWP. In 2011, AOG and OG&E had a total of 132 participating homes in the AWP as compared to a total of 731 homes under the AOG/OG&E Weatherization Program.

Interviewed utility staff members estimated that more than one-quarter of residences in their service territories would be able to meet the eligibility requirements for the program. In order to maintain or increase participation levels in the future, the program design may be modified. This may include moving the home construction date requirement or slightly broadening other eligibility requirements. Program staff indicated that any modifications would be designed to increase the market reach of the program while continuing to target severely energy inefficient homes in the utilities' service territories.

4.Conclusions & Recommendations

After reviewing the AOG/OG&E Weatherization Program for 2011, the evaluators conclude that:

- The AOG/OG&E Weatherization Program has made efforts to provide education, training, and marketing in order to reduce barriers to increased energy efficiency. Program operations staff and participating contractor firms have completed training sessions in order to become proficient in their implementation activities. Although the marketing of the program has been somewhat limited in scope, participation levels reflect a customer base that is aware of the program and interested in taking advantage of the services offered. Further use of contractor-driven marketing will likely maintain or increase program awareness and participation over time.
- The AOG/OG&E Weatherization Program has sufficient budget and staff to meet its goals. The program utilizes two contracting firms with a somewhat flexible number of servicing crews depending on participation demands. OG&E's partnership with AOG has increased both program funding resources and staffing resources. Program management staff are able to make modifications to staff or contractor levels based on estimated participation and other considerations within the program.
- The residential offerings through the AOG/OG&E Weatherization Program address most common and effective energy efficiency end-uses. Equipment offered within the program includes lighting, insulation, refrigeration, water heating, and others. The program is not focused on a "whole home" approach, but instead provides a range of high-savings residential measures.
- The AOG/OG&E Weatherization Program is effectively addressing the comprehensive needs of its residential customers. The program is designed to implement high-impact energy efficiency measures that significantly reduce residential energy use. The program is able to target severely inefficient homes, thus selecting participants who have a high potential for energy savings. The program minimizes "cream skimming", as the measures chosen for installation are directly based on cost-effectiveness and resulting energy savings in severely energy inefficient homes.
- The marketing and outreach efforts of the AOG/OG&E Weatherization Program appear to be reaching the relevant customer segments within both AOG and OG&E service territories. Participation levels have been adequate, and the program is gaining participation from customers with a range of socioeconomic backgrounds. The program is able to target all severely

energy inefficient homes and jointly provide funds from both utilities to fully offset the costs of energy efficiency improvements to the customer.

- The AOG/OG&E Weatherization Program enables the delivery of cost-effective energy efficiency to utility customers in AOG and OG&E service territories. The program is designed to identify and implement cost-effective and energy efficient measures through the use of gas and electric utility funding. Although some savings generated through the program are not attributed to either AOG or OG&E, the majority of savings directly reduce energy use for either AOG or OG&E customers.
- There are sufficient EM&V procedures to allow for support of the implementation process and calculation of energy savings. The AOG/OG&E Weatherization Program's internal M&V process was largely adequate and accurate in savings calculations. There were shortfalls particularly in two areas. First, there were delays in receiving the tracking data from Frontier Associates. Second, there was insufficient information in the tracking data to verify savings for several minor measures. However, data received allowed for verification of the majority of savings generated through the program.

The current program year consisted of a "limited" process evaluation, involving documentation review and interviews with key utility staff members. For the 2012 program evaluation, the evaluators propose conducting additional evaluation activities including:

- Interviews with contractors performing energy efficiency improvements in homes;
- Surveys of customer participants to gather further information regarding customer satisfaction and energy efficiency behaviors; and
- Field visits to serviced homes in order to conduct verification of installed measures.

Though the goals for comprehensiveness were largely met, the evaluators make the following recommendations in order to improve program operations and overall performance for future program years:

- Continue to standardize the savings approach for each measure in order to promote program-wide consistency and reduce the potential for data discrepancies. As mentioned by interviewed program operations staff members, modifications and additions to the TRM will create a more comprehensive program resource.
- Consider researching potential program marketing methods in order to appeal to a wider customer base. Although program participation is currently steady, future program years may require additional or modified outreach efforts. Such considerations may include cross-promotion of the AOG/OG&E Weatherization Program with the utilities' other energy-efficiency programs or providing marketing materials to equipment contractors.

- As mentioned by utility staff members, program eligibility requirements may be slightly modified in order to target a more broad range of customers. This may be a beneficial area of research to pursue in future program years. Based on program objectives, it will be important to ensure that any such changes preserve the program's focus on severely energy inefficient homes that will receive significant benefit from the available measures.

EVALUATION OF OKLAHOMA GAS &ELECTRIC COMPANY (ARKANSAS) DSM PROGRAM PORTFOLIO– PROGRAM YEAR 2011 (**FINAL**)

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The report is a corporate document that should be cited in the literature in the following manner:

Evaluation of Oklahoma Gas &Electric Company (Arkansas) DSM Program Portfolio– Program Year 2011 (Final), Enernoc Utility Solutions Walnut Creek, Ca. 2012.

EXECUTIVE SUMMARY

As per regulatory requirements, in 2011 OG&E Arkansas implemented programs as per its approved DSM plan for 2011-2013. Global Energy Partners, which is now part of EnerNOC Utility Solutions ("Global") valuated six of the programs implemented by OG&E in Arkansas—Student Energy Education, HVAC Tune-Up and Duct Repair, Window Air Conditioning, Commercial Lighting, and Commercial and Industrial Standard Offer. This report covers the evaluated savings for PY2011 and actual program costs.

Approach

As recommended by the Independent Evaluation Monitor (IEM), Global conducted a desk review of the 2011 programs for this report including the following activities for each program:

- Verified whether claimed savings are supported by program tracking data.
- Reviewed current database tracking methodology with the recommended formats in the Protocol A: Program Tracking and Database Development:
- Verified whether the Technical Reference Manual values were used correctly.
- Verified that stipulated Net to Gross (NTG) value of 0.8 was incorporated.
- Summarized program operations to date:

Results

Table ES-1 shows the reported gross savings and evaluated gross and net savings. Reported demand reductions were 847 kW and net evaluated demand reduced was 582 kW. OG&E reported energy savings of 3,058 MWh and net evaluated savings were 1,972 MWh. Table ES-2 compares actual to budgeted costs by program. Including evaluation costs[1] of about $43,000, total program costs are $264,687.

Table ES-1. PY2011 Reported Compared to Evaluated Savings

	Demand (kW)			Energy (kWh)		
		Evaluated			Evaluated	
Program	Reported	Gross	Net	Reported	Gross	Net
Student Energy Education	55	5	4	584,407	57,784	46,227
HVAC Tune-Up and Duct Repair	32	11	9	63,604	21,311	17,049
Window Unit A/C Program	0.08	0.22	0.17	97	257	206
Commercial Lighting	310	273	218	1,033,694	1,033,694	826,955
C&I Standard Offer	437	436	349	1,350,376	1,347,035	1,077,628
Commercial Tune-Up	13	2	2	26,059	4,366	3,493
Totals	**847**	**727**	**582**	**3,058,237**	**2,464,447**	**1,971,558**

[1] These costs, which includes evaluation planning, were incurred in 2012.

Table ES-2. Actual to Budget Costs for PY2011

Program	Budget[2]	Admin Costs	Incentives	Total Costs
HVAC Tune Up & Duct Repair	$35,442	$1,312	$10,130	$11,442
Window Unit A/C	$6,460	$362	$40	$402
Student Energy Education	$57,463	$39,750	$0	$39,750
Commercial Lighting	$84,803	$16,857	$37,447	$54,304
Commercial Tune-Up	$50,884	$731	$5,639	$6,370
C/I Standard Offer	$141,589	$2,728	$106,691	$109,419
Totals	**$376,641**	**$61,740**	**$159,867**	**$221,687**

Findings

HVAC Tune Up and Repair Program

The program databases did not use the approved TRM values. Many of the contractor reports were incomplete or contained errors.

Window A/C Program

The program was implemented too late in the summer season to attract more than one participant. The program database did not use the approved TRM values.

Student Energy Education Program

The LivingWise® student education program is well-established, well-executed, and well liked. The implementer provides all materials, support, and reporting on activities. The materials, both those in the students' take-home kits and on the company's website, are very clear, including step-by-step instructions on how to install the efficiency measures in the kit. The program implementation includes fielding and tabulating responses from a participant survey that gauges installation rates for the different measures. The implementer's annual program summary report was not available in time for use in conducting this evaluation.

The tracking system clearly shows how the per-participant savings, which are hardwired into it, are used to calculate classroom-level savings and, ultimately, program-level savings. The input screens are easy to follow and the resulting output provided to Global was quite clear. What is most lacking is email contact information for the teachers who conduct the program in class and any contact information for the participating students' families. This precludes making any type of independent corroboration of the participants' activities, attribution, or satisfaction.

The program-level savings calculations are easy to follow, but likely overstate the number of kits installed each year (by including savings for all kits shipped, even those for teachers). The per-participant savings used were not documented well enough to show how they were calculated. It is not clear that the per-participant savings reflect factors that affect measure savings, such as at-home installation rates, and may overstate the savings.

Commercial Lighting

Savings per project were much higher than expected with participants providing much higher savings. Most savings were from HID lighting. Calculations for lamp retrofits, other retrofits not

[2] Source: Exhibit GJM-8 (Revised 12-15-11)

listed, and new construction were correct and reasonable, except that demand savings were incorrectly included for controls.

Standard Offer Program

Calculations were correct and reasonable. The IAvenue database contained some pre- and post- wattage values that were stated as whole kW, rather than watts. However, these values did not affect the savings or rebate calculations. There were few project backup materials available. For example, no equipment model numbers or any other pertinent information was recorded. The database contained little in the way of project descriptions other than shorthand equipment identifiers. As a result, it was very difficult to ascertain whether one of the motors installed was high efficiency. Photos of HVAC equipment nameplates were provided, but not linked in any way to a project.

Commercial Tune Up

Calculations were correct and reasonable. The IAvenue database contained pre- and post- wattage values that were inaccurate, although they did not affect the savings or rebate calculations. There was little project backup material available. For example, no equipment model numbers or any other pertinent information was recorded. The database contained little in the way of project descriptions other than shorthand equipment identifiers. Photos of equipment nameplates were provided, but not linked in any way to a project.

Recommendations- General

Protocol A

- Create data dictionaries for each of the programs in the database.
- Add the following variables in the tracking database: participating customer information; customer specific information; vendor specific information; measure codes; and data legends.
- Modify monthly reports to include projects in the pipeline, marketing and outreach activities, issues and upcoming events.

TRM Deemed Savings

- Modify databases for the HVAC Tune Up and Duct Repair and Window A/C programs to use the deemed savings values from the TRM. In addition, add a check in the database to ensure savings are only calculated for tune-ups if they are completed.
- Frontier should determine deemed savings values for Geothermal Heat Pumps in the HVAC Tune Up and Duct Repair Program.
- Modify the deemed savings for aerators to show separate values for kitchen vs. bathroom faucets and include a table of values based on the number of faucets replaced vs. total faucets in the house, akin to Table 132 for showerheads.
- The baseline flow rate used to derive savings for showers and aerators should be modified from 2.5 gpm to 2.2 gpm, the lower number being the Federal baseline.

Quality assurance (QA) and quality control (QC) procedures

- Develop and implement procedures to check data entry, contractor reports, etc.
- Create written documentation for QA/QC procedures including requirements for contractors and ESCOs

- Develop and apply requirements for information on replaced and new equipment.
- Provide training for contractors and ESCOs about program requirements
- Use data validation features in Excel to ensure that the values entered into the rebate application worksheets are appropriate

Recommendations- Programs

HVAC Tune Up and Repair Program

- Modify the program database to include the correct TRM values.
- Create and document a process to ensure contractor reports are completed and error free. The process should include keeping electronic copies of these reports.

Window A/C Program

- Modify the program database to include the correct TRM values.
- Create marketing materials for this program and enlist the cooperation of large retailers.

Student Energy Education Program

- Ask the implementer to submit annual summary report earlier so the information is available during the evaluation.
- Maintain contact information for all teachers contacted and for participant families in the tracking system.
- Maintain more information on inputs and assumptions used to develop the savings values.

Commercial Lighting

- Do not count demand savings from installing lighting controls. Rebates for lighting controls should not be based on the kW savings but on 'per unit' installed, which is the most prevalent methodology among electric utilities.

Standard Offer

- Require each participant to record vital project and equipment nameplate information, such as model numbers, sizes (tons, horsepower, etc.), efficiency level (EER values are already included for HVAC equipment), and project cost within the rebate application.
- Expand the SOP IAvenue database to include the additional project and equipment descriptions as well as HVAC EER values. Examine the IAvenue database for the SOP to ensure that watt values entered are not being converted to kW values.
- Add a field in the database for rate class and a check to ensure the correct projects are included.
- Verify that HVAC units installed as part of the SOP meet the minimum energy efficiency requirements for the size and type of unit prior to paying the incentive.

Commercial Tune-Up

- Ensure customers are aware of the opportunity for tune-ups.
- Create a database with deemed savings values from the TRM. Add a field in the database for rate class and a check to ensure the correct projects are included.
- Require each participant to record vital project and equipment nameplate information, such as model numbers, sizes (tons, etc.), and project cost within the rebate application.

- Verify that HVAC units installed as part of the program meet the minimum energy efficiency requirements for the size and type of unit prior to paying the incentive.

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Introduction

1.1 Background for OG&E ARkansas DSM Program

In January 2006, the Arkansas Public Service Commission (APSC) began the rulemaking for developing and implementing energy efficiency programs for Arkansas's four electric utilities. By May of 2007, these rules were finalized, adopting protocols and procedures for testing the cost-effectiveness of energy efficiency (EE) programs and conducting evaluation, measurement, and verification (EM&V) of claimed savings. In October 2007, OG&E introduced a Quick Start Program in the Arkansas jurisdiction. Two of the Quick Start measures, Weatherization and Education, are collaborative efforts by all Arkansas utilities.

In June 2011, the APSC approved OG&E's portfolio of energy efficiency programs for that program year (2011-2013 Energy Efficiency and Load Management Plan). In Sept 2011, OG&E filed a revised proposal to achieve the energy savings goals required by the Order for the 2012 and 2013 program years, Oklahoma Gas & Electric's 2011-2013 Arkansas Energy Efficiency Program Analysis and Plan prepared by Frontier Associates, Sept 2011 ("the Plan").

OG&E Electric Services offers retail electric service in Oklahoma and Arkansas, servicing approximately 65,000 customers in Arkansas. OG&E's Arkansas service area encompasses the City of Fort Smith and several nearby municipalities, consuming a total of 10.8% of all OG&E energy. In 2010, OG&E's combined retail customer classes used 2,700,703 MWh of which Arkansas customers used 270,007 MWh.

1.2 Technical Reference Manual and Assumptions

The September 2011 Technical Reference Manual updated and replaced all Arkansas deemed savings documents previously filed in Docket No. 07-152-TF.1 The Deemed Savings Update filed on September 7, 2010, updated deemed savings estimates for certain measures and provided new deemed savings estimates for certain measures not previously proposed in earlier filings. The January 2011 Update further updated certain measures that parties to this docket agreed were "high impact measures." The September 2011 update consolidated deemed savings documents and work papers, but contained no updates to deemed savings calculations or methodologies.

Deemed savings are derived through the use of proven and accepted engineering calculations and/or engineered energy efficiency models (simulations). These methods use typical building and equipment characteristics and operating schedules developed for particular applications, without onsite testing or metering. The derivation of deemed savings does not include economic evaluations or measurement and verification activities.

In addition the September 2011 Update included the following sections:

- Residential Deemed Savings, Installation & Efficiency Standards;
- Commercial, Industrial, and Small Commercial Deemed Savings, Installation & Efficiency
- Standards;
- Duct Efficiency Measure, Tool & Look-Up Tables for Deemed Savings, Installation &
- Efficiency Standards (Residential and Converted Residences);
- Food Service Deemed Savings, Installation & Efficiency Standards; and
- Peak Demand Multipliers Methodology for Arkansas Weatherization Program

Assumptions

- Demand reduction (kW) and energy savings (kWh) are net savings at the generator.[1]
- A 0.80 net-to-gross adjustment factor is to be applied across the board for all measures in each program, with the exception of the Arkansas Weatherization Program. This is in accordance with APSC Order 16 in Docket 08-137-U, pg. 16 and APSC Order 25 in Docket 07-075, pg. 33.

1.3 2011 Programs Goals compared to Reported

This evaluation covers six of the programs implemented by OG&E in Arkansas—Student Energy Education, HVAC Tune-Up and Duct Repair, Window Air Conditioning, Commercial Lighting, and Commercial and Industrial Standard Offer.

In total, the programs reported saving about what was expected—reducing demand by 811 kW compared to 738 kW planned and saving 3,058 MWh of energy compared to 3,105 MWh planned. Table 1-1 below compares planned and reported participation, demand reduction, and energy savings for these programs.

Table 1-1. 2011 Program Participation and Savings (Planned vs. Reported Savings)

Program	Participation		Demand (kW)		Annual Energy (kWh)	
	Planned	Reported	Planned	Reported	Planned	Reported
Student Energy Education	1,240	1,856	10	55	102,516	584,407
HVAC Tune-Up and Duct Repair	50	76	26	32	38,171	63,604
Window Unit A/C Program	13	1	1	0.08	1,260	97
Commercial Lighting	25	13	265	310	1,047,691	1,033,694
C&I Standard Offer	5	6	402	437	1,688,328	1,350,376
Commercial Tune-Up	3	2	33	13	227,991	26,059
Totals	**1,336**	**1,954**	**738**	**847**	**3,105,957**	**3,058,237**

1.4 Organization of This Report

- Chapter 1, Introduction
- Chapter 2, Evaluation Methods
- Chapter 3, Residential Programs
- Chapter 4, Non-Residential Programs
- Chapter 5, Findings and Recommendations
- Chapter 6, References
- Appendix A

[1] All program and portfolio level impacts are shown accounting for line-losses (at the generator). Individual measure savings values are shown at the meter, or without accounting for line loss adjustments.

Evaluation Methods

As recommended by the IEM, Global conducted a desk review of the 2011 programs for this report including the following activities:

- ***Verify the total claimed savings are supported by program tracking data***. Each evaluation included a basic verification to ensure the program tracking data included participant level records, whereby the sum of the participant savings is equal to the total claimed savings.
- ***Review current database tracking methodology with the recommended formats in the Protocol A: Program Tracking and Database Development:*** The evaluation describes the current status of the program tracking databases for all programs, and provides details about any discrepancies between the program tracking fields compared to the requirements in Protocol A (see Appendix A). Where such discrepancies exist, we include an explanation and recommendation on how best to conform with EM&V protocols.
- ***Verify that the Technical Reference Manual (TRM) values are being utilized correctly***. The PY2011 savings should be based on the deemed savings values as reported in the Arkansas TRM (Volume 2, Version 1). The evaluation reviewed the databases and identified instances where the TRM values were not applied properly.
- ***Verify that stipulated Net to Gross (NTG) NTG value of 0.8 is being incorporated***. As part of Commission Order No. 1, the stipulated net to gross for all programs in PY2011 was 80 percent. The evaluations of each program in this report provide final savings number net of the NTG adjustment.
- ***A summary of program operations to date*****:** This report includes summaries regarding program participation rates, demand and energy savings, and summary findings from in-depth interviews with program staff regarding overall program processes and operations. Global conducted in-depth interviews with the program managers, Robin Arnold for all programs except Student Energy Education and Beverly Hardeman for the Student Energy Education Program.

Residential Programs

3.1 HVAC Tune up and Duct Repair

The engineering review method used for the evaluation of PY 2011 relied on key pieces of information provided by OG&E. This section outlines the data used and how they were applied to the evaluation method.

3.1.1 Program Description

The program, launched July 2011, is targeted toward single family residential customers with central HVAC systems, and works towards improving the efficiency of these units. It contains two major components: (1) HVAC inspection and tune-up and (2) Duct repair. For both components, the customer must contract for air conditioning tune-up and inspection services from an OG&E approved local, certified, and licensed HVAC contractor. At the completion of each project, the results will be documented through the use of an OG&E Post-Inspection Survey Form completed by the licensed contractor. This program is based on an existing program offered in Oklahoma, called the Home Energy Efficiency Program or HEEP.

HVAC Inspection and Tune-Up

In completing the first component, a technician certified in the use of an approved diagnostic system will analyze the air conditioner or heat pump's refrigerant charge, using superheat, subcooling, or another approach per the equipment manufacturer's recommendation. The following pre- and post-service measurements shall be recorded and reported to the utility:

- Condenser air entering temperature
- Return plenum dry bulb and wet bulb temperatures
- Supply plenum dry bulb temperature
- Refrigerant suction line and liquid line temperatures
- Refrigerant suction and discharge pressures

These tune-ups will be done using utility-approved diagnostic equipment or protocols, such as: Honeywell Service Assistant™, Proctor Engineering CheckMe!, Enalasys™, Verified RCA™ or other approved diagnostic system. Airflow may either be measured directly or estimated using the temperature split method. OG&E will pay the $75 incentive directly to the contractor to off-set inspection and tune-up costs. If any repair is needed to the HVAC equipment whose cost exceeds $75, the customer will be responsible for payment of any such repairs.

Duct Repair

A second aspect of the program involves assistance in sealing or repairing HVAC duct work. The customer must contract duct inspection services for a certified technician to identify loose duct connections, collapsed ducts, or uninsulated ducts. If such faulty ducts are found, OG&E will pay up to $300 directly to the contractor to offset the cost of duct repair.

3.1.2 Summary of Program Operations

This section includes a summary of program participation, demand and energy savings, and summary findings from in-depth interviews with program staff regarding overall program processes and operations.

Table 3-1 below shows the total participation and claimed savings in the tracking database.

Table 3-1. HVAC Tune Up and Duct Report Program: Participation and Claimed Savings

PY2011 Results	Planned	Reported
Participation	50	76
Demand savings (kW)	25.7	31.7
Annual Energy savings (kWh)	38,171	63,604

The program manager is currently managing the program with a very hands-on, almost grass roots approach. He has a lot of interaction with participants and contractors, emailing and phoning participants to sign up and hand delivering checks to contractors. He really seems to like all the interaction, but also knows that as the programs grow next year, he won't be able to do it all himself. They have hired someone else to help him for next year and at this point he seems confident that he will be able to keep this style of program management up going forward.

Contractors

The program manager uses pre-approved contractors and the process is also very hands-on. He recruits contractors via email to his contacts in the industry and fliers in HVAC supply warehouses. He also actually knows most of them first hand so he can select only the most qualified for the program. Once he has recruited a group of possible contractors he meets with them either together or individually for lunch or at a luncheon where he describes the aspects of the program and what he expects them to do. The contractors also need to meet the insurance requirements, fill out the application, and sign a contract.

The program manager has significant interaction with the contractors all the way through the process from signing them up to hand-delivering rebate checks. He organizes breakfast or lunch meeting with the technicians to brief them on how the program works and what type of and quality of work they are to perform for the program. He has had good feedback from contractors and no complaints from customers. He tries to go out with the contractors much of the time to see how they are doing and interact with the participants. Some contractors say the $75 rebate for the Tune Up component is a little bit low, after taxes. However, the program is really well received by contractors and participants. The economy is still down in Arkansas and the program helps contractors to get more business and helps customers afford the tune-ups.

Quality Assurance and Quality Control

OG&E is required to audit 10% of all work completed. The program manager is present at all these audits as an observer. No reports or results are provided. OG&E uses IAvenue to track the data. The program manager inputs all the data from the program sheets and contractor rebate forms into the database. He is really happy with the data tracking as it is, IAvenue is easy to work with and access. He will need some help next year from the new person that he is training to do the data entry as the program grows.

Quality assurance includes knowing and picking top quality contractors, paper work provided by contractors, and the ability to pull names, call individuals and go to the home unannounced to check the performance of the work reported. OG&E plans to provide additional training on the program in March to go over the paper work and requirements of the program again with the contractors.

Marketing and Outreach

The program manager said they need to improve marketing in general. Staffing is a concern, for example they could send out a mailer or bill insert, but don't have staff to answer the phone to sign people up. He also attends the local Home show with a booth and markets both residential programs there. The Home Show usually gets at least 3000-4000 people and the program manager will pre-sign participants. In 2011 the program manager attended five marketing and outreach events between July and December.

3.1.3 Verify Claimed Savings Supported by Program Tracking Data

OG&E provided copies of all the reports provided by the contractors and we found minimal data entry errors, several gaps in the contractor reports, and one report that had not been entered into the database. The following lists the errors in contractor reports.

- Missing system coverage, e.g. entire structure or lower floor only
- Missing heating equipment type
- Error in HVAC system type
- Missing system size
- One form had the wrong address in the d/b
- Some forms do not have information on refrigerant charges

3.1.4 Protocol A: Program Tracking and Database Development

Global compared the program database to recommended data fields in the protocol with results shown in Table 3-2 below

Table 3-2. Comparison of Tune Up and Duct Repair Database to Protocol A

Recommended Data Fields	Review Results
Participating Customer Information	**Information provided in database**
• Unique customer identifier, such as account number	Yes
• Customer contact information – name, mailing address, telephone number	Yes
• Date/s of major customer milestone such as rebate application date, approval date, rebate processing date, etc.	No
Measure Specific Information	**Information provided in database**
• Measure Group (Equipment Type)	Yes
• Equipment Fuel/Energy Source	Yes
• Equipment size	Yes
• Equipment quantity	Yes
• Efficiency level	n/a
• Estimated savings	Yes
• Estimated incremental measure cost, if applicable	n/a
• Equipment Useful Life	n/a
• Measure Name Text Description	Yes
• Measure Code Numerical Code	No
• Serial Number (where applicable)	Model & Model #
• Reported age of equipment replaced (if available)	n/a
• Reported measure type of equipment replaced (if available)	n/a
Measure Codes: All data should be captured in numeric format to facilitate data tracking and analysis. Therefore, a data legend should be identified for each measure type and contractor type. This data legend should be clearly identified in the program database's supporting materials.	Not done.
Vendor Specific Information	**Information provided in database.**
• Name and Contact Information for Contractor	Name of contractor, no contact information
• Contractor Type	No – assumed all are HVAC Contractors
• Date of Installation	Yes
• Cost of the installed equipment (if available)	n/a
• Efficiency level of the installed equipment	n/a
Program Tracking Information	**Information provided in database.**
• Date of the initial program contact/rebate information	No
• Date of rebate/incentive paid	No
• Incentive amount paid to date	Yes
• Incentive amounts remaining	n/a
• Application Status (i.e., number of applications approved, pending or denied)	No
• Reason and Reason code for application denial	No

Marketing and Outreach Activities	Information from interview.
• Advertising and marketing spending levels	No advertising/marketing done
• Media schedules	See above
• Summary of number of community events/outreach activities	5 events
• Other media activities estimated impressions via mailings, television/radio, print ads	None

3.1.5 Use of Technical Reference Manual (TRM) Values

The Arkansas TRM manual provides two deemed savings for this program—one for the air conditioner tune up and one for duct repair.

Tune Up Deemed Savings

Table 3-3 shows the AC Tune Up deemed savings values from the TRM.

Table 3-3. TRM Deemed Savings Values for AC Tune-Up

Weather Zone	Annual kWh Savings/Ton	kW Savings/Ton
9	92	0.06
8	112	0.06
7	124	0.06
6	149	0.06

OG&E Arkansas service territory is in Zone 8 Fort Smith. The deemed kWh and kW savings for a four-ton unit in Fort Smith are calculated as follows:

Annual kWh savings = 4.0 * 112 = 448 kWh

Peak kW savings = 4.0 * 0.06 = 0.24 kW

The database does not take the size of the unit (tons) into account. Savings are the same for all participants, 0.06 kW and 112 kWh.

Duct Repair Savings

The TRM provides a drop down menu for kW and kWh savings that depends on the zone, type of housing (all single family in this case), foundation, type of heating, and location of air handler. Global reviewed the database estimates and determined that the TRM deemed savings were not applied correctly. The database used deemed savings values from the Plan.

Geothermal Heat Pump

The TRM did not address deemed savings for Geothermal Heat Pump and one home used this heating source in the home. Since kW savings were the same for all heating systems in the TRM, Global used this value for kW deemed savings. For kWh deemed savings, Global used the savings value assigned to electric heat pumps.

3.1.6 2011 Results

77 projects were completed in 2011. A/C tune-up (with or without coils cleaned) was done for 56 homes, 16 of these homes also had the plenum sealed. 21 homes only had plenum sealing done.

Table 3-4 below shows the reported savings, the evaluated savings (with errors corrected) calculated by applying the deemed savings values from the TRM manual, the realization rate for the

gross impact estimates, and the net savings, adjusted for a free rider rate of 20%. These are shown separately for A/C Tune Up and Duct Repair, which is called Duct Efficiency in the TRM.

Table 3-4. 2011 Results for HVAC Tune-Up and Duct Repair

Measure	Savings	Gross Impacts			Net Impact
		Reported	Evaluated	Realization Rate	
A/C Tune Up	Demand Savings (kW)	4.6	9.7	213%	7.8
	Annual Energy (kWh)	8,512	18,144	213%	14,515
Duct Efficiency	Demand Savings (kW)	27.1	1.1	4%	0.9
	Annual Energy (kWh)	55,534	3,167	6%	2,534
Totals	**Demand Savings (kW)**	**31.7**	**10.8**	**34%**	**8.6**
	Annual Energy (kWh)	**63,604**	**21,311**	**34%**	**17,049**

As shown in Table 3-5, six contractors participated in the program. Total Home Efficiency conducted almost half of the projects but only accounted for 27% of demand and 28% of energy savings.

Table 3-5. Participation and Gross Evaluated Savings by Contractor

Contractor	Participants	Demand (kW)	Energy (kWh)
Air Pro	13	2.0	3,752
Atchley Air	9	2.0	4,158
B&J Heating & Air	7	1.2	2,264
Blaylock Heating & Air Con	5	0.7	1,288
Hawkins / Pryor	11	2.0	3,935
Total Home Efficiency	32	2.9	5,914
Totals	**77**	**10.8**	**21,311**

3.2 Window Unit Air Conditioning

3.2.1 Program Description

The purpose of the Window Unit A/C Program, launched July 2011, is to provide OG&E single family residential customers without central HVAC systems incentives for purchasing and installing high-efficiency air conditioners. The program is designed to increase energy efficiency of window unit sales, while is reducing energy consumption, lowering energy costs, and increasing the comfort of residential customers that cool part or all or their home with window units. Measure life characteristics suggest that roughly 20 percent of OG&E's residential cooling systems date to 1997 or earlier, suggesting there is a strong annual market for air conditioning systems, assuming an 11 year mean life at time of replacement.1 ENERGY STAR (ES) qualified window air conditioning units would be eligible for rebates under this program.

To qualify for this program, the energy efficiency ratio (EER) must exceed corresponding National Appliance Energy Conservation Act (NAECA) baseline standards by 10 percent or more. After replacing an existing window air conditioner with an ES window air conditioner by a certified third-

[1] 30th Annual Portrait of the U.S. Appliance Industry, Appliance Magazine, 2006

party contractor, the customer receives a $40 rebate. Minimum cooling capacity is 5,000 Btu/hour; maximum is 25,000 Btu/hour. The baseline is assumed to be a new air conditioning unit with an EER

rating meeting current NAECA standard, which vary from 8.5 to 9.8 depending on the configuration of the louvers and the capacity of unit.

OG&E pays a $40 rebate for ES Window Air Conditioners to the customer upon receipt of OG&E's ES appliance form and invoice of the purchase. The invoice must be dated within one year of the completed energy audit. No incentives are available for new construction or to pay for fuel switching of heating fuels.

3.2.2 Summary of Program Operations

The program is operated in the same way as the HVAC Tune Up and Duct Repair (see 3.1.2).

For the Window AC program the program manager put up flyers in 4 locations, mostly only the local hardware stores. He mentioned that the big box stores like Lowes and Home Depot did not want him to put up flyers.

The program manager noted that they need to get marketing going for the Window-AC program faster, and need to improve marketing in general. Staffing is a concern, for example they could send out a mailer or bill insert, but don't have staff to answer the phone to sign people up.

One concern with the window units is that they program managers believe there are only 1000-1500 potential participants which will be a challenge. They plan to advertise in "currents" in 2012 which should draw more people.

3.2.3 Verify Claimed Savings Supported by Program Tracking Data

OG&E provided backup documentation to support the program application including the receipt for the new air conditioner.

3.2.4 Protocol A: Program Tracking and Database Development

Global compared the program database to recommended data fields in the protocol with results shown in Table 3-6.

Table 3-6. Comparison of Window A/C Database to Protocol A

Recommended Data Fields	Review Results
Participating Customer Information	**Information provided in database**
• Unique customer identifier, such as account number	Yes
• Customer contact information – name, mailing address, telephone number	Name only
• Date/s of major customer milestone such as rebate application date, approval date, rebate processing date, etc.	Yes
Measure Specific Information	**Information provided in database**
• Measure Group (Equipment Type)	n/a
• Equipment Fuel/Energy Source	n/a
• Equipment size	No
• Equipment quantity	Yes
• Efficiency level	Model #
• Estimated savings	Yes
• Estimated incremental measure cost, if applicable	n/a
• Equipment Useful Life	n/a
• Measure Name Text Description	Assumed to be Window A/C
• *Measure Code Numerical Code	No
• Serial Number (where applicable)	Yes
• Reported age of equipment replaced (if available)	Not available
• Reported measure type of equipment replaced (if available)	Model #

Recommended Data Fields	Review Results
Measure Codes: All data should be captured in numeric format to facilitate data tracking and analysis. Therefore, a data legend should be identified for each measure type and contractor type. This data legend should be clearly identified in the program database's supporting materials.	Not included.
Vendor Specific Information	**Information provided in database.**[1]
• Name and Contact Information for Contractor	n/a
• Contractor Type	n/a
• Date of Installation	n/a
• Cost of the installed equipment (if available)	yes
• Efficiency level of the installed equipment	yes
Program Tracking Information	**Information provided in database.**
• Date of the initial program contact/rebate information	Yes
• Date of rebate/incentive paid	Yes
• Incentive amount paid to date	Yes
• Incentive amounts remaining	n/a
• Application Status (i.e., number of applications approved, pending or denied)	No (only one received)
• Reason and Reason code for application denial	n/a
Marketing and Outreach Activities	**The following were completed:**
• Advertising and marketing spending levels	None
• Media schedules	None
• Summary of number of community events/outreach activities	5 events
• Other media activities estimated impressions via mailings, television/radio, print ads	None

3.2.5 Use of Technical Reference Manual (TRM) Values

The deemed savings were derived from the TRM table 59 shown in Table 3-7 using Zone 8 Fort Smith. The program database used values from the Frontier filing in Sept. which are applicable only to window units between 8,000 and 13,999 Btu. In addition the savings values were based on forecasted savings which include line losses; deemed savings are at the customer meter.

[1] The customer did not use a contractor for installation but did provide a receipt for the equipment.

Table 3-7. Deemed Energy Savings for Window Air Conditioners

Size (Btu/Hr)	Federal Standard EER	Energy Star EER	kW Savings All Zones	kWh Savings Zone 9	kWh Savings Zone 8	kWh Savings Zone 7	kWh Savings Zone 6
Less than 6,000	9.7	10.7	0.046	41	54	54	68
6,000 – 7,999	9.7	10.7	0.049	44	58	58	73
8,000 -13,999	9.8	10.8	0.095	83	111	111	139
14,000 – 19,999	9.7	10.7	0.127	112	150	150	187
20,000 and above	8.5	9.4	0.218	193	257	257	321

3.2.6 2011 Results

The program began after the start of the cooling season and only attracted one participant.

Gross savings reported were 0.08 kW and 97 kWh savings[1]. This unit was 25,000 Btu with an EER of 9.4 and based on the deemed savings in the TRM, gross kW savings were 0.218 and gross kWh savings were 257. Realization rates were 273% and 265% respectively. *Net savings*, adjusted for NTG of 0.8, were 0.174 kW and 206 kWh.

3.2.7 Recommendations for Window A/C Program

- Set up and provide written documentation for QA/QC procedures
- Modify the tracking system to calculate savings based on approved TRM values.
- Include the recommended data fields provided in Protocol A for the following:
  - Participating customer information
  - Customer specific information
  - Vendor specific information, if applicable – contractor name, contact name, contact phone #, contact email
- Create a monthly report to track program costs and marketing and outreach activities.
- Work with the large retailers such as Lowe's to help promote the program.

3.3 Student Energy Education

3.3.1 Program Description

The purpose of the Student Energy Education (SEE) program is to shape household behaviors about resource use and encourage reduced energy use through a combination of information about resource efficiency and access to efficient products. The program has been in operation since before this 2011-2013 program cycle. Under the program, 6th grade students in participating schools are each provided with a take-home kit containing energy and water efficiency devices and are exposed to information about energy efficiency, both in the classroom and through materials in the kit.

SEE is operated as a turn-key program. Under contract to OG&E, Resource Action Programs (RAP) implements its LivingWise® program by enrolling schools and furnishing the materials and training to teachers who then conduct the in-classroom lessons and provide the students with take-home kits

[1] OG&E used values based on Table WU-2 page 33, i.e. 1.1 kW divided by 13 participants and 1,260 kWh divided by 13 participants. These values include line losses.

that contain several energy and water savings devices, along with additional information about how to install the devices and save resources. The OG&E program manager and the RAP website confirm that the LivingWise kits include: a low-flow showerhead, a CFL, a kitchen faucet aerator, an LED nightlight, and other items designed to help families check for inefficiencies in their homes. Both the kits and the RAP website contain explicit instructions on how to install each of the items.

Figure 3-1. LivingWise Kit

The Plan shows a participation projection of 1,240 participants in PY 2011, increasing to 1,840 in each of the two subsequent years. A participant is defined as a student. Under the program, each participant is issued a kit with the above noted items. The savings the program expects to realize and that OG&E is claiming, derive from the installation of three of the items in the kit: the low-flow showerhead, the CFL, the kitchen faucet aerator.

Table 3-8 shows the participation and savings that OG&E anticipates the program will achieve annually during this program cycle.

Table 3-8. SEE Participation and Savings Projections

Program Year	Annual Participants	Annual Savings (kW)	Annual Savings (kWh)
2011	1,240 students	10.3	102,516
2012	1,840 students	15.2	152,120
2013	1,840 students	15.2	152,120

Source: Oklahoma Gas & Electric's 2011-2013 Arkansas Energy Efficiency Program Analysis and Plan, Table 7, p. 16.

3.3.2 Summary of Program Operations

As noted, the SEE is operated by the contracted implementer, RAP, as a turnkey program, under the brand name LivingWise®. To meet the program objectives and savings goals, OG&E provides RAP

with a list of potential schools who have indicated a willingness to participate. RAP has the following responsibilities:

- Conduct outreach and enroll schools
- Develop and assemble all materials for the SEE program and ship them to the participating classrooms
- Contact participating teachers throughout the program to provide support
- Request return of audit forms and evaluations of the program from teachers
- Provide OG&E with a Program Summary Report annually, in time for inclusion in OG&E report to the APSC

OG&E maintains a tracking system that shows the number of participants in the program each year and recorded savings, based on information provided by RAP.

3.3.3 Review of Program Tracking and Database

OG&E provided Global with data extracted from its tracking of the LivingWise program activities. The data are quite easy to understand. The database clearly identifies the number of LivingWise kits that were shipped, the number of students in the classes, the per-kit savings assigned, and the kit costs charged to the program. The tracking system conforms reasonably well to the tracking system protocol developed for use in Arkansas (and described in Appendix A of this report). Here is a summary of how well it meets the components of the protocol and our recommendations for improvement, where appropriate.

Participating Customer Information. The tracking system contains contact information for the teachers who conduct the program with the participating students. We recommend that, in future, the system should also include:

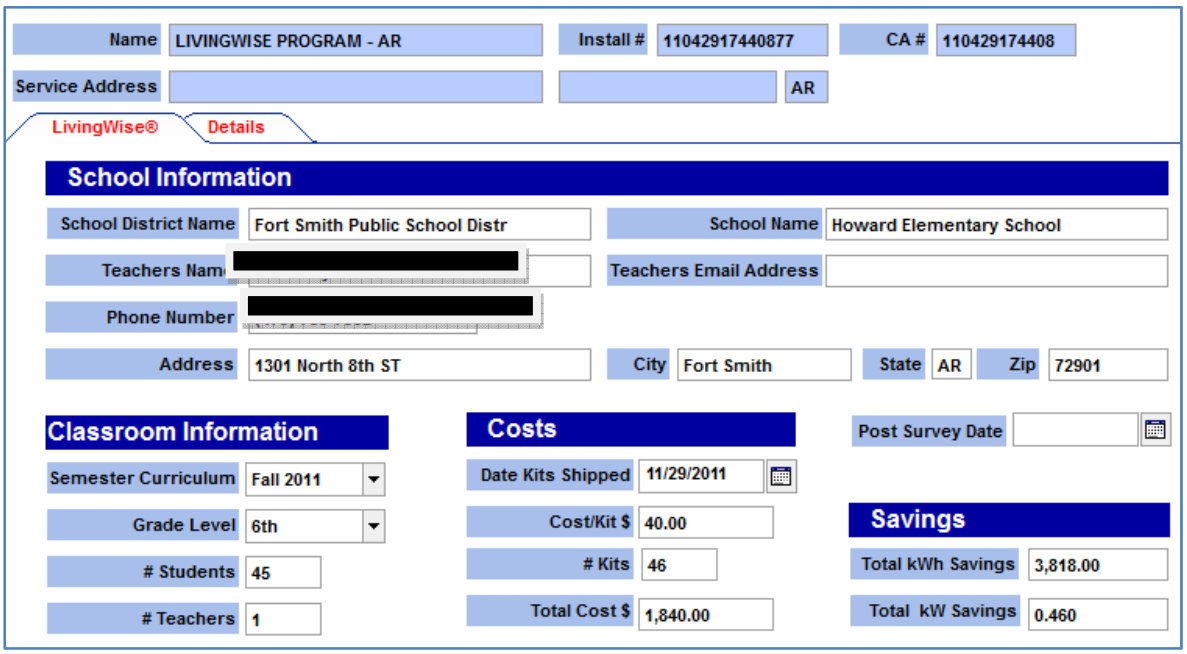
- Email address for the teachers (there is a field for this but it might not be populated)
- Contact information (at least email) for the families of the students who participate. Access to participants is necessary for truly independent (not implementer-reported) evaluation of participant satisfaction and actions (e.g., assessment of installation rates and net attribution)

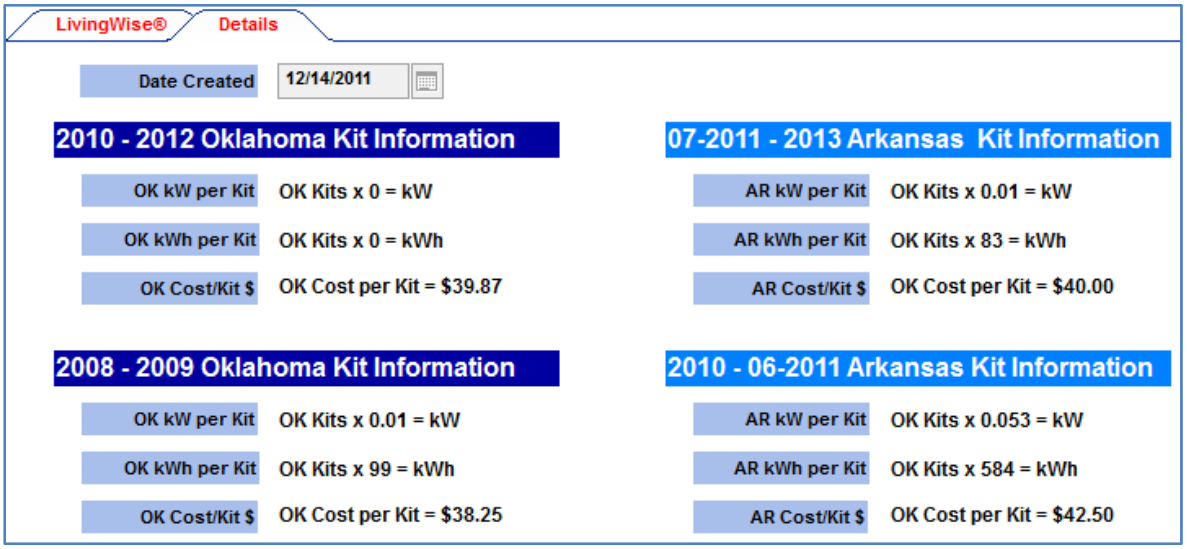
Measure Specific Information. The tracking system does not identify which measures were actually installed by the participating students' families. In their annual summary report, RAP includes self-reported information about measure installation from families who return a post-program survey.

Program Tracking Information. The tracking system includes information on the dates the kits were shipped and data entry was made, and the cost of the kits to the program. The kits are free to student participants, so rebate information is not applicable.

Marketing and Outreach Activities. OG&E and RAP conduct a well-established pattern of activities, evidence of which was provided. It is not known whether OG&E keeps records of how many outreach letters the staff sends each year or to whom. RAP handles all other marketing.

The following screen shots from the tracking system show how the information is captured. They show that the information regarding the calculation of the savings is included, based on the number of students and teachers per class.





3.3.4 Use of Technical Reference Manual (TRM) Values

As outlined in the Plan, the SEE uses deemed savings values for the low-flow showerhead, faucet aerator, and CFL included in each student kit to project savings expected from the program in the 2011-2013 period. The per-unit savings in the Plan for these items, shown in Table 3-9 below, match the values for the corresponding measures in the TRM.

Table 3-9. SEE Forecasting Assumptions and Annual Savings per Participant

Assumptions	Low-Flow Showerhead[1]	Faucet Aerator[2]	15-Watt CFL[3]
kWh Impact per electric water heater participant	52.31	140	37
kW Impact per electric water heater participant	0.006	0.012	0.0041
Assumed Free Riders	20%	20%	20%

Source: Oklahoma Gas & Electric's 2011-2013 Arkansas Energy Efficiency Program Analysis and Plan, Table 6, p. 15.

The Plan indicates that the deemed measure savings translate to an average per-participant savings of 83 kWh and .01 kW. It is not clear from the Plan—and Global was not able to obtain any information—regarding how these aggregated per-participant values were derived. At this writing, it is not clear whether these per-participant values take account of hot water fuel mix for the showerhead and aerator measures, anticipated installation rates, and/or free-ridership.

The tracking system reports provided by OG&E show that participants for the school period Fall 2011 were assigned annual per-participant values of 83 kWh and .01 kW. The reports also show that for the school period Spring 2011 participants were assigned much higher values, 584 kWh and .053 kW. No documentation seems to be available regarding how these higher per-participant values were calculated. So it is not known whether they included additional measures from earlier years that are not part of the 2011 program, they relied on earlier deemed savings estimates, or something else.

3.3.5 Program Year 2011 Results

As noted in Table 3-9, the program had a goal of attracting 1,240 student participants in 2011. Documentation for 2011 from OG&E shows that the implementer sent 1856 kits to serve 1,813 students in 24 Arkansas schools. The OG&E program manager noted that RAP had no problem meeting the 2011 participation goal. Since this is an ongoing program, it seems that RAP has established relationships with schools that enable the recruiters to enroll classes of 6th graders each year. In fact, RAP helps maintain repeat participation with teachers by asking them if they are interested in participating in the following school year, as part of the post-program survey. Teachers' high degree of satisfaction with the program[4], together with the ease of repeat participation likely contributed to the program's success in surpassing the participation goal set for 2011. Table 3-10 shows the participation and savings reported by OG&E for PY 2011.

Table 3-10. OG&E Reported Participation and Savings for 2011

[1] The TRM provides a table of values based on the number of showerheads in the home and number fitted with low-flow showerheads. The Plan uses the value that assumes replacement of one 2.5 gpm showerhead with a 2.0 gpm unit, in a home that has two showerheads total.

[2] The TRM indicates that this value assumes all aerators in the home are replaced. Since each program kit included only one aerator, it may be that using the value for this program overstates the savings likely obtained by participants.

[3] On March 7, 2012, APSC issued a revision to CFL values that would decrease the savings to 36 kWh/year and increase free-ridership to 37%. These values were not available to OG&E during the program year and are not reflected in the table.

[4] Following the 2010 program, 90% of participating teachers said they would conduct the program again. Reported in *OG&E Arkansas LivingWise Program Summary Report 2010-2011*, prepared by Resource Action Programs, March 2011. (Data not available for program year 2011, as of this writing.)

Program Period	Participation (kits)	Annual kW Savings		Annual kWh Savings	
		Per Participant	Total	Per Participant	Total
Spring 2011	859	0.053	45.527	584	501,656
Fall 2011	997	0.010	9.970	83	82,751
Totals	**1,856**		**55.497**		**584,407**

The reported savings are based on the number of kits shipped to the classrooms. In 2011, the kit count included 1,813 for students plus 43 for teachers. The tracking system also shows that the per-participant savings values were changed during 2011. Global reviewed the Plan, the TRM, and the data provided by OG&E from the tracking system, as well as information from RAP's Program Summary Report for 2010.

Based on our review of the documentation and discussion with the OG&E program staff, we make the following assessment (see Table 3-11) of the savings, with recommendations for adjustment of the reported savings.

Table 3-11. Adjustments to Savings from LivingWise Kits

Adjustment Needed	Effect of Adjustment on Reported Program-Level Savings
Kits Shipped versus Student Participants. Records show that the annual savings of 584,407 kWh was based on the 1856 kits shipped to the schools. The same records, however, indicate that there were only 1,813 students in these classes, the difference made up by the 43 teachers. Since there was nothing to indicate that the teachers used the kits (and at least some of teachers were repeat users of the program in different school years), using 1,856 as the participation number is probably too high. If, in subsequent years, there is documentation to show that the kits were actually used, it will be appropriate to count them in the participant population.	Reduction of # participants from 1856 to 1813: -26 @ 584 kWh = -15,184 kWh -17 @ 83 kWh = -1,411 kWh (-3% of 584,407 kWh)
Per-Participant Savings Values. Records show that OG&E used a per-participant savings estimate of 584 kWh for the school term Spring 2011, during which 833 students (plus 26 teachers) participated. These values are not substantiated by the TRM in any way. And, as noted above, they do not match the values calculated by RAP in the 2010 report for the three measures included in the program in 2011 (the per-participant savings implied in the RAP report for these three measures combined was higher than the OG&E value). If there is documentation showing that, for the early part of 2011, a value that differs from the one shown in the plan, then it can be used. Otherwise the program-level savings claims need to be adjusted downward.	Reduction of per-participant savings from 584 kWh to 83 kWh: 833 students @ -501 kWh = -417,333 kWh (-71% of 584,407 kWh)
Partially Adjusted Annual Program-Level Savings	**150,479 kWh (26% of 584,407 kWh)**

Additionally, the documentation provided to Global did not indicate how the value of 83 kWh per participant was derived by Frontier Associates from the TRM-based individual measure savings (in Table 3-11 above).

To develop an appropriate average per-participant savings, the TRM measure savings needed to be combined in a way that takes account of three factors: proportion of participant homes with electric hot water, percent of measures likely to be installed, and free-ridership (as mandated by the APSC).

If these three factors are not already each accounted for in the annual value of 83 kWh per participant, filed in the OG&E Plan, the Table 3-12 illustrates the downward effect of incorporating those factors.

Table 3-12. Adjustments to Conform to TRM

Factor Adjustments That May Be Needed	Adjusted Per-Participant Savings
Factors already incorporated in the Plan. This would mean that no adjustment is necessary to the per-participant savings value of 83 kWh noted in the Plan and applied to Fall 2011 participants.	83 kWh per participant
Fuel Mix Rate. Not all of the participants' homes have electric hot water heaters. OG&E did not provide Global with actual penetration but the 2010 RAP report indicated that, of the 802 participants who responded to the program survey, 64% said they had electric hot water. If the projected participants' share of electric water heat is not already incorporated in the 83 kWh savings value, it should be.	.64 x 83 kWh = 53 kWh per participant
Installation Rate. The measures in the kits were self-installed by the participants. As of this writing, the 2011 RAP report was not available, nor did OG&E provide Global with any installation rate data. The 2010 RAP report does document participant-reported installation rates of 80% for the CFL, 58% for the showerhead, and 57% for the aerator (approximately 60% combined, using a kWh-weighted average of the three measures). If the 83 kWh per-participant value does not reflect these or similar installation rates, the value should be reduced to include the lower savings achieved by the participants.	.60 x 83 kWh = 50 kWh per participant
Free-Ridership Rate. The OG&E Plan calls for a net impact factor of 80% to participant savings. It is not clear whether the factor was applied to the measure-specific TRM values to develop the annual value of 83 kWh per participant for program year 2011. If that value does not include the net factor, then the reported savings value needs to be adjusted downward by 20%. *NOTE: On March 7, 2012, the APSC issued revisions to the net impact factor that should be applied to savings[1]. In that ruling, the new rate for CFLs is 0.63, while the other two measures remain at 0.80. Until we resolve how or if free-ridership is already embedded in the per-participant savings, we show the effect of applying 0.80 to the full savings. Mixing in the lower rate for CFLs would result in a savings lower than the 66 kWh per participant shown here.*	.80 x 83 kWh = 66 kWh per participant
Effect of all three rate adjustments. If none of the three factors is incorporated in the 83 kWh per participant rate, this is their combined effect.	.64 x .60 x .80 x 83 kWh = 25 kWh per participant

Table 3-13 shows the combined effect of the adjustments described above. The resulting net adjusted savings is presented as a range, allowing for the possibility that OG&E can provide additional documentation that justifies the OG&E reported savings shown in Table 3-11 above.

If some, but not all of the adjustments are appropriate, the total adjusted 2011 savings will be higher than 46,227 kWh but lower than 150,479 kWh. The net realization rate is the adjusted program-level savings as a percent of the reported savings of 584,407 kWh.

Table 3-13. Range of 2011 Net Program Savings with Adjustments

[1] "In The Matter of A Rulemaking To Adopt An Evaluation, Measurement, and Verification Protocol And Propose EM&V Amendments To The Commission's Rules For Conservation and Energy Efficiency Programs," Docket No. 10-100-R, Order No. 15, recorded March 7, 2012.

High and Low Per-Participant Savings	Annual Savings	Net Realization Rate
1,813 participants @ 83 kWh per participant	150,479 kWh	26%
1,813 participants @ 25 kWh per participant	46,227 kWh	8%

3.3.6 Summary of Findings and Recommendations

The Program. The LivingWise® student education program is a well-established, well-executed, and well-liked program. The implementer provides all of the materials, support, and reporting on activities. The materials, both those in the students' take-home kits and on the company's website, are very clear, including step-by-step instructions on how to install the efficiency measures in the kit. Since the program evidently met its participation goals easily, OG&E staff reported no concerns about program operations, teachers who conducted the program reported very high satisfaction with the program, and participants who responded to the survey found the program informative and easy to understand, we make no recommendations to modify the program. However, RAP only provides OG&E complete program results in the Program Summary Report. This report, the only source of information on measure installations, is only prepared annually and not until March after the program year. Furthermore, the annual results from RAP's well-written survey could readily provide a gauge of free-ridership that is perhaps more appropriate for this program by including questions about the pre-program existence of kit measures in the home. We recommend the following:

- Adjust the due date of the implementer's annual summary report to no later than February 1 each year so that OG&E can incorporate results on participants' actions into the tracking system and the program results are available for the annual evaluation.
- Enhance the participant survey to include questions about the presence of CFLs, low-flow showerheads, and aerators prior to participation in the LivingWise program.

The Tracking System. The tracking system clearly shows how the per-participant savings, which are hardwired into it, calculates classroom-level savings and, ultimately, program-level savings. The input screens are very easy to follow and the resulting output provided to Global was quite clear. What is most lacking is email contact information for the teachers who conduct the program in class and any contact information for the participating students' families. This precludes making any type of independent corroboration of the participants' activities, attribution, or satisfaction. Also, there does not seem to be a systematic record of which teachers received outreach letters, so it remains unknown if or why some teachers declined involvement in the program. We make the following recommendations for improvement of the tracking system:

- Include email contact for the teachers who conduct the program and email or postal contact information for the families of students who received the kits.
- Incorporate information regarding when and to whom all of the outreach letters are sent each term.

The Savings. The program-level savings calculations are easy to follow, but likely somewhat overstate the number of kits likely installed each year (by including savings for all kits shipped, even those for teachers). The deemed per-measure savings stated in the plan, and were presumably used to derive the total per-participant savings, match the TRM perfectly. But the per-participant savings used were not documented well enough to show how they were calculated. It is not clear that they reflect factors that affect measure savings, such as at-home installation rates. It is not clear whether Frontier Associates ever provided that background information to OG&E.

We make the following recommendations to improve the savings calculations and their documentation:

- Use the actual number of kits taken home by students as the participation count, rather than the number of kits shipped to the classroom.
- Provide more explanation of how the per-participant savings values were derived from the individual deemed measure savings in the TRM.
- Provide documentation for any per-participant savings values used that deviate from the values in the Plan.

We also make the following recommendations for modification of the TRM:

- Modify the deemed savings for aerators to show separate values for kitchen vs. bathroom faucets and include a table of values based on the number of faucets replaced vs. total faucets in the house, akin to TRM Table 132 for showerheads. (Currently, all of these conditions are rolled into a single value which is applicable only if aerators are installed on all of the faucets in the home.)
- The baseline flow rate used to derive savings for showers and aerators should be modified from 2.5 gpm to 2.2 gpm, the lower number being the Federal baseline.[1]

[1] Information about the Federal baseline was provided by Katherine Johnson.

Non-Residential Programs

4.1 Commercial Lighting

4.1.1 Program Description

The PY 2011 Commercial Lighting program is an expanded version of the program implemented in 2010. The PY 2010 Commercial Lighting program was limited to the replacement of T12 fluorescent tubes with more efficient T5 and T8 lighting in small offices, government offices and schools and new construction. This evaluation does not cover projects implemented under the PY 2010 Commercial program in early 2011. The expanded PY 2011 program, launched in July 2011, includes efficient fluorescent lighting, but adds hardwired compact fluorescent lamps (CFLs), lighting controls, and light emitting diode (LED) exit signs.

The program has five parts:

1. Customers that replace less efficient T12 fluorescent lamps with high-performance T5 or T8 lamps receive a rebate of $4 per fixture for 1- and 2-lamp fixtures and $8 per fixture for 3- and 4-lamp fixtures.
2. Customers replacing less efficient high intensity discharge (HID) lighting with high-performance T5 or T8 fluorescent lamps in high- or low-bay applications will receive a rebate of $52 per fixture when replacing 400W HID fixtures and $102 per fixture when replacing 750W or larger HID fixtures.
3. Customer that replace incandescent lighting with hardwired CFLs will receive $8 per fixture for 26W or less CFLs of and $11 per fixture for CFLs greater than 26W.
4. Customers replacing incandescent exit lighting with LED exit signs will receive a rebate of $5 per fixture.
5. Customers that install lighting retrofits and controls other than those listed above will receive a rebate $160 per kW of reduced peak demand.

4.1.2 Summary of Program Operations

This section includes a summary of program participation, demand and energy savings, and summary findings from in-depth interviews with program staff regarding overall program processes and operations. Table 4-1 shows planned and reported participation and savings.

Table 4-1. Commercial Lighting Program: Participation and Claimed Savings

PY2011 Results	Planned	Reported
Participation	25	13
Demand savings (kW)	265	310
Annual Energy savings (kWh)	1,047,691	1,033,694

The program manager is currently managing this and four other programs. He takes a very hands-on approach and is, therefore, very busy. He has a lot of interaction with participants and contractors, emailing and phoning participants to sign up and hand delivering checks to contractors. He knows that as the programs grow next year, he won't be able to do it all himself. They have hired someone

else to help him for next year and at this point he seems confident that he will be able to keep this style of program management up going forward. Participants are told that their rebate checks will be delivered 30-40 days after the installation of the equipment has been verified. However, OG&E typically takes only a week to 10 days to pay, which makes the participants very happy.

Contractors

The program manager uses about one dozen known contractors and the process is also very hands-on. He recruits contractors via email to his contacts in the industry and fliers in HVAC supply warehouses. He also actually knows most of them first hand so he can select only the most qualified for the program. The program manager has significant interaction with the contractors all the way through the process from signing them up to hand-delivering rebate checks. He organizes breakfast or lunch meetings with the technicians to brief them on how the program works and what type of and quality of work they are to perform for the program. He has had good feedback from contractors and no complaints from customers. He tries to go out with the contractors much of the time to see how they are doing and interact with the participants. The program is really well received by contractors and participants. The economy is still down in Arkansas and the program helps contractors to get more business and helps customers afford the lighting upgrades.

See Section 3.1.2 for *Quality Assurance and Quality Control* and *Marketing and Outreach.*

4.1.3 Verify Claimed Savings Supported by Program Tracking Data

The total claimed program savings are the sum of the individual participant's savings and match the figures contained in the Commercial Lighting Rebate Submission Forms for each participant.

4.1.4 Protocol A: Program Tracking and Database Development

Global compared the Commercial Lighting program database to recommended data fields in the protocol with results shown in Table 4-2 below

Table 4-2. Comparison of Commercial Lighting Program Database to Protocol A

Recommended Data Fields	Review Results
Participating Customer Information	**Information provided in database**
• Unique customer identifier	Yes
• Customer contact information	No
• Date/s of major customer milestone	Yes
Measure Specific Information	**Information provided in database**
• Measure Group (Equipment Type)	Yes
• Equipment Fuel/Energy Source	N/A
• Equipment size	N/A
• Equipment quantity	Yes
• Efficiency level	No
• Estimated savings	Yes
• Estimated incremental measure cost, if applicable	N/A
• Equipment Useful Life	No
• Measure Name Text Description	Yes
• * Measure Code Numerical Code	N/A
• Serial Number (where applicable)	N/A
• Reported age of equipment replaced (if available)	N/A
• Reported measure type of equipment replaced (if available)	N/A
Vendor Specific Information	**Information provided in database**
• Name and Contact Information for Contractor	No
• Contractor Type	N/A
• Date of Installation	No
• Cost of the installed equipment (if available)	N/A
• Efficiency level of the installed equipment	N/A
Program Tracking Information	**Information provided in database**
• Date of the initial program contact/rebate information	Yes
• Date of rebate/incentive paid	Yes
• Incentive amount paid to date	No
• Incentive amounts remaining	No
• Application Status	No
• Reason and Reason code for application denial	N/A
Marketing and Outreach Activities	**Information provided in database**
• Advertising and marketing spending levels	No
• Media schedules	No
• Summary of number of community events/outreach activities	No
• Other media activities	No

4.1.5 Use of Technical Reference Manual (TRM) Values

The Arkansas TRM does not specify impacts for commercial lighting measures per se, instead providing the calculations to be used to determine the savings based on the values given in a standard wattage table. Therefore, we reviewed OG&E's Commercial Lighting Rebate Submission Form. This electronic form is completed for each participant and includes customer information such as address, contact, and signatures. The form also contains a worksheet into which information about the existing and replacement lighting equipment. This sheet calculates the kWh and kW impacts and the rebate amount.

Based on our review of the worksheet in OG&E's Commercial Lighting Rebate Submission Form, we concluded that the calculations for lamp retrofits, other retrofits not listed, and new construction are correct and reasonable.

However, we believe that using kW impacts to calculate the rebate for the sensor/controls is not appropriate. Typically, there is no demand reduction resulting from the use of occupancy sensors or daylighting controls - unless there are multiple occupancy sensors and it can be proven that at any given time fewer lights are operating as a result of the occupancy sensors. The Arkansas Comprehensive Program Deemed Savings document states that "There is no demand savings associated with [lighting controls]."[1] Most utilities offer per unit rebates for lighting controls in recognition of this fact.

4.1.6 2011 Results

Thirteen projects were completed during 2001 as part of the Commercial Lighting Program with 1,753 measures installed. Most of the savings (57% of demand and 44% of energy) were achieved with HID fixtures. Table 4-3 summarizes the impacts of the program, including net savings by

[1] January 2011 Update, Exhibit A, C - Commercial and Industrial Arkansas Deemed Savings, Installation & Efficiency Standards, page 2-18.

adjusting for a free rider rate of 20%. Table 4-4 shows the gross demand reductions and energy savings by customer.

Table 4-3. Units Installed and Savings by Measure – Commercial Lighting

Lighting Measure	Units Installed	Demand Reductions (kW)	Energy Savings (kWh)	Rebates
1-2 Lamp Fluorescent Fixtures	608	12.7	72,430	$2,432
3-4 Lamp Fluorescent Fixtures	394	38.3	121,782	$3,152
400W HID Fixtures	303	155.5	449,955	$15,756
≤27W CFLs	10	2.5	6,276	$110
LED Exit Signs	50	2.1	18,790	$250
Controls	271	0	193,290	$5,925
Other Fixtures	117	24.6	70,196	$3,939
New Construction – Interior Fixtures	–*	30.6	85,015	$4,901
New Construction – Exterior Fixtures	–*	6.1	15,959	$982
Totals	**1,753**	**272.6**	**1,033,694**	**$37,447**
Net Impacts	**–**	**218.1**	**826,955**	**–**

Notes: * The number of fixtures installed is not recorded. New construction rebates are determined by kW reduction from wattage allowed by 2006 IECC (International Energy Conservation Code) to the actual wattage built.

Table 4-4. Units Installed and Savings by Customer – Commercial Lighting

Customer	Units Installed	Demand Reductions (kW)	Energy Savings (kWh)	Rebates
Customer #1	80	3.8	14,377	$612
Customer #2	71	3.7	13,483	$741
Customer #3	689	10.0	116,009	$3,307
Customer #4	20	92.8	167,040	$1,040
Customer #5	–*	33.7	87,708	$5,397
Customer #6	54	3.2	10,015	$324
Customer #7	–*	3.0	13,266	$486
Customer #8	31	19.3	31,337	$248
Customer #9	37	9.2	26,860	$238
Customer #10	30	2.3	5,928	$1,560
Customer #11	12	1.2	3,744	$624
Customer #12	125	32.7	93,171	$6,188
Customer #13	604	57.6	450,756	$16,682
Totals	**1,753**	**272.6**	**1,033,694**	**$37,447**

Notes: * The number of fixtures installed is not recorded. New construction rebates are determined by kW reduction from wattage allowed by 2006 IECC (International Energy Conservation Code) to the actual wattage built.

4.2 Standard Offer

4.2.1 Program Description

The Commercial & Industrial Standard Offer Program (SOP) offers financial incentives of $250/kW for the installation of a wide range of measures that reduce customer energy costs, reduce peak demand, and/or save energy in non-residential facilities such as public authority buildings, schools, hospitals, and other industrial customers. Large individual customers, energy service companies (ESCOs), and qualified contractors are all eligible to participate in the SOP. The SOP provides incentives for many energy efficiency measures that not covered under other OG&E programs.

Five customers participated in the SOP during PY 2011, installing a total of 97 HVAC units and upgrading two motors.

4.2.2 Summary of Program Operations

The SOP is operated in the same way as the Commercial Lighting program (see Section 4.1.2).

4.2.3 Verify Claimed Savings Supported by Program Tracking Data

The total claimed program savings are the sum of the individual participant's savings and match the figures contained in the Commercial-Industrial Standard Offer Rebate Submission Forms for each participant and matched the total demand and energy savings figures in the IAvenue database.

However, there are several fields in the database where the data in the database did not match those in the Commercial-Industrial Standard Offer Rebate Submission Form. The fields "PRE_WATTSX" and "POST_WATTSX" (where "X" represents any of eight different pieces of equipment) record the pre- and post-implementation wattages of existing (pre-) and retrofit (post-) equipment, respectively. In most cases, the value in the field was in kW and rounded to the nearest whole number. For example, in one record the value in the cell for the number of watts should have been "3,273", but was instead "3." In those records where the values in these fields were incorrect, the fields "TOTAL_PRE_WATTS" and "TOTAL_POST_WATTS" were also incorrect. Fortunately, these errors did not impact the savings or rebate figures.

It is difficult to tell whether the issue is due to data entry error or a fault in the database that rounds the value entered from watts to the nearest whole kW value. This could also have been a data extraction issue where the values were corrupted when downloaded from the database to a CSV file. If this is the case, then there is no issue with the database that needs to be corrected.

4.2.4 Protocol A: Program Tracking and Database Development

Global compared the SOP program database to recommended data fields in the protocol with results shown in Table 4-5.

Table 4-5. Comparison of SOP Database to Protocol A

Recommended Data Fields	Review Results
Participating Customer Information	**Information provided in database**
• Unique customer identifier	Yes
• Customer contact information	No
• Date/s of major customer milestone	Yes
Measure Specific Information	**Information provided in database**
• Measure Group (Equipment Type)	Yes
• Equipment Fuel/Energy Source	N/A
• Equipment size	Yes
• Equipment quantity	One unit
• Efficiency level	No
• Estimated savings	Yes
• Estimated incremental measure cost, if applicable	N/A
• Equipment Useful Life	No
• Measure Name □ Text Description	Yes (minimal)
• * Measure Code□ Numerical Code	No
• Serial Number (where applicable)	No
• Reported age of equipment replaced (if available)	N/A
• Reported measure type of equipment replaced (if available)	N/A
Vendor Specific Information	**Information provided in database**
• Name and Contact Information for Contractor	No
• Contractor Type	No
• Date of Installation	No
• Cost of the installed equipment (if available)	N/A
• Efficiency level of the installed equipment	No
Program Tracking Information	**Information provided in database**
• Date of the initial program contact/rebate information	Yes
• Date of rebate/incentive paid	Yes
• Incentive amount paid to date	No
• Incentive amounts remaining	No
• Application Status	No
• Reason and Reason code for application denial	N/A
Marketing and Outreach Activities	**Information provided in database**
• Advertising and marketing spending levels	No
• Media schedules	No
• Summary of number of community events/outreach activities	No
• Other media activities	No

4.2.5 Use of Technical Reference Manual (TRM) Values

There were two types of equipment retrofits performed as part of the SOP: motors and central air conditioning units.

The TRM provides an equation to be used for determining the kW and kWh savings from installing more efficient motors. OG&E's motor rebate form does not follow the TRM formula for kW savings, but the alternate calculation it does use correctly calculates kW savings. The kWh savings are then calculated as the product of the kW savings and the annual hours of motor use, as specified in the TRM. Global was not able to verify that the new motors exceed the baseline efficiency standards, and did not include the impacts. In the future, OG&E should collect nameplate data for both the old and replacement motors.

The Arkansas TRM does not include impacts for non-residential central air conditioner replacements. **Error! Not a valid bookmark self-reference.** lists the minimum federal efficiency levels for commercial air conditioning units. There was backup information about the efficiency levels for all of the air conditioning units installed as part of this program.

Table 4-6. Efficiency Standards for Commercial AC

Cooling Capacity (Btu/hour)[1]	Minimum EER
<65,000	11.2
≥65,000 and <135,000	11.2
≥135,000 and <240,000	11.0
≥240,000 and <760,000	10.9

4.2.6 2011 Results

The impacts of the HVAC units installed, all of which met the minimum efficiency standards, are included in Table 4-7. Table 4-7 shows the impact for a motor replacement at Project #2 but the efficiency for the motor installed under Project #3 could not be verified at the time of this report. The largest impacts came from the HVAC changeouts at Project #4 which replaced 84 HVAC units, resulting in savings of 373 kW and 1,163 MWh. This project accounted for 86% of kW and kWh savings.

Table 4-7. Savings by Customer – Standard Offer Program

Customer	Action	Demand Savings (kW)	Energy Savings (kWh)	Rebates
Project #1	HVAC changeouts	27.8	111,494	$6,942
Project #2	Motor upgrades	0.3	1,114	$64
Project #3	Motor upgrades	0.0	0.0	$191
Project #4	HVAC changeouts	372.9	1,163,367	$93,219
Project #5	HVAC changeout	22.6	46,917	$5,639
Project #6	HVAC changeouts	12.1	24,143	$3,018
Totals	**-**	**435.7**	**1,347,035**	**$109,073**
Net Impacts	**-**	**348.6**	**1,077,628**	

Table 4-8 details the reported, evaluated, and net impacts, as well as the realization rates for the SOP. The net impact is adjusted for a free rider rate of 20%.

Table 4-8. 2011 Results for Standard Offer Program

[1] Source: Title 10, Code of Federal Regulations, Part 431 - Energy Efficiency Program for Certain Commercial and Industrial Equipment, Subpart F - Commercial Air Conditioners and Heat Pumps. January 1, 2010

Savings	Gross Impacts			Net Impact
	Reported	Evaluated	Realization Rate	
Demand Savings (kW)	437	436	99.8%	349
Annual Energy (kWh)	1,350,376	1,347,035	99.8%	1,077,628

4.3 Commercial Tune-Up Program

4.3.1 Program Description

The Commercial Tune-Up Program offers financial incentives of $250/kW for the implementation of improvements to commercial air conditioning, food service, refrigeration, and/or ventilation systems that result in efficiency improvements. The target markets are food sales, (groceries, butcher shops), food service (restaurants), and industrial facilities where food is processed, packed, transshipped, etc.

The list of applicable measures for the Commercial Tune-Up Program consists of mostly individual pieces of equipment, such as evaporator fan ECM motors, floating head pressure controls, defrost controls, etc. For industrial facilities, there is set of additional measures that larger-scale measures include variable frequency drives and programmable logic controllers.

While the program description does not include equipment retrofits, these retrofits are considered part of the program. The two customers that participated in the Commercial Tune-Up Program during PY 2011, installed a total of eleven new HVAC units.

4.3.2 Summary of Program Operations

The Commercial Tune-Up Program is operated in the same way as the Commercial Lighting program (see Section 4.1.2).

4.3.3 Verify Claimed Savings Supported by Program Tracking Data

The rebate applications for the two Commercial Tune-Up Program participants were submitted using the Commercial-Industrial Standard Offer Rebate Submission Form. Therefore, most of the comments for the SOP in Section 4.2.3 also apply to the Commercial Tune-Up Program.

The total claimed program savings are the sum of the individual participant's savings and match the figures contained in the Commercial-Industrial Standard Offer Rebate Submission Forms for each participant and matched the total demand and energy savings figures in the IAvenue database.

However, there are several fields in the database where the data in the database did not match those in the Commercial-Industrial Standard Offer Rebate Submission Form. The fields "PRE_WATTSX" and "POST_WATTSX" (where "X" represents any of eight different pieces of equipment) record the pre- and post-implementation wattages of existing (pre-) and retrofit (post-) equipment, respectively. Unlike the SOP where it appears the values were truncated, the pre- and post- wattage values in the Commercial Tune-Up Program were the proper units, but did not match the values in the Rebate Submission Form. This appears to be a data entry, issue, but it consistent for all four units installed. In spite of this, the total kW and KWh savings figures in the database are correct.

4.3.4 Protocol A: Program Tracking and Database Development

Global compared the Commercial Tune-Up Program database to recommended data fields in the protocol with results shown in Table 4-9.

Table 4-9. Comparison of Commercial Tune-Up Program Database to Protocol A

Recommended Data Fields	Review Results
Participating Customer Information	**Information provided in database**
• Unique customer identifier	Yes
• Customer contact information	No
• Date/s of major customer milestone	Yes
Measure Specific Information	**Information provided in database**
• Measure Group (Equipment Type)	Yes
• Equipment Fuel/Energy Source	N/A
• Equipment size	Yes
• Equipment quantity	One unit
• Efficiency level	No
• Estimated savings	Yes
• Estimated incremental measure cost, if applicable	N/A
• Equipment Useful Life	No
• Measure Name □ Text Description	Yes (minimal)
• * Measure Code□ Numerical Code	No
• Serial Number (where applicable)	No
• Reported age of equipment replaced (if available)	N/A
• Reported measure type of equipment replaced (if available)	N/A
Vendor Specific Information	**Information provided in database**
• Name and Contact Information for Contractor	No
• Contractor Type	No
• Date of Installation	No
• Cost of the installed equipment (if available)	N/A
• Efficiency level of the installed equipment	No
Program Tracking Information	**Information provided in database**
• Date of the initial program contact/rebate information	Yes
• Date of rebate/incentive paid	Yes
• Incentive amount paid to date	No
• Incentive amounts remaining	No
• Application Status	No
• Reason and Reason code for application denial	N/A
Marketing and Outreach Activities	**Information provided in database**
• Advertising and marketing spending levels	No
• Media schedules	No
• Summary of number of community events/outreach activities	No
• Other media activities	No

4.3.5 Use of Technical Reference Manual (TRM) Values

The Commercial Tune-Up Program is described as consisting of HVAC efficiency improvements brought about by upgrades to efficiency or tune-ups of air conditioning equipment. The applicable measures include mostly replacement of individual components, such as evaporator fan motors or

floating heat pressure. However, in the case of both PY 2011 participants, equipment retrofits were counted as measures.

As stated previously in regard to the SOP, the Arkansas TRM does not included impacts for non-residential central air conditioner replacements.

4.3.6 2011 Results

Two customers participated in the Commercial Tune-Up Program during PY 2011, installing 11 HVAC units totaling 51 tons. The efficiency levels for nine of the 11 units – totaling 44 tons – could not be confirmed at the time of this report. The impacts of those nine units are not included in Table 4-10. In the future, OG&E should ensure that units installed as part of the Commercial Tune Up Program meet the minimum federal standards.

Table 4-10. Savings by Customer – Commercial Tune-Up Program

Customer	Action	Demand Savings (kW)	Energy Savings (kWh)	Rebates
Project #1	HVAC changeouts	1.5	2,987	$676
Project #2	HVAC changeouts	0.9	1,379	$2,581
Totals	**-**	**2.4**	**4,366**	**$3,257**
Net Impacts	**-**	**1.9**	**3,493**	

Table 4-11 details the reported, evaluated, and net impacts, as well as the realization rates for the Commercial Tune-Up Program. The net impact is adjusted for a free rider rate of 20%.

Table 4-11. 2011 Results for Commercial Tune-Up Program

Savings	Gross Impacts			Net Impact
	Reported	Evaluated	Realization Rate	
Demand Savings (kW)	13	2.4	15%	1.9
Annual Energy (kWh)	4,366	4,366	17%	3,493

Findings and Recommendations

The evaluation results for the OG&E Arkansas for residential programs are described in Chapter 3 and in Chapter 4 for non-residential programs. These findings were the basis for Global's assessment of savings calculations and information tracking practices, as well as recommendations to improve accuracy of savings estimates.

5.1 Findings

The following are the findings from the evaluation of PY 2011 results of six DSM programs.

Program Savings

Table 5-1 below shows the reported compared to actual savings.

Table 5-1. PY2011 Results by Program (Reported Compared to Evaluated)

	Demand (kW)			Annual Energy (kWh)		
		Evaluated			Evaluated	
Program	Reported	Gross	Net	Reported	Gross	Net
Student Energy Education	55	5	4	584,407	57,784	46,227
HVAC Tune-Up and Duct Repair	32	11	9	63,604	21,311	17,049
Window Unit A/C Program	0.08	0.22	0.17	97	257	206
Commercial Lighting	310	273	218	1,033,694	1,033,694	826,955
C&I Standard Offer	437	436	349	1,350,376	1,347,035	1,077,628
Commercial Tune-Up	13	2	2	26,059	4,366	3,493
TOTAL	**847**	**727**	**582**	**3,058,237**	**2,464,447**	**1,971,558**

Costs

Table 5-2 shows the budgeted compared to actual costs by program. Estimated evaluation costs of about $43,000 are not included in the table.

Table 5-2. Budgeted and Actual Costs by Program for PY2011

Program	Budget ($)	Admin ($)[1]	Incentives ($)	Total Costs ($)
HVAC Tune Up & Duct Repair	$35,442	$1,312	$10,130	$11,442
Window Unit A/C	$6,460	$362	$40	$402
Student Energy Education	$57,463	$39,750	$0	$39,750
Commercial Lighting	$84,803	$16,857	$37,447	$54,304
Commercial Tune-Up	$50,884	$731	$5,639	$6,370
C/I Standard Offer	$141,589	$2,728	$106,691	$109,419
Totals	**$376,641**	**$61,740**	**$159,867**	**$221,687**

[1] Source: OG&E DSM Sales Report December 2011

HVAC Tune Up and Repair Program

- The program databases did not use the approved TRM values.
- Many of the contractor reports were incomplete or contained errors.

Window A/C Program

- The program was implemented too late in the summer season to attract more than one participant.
- The program database did not use the approved TRM values.

Student Energy Education Program

- The LivingWise® student education program is well-established, well-executed, and well liked. The implementer provides all materials, support, and reporting on activities. The materials, both those in the students' take-home kits and on the company's website, are very clear, including step-by-step instructions on how to install the efficiency measures in the kit. The program implementation includes fielding and tabulating responses from a participant survey that gauges installation rates for the different measures. The implementer's annual program summary report was not available in time for use in conducting this evaluation.
- The tracking system clearly shows how the per-participant savings, which are hardwired into it, are used to calculate classroom-level savings and, ultimately, program-level savings. The input screens are easy to follow and the resulting output provided to Global was quite clear. What is most lacking is email contact information for the teachers who conduct the program in class and any contact information for the participating students' families. This precludes making any type of independent corroboration of the participants' activities, attribution, or satisfaction.
- The program-level savings calculations are easy to follow, but likely overstate the number of kits installed each year (by including savings for all kits shipped, even those for teachers). The per-participant savings used were not documented well enough to show how they were calculated. It is not clear that the per-participant savings reflect factors that affect measure savings, such as at-home installation rates, and may overstate the savings.

Commercial Lighting

- Savings per project were much higher than expected with participants providing much higher savings.
- Most savings were from HID lighting.
- Calculations for lamp retrofits, other retrofits not listed, and new construction were correct and reasonable.
- Demand savings were incorrectly included for controls.

Standard Offer Program

- Calculations were correct and reasonable.
- The IAvenue database contained some pre- and post- wattage values that were stated as whole kW, rather than watts. However, these values did not affect the savings or rebate calculations.

-
- There was little project backup material available other than mechanical drawings and equipment schedules for one of the sites. The database contained little in the way of project descriptions other than shorthand equipment identifiers. As a result, it was very difficult to ascertain whether the motors installed were high efficiency. Photos of equipment nameplates were provided, but not linked in any way to a project.

Commercial Tune Up

- Calculations were correct and reasonable.
- The IAvenue database contained pre- and post- wattage values that were inaccurate, although they did not affect the savings or rebate calculations.
- There was little project backup material available. For example, no equipment model numbers or any other pertinent information was recorded. The database contained little in the way of project descriptions other than shorthand equipment identifiers. Photos of equipment nameplates were provided, but not linked in any way to a project.

5.2 Recommendations

Based on this review we have the several recommendations for improving the program.

Protocol A

- Create data dictionaries for each of the programs in the database.
- Add the following variables in the tracking database: participating customer information; customer specific information; vendor specific information; measure codes; and data legends.
- Modify monthly reports to include projects in the pipeline, marketing and outreach activities, issues and upcoming events.

TRM Deemed Savings

- Modify databases for the HVAC Tune Up and Duct Repair and Window A/C programs to use the deemed savings values from the TRM. In addition, add a check in the database to ensure savings are only calculated for tune-ups if they are completed.
- Frontier should determine deemed savings values for Geothermal Heat Pumps in the HVAC Tune Up and Duct Repair Program.
- Modify the deemed savings for aerators to show separate values for kitchen vs. bathroom faucets and include a table of values based on the number of faucets replaced vs. total faucets in the house, akin to Table 132 for showerheads.
- The baseline flow rate used to derive savings for showers and aerators should be modified from 2.5 gpm to 2.2 gpm, the lower number being the Federal baseline.

Quality assurance (QA) and quality control (QC) procedures.

- Develop and implement procedures to check data entry, contractor reports, etc.
- Create written documentation for QA/QC procedures including requirements for contractors and ESCOs

- Develop and apply requirements for information on replaced and new equipment.
- Provide training for contractors and ESCOs about program requirements
- Use data validation features in Excel to ensure that the values entered into the rebate application worksheets are appropriate.

Commercial Lighting

- For the Commercial Lighting program, no demand savings should result from the installation of lighting controls. Rather the rebates for lighting controls should not be based on the kW savings. Instead they should be 'per unit' installed, which is the most prevalent methodology among electric utilities.

Standard Offer

- Require each participant to record vital project and equipment nameplate information, such as model numbers, sizes (tons, horsepower, etc.), efficiency level (EER values are already included for HVAC equipment), and project cost within the rebate application.
- Expand the SOP IAvenue database to include the additional project and equipment descriptions as well as HVAC EER values. Examine the IAvenue database for the SOP to ensure that watt values entered are not being converted to kW values.
- Add a field in the database for rate class and a check to ensure the correct projects are included.
- Verify that HVAC units installed as part of the SOP meet the minimum energy efficiency requirements for the size and type of unit prior to paying the incentive.

Commercial Tune-Up

- Ensure customers are aware of the opportunity for tune-ups.
- Create a database with deemed savings values from the TRM. Add a field in the database for rate class and a check to ensure the correct projects are included.
- Require each participant to record vital project and equipment nameplate information, such as model numbers, sizes (tons, etc.), and project cost within the rebate application.
- Verify that HVAC units installed as part of the program meet the minimum energy efficiency requirements for the size and type of unit prior to paying the incentive.

References

Frontier Associates, *Oklahoma Gas & Electric's 2011-2013 Arkansas Energy Efficiency Program Analysis and Plan*, Sept 2011.

Arkansas Technical Reference Manual, Volume 1: Version 1.0 EM&V Protocols, approved in Docket 10-100-R, filed 9/30/2011.

Arkansas Technical Reference Manual, Volume 2: Version 1.0 Deemed Savings, prepared by Frontier Associates, approved in Docket 10-100-R, filed 9/30/2011.

Recommended Evaluation Strategies for PY2011 Arkansas Energy Efficiency Programs, prepared by the Independent Evaluation, Measurement, and Verification Monitor (IEM) Team, January 13, 2012.

PROTOCOL A: PROGRAM TRACKING AND DATABASE DEVELOPMENT

Protocol Scope: This protocol provides guidance developing an effective DSM program tracking, evaluation and project database. It lists the key data elements that must be tracked, the key measure characteristics, key customer demographics and other data fields.
Customer Classes: All except self-directing customers.

Where energy savings are determined on the basis of deemed savings, all tracking systems shall capture all variables required in the deemed savings documents to determine the energy savings.

Please refer to the most recent version of the Deemed Savings estimates developed for the Arkansas Technical Resource Manual (TRM) as specified in the Deemed Savings Docket 07-152-N. This also includes the type of information described in Protocol A.

Table A-1. Recommended Data Fields and Description of Mandatory Data Fields

Recommended Data Fields	Description
Participating Customer Information • Unique customer identifier, such as account number • Customer contact information – name, mailing address, telephone number • Date/s of major customer milestone such as rebate application date, approval date, rebate processing date, etc.	Information to readily identify customers for follow-up contact
Measure Specific Information • Measure Group (Equipment Type) • Equipment Fuel/Energy Source • Equipment size • Equipment quantity • Efficiency level • Estimated savings • Estimated incremental measure cost, if applicable • Equipment Useful Life • Measure Name Text Description • * Measure Code Numerical Code • Serial Number (where applicable) • Reported age of equipment replaced (if available) • Reported measure type of equipment replaced (if available)	Information which documents the details of the equipment installed and equipment replaced under the program *Measure Codes: All data should be captured in numeric format to facilitate data tracking and analysis. Therefore, a data legend should be identified for each measure type and contractor type. This data legend should be clearly identified in the program database's supporting materials.

Vendor Specific Information • Name and Contact Information for Contractor • Contractor Type • Date of Installation • Cost of the installed equipment (if available) • Efficiency level of the installed equipment	To be collected when the measure is installed by a third-party vendor. This information can be determined from the supporting documentation provided to qualify for the program incentive.
Program Tracking Information • Date of the initial program contact/rebate information • Date of rebate/incentive paid • Incentive amount paid to date • Incentive amounts remaining • Application Status (i.e., number of applications approved, pending or denied) • Reason and Reason code for application denial	Information to determine program cost effectiveness and timing for rebate applications and processing
Program Costs • Overall program budgets • Program costs to date • Incentive Costs • Administrative Costs • Marketing/Outreach Costs • Evaluation Costs	This information related directly to program expenses. This information may be tracked in a separate worksheet from measure costs; however the totals should be reported out annually.
Marketing and Outreach Activities • Advertising and marketing spending levels • Media schedules • Summary of number of community events/outreach activities • Other media activities □ estimated impressions viamailings, television/radio, print ads	The program implementers should provide separate documentation regarding the type, number, and estimated impressions made for each marketing or outreach activity.

Table 4: Example of Data Legend for Database Tracking and Evaluation Purposes

Example Measure Category	Example Measure Code
Air Source Heat Pump	1
Room Air Conditioner	2
Central Air Conditioner	3
Natural Gas Furnace	4
Storage Water Heater (Gas)	5
Tankless Water Heater (Gas)	6
Storage Water Heater (Electric)	7
Heat Pump Water Heater	8
Attic Insulation	9
Wall Insulation	10

Similarly, contractor should also be identified by a category to facilitate analysis and tracking. The program database and tracking system should also be linked to the utilities or energy provider's current Customer Information System so that it can be updated regularly to verify eligibility.

Table 5: Example of Contractor Codes

Example Contractor Type	Example Contractor Code
Architect	11
Engineer	22
Plumber	33
HVAC	44
Insulation Installer	55
Home Builder (Production)	66
Home Builder (Custom)	67
Specialty	90

Additional "Best Practices" regarding database tracking and development also suggest capturing the following types of information during data collection to facilitate EM&V

Table 6: Suggested Data Collection Fields:

Suggested Data Collection Fields	Description
Premise Characteristics • Housing Type • Number of Occupants • Estimated/Actual Square Footage	This information includes descriptions of the housing type and questions asked of participants during the program installation
Measure Characteristics • Efficiency level of equipment removed (retrofit only) • Model level for equipment removed (retrofit only)	This information is commonly captured by the contractor or recorded from the invoice and could be tracked in the program database

About EnerNOC Utility Solutions

EnerNOC Utility Solutions provides a comprehensive suite of demand-side management (DSM) services to utilities and grid operators worldwide. Hundreds of utilities have leveraged our technology, our people, and our proven processes to make their energy efficiency (EE) and demand response (DR) initiatives a success. Utilities trust EnerNOC to work with them at every stage of the DSM program lifecycle – assessing market potential, designing effective programs, implementing those programs, and measuring program results.

EnerNOC Utility Solutions delivers value to our utility clients through two separate practice areas – Program Implementation and Consulting Services.

- Our Program Implementation team leverages EnerNOC's deep "behind-the-meter expertise" and world-class technology platform to help utilities create and manage DR and EE programs that deliver reliable and cost-effective energy savings. We focus exclusively on the commercial and industrial (C&I) customer segments, with a track record of successful partnerships that spans more than a decade. Through a focus on high quality, measurable savings, EnerNOC has successfully delivered hundreds of thousands of MWh of energy efficiency for our utility clients, and we have thousands of MW of demand response capacity under management.
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EnerNOC's Utility Solutions team has decades of combined experience in the utility DSM industry. Our capabilities have been bolstered by our acquisitions of Cogent Energy in 2009 and Global Energy Partners and M2M Communications in 2011. The staff is comprised of professional electrical, mechanical, chemical, civil, industrial, and environmental engineers as well as economists, business planners, project managers, market researchers, load research professionals, and statisticians. Utilities view EnerNOC's experts as trusted advisors, and we work together collaboratively to make any DSM initiative a success.

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OG&E

Annual Report of Energy Efficiency Programs - 2011

April 2012

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Introduction

Oklahoma Gas & Electric's Arkansas Energy Efficiency portfolio was approved by the Arkansas Public Service Commission (APSC) for program year 2011 on June 30, 2011 in Docket Number 07-075-TF, Order Number 25. As required by the Conservation and Energy Efficiency Rules, OG&E is submitting its annual report addressing the performance of all approved energy efficiency programs. This report covers program savings and the amount spent per program and total amount spent. It also includes a cost-effectiveness analysis of each program and the portfolio of programs, including all costs and benefits through December 31, 2011.

Report Organization

This report presents the following information, which is based on the Commission's Energy Efficiency Rule, but also includes the results of California Standard Practice Manual cost-benefit tests:

1. Brief description of each program;
2. List of all programs and the date each program started;
3. The most current information available comparing projected savings to reported savings for each of the utility's programs;
4. The results of the standard cost/benefit tests for each program;
5. A statement of funds expended by the utility for program administration.

Program Descriptions

Student Energy Education (SEE):

The Student Energy Education program is an established residential energy efficiency program that uses a school delivery format, in which students are provided with take-home kits containing efficiency devices and are exposed to creative classroom and in-home education techniques which inspire families to adopt new resource usage habits. Students receive a kit of energy and water efficient devices, which are taken home and installed, and the learning experience is shared with family members. They work on subjects required by state learning standards to understand and appreciate the value of natural resources in everyday life. The program aims to shape new behaviors and encourage reduced energy use through a mix of new product installation and resource efficiency knowledge.

In OG&E'S Arkansas service territory, the program provides the teachers and their classes of 6th grade students a curriculum on home energy efficiency. At the end of the curriculum a SEE education kit, (which includes a CFL, air filter, aerator, low-flow shower head, night light and energy efficiency information), provides the students the opportunity to participate with their families on energy awareness. The students take the kit home and install the energy efficiency measures with the assistance of their parents.

SEE is a turnkey program managed by Resource Action Programs (RAP) of Modesto, California. In coordination with OG&E, Resource Action Programs performs the marketing and outreach to acquire participation and enrollment in the program. Once schools are enrolled into the program, Resource Action Programs will deliver educational materials directly to participant teachers

.

Arkansas Weatherization Program (AWP):
This program is targeted to severely energy inefficient homes. It provides energy efficiency improvements to participants, thereby decreasing demand and energy usage for those customers. The purpose of the AWP is to improve comfort and reduce energy costs by upgrading the thermal envelope and appliances in severely energy inefficient homes. The AWP program is designed to work in partnership with agencies that assist residents occupying severely energy inefficient homes. OG&E partners with the Fort Smith Community Clearing House and other CAP Agencies in Fort Smith, Arkansas. The program helps individuals and families primarily by making their homes more secure from the weather, which helps to conserve energy and reduce energy bills for future years. In addition, homes that are warm in the winter and cool in the summer are more comfortable for individuals.

OG&E Weatherization Program:
This measure is targeted to acutely energy inefficient homes. It provides energy efficiency improvements to participants, thereby decreasing demand and energy usage for those customers. The purpose of OG&E's Weatherization Program is to improve comfort and reduce energy costs by upgrading the thermal envelope and appliances in targeted households.

This program is delivered in association with the Ft. Smith region gas distribution company, Arkansas Oklahoma Gas (AOG). AOG is contributing resources to be used alongside OG&E's on a per household basis to ensure the most effective application of energy efficiency possible.

HVAC Tune-Up and Duct Repair Program:
This is an optional program offered by OG&E Arkansas, designed to help them reach the energy savings goals outlined in the Order. The program is targeted toward single family residential customers with central HVAC systems, and works towards improving the efficiency of these units. For both the HVAC tune-up portion and the duct repair portion of this program, the customer must contract for air conditioning tune-up and inspection services from an OG&E approved local, certified, and licensed HVAC contractor.

Window Unit A/C Program:
The purpose of the Window Unit A/C Program is to provide OG&E single family residential customers without central HVAC systems incentives for purchasing and installing high-efficiency air conditioners. The program is designed to increase energy efficiency of window unit sales, while is reducing energy consumption, lowering energy costs, and increasing the comfort of residential customers that cool part or all or their home with window units. This program is available to any residential customer without a central HVAC system.

Residential Thermal Efficiency Measure:
The intent of OG&E's Residential Thermal Efficiency program is to reduce energy costs and improve comfort by upgrading the thermal envelope and heating and air conditioning systems in homes. Many homeowners' resources are stretched thin which can cause poor decisions. Many homeowners choose lesser efficient options because of a lower first cost. OG&E's Residential Thermal Efficiency program will allow customers to choose higher efficient options by lowering the first cost obstacle. The program also offers customers a program that addresses thermal efficiency issues that are usually ignored by homeowners.

Multi-Family Program:
This program intended to encourage property managers and owners of multifamily dwellings to upgrade their central air conditioning units. OG&E offered a rebate incentive to the property owner for any replacement of a 13 SEER HVAC system with a 16 SEER heat pump, if the units are total electric, or 13 SEER and 90% gas furnace, if the units are heated with natural gas. The incentive is offered directly to the installer of the high efficiency equipment. In order to receive the incentive payment for upgrading to a more efficient unit, the customer contracts with an OG&E approved local, certified, and licensed HVAC contractor to proceed with the installation. Because of the lack of participation in this program in 2011 (no property managers chose to pursue rebates through the Multi-Family Program), OG&E does not anticipate continuing this program in future years.

Commercial Lighting Program:
The Commercial Lighting Program provides prescriptive rebates for customers that improve the efficiency of lighting systems in existing buildings. This measure is designed to educate, offer performance contracting services, and provide incentives on replacement of inefficient T-12 or T-8 lamps with higher efficiency T-8 or T-5 lamps to commercial and industrial customers. It also promotes replacing less efficiency high intensity discharge (HID) lighting with high-bay and low-bay fluorescent lamps, replacing inefficient incandescent lighting with hardwired CFLs, and replacing incandescent exit lighting with LED exit lighting.

Additionally, this program provides incentives to OG&E construction commercial and industrial (C & I) customers who purchase and install energy efficient indoor and outdoor lighting, lighting controls, occupancy sensors, light emitting diode (LED), and exit lights. The measure offers incentives based on the kW and kWh reduction calculated from a lighting survey by a lighting contractor that takes into account the type and quantity of lighting fixtures installed, the building type, and control technologies in place.

Commercial and Industrial Standard Offer Program (SOP):
The SOP offers financial incentives for the installation of a wide range of measures that reduce customer energy costs, reduce peak demand, and/or save energy in non-residential facilities such as public authority buildings, schools, hospitals, and other industrial customers in OG&E's Arkansas jurisdiction (entities that qualify for the Power and Light rate or the Large power and Light rate). In this program, large individual customers, energy service companies (ESCOs), and qualified contractors are eligible for incentive payments for energy efficiency projects that significantly reduce customer peak demand. The applying entity, whether the customer, ESCO, or other contractor, is a "Project Sponsor," and is the responsible party for complying with all program requirements.

The SOP allows for incentivizing of many measures not covered under other OG&E programs. If the Commercial/Industrial customer participates in this program then they are not eligible to participate in the Commercial Lighting Program.

Commercial Tune-Up Program:
The program is designed to help customers by improving the efficiency of their Commercial Air Conditioning, Food Service, Refrigeration and/or Ventilation systems to upgrade in efficiency or tune-up of Commercial Air Conditioning. Commercial Tune-Up Program will target commercial, public authority and industrial facilities of all sizes for efficiency information and upgrades. OG&E will pay an incentive for Commercial Air Conditioning, Foodservice, Refrigeration and/or Ventilation systems to upgrades in efficiency. OG&E will also pay to tune-up the Commercial Air Conditioning systems.

Program Start Dates

OG&E operated eight programs, six residential and two commercial, in 2011. Program start dates are presented in Table 2.

Table 2 - Program Start Dates

Program	Program Start Date
Student Energy Education Program	January 1, 2011
Arkansas Weatherization Program	January 1, 2011
OG&E Weatherization Program	July 1, 2011
Multi-Family Program	July 1, 2011
HVAC Tune-Up and Duct Repair	July 1, 2011
Window Unit A/C Program	July 1, 2011
Commercial Lighting	January 1, 2011
Commercial and Industrial SOP	January 1, 2011
Commercial Tune-Up Program	July 1, 2011

Program Projections and Results

The following tables present program specific information, including forecasted savings, reported savings, the number of participants, participant costs, the cost per kWh of saved energy, the economic benefit realized in 2011, and the economic benefits to be expected over the life of the measures. Note that economic benefits are restricted to avoided electricity generation and capacity costs and avoided natural gas costs.

Note the important distinction between the "Forecasted Net Savings" displayed in this section and the "Ex Ante" savings stated as "Projected Net Savings". The "Forecasted Net Savings" are the net savings included in OG&E's 2011 Arkansas Energy Efficiency Program Analysis and Plan, filed in Docket No. 07-075-TF (William L. Brooks' testimony, Exhibit WLB-01), which were based on projections of program participation. The "Ex Ante" savings reflect the savings calculated using actual participation data and the deemed savings used to develop the forecasted savings and in continuous tracking of program savings. Assumptions related to measure costs, energy and demand savings used to calculate projected impacts, discount rates, line losses, fuel costs and other inputs in the cost-benefit calculation can be found in the exhibit accompanying Brooks' testimony. The modeling of the Forecasted Net Savings and Project Net Savings are based on the following assumptions:

(a) Forecasted savings are based on the target participation levels for program year 2011 as approved by the APSC in Order 25 of Docket No. 07-075-TF.
(b) Program participants are those who participated in the program year 2011.
(c) The cost per kWh saved is calculated by dividing the total program costs by the lifetime energy saved. The cost per kW-year is calculated by dividing the total program costs by the product of the kW reduction and the approximate average effective useful life (EUL) of measures installed in the program.
(d) The net present value of the total economic benefits was calculated by taking the discounted value of the annual avoided cost times the annual savings over the useful life of each program measure.

(e) The Projected Net Savings for residential programs assume an energy rate based on Rate Arkansas Rate Tariff R-1. Commercial energy rates are assumed to be $.09/kWh for all seasons. Commercial load rates are accounted for in this assumption. The energy rates' escalation rates are derived from the avoided costs.

(f) Please see Exhibit B for avoided cost information.

The Forecasted Net Savings and Actual Net Savings are presented in Table 3. Although several of the programs experienced energy savings lower than expected due to less participation than anticipated, other programs achieved close to or greater than the expected energy and demand savings, particularly the AWP and the HVAC and Duct Repair programs. Costs and benefits for four programs, including the SEE Program, the AWP, Commercial Lighting, and Commercial SOP (formerly known as Commercial Motors), were totaled through the entire year, while the remaining programs produced savings from July 1 through the end of December.

Table 3 - Forecasted Net Savings vs. Projected Net Savings

Program	Forecasted Net Savings (2011)			Actual Net Savings (2011)		
	Annual Energy Savings (kWh)	Peak Demand Reduction (kW)	Participants	Annual Energy Savings (kWh)	Peak Demand Reduction (kW)	Participants
SEE Program	102,516	10.3	1,240	83,102	47	1813
AWP	205,519	27.1	29	482,842	123	89
OG&E Weatherization Program	1,943,037	336.97	1,050	1,073,303	324	703
Multi-Family Program	27,655	13	25	0	0	0
HVAC Tune-Up and Duct Repair	38,171	25.7	50	18,607	8	56
Window Unit A/C Program	1,260	1.1	13	224	0.611	1
Commercial Lighting	1,047,691	265	25	1,671,871	361	24
Commercial and Industrial SOP	1,688,328	402.4	5	1,641,922	478	16
Commercial Tune-Up Program	227,991	33	3	22,749	11	2
TOTAL	**5,282,168**	**1,114.57**	**2,440**	**4,994,620**	**1,353**	**2,704**

Table 3 depicts energy savings results from the four programs that ran the entire calendar year of 2011. This table includes results from July 1 through December 31 only. These savings are already included in Table 2, in additional to the savings achieved during the first half of the year. Since forecasted net savings shown in Table 2 were estimated from July 1, 2011 through December 31 only, these additional savings are separated out in Table 3 to clarify the comparison of forecast and actual results.

Table 4 – Actual Program Results for July through December for Full-year Programs

Program Name	Energy Savings (kWh)	Peak Demand Reduction (kW)	Participants
SEE Program	44,645	26	974
AWP	254,073	62	45
Commercial Lighting	905,597	195	13
Commercial SOP (Motors)	1,178,947	381	6

The results of the Total Resource Cost Test show $1,250,170 in present value net benefits for all of 2011, as illustrated in Table 44. Of these benefits, $1,229,710 can be attributed to commercial programs and $20,460 are associated with residential programs.

Table 4 - Energy Efficiency Program Total Resource Cost Test Net Benefits

Program Name	TRC Net Benefits ($000s)
SEE Program	-25.72
AWP	162.96
OG&E Weatherization	-42.40
Multi-Family Program	0
HVAC and Duct Repair Program	-3.31
Window Unit A/C Program	-0.05
Commercial Lighting	556.10
Commercial SOP	667.68
Commercial Tune-Up	5.92
ALL RESIDENTIAL	91.48
ALL COMMERCIAL	1,229.71
TOTAL	1,321.19

Table 5 shows the cumulative results of OG&E's residential energy efficiency programs cost-effectiveness portfolio. The five cost tests deliver a snapshot of the general benefit of the residential energy efficiency programs. The TRC, being above 1, indicates that the residential programs produce an aggregate benefit.

Table 5 - ALL Residential Cost/Benefit Tests

	PCT	PACT	RIM	TRC	SCT
Benefit/Cost Ratio	2.04	0.60	0.40	1.08	1.10
Net Benefits ($000s)	1,533.85	-591.37	-1,323.25	91.48	118.68
Total Benefits ($000s)	3,009.05	872.69	872.69	1,305.85	1,333.05
Total Costs ($000s)	1,475.20	1,464.06	2,195.94	1,214.36	1,214.36

Tables 6 through 10 individually show the results of OG&E's residential energy efficiency programs cost-effective portfolio.

Table 6 – SEE Program Cost/Benefit Tests

	PCT	PACT	RIM	TRC	SCT
Benefit/Cost Ratio	1.70	0.37	0.28	0.56	0.58
Net Benefits ($000s)	50.46	-46.85	-69.83	-25.72	-24.65
Total Benefits ($000s)	122.98	27.14	27.14	32.29	33.36
Total Costs ($000s)	72.52	73.99	96.97	58.02	58.02

Table 7 - AWP Cost/Benefit Tests

	PCT	PACT	RIM	TRC	SCT
Benefit/Cost Ratio	3.40	1.74	0.68	2.23	2.29
Net Benefits ($000s)	316.91	97.88	-106.28	162.96	170.91
Total Benefits ($000s)	448.87	230.20	230.20	295.28	303.23
Total Costs ($000s)	131.95	132.33	336.48	132.33	132.33

Table 8 – OG&E Weatherization Program Cost/Benefit Tests

	PCT	PACT	RIM	TRC	SCT
Benefit/Cost Ratio	1.92	0.49	0.35	0.96	0.98
Net Benefits ($000s)	1,143.93	-633.19	-1,133.59	-42.40	-24.35
Total Benefits ($000s)	2,382.82	611.48	611.48	954.49	972.54
Total Costs ($000s)	1,238.89	1,244.66	1,745.06	996.88	996.88

Table 9 – HVAC Tune-Up and Duct Repair Program Cost/Benefit Tests

	PCT	PACT	RIM	TRC	SCT
Benefit/Cost Ratio	1.70	0.28	0.19	0.88	0.88
Net Benefits ($000s)	22.34	-9.07	-13.77	-3.31	-3.18
Total Benefits ($000s)	54.12	3.61	3.14	23.43	23.56
Total Costs ($000s)	31.78	12.68	16.90	26.74	26.74

Table 10 – Window Unit A/C Program Cost/Benefit Tests

	PCT	PACT	RIM	TRC	SCT
Benefit/Cost Ratio	5.21	0.65	0.49	0.88	0.89
Net Benefits ($000s)	0.21	-0.14	-0.27	-0.05	-0.04
Total Benefits ($000s)	0.26	0.26	0.26	0.35	0.36
Total Costs ($000s)	0.05	0.40	0.53	0.40	0.40

Multi-Family Program Cost/Benefit Tests

The Multi-family program did not produce any results for 2011, as early in the program year it was decided that it would be discontinued. No administration dollars were spent on this program and no savings were gained, thus it did not produce any cost-effectiveness test results. Both the Lighting and the SOP (Motors) programs produced savings for the entire calendar year of 2011, while the other program ran from July 1 through December 31.

Table 1 shows the cumulative results of OG&E's commercial energy efficiency programs cost-effectiveness portfolio. The five cost tests deliver a snapshot of the general benefit of the commercial energy efficiency programs. All of these tests, with the exception of the Ratepayer Impact Measure, indicate that the commercial programs are having an aggregate benefit.

Table 11 - ALL Commercial Cost/Benefit Tests

	PCT	PACT	RIM	TRC	SCT
Benefit/Cost Ratio	6.72	7.05	0.71	4.11	4.23
Net Benefits ($000s)	2,682.87	1,132.86	-540.19	1,229.71	1,278.95
Total Benefits ($000s)	3,151.98	1,320.07	1,320.07	1,625.26	1,674.50
Total Costs ($000s)	469.11	187.20	1,860.26	395.56	395.56

Tables 12-14 individually show the results of OG&E's commercial energy efficiency programs cost-effective portfolio. All programs pass the Total Resource Cost Test.

Table 12 - Commercial Lighting Cost/Benefit Tests

	PCT	PACT	RIM	TRC	SCT
Benefit/Cost Ratio	5.57	9.61	0.72	3.33	3.43
Net Benefits ($000s)	1,267.56	580.84	-256.53	556.10	580.75
Total Benefits ($000s)	1,544.83	648.28	648.28	794.73	819.37
Total Costs ($000s)	277.27	67.44	904.82	238.63	238.63

Table 13 – Commercial and Industrial Standard Offer Program Cost/Benefit Tests

	PCT	PACT	RIM	TRC	SCT
Benefit/Cost Ratio	8.92	5.81	0.70	5.63	5.79
Net Benefits ($000s)	1,401.07	544.56	-277.82	667.68	691.89
Total Benefits ($000s)	1,578.03	657.89	657.89	811.98	836.18
Total Costs ($000s)	176.96	113.33	935.71	144.30	144.30

Table 14 – Commercial Tune-Up Program Cost/Benefit Tests

	PCT	PACT	RIM	TRC	SCT
Benefit/Cost Ratio	1.96	2.16	0.70	1.47	1.50
Net Benefits ($000s)	14.24	7.46	-5.84	5.92	6.31
Total Benefits ($000s)	29.12	13.89	13.89	18.55	18.94
Total Costs ($000s)	14.87	6.43	19.74	12.63	12.63

Program-Related Expenditures

All program-related expenditures are presented in Table 5 and are separated by administrative costs and inducements. The administrative costs include advertising and third party implementation costs. Since the SEE is a turn-key program managed by Resource Action Programs (RAP) administration costs are included with inducements as a total program cost. The Multi-Family program was discontinued, thus is has no administrative or inducement costs associated with it.

Table 15 - Program Costs - 2011

Program Name	Administrative Costs ($)	Inducements ($)	Total Program Cost ($)
SEE Program	0	73,988	73,988
AWP	374	131,953	132,327
OG&E Weatherization	5,767	1,238,894	1,244,661
Multi-Family Program	0	0	0
HVAC and Duct Repair Program	1,312	11,369	12,681
Window Unit A/C Program	362	40	402
Commercial Lighting	16,811.4	50,630.6	67,442
Commercial SOP	2,728	110,602	113,330
Commercial Tune-Up	731	5,699	6,430
TOTAL	**28,085**	**1,623,176**	**1,651,261**

Planned and actual program costs are compared in Table . Some programs, such as the HVAC and Duct Repair program, had significantly smaller budgets than anticipated, which can be attributed to a smaller market penetration seen in program roll-out years.

Table 16- Planned and Actual Program Costs - 2011

Program Name	Actual Program Cost ($)	Planned Program Cost ($)
SEE Program	73,988	52,800
AWP	132,327	39,701
OG&E Weatherization	1,244,661	1,398,574
Multi-Family Program	0	33,220
HVAC and Duct Repair Program	12,681	32,566
Window Unit A/C Program	402	5,936
Commercial Lighting	67,442	77,921
Commercial SOP	113,330	130,099
Commercial Tune-Up	6,430	46,755
TOTAL	**1,651,261**	**1,817,572**

Exhibit A: Oklahoma Gas & Electric's 2011-2013 Arkansas Energy Efficiency Program Analysis and Plan.

Refer to APSC Docket 07-075-TF No. 123, Exhibit WLB-01 of William L. Brook's testimony, filed September 30, 2011.

Exhibit B: Avoided Costs

OG&E Avoided Costs								
Year	Winter - On	Winter - Off	Summer - On	Summer - Off	Shoulder	Demand	Winter Commodity Cost ($/therm)	Spring Commodity Cost ($/therm)
2011	$0.0321	$0.0286	$0.0586	$0.0385	$0.0351	$0.00	$0.4772	$0.4772
2012	$0.0400	$0.0357	$0.0623	$0.0404	$0.0397	$0.00	$0.4472	$0.4472
2013	$0.0384	$0.0331	$0.0580	$0.0431	$0.0392	$0.00	$0.4576	$0.4576
2014	$0.0403	$0.0362	$0.0571	$0.0415	$0.0384	$0.00	$0.4493	$0.4493
2015	$0.0392	$0.0355	$0.0632	$0.0497	$0.0498	$0.00	$0.4638	$0.4638
2016	$0.0488	$0.0434	$0.0565	$0.0469	$0.0486	$0.00	$0.4638	$0.4638
2017	$0.0468	$0.0445	$0.0596	$0.0498	$0.0531	$0.00	$0.4685	$0.4685
2018	$0.0529	$0.0481	$0.0632	$0.0520	$0.0480	$0.00	$0.4826	$0.4826
2019	$0.0551	$0.0500	$0.0678	$0.0580	$0.0587	$0.00	$0.4940	$0.4940
2020	$0.0575	$0.0532	$0.0653	$0.0557	$0.0500	$163.48	$0.5017	$0.5017
2021	$0.0640	$0.0596	$0.0693	$0.0640	$0.0684	$167.57	$0.5204	$0.5204
2022	$0.0715	$0.0675	$0.0950	$0.0706	$0.0739	$171.76	$0.5450	$0.5450
2023	$0.0739	$0.0690	$0.0801	$0.0738	$0.0730	$176.06	$0.5609	$0.5609
2024	$0.0806	$0.0739	$0.0873	$0.0750	$0.0723	$180.46	$0.5736	$0.5736
2025	$0.0785	$0.0752	$0.1123	$0.0765	$0.0846	$184.97	$0.5828	$0.5828
2026	$0.0841	$0.0794	$0.0908	$0.0801	$0.0820	$189.59	$0.6037	$0.6037
2027	$0.0790	$0.0798	$0.0941	$0.0832	$0.0829	$194.33	$0.6193	$0.6193
2028	$0.0821	$0.0823	$0.0909	$0.0822	$0.0915	$199.19	$0.6214	$0.6214
2029	$0.0804	$0.0814	$0.0971	$0.0898	$0.0863	$204.17	$0.6188	$0.6188
2030	$0.0881	$0.0862	$0.0992	$0.0888	$0.0839	$209.27	$0.6265	$0.6265
2031	$0.0903	$0.0884	$0.1017	$0.0910	$0.0860	$214.51	$0.6477	$0.6477
2032	$0.0925	$0.0906	$0.1042	$0.0933	$0.0881	$219.87	$0.6717	$0.6717
2033	$0.0949	$0.0928	$0.1068	$0.0956	$0.0903	$225.37	$0.6871	$0.6871
2034	$0.0972	$0.0952	$0.1095	$0.0980	$0.0926	$231.00	$0.7034	$0.7034
2035	$0.0997	$0.0975	$0.1122	$0.1005	$0.0949	$236.77	$0.7241	$0.7241
2036	$0.1022	$0.1000	$0.1150	$0.1030	$0.0973	$242.69	$0.7335	$0.7335
2037	$0.1047	$0.1025	$0.1179	$0.1056	$0.0997	$248.76	$0.7430	$0.7430
2038	$0.1073	$0.1050	$0.1209	$0.1082	$0.1022	$254.98	$0.7527	$0.7527
2039	$0.1100	$0.1077	$0.1239	$0.1109	$0.1047	$261.35	$0.7625	$0.7625
2040	$0.1128	$0.1104	$0.1270	$0.1137	$0.1074	$267.89	$0.7724	$0.7724
2041	$0.1156	$0.1131	$0.1302	$0.1165	$0.1100	$274.59	$0.7824	$0.7824
2042	$0.1185	$0.1159	$0.1334	$0.1194	$0.1128	$281.45	$0.7926	$0.7926
2043	$0.1214	$0.1188	$0.1368	$0.1224	$0.1156	$288.49	$0.8029	$0.8029
2044	$0.1245	$0.1218	$0.1402	$0.1255	$0.1185	$295.70	$0.8133	$0.8133
	Energy and load avoided costs provided by OG&E. Gas avoided costs derived from DOE-EIA.							

7.0 Appendix X:

LivingWise® Thank You Card

Comment Cards

As a parent, which aspect of the Program did you like best?

“Seeing the kids see how much water was used just to brush teeth”
Larry Smith, St. Boniface School

“Thanks very interesting info”
St. Boniface School

“The amount of gallons of water we're using!”
Elmer H. Cook Elementary School

“This is a very useful project that should impress on children how wasteful we can become. The "matter of fact" information was very interesting.”
Elmer H. Cook Elementary School

As a teacher, which aspect of the Program did you like best?

“The students loved the free kit. They appreciated the opportunity to save energy.”
Gloria Eiland, Charleston Middle School

“Great explanations of everything”
Holly Shotzman, County Line Elementary School

“The materials were good kits were terrific. I believe it made the students more aware of energy usage.
Charleston Middle School

“Clear concise instructions with many activities to choose from are definitely pluses.”
Sharon Carter, Euper Lane Elementary School

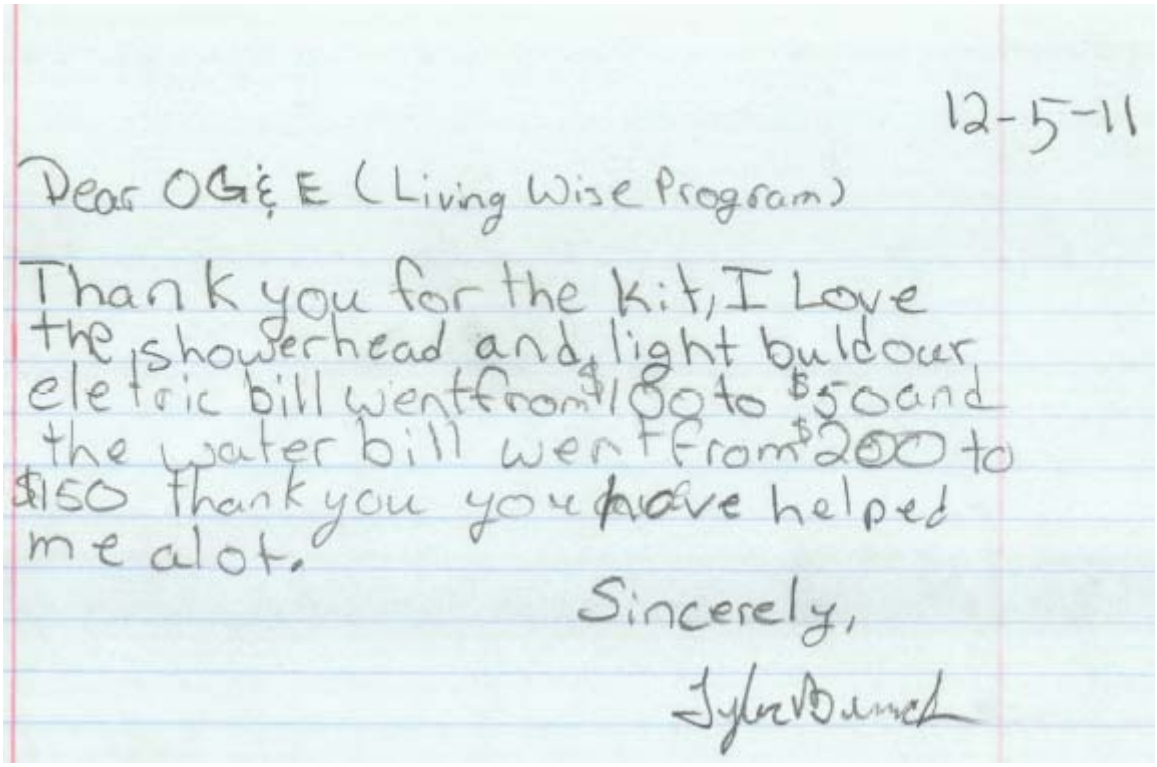
“The projects we did in the book.”
Kim Pankey, Euper Lane Elementary School

“The hands on activities”
Laurie Baldridge, Orr Elementary School

“The activities”
Dejah Park-Stephens, Orr Elementary School

LivingWise®

Comments and Letters



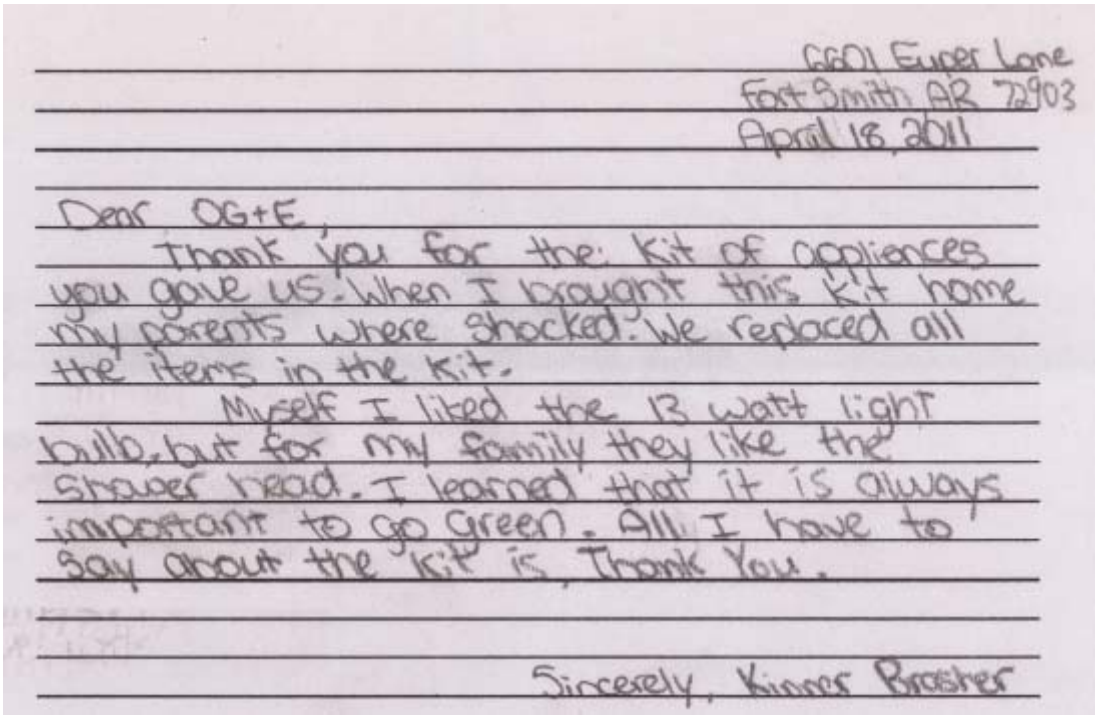
12-5-11

Dear OG&E (Living Wise Program)

Thank you for the kit, I Love the showerhead and light bulb our eletric bill went from $100 to $50 and the water bill went from $200 to $150 thank you you have helped me alot.

Sincerely,

Tyler Bunch



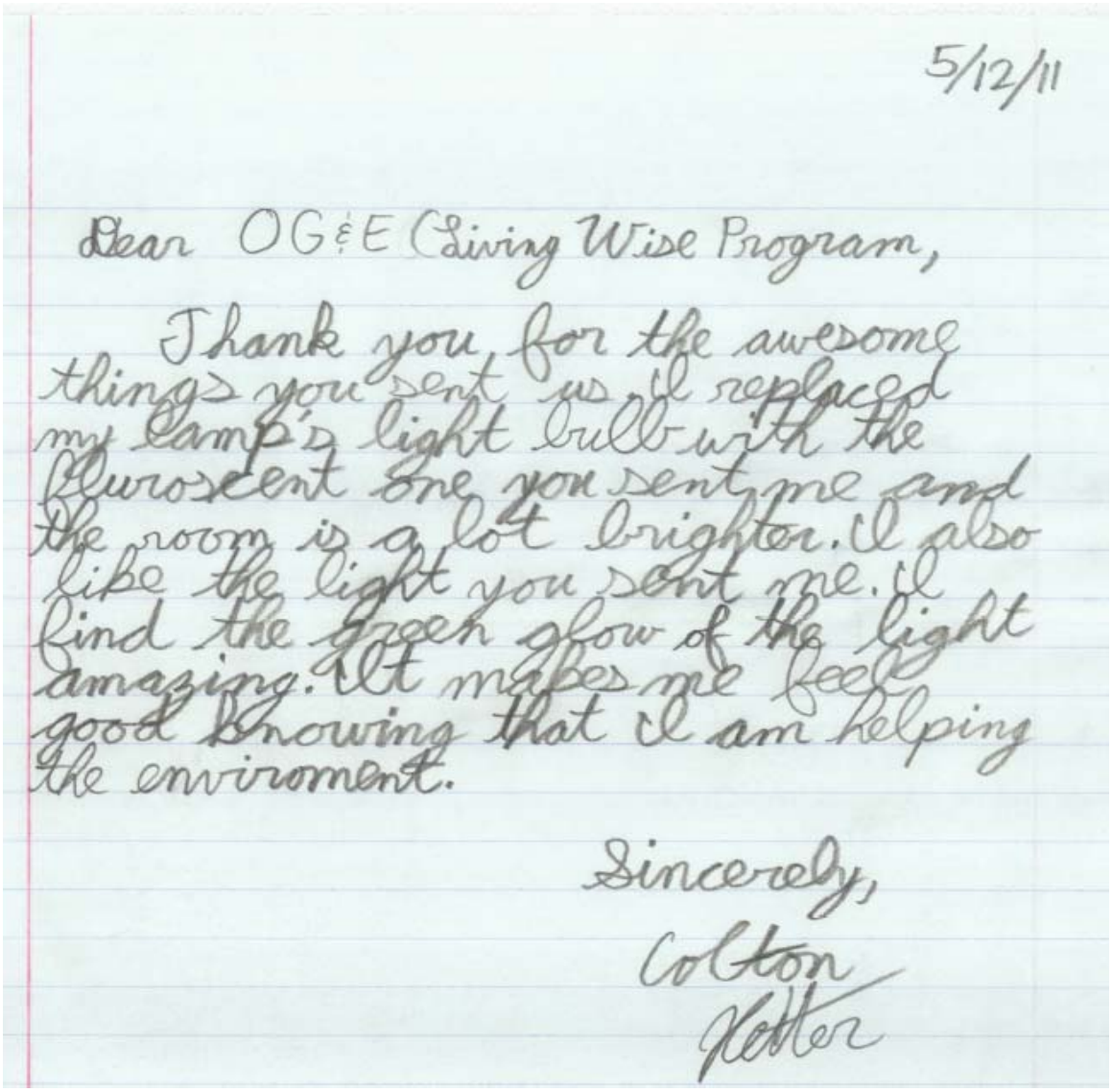
6601 Super Lane
Fort Smith AR 72903
April 18, 2011

Dear OG+E,

Thank you for the kit of appliences you gave us. When I braught this kit home my parents where shocked. We replaced all the iters in the kit.

Myself I liked the 13 watt light bulb, but for my family they like the shower head. I learned that it is always important to go green. All I have to say about the kit is, Thank You.

Sincerely, Kinner Brashier



5/12/11

Dear OG&E Giving Wise Program,

Thank you for the awesome things you sent us. I replaced my lamp's light bulb with the fluroscent one you sent me and the room is a lot brighter. I also like the light you sent me. I find the green glow of the light amazing. It makes me feel good knowing that I am helping the environment.

Sincerely,
Colton
Keller

Dear OGE,

I am very thankful for all the stuff you gave us. I install all the stuff right away. It's saving us alot of money.

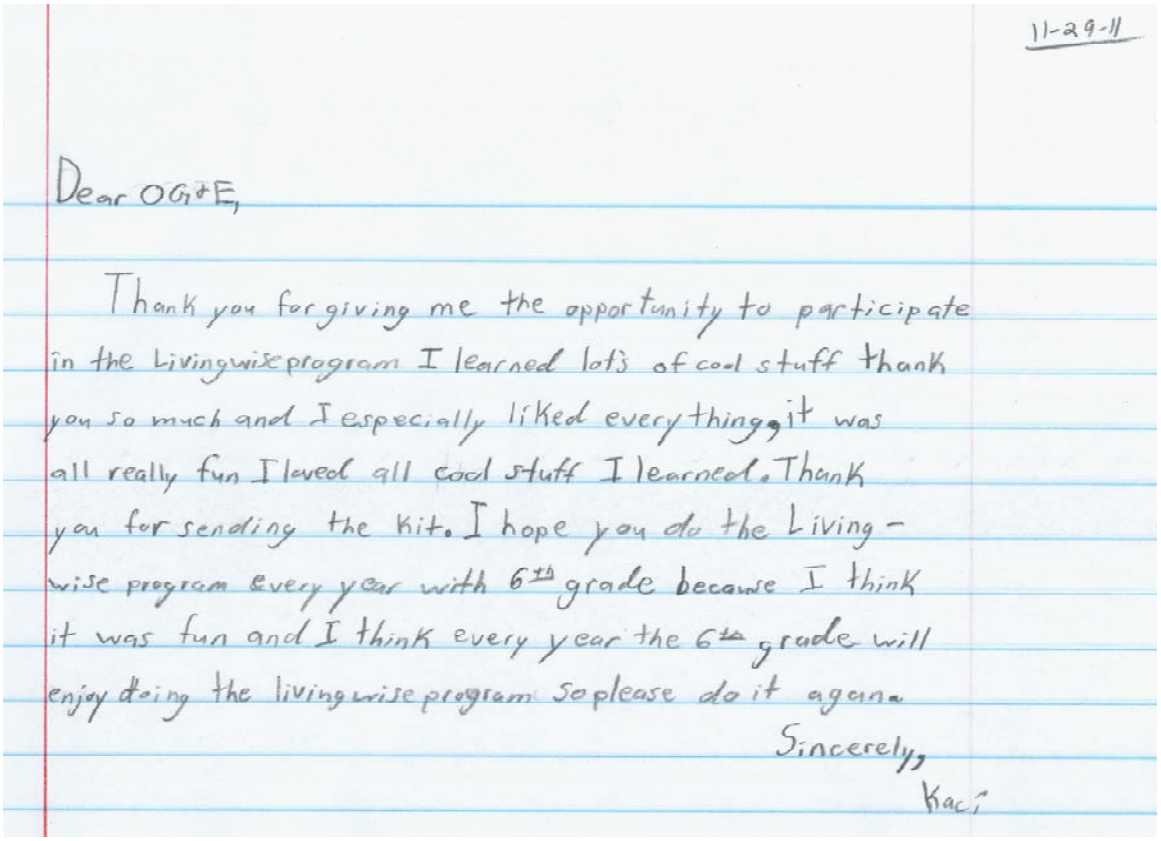
Sinserly,
Matthew

Turn off the water when your not using it.

Dear OG&E,

I would like to say thank you for being so generous to sponsor our school for the Livingwise program. We have learned so much, about so many things. I really enjoyed installing this kit into my home with my family. I'm glad to know, as well as my parents, that we are saving money, water, and energy.

Sincerely,
Ireland



11-29-11

Dear OG+E,

Thank you for giving me the opportunity to participate in the Livingwise program I learned lots of cool stuff thank you so much and I especially liked everything, it was all really fun I loved all cool stuff I learned. Thank you for sending the kit. I hope you do the Living-wise program every year with 6th grade because I think it was fun and I think every year the 6th grade will enjoy doing the livingwise program so please do it again.

Sincerely,
Kaci

LivingWise®

Comments and Letters

Today... and ... Fort Smith Public Schools in the Future

Euper Lane Elementary School
6601 Euper Lane
Fort Smith, Arkansas 72903-0449
479-452-2601
Fax: 479-478-3118

April 19, 2011

Dear Oklahoma Gas and Electric,

Thank you so very much for providing the Living Wise kits and resources for my classroom. The materials are exceptional, easy to use, and very appropriate for the sixth grade level. The material covers some of our Student Learning Expectations for the year.

Students are always excited about learning with hands-on learning activities and especially with the free kits and the many opportunities for learning provided with installing and using the materials provided in the kits. Much discussion occurred about conservation and our individual responsibilities to conserve.

I do hope you can continue providing such great learning materials and activities for schools.

Please enjoy the letters written by students about the learning opportunities that you provided for them.

Sincerely,

Shannon Carter

Shannon Carter

Grade 6

Euper Lane Elementary

May 10, 2011

Dear OG & E,

I would like to thank you for the LivingWise lessons and kits. The students were very excited and enthusiastic about each lesson. I was also excited about how well they understood everything and that the language was at their level. The kits, of course, were what the kids were most excited over.

You will find enclosed thank you notes from each of the students. I hesitated sending some of the notes because the students addressed some issues/problems they found with the products in the kit. However, as a class we discussed this, and decided that the lessons were about saving energy and not wasting, so I included their notes.

Again I thank you for a wonderful program and look forward to next year's lessons.

Sincerely,

Holly Shotzman
County Line Elementary
6th Grade Science

Weatherization Program

OG&E Electric Services

aog Energy for Life.

ARKANSAS WEATHERIZATION QUALITY CONTROL FORM

Final Verification Date: _____ **Verified by:** _____ **Weatherized by:** _____

Customer Name _____ OG&E customer account number _____

Service Address _____ City _____ State ____ Zip _____

Phone number: Home _____ Cell _____ Work _____

Residence Type:	**Structure:**	**Exterior:**
Single Family ☐ Mobile Home ☐	One Story ☐ with Basement ☐	Brick ☐
Duplex ☐ Multi-Family ☐	Two Story ☐ with attached garage ☐	Vinyl Siding ☐
		Wood/Stucco Siding ☐

Primary Heat:	**Cooling System:**	**Heating System:**	**Water Tank:**	**Fireplace:**
Space Heaters ☐ Wall or Floor Furnace ☐	Central Unit ☐	Electric ☐	Electric ☐	Electric ☐
Central Unit ☐ Other ☐	Window Unit ☐	Gas ☐	Gas ☐	Gas ☐
	Other ☐	Other ☐	Other ☐	

☐ Attic insulation RValue _____ ☐ Duct insulation _____ ☐ Wall insulation _____

☐ Air infiltration

☐ Window caulking ____ ☐ Weather-stripping ____ ☐ Install gaskets _____ ☐ Window replacement(s) ____

☐ Exterior door replacement _____ ☐ Door Sweep _____ ☐ Window pane replacement(s) ____

☐ Interior door replacement _____ ☐ Door Threshold _____ ☐ Storm window install ____

☐ Solar Screens Location of screens _____

☐ Lighting retrofit with CFL's # installed _____

☐ Water heater replacement _____ ☐ Water heater blanket _____ ☐ Water heater pipe insulation _____

☐ Refrigerator replacement* Brand _____ Size _____

☐ Window unit replacement* Brand _____ Size _____

☐ Minor roof repair

☐ A/C or HP tune-up ☐ Furnace tune-up ☐ A/C or HP replacement ☐ Duct sealing/repair

☐ Health and Safety

☐ Smoke Alarm _____ ☐ Carbon Monoxide Detector _____

☐ Ventilate dryer to outside _____ ☐ Ventilation in bath _____

☐ Ventilation installed in attic

Information given to customer

☐ Education pamphlet ☐ Renovate Right pamphlet** ** ☐ Mold and Moisture pamphlet ☐ Weatherization DVD

☐ Blower Door Test

Pre-Test CFM _____ Post Test CFM _____

Floor area (sq.ft) _____ X Ceiling Height _____ = Volume _____

ACH^{50} _____ (Post CFM^{50} x 60 / Volume) NACH^{50} _____ (Post CFM^{50} x 60 / n / Volume) ,n = 20 or (CFM^{50} x 3 / Volume)

*MUST BE ENERGY STAR®

**Home built prior to 1978 – mandatory

Notes/Comments _____

_____

_____ _____

Signature of customer Date

Window Unit A/C Program

ENERGY STAR® qualified Window Air Conditioners

OG&E is offering an incentive program for ENERGY STAR® qualified window air conditioners. The OG&E incentive offer is available to current OG&E Arkansas Residential customers who do not have central air conditioning systems in their existing home. New home construction is not eligible. OG&E will pay a $40 incentive when customers replace their old window units with ENERGY STAR® qualified Window Air Conditioners. The incentive will be paid to the customer upon receipt of an original copy of the OG&E Energy Star Window A/C form and invoice of the purchase. This offer is valid until December 31, 2013 or until date of distribution of 100% of allocated incentive funds for this program are distributed. Questions regarding the program fund status should be made by calling OG&E.

CUSTOMER NAME: _____

ADDRESS*: _____

CITY: _____ STATE: _____ ZIP CODE: _____

OG&E ACCOUNT NUMBER: _____

EMAIL ADDRESS: _____ PHONE NUMBER: (_____) _____

MODEL NUMBER OF EXISTING UNIT: _____ MODEL NUMBER OF NEW UNIT**: _____

SERIAL NUMBER OF NEW UNIT: _____ STORE PURCHASED FROM: _____

PRICE FOR UNIT: _____ EFFICIENCY OF NEW UNIT***: _____

CAPACITY OF NEW UNIT (BTU'S of Cooling): _____

*Home must be served by Oklahoma Gas and Electric Company in Arkansas.
**Must be installing replacement unit or first-time unit in existing home.
**Must meet ENERGY STAR® Specifications

OG&E

Mail the original completed form and sales receipt to:

OG&E
Attn: ENERGY STAR® qualified Window AC Program AF90
7200 Hwy 45 Ft. Smith, Arkansas 72903

Commercial Lighting

Contractor Information Sheet

OG&E

Commercial Lighting Rebate Submission Form

For the Arkansas Energy Efficiency Commercial Lighting Program

OG&E CUSTOMER:

Company Name: _____ Date: _____

Address: _____ City: _____ State: AR ZIP: _____

Contact Person: _____ Phone: _____

WORK SITE:

Meter # or Customer Acct #: _____ Annual Operation Hours: _____

Location/Building/Site Name: _____

Address: _____ City: _____ State: AR ZIP: _____

Energy Efficient Lighting Rebate			Saved	Saved	
From Worksheet	Pre kW	New kW	kW	kWh	Rebate
TOTALS	0.000	0.000	0.000	0	$0.00

Lighting Survey Performed Name: _____ Date: _____

WRITE CHECK TO:

Company Name: _____

Address: _____ City: _____ State: _____ ZIP: _____

Contact Person: _____ Phone: _____

MAIL CHECK TO:

Company Name: _____

Address: _____ City: _____ State: _____ ZIP: _____

Contact Person: _____ Phone: _____

PERSON SUBMITTING REQUEST:

Contact Person: _____ Phone: _____

Company Name: _____

Address: _____ City: _____ State: _____ ZIP: _____

CERTIFICATION:

By signing and returning this document , you are agreeing that all calculations and fixture counts are accurate.

Name Printed _____ Signature _____ Date _____

Return to: Robin Arnold
arnoldrk@oge.com

7200 HWY 45 South
Fort Smith, Arkansas 72916

Phone: 479-649-2838
Fax: 479-649-5307

dsm

Commercial Lighting

Retrofit Information Sheet

OG&E

Annual Operation Hours: 0

Meter # or Customer Acct #: 0

Location / Building / Site Name: 0

T12 to T8, T5 Retrofits

NOTE: Data Entry Highlighted Yellow

4' T8 T5 Lamps and Ballasts	Old Fix Watts	New Fix Watts	# New Fixtures	kW Saved	kWh Saved	Rebate $
1 & 2 Lamp Fixtures $4@				0.000	0	$0.00
3 & 4 Lamp Fixtures $8@				0.000	0	$0.00

400W HID Retrofits

High Bay T8 & T5 Lamps&Ballasts	Old Fix Watts	New Fix Watts	# New Fixtures	kW Saved	kWh Saved	Rebate $
6L-8L T8 or 4L-6L T5, 4' Fix, $52				0.000	0	$0.00

750 to 1000W HID Retrofits

High Bay T8 & T5 Lamps&Ballasts	Old Fix Watts	New Fix Watts	# New Fixtures	kW Saved	kWh Saved	Rebate $
12L-16L T8 or 8L-12L T5 4' Fix $102				0.000	0	$0.00

Incandescent to Hardwired Compact Fluorescent Retrofits

Pin Type Hardwired CFL FIX	Old Fix Watts	New Fix Watts	# New Fixtures	kW Saved	kWh Saved	Rebate $
Replace with 26W or less $8				0.000	0	$0.00
Replace with 27W or more $11				0.000	0	$0.00

Exit Sign Retrofits

Exit Sign Retrofit / Replacement	Old Fix Watts	New Fix Watts	# New Fixtures	kW Saved	kWh Saved	Rebate $
Replace Incandescent to LED $5				0.000	0	$0.00

Lighting Sensors/Controls Retrofits

Sensors/Controls, $160/kW saved							
% off time	Space	Watts / Sensor	new watts	# Sensors	kW Saved	kWh Saved	Rebate $
30%	Breakroom/Open		0.0		0.000	0	$0.00
50%	Classroom/Corridor		0.0		0.000	0	$0.00
40%	Conference		0.0		0.000	0	$0.00
40%	Offices		0.0		0.000	0	$0.00
50%	Restroom		0.0		0.000	0	$0.00
60%	Warehouse/Storage		0.0		0.000	0	$0.00

All Retrofits Not Specified Above

Description	Rebate is $160/kW	Old Fix Watts	New Fix Watts	# New Fixtures	kW Saved	kWh Saved	Rebate $
					0.000	0	$0.00
					0.000	0	$0.00
					0.000	0	$0.00
					0.000	0	$0.00

NEW CONSTRUCTION

	Rebate is $160/kW	2006 IECC Allowed Total Watts	New Construction Total Watts				
	Bldg Description			Total SF	kW Saved	kWh Saved	Rebate $
Interior					0.000	0	$0.00
Exterior					0.000	0	$0.00

	Pre kW	New kW	kW Saved	kWh Saved	Rebate
TOTALS	0.000	0.000	0.000	0	$0.00

Commercial Tune Up Program

Contractor Information Sheet

OG&E

Commercial /Industrial HVAC - Tune Program Energy Efficiency Program

For the Arkansas Comprehensive Demand Side Management Program

OG&E CUSTOMER:

Company Name: _____ Date: _____

Address: _____ City: _____ State: OK ZIP: _____

Contact Person: _____ Phone: _____

WORK SITE:

Meter # or Customer Acct #: _____ Annual Operation Hours: _____

Location/Building/Site Name: _____

Address: _____ City: _____ State: OK ZIP: _____

Standard Offer Rebate			Saved	Saved	
From Worksheet	Pre kW	New kW	kW	kWh	Rebate
TOTALS	0.000	0.000	0.000	0	$0.00

Survey Performed Name: _____ Date: _____

WRITE CHECK TO:

Company Name: _____

Address: _____ City: _____ State: _____ ZIP: _____

Contact Person: _____ Phone: _____

MAIL CHECK TO:

Company Name: _____

Address: _____ City: _____ State: _____ ZIP: _____

Contact Person: _____ Phone: _____

PERSON SUBMITTING REQUEST:

Contact Person: _____ Phone: _____

Company Name: _____

Address: _____ City: _____ State: _____ ZIP: _____

CERTIFICATION:

By signing and returning this document , you are agreeing that all calculations and metered wattages are accurate.

_____
Name Printed

_____ _____
Signature Date

SUBMIT REBATE FORM TO:

Robin Arnold
arnoldrk@oge.com
7200 HWY 45
Fort Smith, Arkansas
(O) 479-649-2838 , (C) 479-221-3641

OG&E

Annual Operation Hours:	=	0
Meter # or Customer Acct #:	=	0
Location / Building / Site Name:	=	0

Participants will provide OG&E a complete Measurement and Verification Plan:

- o Written Description of Project
- o Purpose of Project
- o General layout drawings providing installation locations
- o Process and Flow diagrams (not required for HVAC and Lighting)
- o Estimated cost of project
- o Energy savings calculations with a description of formulas used & assumptions made.
- o Electrical metered data prior to project installation
- o Description of method to capture energy consumption
- o Description of frequency of data collection
- o Estimated completion date of project.

Third Party Metered Projects in the Same Building

Description	Old Unit				New Unit				kW	kWh	Rebate
	kW p/Ton	Tons	EER	kW	kW p/Ton	Tons	EER	kW	Saved	Saved	$250 kW
	12	0.0	1.0	0.000	12	0.0	1.0	0.000	0.000	0	$0.00
	12	0.0	1.0	0.000	12	0.0	1.0	0.000	0.000	0	$0.00
	12	0.0	1.0	0.000	12	0.0	1.0	0.000	0.000	0	$0.00
	12	0.0	1.0	0.000	12	0.0	1.0	0.000	0.000	0	$0.00
	12	0.0	1.0	0.000	12	0.0	1.0	0.000	0.000	0	$0.00
	12	0.0	1.0	0.000	12	0.0	1.0	0.000	0.000	0	$0.00
	12	0.0	1.0	0.000	12	0.0	1.0	0.000	0.000	0	$0.00
	12	0.0	1.0	0.000	12	0.0	1.0	0.000	0.000	0	$0.00
	12	0.0	1.0	0.000	12	0.0	1.0	0.000	0.000	0	$0.00
	12	0.0	1.0	0.000	12	0.0	1.0	0.000	0.000	0	$0.00
	12	0.0	1.0	0.000	12	0.0	1.0	0.000	0.000	0	$0.00
Totals				0.000				0.000	0.000	0	$0.00

NOTE: Data Entry Highlighted Orange

THIRD PARTY METERING COMPANY:

Contact Person: ____________________ Phone: __________

Company Name: ____________________

Address: ____________________

City: ____________________ State: OK Zip: __________

CERTIFICATION:

By signing and returning this document , you are agreeing that all calculations and fixture counts are accurate as reflected on the submitted invoice.

Name Printed ____________________

Signature ____________________ Date ____________________

SUBMIT REBATE FORM TO:

Robin Arnold
arnoldrk@oge.com
7200 HWY 45
Fort Smith, Arkansas 72908
(O) 479-649-2838 , (C) 479-221-3641

C&I Standard Offer Program

Contractor Information Sheet

Commercial-Industrial Standard Offer Rebate Submission Form

For the Arkansas Comprehensive Demand Side Management Program

OG&E CUSTOMER:

Company Name: _____ Date: _____

Address: _____ City: _____ State: OK ZIP: _____

Contact Person: _____ Phone: _____

WORK SITE:

Meter # or Customer Acct #: _____ Annual Operation Hours: _____

Location/Building/Site Name: _____

Address: _____ City: _____ State: OK ZIP: _____

Standard Offer Rebate			Saved	Saved	
From Worksheet	Pre kW	New kW	kW	kWh	Rebate
TOTALS	0.000	0.000	0.000	0	$0.00

Survey Performed Name: _____ Date: _____

WRITE CHECK TO:

Company Name: _____

Address: _____ City: _____ State: _____ ZIP: _____

Contact Person: _____ Phone: _____

MAIL CHECK TO:

Company Name: _____

Address: _____ City: _____ State: _____ ZIP: _____

Contact Person: _____ Phone: _____

PERSON SUBMITTING REQUEST:

Contact Person: _____ Phone: _____

Company Name: _____

Address: _____ City: _____ State: _____ ZIP: _____

CERTIFICATION:

By signing and returning this document , you are agreeing that all calculations and metered wattages are accurate.

_____
Name Printed

_____ _____
Signature Date

SUBMIT REBATE FORM TO:

Robin Arnold
arnoldrk@oge.com
7200 HWY 45
Fort Smith, Arkansas
(O) 479-649-2838 , (C) 479-221-3641

3/27/2012 C:\Users\arnoldrk\Documents\arkansas dsm\SOP Offerings\Copy of AR SOP - Rebate Submission Form - HVAC 9_1_2011.xlsx - Rebate Form GJ Spender

OG&E

Annual Operation Hours:	=	0
Meter # or Customer Acct #:	=	0
Location / Building / Site Name:	=	0

Participants will provide OG&E a complete Measurement and Verification Plan:

- o Written Description of Project
- o Purpose of Project
- o General layout drawings providing installation locations
- o Process and Flow diagrams (not required for HVAC and Lighting)
- o Estimated cost of project
- o Energy savings calculations with a description of formulas used & assumptions made.
- o Electrical metered data prior to project installation
- o Description of method to capture energy consumption
- o Description of frequency of data collection
- o Estimated completion date of project.

Third Party Metered Projects in the Same Building

Description	Old Unit				New Unit				kW	kWh	Rebate
	kW p/Ton	Tons	EER	kW	kW p/Ton	Tons	EER	kW	Saved	Saved	$250 kW
	12	0.0	1.0	0.000	12	0.0	1.0	0.000	0.000	0	$0.00
	12	0.0	1.0	0.000	12	0.0	1.0	0.000	0.000	0	$0.00
	12	0.0	1.0	0.000	12	0.0	1.0	0.000	0.000	0	$0.00
	12	0.0	1.0	0.000	12	0.0	1.0	0.000	0.000	0	$0.00
	12	0.0	1.0	0.000	12	0.0	1.0	0.000	0.000	0	$0.00
	12	0.0	1.0	0.000	12	0.0	1.0	0.000	0.000	0	$0.00
	12	0.0	1.0	0.000	12	0.0	1.0	0.000	0.000	0	$0.00
	12	0.0	1.0	0.000	12	0.0	1.0	0.000	0.000	0	$0.00
	12	0.0	1.0	0.000	12	0.0	1.0	0.000	0.000	0	$0.00
	12	0.0	1.0	0.000	12	0.0	1.0	0.000	0.000	0	$0.00
	12	0.0	1.0	0.000	12	0.0	1.0	0.000	0.000	0	$0.00
Totals				0.000				0.000	0.000	0	$0.00

NOTE: Data Entry Highlighted Orange

THIRD PARTY METERING COMPANY:

Contact Person: ____________________ Phone: ____________

Company Name: ____________________

Address: ____________________

City: ____________________ State: OK Zip: ____________

CERTIFICATION:

By signing and returning this document , you are agreeing that all calculations and fixture counts are accurate as reflected on the submitted invoice.

____
Name Printed

____________________ ____________________
Signature Date

SUBMIT REBATE FORM TO:
Robin Arnold
arnoldrk@oge.com
7200 HWY 45
Fort Smith, Arkansas 72908
(O) 479-649-2838 , (C) 479-221-3641

HVAC Tune Up and Duct Repair

Contractor Information Sheet

OG&E RESIDENTIAL A/C TUNE

Contractor Rebate Form

Contractor Name _____ Representative Signature _____

Contractor Address _____ City, State _____ ZIP _____ Date _____

Customer Info: Name _____

Address _____ Phone ( ) -

City, State _____ ZIP _____ County _____

House Type: **Building Type:** Single Family Multifamily Mobile Home **Stories:** 1 2+

A/C Type: AC Unit # ____ of _____ **Model** _____ **Manufacturer** _____

HVAC System Type: Split System Geothermal Package Unit

System Cooling Capacity (tons): 2 or less 2.5 3 3.5 4 5

System Coverage: Entire Structure Lower Floor(s) only Upper Floor(s) only

Coverage Area Foundation Type: Slab Crawlspace/Basement Conditioned Space

Air Handler Location: Interior Crawlspace/Basement Attic/Garage Outside(Package Unit)

Heating Equipment Type: Gas Electric Heat Pump Electric Resistance Other _____

Combustion Safety Test (for Ductwork Scope(s)): Passed Failed Unnecessary (Reason) _____

Before Refrigerant Charge Adjustment		After Refrigerant Charge Adjustment		Refrigerant Level
RAT (db/wb) ____/____	OAT (db) ____ °F	RAT (db/wb) ____/____	OAT (db) ____ °F	**Type:** R22 R410A Other: ____
SAT (db) ____ °F	Air Δ T ____ °F	SAT (db) ____ °F	Air Δ T ____ °F	**Amt Add/Remove:** ____ lbs ____ oz
Suction ____ psig	Liquid ____ psig	Suction ____ psig	Liquid ____ psig	**Nameplate Charge:** ____ lbs ____ oz
Suction ____ °F	Sat Liq ____ °F	Suction ____ °F	Sat Liq ____ °F	**Percentage change:** ____ %
Sat Suct ____ °F	Liquid ____ °F	Sat Suct ____ °F	Liquid ____ °F	**Expansion Type:** Fixed TXV
Superheat ____ °F	Subcooling ____ °F	Superheat ____ °F	Subcooling ____ °F	

Rebate Amount:

$____ A/C Tune Up ($75)

$____ Cleaned Evaporator Coil ($125)

$____ Sealed Return and Supply Plenum ($125)

\+ $____ Reconnected/Repaired Duct(s) ($25 each)

} Maximum of $300 between these three

$____ Total Contractor Rebate

CUSTOMER COMPLETION: I acknowledge the above designated AC and duct improvements were completed to my satisfaction, free of charge. By signing below, I agree to give OG&E access to the project site for inspections, if necessary.

I acknowledge that OG&E make no warranty or representation of the qualifications or technical feasibility, capability, safety or reliability of the work completed by the participating contractor.

Customer Signature: _____ **Date:** _____

Please return completed rebate form and pictures by email, fax or mail to:

Fax (479) 649-5307 | Email arnoldrk@oge.com | 7200 HWY 45, AF90 | Ft. Smith, AR 72903

Rev.3.0