



*Entergy*

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**Entergy Arkansas, Inc.**  
425 West Capitol Avenue  
P. O. Box 551  
Little Rock, AR 72203-0551  
Tel 501 377 4457  
Fax 501 377 4415

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**Steven K. Strickland**  
Vice President  
Regulatory Affairs

April 2, 2012

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

Re: Docket No. 08-038-RP  
In the Matter of Certain Reports Required To Be Filed by  
Entergy Arkansas, Inc.

Dear Ms. Sanders:

Please find attached for filing with the Arkansas Public Service Commission, Entergy Arkansas, Inc.'s Energy Efficiency Program Portfolio Annual Report for the 2011 Program Year and the accompanying Program Portfolio Annual Report Excel Workbook. This Annual Report and Workbook are filed pursuant to the provisions of Section 9 of the Commission's Rules for Conservation and Energy Efficiency Programs approved in Docket No. 06-004-R.

If you have any questions or need anything additional concerning this filing, please call me at (501) 377-4457 or Susan Davidson at (501) 377-5720.

Sincerely,

/s/ Steven K. Strickland

SS/sd  
Attachments

c: All parties of record w/ attachments



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**ENERGY ARKANSAS, INC.**

**Arkansas Energy Efficiency  
Program Portfolio Annual Report**

**Docket No. 08-038-RP  
2011 Program Year**

**April 2, 2012**

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# 2011 ANNUAL REPORT OF ENERGY EFFICIENCY PROGRAMS

## 1.0 Executive Summary

Entergy Arkansas, Inc. (“EAI” or the “Company”) has been pursuing energy efficiency (“EE”) programs since 2007, after the Arkansas Public Service Commission (“APSC” or the “Commission”) adopted its Rules for Conservation and Energy Efficiency Programs (“C&EE Rules”) and directed investor-owned utilities (“IOUs”) in Arkansas to offer such programs. In Order No. 8 in Docket No 07-085-TF, the APSC approved EAI’s proposed portfolio of “Quick Start” EE programs. In this portfolio, EAI offered a variety of programs to all classes of customers. By design, these Quick Start Programs were limited in nature, with a focus on gaining market knowledge and preparing and developing the vendor and contractor network to support the long term implementation of EE programs. Even though these programs were limited in scope, funds available, and the number of customers who could participate, EAI spent over \$21 million from 2007 through 2008 on these EE programs, producing an estimated 1,913,392 MWh of electricity savings.

Throughout this early period of EE in Arkansas, a number of policy issues remained outstanding. In 2010, the APSC conducted a number of proceedings to address those policy issues, ultimately establishing a revised framework for EE programs in Arkansas. Among a number of significant changes to the C&EE Rules, the APSC approved utility recovery of the lost revenues associated with their energy efficiency programs and an incentive mechanism, coupling those with the establishment of significant goals that the utilities were to achieve for 2011, 2012, and 2013.

On March 1, 2011, EAI submitted its Three-Year Plan for Energy Efficiency programs, which proposed a portfolio of programs that would significantly expand EAI’s EE programs. In addition to material increases in annual budgets, the portfolio included other modifications such as converting to energy-based incentives, enhanced measure selections, ‘direct install’ program designs, increased incentives, and redesigned administrative processes. In June 2011, the APSC approved EAI’s Three-Year Plan.

As this discussion indicates, the 2011 program year was a year of transition. Even so, EAI produced significant savings in this program year. EAI’s reported gross savings of approximately 55,000 MWh, which were adjusted by EAI’s third party Evaluation, Measurement and Verification (“EM&V”) contractor, The Cadmus Group, Inc. (“Cadmus”), to approximately 54,000 MWh. Cadmus describes its adjustments in its EM&V Report attached Appendix A. In addition, the APSC’s framework requires a number of other adjustments to be made to

EAI's gross savings, with those adjusted figures used to determine EAI's recovery of Lost Contribution to Fixed Costs ("LCFC") and whether EAI has met the Commission established savings targets so as to be eligible for performance incentives. EAI applied these additional adjustments to the savings figure as adjusted by Cadmus (*i.e.*, the 54,000 MWh figure referenced above). With those adjustments, EAI achieved 79.6% its 2011 targets, which is just shy of the 80% level required to be eligible for incentives.

Nonetheless, it must be recognized that EAI reached this achievement while also working extensively on a number of EE policy and framework issues throughout 2011. Once the APSC's new framework was provided in December 2010, EAI began developing an extensive portfolio, and when approved, began to work towards expanding its own EE staff, as well as securing implementation contractors for the sixteen programs that EAI had proposed in its Three-Year Plan. For the latter, EAI's annual expenditures for EE programs were projected to increase substantially in each year; these significant increases in expenditures merited a much more thorough process for obtaining implementation contractors, including requests for proposals, detailed reviews of contractor proposals, and more extensive negotiations of contracts (particularly considering EAI's pursuit of performance-based payments in those contracts).

Throughout this time frame, EAI also was participating in the development of rules and processes associated with other aspects of the APSC's EE framework for which additional work was required. Under the leadership of the APSC General Staff ("Staff"), EAI and other parties working collaboratively ("PWC") worked through issues associated with the Commission's Self-Direct ("SD") Option and the EM&V requirements that the APSC had established in its 2010 revision of the EE framework in Arkansas. With the Staff's guidance and leadership, the PWC was able to make great strides towards the development of those issues, one which, in hindsight, represented a remarkable achievement, particularly considering the other undertakings of the utilities at the same time.

All of these efforts had an effect on the EE savings EAI was able to achieve. Indeed, this period of transition is reflected in the sources of the savings EAI achieved for 2011. EAI's savings were derived from programs that were transitioning from Quick Start Programs to the expanded programs contemplated by the Three-Year Plan. Accordingly, the programs in the Three-Year Plan that were entirely new achieved no savings for the 2011 Program Year given the start-up nature of those efforts in 2011. Consequently, EAI did not spend its 2011 forecasted budget.

In addition, coupled with a number of adjustments to EAI's savings results, EAI reached 79.6% of its 2011 targets with the programs that were available for customers to use. An overview of the adjustments is provided below:

EAI's Gross Savings	55,057,504 kWh
As adjusted by Cadmus <sup>1</sup>	54,054,234 kWh
As adjusted for Net-To-Gross ("NTG") ratio	39,966,745 kWh

Several programs exceeded their energy savings targets, including: Home Energy Solutions Program, Cool Saver Program, Small Business Program, and C&I Custom Program. The results for each program are discussed within each program report.

In approving the Three-Year Plan, the APSC also directed EAI to report on items that historically were not included within the annual reports. The additional items on which EAI was directed to report on include:

- 1) Consult with the other IOUs and report by April 1, 2012, regarding all reasonable inter-utility coordination of EE programs, including inter-utility coordination to promote inter-fuel energy savings, as outlined above in this order;
- 2) Report on the advisability of piloting or implementing during Program Year 2013 a Ductless Heat Pump Program which is aimed at customers with resistance heating, or accommodation of ductless heat pump measures within an existing program; and
- 3) Hold a stakeholder meeting by January 31, 2012, for purposes of program review, collaboration and improvement, in time for Commission review of 2012 program filing.

Reports regarding the Inter-Utility Coordination and Ductless Heat Pump efforts are included in Section 7.0, Appendix B and Appendix C of this report. The Stakeholder Processes are discussed in Section 5.7.

As discussed above, throughout 2011 the PWC developed, and the Commission approved, a process for qualifying customers to obtain Certificates of Exemption pursuant to the SD Option ("SD Certificates"). From this process, the Commission has awarded the first such certificates for those qualifying commercial and industrial customers that demonstrated they have met the SD Option criteria in accordance with Section 11 of the APSC's Rules for Conservation and Energy Efficiency Programs. Eighteen of EAI's customers have received approval of a SD Certificate for 2012. EAI is adjusting the 2012 goals by all eighteen customers. For 2012 the overall targets will be reduced by 8.3% as a result of these SD Certificate approvals and the commercial and

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<sup>1</sup> As discussed in Cadmus' report, Cadmus' adjustments include a reduction in the results of EAI's City Smart energy savings as a result of application of changes in 2011 to the TRM, which changed 2010 deemed savings estimates for certain HVAC installations. EAI already had made commitments to specific customers to compensate them based upon the 2010 deemed savings estimates, so EAI was not in a position to alter the estimated savings from the customer's perspective. However, due to the retroactive application of the 2011 TRM data to projects already committed to in 2010, EAI was not allowed to claim the entire level of savings it had planned to receive from the City Smart plan. These lost savings cause EAI to miss its APSC-established target.

industrial (“C&I”) market base for energy efficiency programs is reduced by 12%. EAI does not propose to modify its C&I energy efficiency programs for 2012. EAI will need to consider whether program modifications should be addressed for 2013 based upon 1) the 2012 SD Option results and 2) the ability to meet 2012 C&I program goals. The 2012 Goal adjustments are as follows:

Original 2012 Goal (MWh)	105,413
Adjustment due to Self- Direct (MWh)	8,719
New 2012 Goal (MWh)	96,694

The Gross Savings for all programs reported in this document were calculated using the Arkansas Deemed Savings as adjusted by the Joint Recommendations included in the Settlement Agreement approved by the Commission in Order No. 15 in Docket No. 10-100-R on March 7, 2012<sup>2</sup> or followed an International Performance Measurement & Verification Protocol (“IPMVP”) approved method. For the CoolSaver Program the savings were all calculated using the IPMVP.

Net savings reported reflect the final results of the independent EM&V analysis performed by Cadmus, the independent EM&V consultant engaged by EAI and Southwestern Electric Power Company (“SWEPCO”), and ADM Associates, the independent EM&V consultant engaged to review the Arkansas Weatherization Program (“AWP”) by the Joint Utilities.<sup>3</sup> Cadmus’ EM&V Report for EAI’s 2011 results is attached as Appendix B and ADM Associates’ EAI Report is included in the Arkansas Weatherization Program Annual Report.

EAI achieved 19.8 MW of evaluated net demand reduction and 41,958 MWh of evaluated net energy savings in 2011. After independent EM&V adjustments and adjustments resulting from Order No. 15, of Docket No. 10-100-R, EAI’s portfolio summary information is shown in the table below.

EAI also performed a cost benefit analysis in connection with these results, taking a different approach than prior years in performing that analysis. That approach made sense for several reasons. As EAI discussed at its EE Stakeholder Conference, EAI has modified its process for estimating avoided costs. EAI’s modified process involves a more in-depth analysis of the hours (e.g., on peak v. off peak) in which the expected energy savings likely would be realized.

<sup>2</sup> Joint Recommendations were included in a settlement agreement filed by the PWC parties to adjust Net-to-Gross savings outside the TRM updating process to help bring to closure 2011 energy savings results.

<sup>3</sup> Joint Utilities include the seven Arkansas IOUs including EAI, CenterPoint Energy Resources Corp., d/b/a CenterPoint Energy Arkansas Gas (“CenterPoint Energy”), SourceGas Arkansas, Inc. (“SGA”), SWEPCO, The Empire District Electric Company, Oklahoma Gas and Electric Company (“OG&E”) and Arkansas Oklahoma Gas Company (“AOG”).

The application of the new method of applying updated avoided costs and measure life changes in the updated Technical Reference Manual (“TRM”) has affected the costs and benefits of several of EAI’s programs negatively when compared to the cost/benefit ratio for several of the programs proposed in EAI’s Three-Year Plan. In addition, these updated cost/benefit analyses required the final assessed numbers from Cadmus, EAI’s EM&V contractor, which (as a result of the compressed time frame in which Cadmus was required to conduct its analysis of 2011 results) were not received until a matter of days before the filing. Accordingly, EAI was largely unable to consider the cost/benefit results in assessing the portfolio changes discussed throughout this report. Although EAI indicates the changes that are anticipated for 2012 throughout this report, it must be understood that EAI will continue to evaluate the need for changes to its portfolio to achieve Commission savings targets in a cost effective manner, and that more changes may be forthcoming.

**Table 1.1**  
**Portfolio Summary of 2011 EAI Energy Efficiency Program Results**

Net Demand Reduction (MW)	Net Energy Savings (MWh)	2011 Cost Results (\$000)	2011 Prorated LCFC True Up (\$000)	2011 Full Year LCFC True UP (\$000)	2012 Projected Prorated LCFC (\$000)	Full 2012 LCFC EECR Adjustment (\$000)	Performance Incentives (\$)	TRC Results Net Present Value (\$Millions)
19.8	41,958	13,414	641	1,917	1,875	3,793	-	9.91

EAI is not proposing any program modifications for 2013 at this time and proposes to continue existing programs to 1) allow for the receipt of sufficient EM&V to inform future program modifications, 2) reduce the need for new contract negotiations with implementing contractors who have recently completed contracts and the new implementation work is just starting in the market place and 3) avoid creating confusion with local participating contractors associated with the potential need for program training in addition to the training they have recently received. Further, EAI proposes changes associated with these issues be considered in the future program year as the Commission has in the past for program changes or as part of the program plan to be implemented in 2014.

EAI filed an Integrated Resource Plan (“IRP”) in 2009 that included the estimate for cost effective and achievable energy efficiency. The plan includes a forecast of 239 MW of peak demand reduction and 673,021 MWh of energy savings from cost-effective and market-achievable DSM by 2028. This assumption will be surpassed if EAI’s level of effort to implement DSM programs to comply with the C&EE Rules, in their current form, are sustained over the long term. The IRP is being prepared for filing in October 2012. EAI energy efficiency programs are included in forward looking years to plan resources to meet anticipated customer needs.

Long-term, cost-effective energy efficiency savings potential estimates are derived from a bottom-up engineering analysis by customer class and by



program offering within each customer class. This analysis for energy efficiency program development includes APSC directives for goals and the seven point checklist factor for identifying comprehensiveness. The customer class and program energy savings were also developed around the list of cost-effective measures, customer count and energy use by segment, rate class, business classification, state economic and demographic data, building and appliance codes and standards, and EAI's DSM Potential Study. Market barriers for each customer segment were identified and best practice strategies to address these barriers were built into the budgets.

**Table 1.2  
EE Portfolio Summary by Program**

<b>Entergy Arkansas Inc. 07-085-TF EE Portfolio Summary by Program</b>					
Program Name	Program Type	Market	2011		% of RBudget
			RBudget (\$)	Actual (\$)	
Lighting & Appliances	Appliances	Res (All)	3,084,722	1,058,032	34%
Arkansas Weatherization Program	Weatherization	Res (Single-Family)	1,092,000	619,497	57%
Energy Efficiency Arkansas	Public Education	All	314,000	304,154	97%
Home Energy Solutions	Whole-House	Res (All)	1,702,176	2,363,899	139%
Energy Solutions Multi-Family	New Offer	Res (Multi-family)	209,505	22,097	11%
Energy Solutions for Manufactured (Mobile)	New Offer	Res (Manufactured Housing)	289,508	100,644	35%
Energy Star New Homes	Whole-House	Res (All)	90,000	60,988	68%
Efficient Cooling Solutions	HVAC Inspection or Tune-up	Res / Small C&I	646,336	929,119	144%
Residential Benchmarking Pilot	Whole-House	Res (All)	996,000	96,087	10%
Residential Direct Load Control	Whole-House	Res (Single-Family)	517,588	9,899	2%
C&I Prescriptive	Prescriptive- Commercial or Industrial	C&I (All)	1,410,957	749,314	53%
C&I Custom Solutions	Custom and Bundled	C&I (Large)	2,001,082	1,427,566	71%
Small Business	Small Business	C&I (Small)	466,920	427,534	92%
City Smart	Small Business	C&I (Small/Large)	453,225	327,117	72%
Agricultural Energy Solutions	Small Business	C&I Agriculture	147,188	47,476	32%
Agricultural Irrigation Load Control	Demand Response	C&I (Small/Large)	5,263,492	4,686,563	89%
Demand Response	Demand Response	C&I (All)	0	0	-
Program 18	N/A	N/A	0	0	-
Program 19	N/A	N/A	0	0	-
Program 20	N/A	N/A	0	0	-
Regulatory	-	-	0	183,755	-
<b>Total</b>			<b>18,684,699</b>	<b>13,413,739</b>	<b>72%</b>

**Table 1.3  
EE Portfolio Summary by Cost Type**

<b>EE Portfolio Summary by Cost Type</b>			
<b>EE Program Cost Summary</b>		<b>2011 Total Cost</b>	
<b>Type</b>		<b>% of Total</b>	<b>% of Total</b>
		<b>RBudget (\$)</b>	<b>Actual (\$)</b>
Planning / Design		85,756	162,806
Marketing & Delivery		7,608,737	8,980,940
Incentives / Rebates		7,849,799	3,544,399
Evaluation, Measurement, and Verification		674,814	37,305
Administration		2,465,593	504,535
Regulatory		0	183,755
<b>Total</b>		<b>18,684,699</b>	<b>13,413,739</b>

**Table 1.4  
Company Statistics**

<b>Company Statistics</b>										
<b>Program Year</b>	<b>Revenue and Expense</b>					<b>Energy</b>				
	<b>Total Revenue (a) (\$000's)</b>	<b>RBudget</b>		<b>Actual</b>		<b>Total Annual Energy Sales (d) MWh</b>	<b>Plan</b>		<b>Evaluated</b>	
		<b>EE Portfolio Spending (b) (\$000's)</b>	<b>Spending as % of Revenue (% = b/a)</b>	<b>EE Portfolio Spending (c) (\$000's)</b>	<b>Spending as % of Revenue (% = c/a)</b>		<b>EE Net Annual Energy Savings (e) MWh</b>	<b>Savings as % of Energy Sales (% = e/d)</b>	<b>EE Net Annual Energy Savings (e) MWh</b>	<b>Savings as % of Energy Sales (% = f/d)</b>
<b>2008</b>	\$ 1,700,890	\$ 5,973	0.4%	\$ 5,125	0.3%	21,037,735	22,758	0.11%	45,662	0.22%
<b>2009</b>	\$ 1,698,078	\$ 7,231	0.4%	\$ 5,269	0.3%	19,926,173	27,844	0.14%	48,042	0.24%
<b>2010</b>	\$ 1,649,000	\$ 11,431	0.7%	\$ 6,373	0.4%	22,004,000	31,994	0.15%	44,251	0.20%
<b>2011</b>	\$ 1,647,000	\$ 18,685	1.1%	\$ 13,414	0.8%	21,584,000	56,260	0.26%	41,958	0.19%

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

## 2.0 Portfolio Impact

This section provides a tabular overview of each program's results for a three year time-frame. The results presented are for annual energy savings and annual demand savings and program costs (actual versus budget). The following tables are shown as required within the Arkansas Energy Efficiency Program Portfolio Annual Report ("AEEP-PAR"), Table 2.1 Program Cost and Table 2.1 Program Savings (Lifetime Energy and Demand).

**Table 2.1  
Program Costs**

Annual Program Cost									
RBudget (\$)	2009			2010			2011		
	RBudget (\$)	Actual (\$)	% of RBudget	RBudget (\$)	Actual (\$)	% of RBudget	RBudget (\$)	Actual (\$)	% of RBudget
Program Name									
Lighting & Appliances	401,000	395,065	99%	355,647	209,508	59%	3,084,722	1,058,032	34%
Arkansas Weatherization Program	1,215,000	309,941	26%	797,000	656,841	82%	1,092,000	619,497	57%
Energy Efficiency Arkansas	488,000	532,574	109%	210,000	181,964	87%	314,000	304,154	97%
Home Energy Solutions	717,000	922,183	129%	2,215,901	2,294,391	104%	1,702,176	2,363,899	139%
Energy Solutions Multi-Family	0	0	-	0	0	-	209,505	22,097	11%
Energy Solutions for Manufactured (Mobile)	0	0	-	0	0	-	289,508	100,644	35%
Energy Star New Homes	0	0	-	0	0	-	90,000	60,988	68%
Efficient Cooling Solutions	718,000	547,853	76%	748,793	671,667	90%	646,336	929,119	144%
Residential Benchmarking Pilot	0	0	-	0	0	-	996,000	96,087	10%
Residential Direct Load Control	0	0	-	0	0	-	517,588	9,899	2%
C&I Prescriptive	1,058,000	684,270	65%	1,013,218	564,859	56%	1,410,957	749,314	53%
C&I Custom Solutions	985,000	744,294	76%	1,306,009	990,605	76%	2,001,082	1,427,566	71%
Small Business	542,000	471,459	87%	518,853	416,884	80%	466,920	427,534	92%
City Smart	464,000	441,993	95%	506,115	486,205	96%	453,225	327,117	72%
Agricultural Energy Solutions	0	0	-	0	0	-	147,188	47,476	32%
Agricultural Irrigation Load Control	174,000	219,368	126%	3,714,811	3,431,488	92%	5,263,492	4,686,563	89%
Demand Response	4,000	0	0%	44,000	715,511	1626%	0	0	-
Program 18	0	0	-	0	0	-	0	0	-
Program 19	0	0	-	0	0	-	0	0	-
Program 20	0	0	-	0	0	-	0	0	-
Regulatory	0	0	-	0	93,487	-	0	183,755	-
<b>Total</b>	<b>6,766,000</b>	<b>5,269,000</b>	<b>78%</b>	<b>11,430,346</b>	<b>10,713,410</b>	<b>94%</b>	<b>18,684,699</b>	<b>13,413,739</b>	<b>72%</b>

**Table 2.2  
Annual Energy & Demand Program Savings**

<b>Net Annual Savings (Energy &amp; Demand)</b>									
<b>ENERGY kWh</b>	<b>2009</b>			<b>2010</b>			<b>2011</b>		
	<b>Energy Savings</b>			<b>Energy Savings</b>			<b>Energy Savings</b>		
	<b>kWh</b>		<b>% of Plan</b>	<b>kWh</b>		<b>% of Plan</b>	<b>kWh</b>		<b>% of Plan</b>
	<b>Plan</b>	<b>Evaluated</b>		<b>Plan</b>	<b>Evaluated</b>		<b>Plan</b>	<b>Evaluated</b>	
Lighting & Appliances	5,199,000	2,944,000	57%	5,199,000	3,121,934	60%	21,010,000	12,142,849	58%
Arkansas Weatherization Program	3,681,000	1,435,000	39%	1,913,166	2,666,649	139%	2,890,355	1,991,412	69%
Energy Efficiency Arkansas	0	0	-	0	0	-	0	0	-
Home Energy Solutions	2,138,000	4,593,000	215%	9,141,000	9,562,161	105%	1,604,000	6,685,137	417%
Energy Solutions Multi-Family	0	0	-	0	0	-	273,000	0	0%
Energy Solutions for Manufactured (Mobile)	0	0	-	0	0	-	214,000	0	0%
Energy Star New Homes	0	0	-	0	0	-	0	0	-
Efficient Cooling Solutions	2,167,000	238,000	11%	2,167,000	1,360,087	63%	1,383,000	1,400,520	101%
Residential Benchmarking Pilot	0	0	-	0	0	-	12,656,000	0	0%
Residential Direct Load Control	0	0	-	0	0	-	0	0	-
C&I Prescriptive	4,075,000	12,597,000	309%	3,544,000	7,440,298	210%	8,400,000	6,634,605	79%
C&I Custom Solutions	6,709,000	24,001,000	358%	8,052,000	15,433,679	192%	5,176,000	10,275,701	199%
Small Business	1,406,000	691,000	49%	1,406,000	1,327,339	94%	603,000	1,259,460	209%
City Smart	2,069,000	1,569,000	76%	2,069,000	3,338,655	161%	1,725,000	1,568,473	91%
Agricultural Energy Solutions	0	0	-	0	0	-	326,000	0	0%
Agricultural Irrigation Load Control	0	0	-	0	0	-	0	0	-
Demand Response	0	0	-	0	0	-	0	0	-
Program 18	0	0	-	0	0	-	0	0	-
Program 19	0	0	-	0	0	-	0	0	-
Program 20	0	0	-	0	0	-	0	0	-
<b>Total</b>	<b>27,444,000</b>	<b>48,068,000</b>	<b>175%</b>	<b>33,491,166</b>	<b>44,250,802</b>	<b>132%</b>	<b>56,260,355</b>	<b>41,958,157</b>	<b>75%</b>

<b>DEMAND kW</b>	<b>2009</b>			<b>2010</b>			<b>2011</b>		
	<b>Demand Savings</b>			<b>Demand Savings</b>			<b>Demand Savings</b>		
	<b>kW</b>		<b>% of Plan</b>	<b>kW</b>		<b>% of Plan</b>	<b>kW</b>		<b>% of Plan</b>
	<b>Plan</b>	<b>Evaluated</b>		<b>Plan</b>	<b>Evaluated</b>		<b>Plan</b>	<b>Evaluated</b>	
Lighting & Appliances	550.0	495.0	90%	550.0	340.0	62%	2,700.0	1,361.0	50%
Arkansas Weatherization Program	1,060.0	429.0	40%	865.0	751.0	87%	825.0	669.1	81%
Energy Efficiency Arkansas	0.0	0.0	-	0.0	0.0	-	0.0	0.0	-
Home Energy Solutions	1,064.0	1,359.0	128%	4,300.0	4,827.9	112%	900.0	3,477.0	386%
Energy Solutions Multi-Family	0.0	0.0	-	0.0	0.0	-	100.0	0.0	0%
Energy Solutions for Manufactured (Mobile)	0.0	0.0	-	0.0	0.0	-	200.0	0.0	0%
Energy Star New Homes	0.0	0.0	-	0.0	0.0	-	0.0	0.0	-
Efficient Cooling Solutions	845.0	90.0	11%	845.0	603.4	71%	600.0	899.0	150%
Residential Benchmarking Pilot	0.0	0.0	-	0.0	0.0	-	4,300.0	0.0	0%
Residential Direct Load Control	0.0	0.0	-	0.0	0.0	-	3,100.0	0.0	0%
C&I Prescriptive	3,622.0	2,616.0	72%	3,140.0	1,256.3	40%	2,000.0	900.0	45%
C&I Custom Solutions	4,166.0	3,944.0	95%	5,000.0	3,100.9	62%	900.0	2,348.0	261%
Small Business	973.0	142.0	15%	973.0	289.5	30%	200.0	328.0	164%
City Smart	1,285.0	823.0	64%	1,285.0	1,302.2	101%	200.0	377.0	189%
Agricultural Energy Solutions	0.0	0.0	-	0.0	0.0	-	100.0	0.0	0%
Agricultural Irrigation Load Control	1,000.0	777.0	78%	10,000.0	6,400.0	64%	19,100.0	9,472.0	50%
Demand Response	3,000.0	8,073.0	269%	3,000.0	8,000.0	267%	0.0	0.0	-
Program 18	0.0	0.0	-	0.0	0.0	-	0.0	0.0	-
Program 19	0.0	0.0	-	0.0	0.0	-	0.0	0.0	-
Program 20	0.0	0.0	-	0.0	0.0	-	0.0	0.0	-
<b>Total</b>	<b>17,565.0</b>	<b>18,748.0</b>	<b>107%</b>	<b>29,958.0</b>	<b>26,871.2</b>	<b>90%</b>	<b>35,225.0</b>	<b>19,831.1</b>	<b>56%</b>

**Table 2.3  
Methodology for Calculating Energy Savings**

<b>Methodology for Calculating Energy Savings</b>							
<b>Program Name</b>	<b>Total Savings</b>	<b>Deemed Savings</b>		<b>Custom Savings</b>		<b>Other Savings</b>	
	<b>Net Energy Savings</b>	<b>Net Energy Savings</b>	<b>% of a</b>	<b>Net Energy Savings</b>	<b>% of a</b>	<b>Net Energy Savings</b>	<b>% of a</b>
	<b>(a)</b>	<b>(b)</b>		<b>(c)</b>		<b>(d)</b>	
	<b>kWh</b>	<b>kWh</b>		<b>kWh</b>		<b>kWh</b>	
Lighting & Appliances	12,142,849	12,142,849	100.0%		0.0%		0.0%
Arkansas Weatherization Program	1,991,412	1,991,412	100.0%		0.0%		0.0%
Energy Efficiency Arkansas	0	0	-		-		-
Home Energy Solutions	6,685,137	6,685,137	100.0%		0.0%		0.0%
Energy Solutions Multi-Family	0	0	-		-		-
Energy Solutions for Manufactured (Mobile)	0	0	-		-		-
Energy Star New Homes	0	0	-		-		-
Efficient Cooling Solutions	1,400,520		0.0%	1,400,520	100.0%		0.0%
Residential Benchmarking Pilot	0	0	-		-		-
Residential Direct Load Control	0	0	-		-		-
C&I Prescriptive	6,634,542	6,064,335	91.4%	570,207	8.6%		0.0%
C&I Custom Solutions	10,275,701	9,333,358	90.8%	942,343	9.2%		0.0%
Small Business	1,259,460	1,259,460	100.0%		0.0%		0.0%
City Smart	1,568,473	1,568,473	100.0%		0.0%		0.0%
Agricultural Energy Solutions	0	0	-		-		-
Agricultural Irrigation Load Control	0	0	-		-		-
Demand Response	0		-		-		-
Program 18	0		-		-		-
Program 19	0		-		-		-
Program 20	0		-		-		-
<b>Total Portfolio:</b>	<b>41,958,094</b>	<b>39,045,024</b>	<b>93.1%</b>	<b>2,913,070</b>	<b>6.9%</b>	<b>0</b>	<b>0.0%</b>

## **3.0 Portfolio Programs**

### **3.1 Home Energy Solutions Program**

#### **Program Description:**

The Home Energy Solutions (“HES”) transitioned from the Residential Energy Solutions Program, which was offered for the first ten months of 2011. This program is an energy efficiency program designed to help residential customers understand the benefits of energy efficiency, and to help them implement energy efficiency improvements to their homes. Customers can call a toll-free number to reach an energy efficiency solutions representative, who directed the customer to the best energy efficiency solution based on the customer’s need. Under the program, customers are provided guidance on low-cost, easily implemented home energy efficiency measures. Additionally, for customers who were ready to take action by investing their money in energy efficiency improvements, this program offered an in-home energy assessment.

The program provides cash incentives to offset a portion of the costs of the measures, if customers acted to implement the recommendations made in the assessment within a specific period after the assessment occurred. In addition, the program provides a list of participating contractors who have committed to promote installation of high efficiency equipment and services and can perform work in support of the program within the required time frame.

On November 1, 2011, the HES Program was launched after an Implementing Contractor (“IC”) was selected (through an RFP) and EAI and the IC completed contract negotiations. Expanding upon the success of the “Quick-Start” Program, the HES program represents a more comprehensive version of the program. Design elements of the HES program include compensating local Home Energy Consultants (“HEC”) through an upfront charge to the customer for the applicable services. The customer then has the opportunity to recover that upfront cost by successfully installing energy efficiency measures recommended in the HEC assessment. Two types of Home Energy Evaluations are available: a Tier 1 Survey and a Tier 2 Assessment. In addition, direct install measures (e.g., CFL lighting, etc.) have also been added to the energy evaluations and are offered at no charge to the customer.

In addition, program incentives have been structured to promote the installation of multiple measures by customers, and bonus incentives have been added for commissioning the installation of new Energy Star ® qualified air conditioners or heat pumps, and for air conditioners or heat pumps that have an air handler with an electronically-commutated motor.

**Program Highlights:**

- The HES Program achieved 417% of its annual energy savings goal.
- The program spent 39% more than the original plan. Most of the expenditures were to fund customer incentives.
- Insulation continued to be the most predominant measure in this program due in large part to successfully engaging local participating contractors in the sales process.
- Feedback on program from both customers and local participating contractors has been generally positive.

**Program Budget, Savings & Participants:**

Table 3.1 is the program budget, annual energy savings and participants from workbook tab C4 as required by the AEEP-PAR.

**Table 3.1  
Home Energy Solutions Program Budget, Energy Savings and Participants**

Home Energy Solutions											
<b>2009</b>			Plan Savings		Evaluated Savings		% of Plan		2009		
Annual	Actual	% of	Demand*	Energy*	Demand*	Energy*	Demand*	Energy*	Number of Participants		% of
RBudget	Expenses	Budget	kW	kWh	kW	kWh	kW	kWh	Plan	Actual	Plan
\$717,000	\$922,183	129%	1,064	2,138,000	1,359	4,593,000	128%	215%	800	1,266	158%
<b>2010</b>			Plan Savings		Evaluated Savings		% of Plan		2010		
Annual	Actual	% of	Demand*	Energy*	Demand*	Energy*	Demand*	Energy*	Number of Participants		% of
RBudget	Expenses	Budget	kW	kWh	kW	kWh	kW	kWh	Plan	Actual	Plan
\$2,215,901	\$2,294,391	104%	4,300	9,141,000	4,828	9,562,161	112%	105%	3,200	4,072	127%
<b>2011</b>			Plan Savings		Evaluated Savings		% of Plan		2011		
Annual	Actual	% of	Demand*	Energy*	Demand*	Energy*	Demand*	Energy*	Number of Participants		% of
RBudget	Expenses	Budget	kW	kWh	kW	kWh	kW	kWh	Plan	Actual	Plan
\$1,702,176	\$2,363,899	139%	900	1,604,000	3,477	6,685,137	386%	417%	1,440	3,771	262%
<b>3 Year Program Average</b>			Plan Savings		Evaluated Savings		% of Plan		2009 - 2011		
Annual	Actual	% of	Demand*	Energy*	Demand*	Energy*	Demand*	Energy*	Number of Participants		% of
RBudget	Expenses	Budget	kW	kWh	kW	kWh	kW	kWh	Plan	Actual	Plan
\$1,545,026	\$1,860,157	120%	2,088	4,294,333	3,221	6,946,766	154%	162%	1,813	3,036	167%

\*Net Annual Savings

**Program Events & Training:**

The HES Program provided a wide variety of trainings, instructing participants on topics including: program requirements, measure installation best practices, the use of diagnostic equipment, measure installation techniques, and combustion safety testing among others.

### **Program Savings:**

The 2011 Home Energy Solutions Program annual energy savings goal was 1,604,160 kWh. The program saved 6,685,137 evaluated<sup>4</sup> kWh in annual energy savings.

The 2011 Home Energy Solutions Program demand savings goal was 900 kW. The program achieved an evaluated demand savings of 3,477 kW.

### **Program Challenges & Opportunities:**

Since its original “Quick-Start” implementation as the Residential Home Energy Solutions Program, the HES Program has motivated a number of changes in the Arkansas market. The previous lack of qualified contractors has noticeably improved, and the program now has 27 certified contractors.

In late 2011, when the HES Program launched, the program adjusted the incentive levels for some measures in order to encourage more widespread adoption. Initially, incentives were not offered to contractors, but were added to be able to help them offset the amount of time invested for proper program required testing procedures. For the program year of 2012, incentives have been added to help offset most of the customer’s cost of the energy evaluation. Additionally in 2012, there will be an addition of tiered bonuses which will also be offered for the installation of two or more measures that will achieve 15% or 30% savings.

The program will need to continue to recruit and train local participating contractors to meet future year energy saving goals.

### **Planned or Proposed Changes to Program & Budget:**

The HES reflects several changes from the prior program, consistent with the APSC’s approval of the EAI programs contemplated under the Three-Year Plan. Many of these changes are discussed above, and for ease of reference, they are highlighted here. Those approved changes include:

1. HEC: In lieu of home energy assessments previously provided by the program, the HES project now offers incentives to help offset some or all of the costs of two types of home energy evaluations which are provided by these independent HECs.

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<sup>4</sup> For purposes of this report evaluated savings is the independent EM&V evaluated gross saving adjusted by the NTG ratio.



2. Tier 1 Survey: The HEC completes a walk-through inspection, identifies eligible direct install opportunities, secures customer's permission to direct install equipment at time of inspection and produces a written report based on visual inspection.

This option gives the customer as much information as possible without the in-depth diagnostic testing provided by the Tier 2 Assessment. Customers are not eligible for coupons for additional measures after completion of the Energy Survey. The HEC will provide customers an option to upgrade to a Tier 2 Assessment, particularly in cases where customers are strong candidates to implement additional energy savings measures under the Program.

Tier 2 Assessment: In addition to all of the components of the Tier 1 Survey, HEC also will perform diagnostic testing and provide calculated energy savings including investment payback and a list of prioritized recommendations and will generate any eligible measure coupons.

3. Contractor Certifications: By January 1, 2013, all participating contractors will be required to have at least one of these certifications, BPI-BA or RESNET Home Energy Rater.
4. Program Incentives: Incentives have been restructured to promote implementation of multiple measures. For example bonus incentives have also been added for bundling replacements with duct sealing and/or A/C Commissioning and air handlers with Electronically Commutated Motors ("ECM"). Commissioning confirms that a quality installation with test was performed to verify the efficiency and performance of the unit. Incentives have increased for Wall insulation and duct sealing the installation of new Energy Star ®-qualified air conditioners or heat pumps, and for air conditioners or heat pumps that have an air handler with an electronically-commutated motor.
5. Coupon: Expiration dates have been extended from 60 days to six months.
6. The energy efficiency measures changes are located in the schedule below:

**Schedule 3.1  
Energy Efficiency Measure Changes**

Existing Measure	Added to 2012 Program	Removed from 2012 Program
Wall Insulation Ceiling Insulation Duct Sealing Air Sealing HVAC (DX) HVAC (Heat Pump) (Airsource and Groundsource)	Direct Install (All Measures) Electronically-Commutated Motors Tiered Home Evaluation Commissioning of HVAC retrofit	Ground Source Heat Pump

7. EAI will incorporate Cadmus process evaluation recommendations to program manuals, enhance data collection protocols and continue active outreach and training of local contractors without requiring an increase in program funding.
8. EAI will work with IC and database vendor to incorporate impact recommendations into databases. Cost of this effort is unknown at this time.

**3.2 CoolSaver Program**

**Program Description:**

EAI’s CoolSaver Program is transitioning from the “Quick-Start” A/C Tune-up program. EAI began implementing many of the changes to this program immediately after the APSC approval of EAI’s Three-Year Plan in 2011. Due to the seasonality of the program, however, these changes will be implemented in 2012 when the program launches in spring 2012.

The CoolSaver Program increases energy efficiency by overcoming market barriers that prevent residential and small business customers from receiving high performance A/C and heat pump system tune-ups. Energy savings are achieved by identifying A/C and heat pump system inefficiencies during the tune-up evaluation, and then correcting the inefficiencies.

The program overcomes market barriers by providing cash incentives to customers to motivate system corrections. The program also overcomes barriers by providing contractor incentives in the form of

training on best practices, discounts on diagnostic tools, and cash incentives to conduct the high-performance system tune-ups.

### **Program Highlights:**

- The CoolSaver A/C Tune-up Program is steadily increasing program participation. The participant target for 2011 was 750 customers or 3,354 units. Consequently, the program tuned up 3007 A/C units, of which 92 participants in the small commercial market had 1536 A/C units receive a tune up and 1365 residential participants had 1471 units receive a tune up.
- The program expanded geographic coverage of the Contractor network in 2011.
- A “Project Summary Report” was developed to provide to contractors and commercial customers detailed reports on the cumulative savings of a multiple tune-up project. Final test-out status of individual A/C is also shown, which can help the customer identify the systems most in need of replacement.
- To address the shortage of qualified technicians the program coordinated training efforts with four regional technical colleges, the AR Association of Two-Year Colleges (“AATYC”), and the Arkansas Energy Sector Partnership (“AESP”). The program offered HVAC training. AATYC purchased five program-required toolkits for each of the four participating colleges to use for training job-seeking final-semester students, and instructors. In May and early June, the Program trained the students on the use of the tools, and helped to coordinate a Job Fair where CoolSaver participating contractors could interview and hire graduating students. Over 80% of the CoolSaver-trained students received employment as a part of this process. Similar Efforts are targeted for 2012.
- The CoolSaver Program is steadily increasing program participation. The participant target for 2011 was 750 customers or 3354 units, and was able to recruit 3,007 A/C units, of which 1,536 A/C units were small commercial and 1,471 A/C units were residential.
- The program spent 44% more than the original plan. Most of the expenditures were to fund market incentives.

### **Program Budget, Savings & Participants:**

Table 3.2 is the program budget, annual energy savings and participants from workbook tab C4 as required by the AEEP-PAR.

**Table 3.2  
Cool Saver Program Budget, Energy Savings & Participants**

Efficient Cooling Solutions											
<b>2009</b>			Plan Savings		Evaluated Savings		% of Plan		2009		
Annual	Actual	% of	Demand*	Energy*	Demand*	Energy*	Demand*	Energy*	Number of Participants		% of
RBudget	Expenses	Budget	kW	kWh	kW	kWh	kW	kWh	Plan	Actual	Plan
\$718,000	\$547,853	76%	845	2,167,000	90	238,000	11%	11%	1,850	340	18%
<b>2010</b>			Plan Savings		Evaluated Savings		% of Plan		2010		
Annual	Actual	% of	Demand*	Energy*	Demand*	Energy*	Demand*	Energy*	Number of Participants		% of
RBudget	Expenses	Budget	kW	kWh	kW	kWh	kW	kWh	Plan	Actual	Plan
\$748,793	\$671,667	90%	845	2,167,000	603	1,360,087	71%	63%	1,850	1,366	74%
<b>2011</b>			Plan Savings		Evaluated Savings		% of Plan		2011		
Annual	Actual	% of	Demand*	Energy*	Demand*	Energy*	Demand*	Energy*	Number of Participants		% of
RBudget	Expenses	Budget	kW	kWh	kW	kWh	kW	kWh	Plan	Actual	Plan
\$646,336	\$929,119	144%	600	1,383,000	899	1,400,520	150%	101%	3,354	3,007	90%
<b>3 Year Program Average</b>			Plan Savings		Evaluated Savings		% of Plan		2009 - 2011		
Annual	Actual	% of	Demand*	Energy*	Demand*	Energy*	Demand*	Energy*	Number of Participants		% of
RBudget	Expenses	Budget	kW	kWh	kW	kWh	kW	kWh	Plan	Actual	Plan
\$704,376	\$716,213	102%	763	1,905,667	531	999,536	70%	52%	2,351	1,571	67%

\*Net Annual Savings

### Program Events & Training:

The CoolSaver Program performed over 77 contractor trainings on a variety of subjects including program participation requirements, best practices in the performance of energy efficiency measures, and data collection techniques to fulfill the program's EM&V requirements. The Quality Technician training is a requirement for all program technicians; this training instructs the technician on performing a proper A/C tune-up, proper use of the required toolkit, data entry and submission of completed tune-up activity in order to meet program standards.

### Program Savings:

- The 2011 annual energy savings goal was 1,383,000 kWh. The program saved 1,400,520 evaluated kWh in annual energy savings.
- The 2011 demand savings goal was 600 kW. The program saved 899 evaluated kW in annual savings
- Savings for the CoolSaver Program were calculated by using an Option A, IPMVP approach. The Option A approach evaluates the pre-existing, and post conditions of every unit incorporated into the program. The program uses a methodology to measure inputs and outputs of a unit both before and after the tune up in order to determine energy consumption and any capacity change. The process allows a technician to pinpoint needed improvements on

the analyzed A/C unit to maximize efficiency and comfort. The program's custom savings approach also stipulates a measure life of five (5) years for the CoolSaver tune-up. This measure life is based upon a review of A/C tune-up measure lives from approved savings documentation in other jurisdictions, and identifying those documents that cover an A/C tune-up consistent with the scope of work of the CoolSaver tune-up (i.e., refrigerant charge adjustment and cleaning blower assembly, condenser coil, and evaporator coil). (For example, see Northeast Energy Efficiency Partnership, Measure Life Report Residential and Commercial/Industrial Lighting and HVAC Measures, Appendix A, Page A-2, 2007). The program results are included in the program summary.

### **Program Challenges & Opportunities:**

Contractors have reported a shortage of technicians who can be dedicated to performing program tune-ups. This is potentially a major barrier to their participation.

The CoolSaver is a sophisticated A/C evaluation model, and was met with some initial resistance by the local market. However, the superior outcomes of this model, both in A/C performance and customer satisfaction have been successfully communicated to the market, resulting in increased participation in 2011. The previous program model lacked a mechanism for replacing older units when the tune-up revealed the need, which represents a lost savings opportunity and influenced lower customer satisfaction. The planned program for 2012 will resolve this issue by empowering the CoolSaver contractor to offer discounts and rebates for installation and commissioning of Energy Star<sup>®</sup> qualified A/C and heat pump systems for Small Business customers. Allowing A/C replacement in the CoolSaver Program will minimize market confusion by allowing tune-up technicians to identify replacement opportunities and to address the replacement of those systems within this program without the need to refer them to a different program or a different contact within the program. For both A/C unit retrofits and replace on Burn out in this program, the demand reduction and energy savings will be derived as described in the latest version of the TRM. The Program will not include specific M&V for the retrofit applications but rather, the replacement savings will be claimed on burnout only and will not be based on existing equipment, performance, or age. Retrofits will be recommended by field technicians when existing systems cannot be brought back to acceptable operating conditions based on CoolSaver training.

This program will need to continue to maintain, identify and train HVAC technicians to the programs standards to grow the program as planned.

**Schedule 3.2**  
**Planned or Proposed Changes to Program & Budget**

Existing Measure	Added to 2012 Program	Removed from 2012 Program
High Performance Tune Ups	Small Business HVAC Replacement Commissioning of Small Business Unit	N/A

The compressed time frame in which Cadmus was required to conduct its analysis of 2011, resulted in EAI not receiving the evaluated energy savings results until a matter of days before the filing. Accordingly, EAI was unable to consider the cost/benefit results in assessing this program's change prior to the Annual Report filing. EAI will continue to evaluate the need for changes to this program to achieve Commission savings targets in a cost effective manner, and that more changes may be forthcoming.

EAI will work to incorporate the Cadmus recommended process changes of tracking and reporting customer feedback, preparing a more comprehensive program operations manual, continue to build upon lessons learned through program implementation and continue to proactively recruit and train local contractors with existing approved budgets.

EAI will explore a plan and cost to conduct a metering study with Cadmus and Independent Evaluation Monitor for enhanced determination of Equivalent Full Load Hours of HVAC systems in Arkansas.

### **3.3 Small Business Program**

**Program Description:**

In 2011 this program was implemented as The Small Commercial and Industrial Solutions Program. The program helped small business customers achieve significant and long-term electricity savings through the use of local participating contractors. Participating contractor's and program staff helped customers analyze their facilities' energy use, identify energy efficiency improvement projects, and install cost effective energy saving measures. The program participants received no-cost energy assessments from an assortment of contractors aligned with the program as well as program staff. They were then informed of rebates for identified eligible energy efficiency measures that are

installed in their business. Rebates for measures completed in this program were delivered to the customer in the form of a coupon (discount) from the partnering contractor.

In 2012, the Small Business Program will complete the transition from the Small C&I Solutions Program, using a modified design from the latter. In the upcoming year, the Small Business program seeks to expand the participating contractor network (now referred to as trade allies) to enhance the offering to this market sector. This expansion will include an expanded list of measures (lighting, lighting controls, exterior lighting, insulation, window film, refrigeration measures, direct install measures, etc.) to enhance the program's comprehensiveness. New incentive levels, which were tested in the marketplace through a pilot effort, also are expected to assist in stimulating energy efficiency in this market sector, which historically has been viewed as "hard to reach". Rebates for measures installed under the Small Business Program will still be delivered to the customer in the form of a "discount", but the coupon methodology will be replaced with project applications to define savings and incentives more clearly for participating customers.

Interested customers may call a toll free number to speak with an energy efficiency solutions representative, who can then direct the customer to the solution that best fits their need. To encourage installation of upgrade opportunities identified through an energy assessment, the program provides a list of trade allies who have committed to promoting high-efficiency standards and can perform the work in the required time frame. These trade allies coordinate with the program in order to provide direct incentives to the customer to offset the total cost of installation.

#### **Program Highlights:**

- The Small Business Program achieved 209% of the 2011 kWh savings goal.
- The program followed up with many potential participants who were originally contacted in 2010 telemarketing campaign.
- The new program design was tested in August 2011 while the "Quick-Start" Small C&I Program continued. The pilot program performed 30 assessments which resulted in 20 completed projects (67% success rate). Though the success rate of pilot may not be a reasonable expectation of other participating customers, EAI believes the pilot does indicate that new program design should result in improved participation and energy saving results in the future.
- During the market test EAI customers, outside of the market test, continue to participate under the "Quick-Start" program model.

- The program spent 92% of the original plan. Most of the expenditures were to fund market incentives.

**Schedule 3.3.1  
Number of Retrofit, as Opposed to Replace-on-Burnout Projects**

	Lighting	HVAC	Duct Sealing	Insulation
Retrofit	39	5	1	1
ROB	-	4	-	-
New Const.	3	3	-	1

**Program Budget, Savings & Participants:**

Table 3.3 is the program budget, annual energy savings and participants from workbook tab C4 as required by the AEEP-PAR.

**Table 3.3  
Small Business Program Budget, Energy Savings & Participants**

Small Business											
<b>2009</b>			Plan Savings		Evaluated Savings		% of Plan		2009		
Annual	Actual	% of	Demand*	Energy*	Demand*	Energy*	Demand*	Energy*	Number of Participants		% of
RBudget	Expenses	Budget	kW	kWh	kW	kWh	kW	kWh	Plan	Actual	Plan
\$542,000	\$471,459	87%	973	1,406,000	142	691,000	15%	49%	100	406	406%
<b>2010</b>			Plan Savings		Evaluated Savings		% of Plan		2010		
Annual	Actual	% of	Demand*	Energy*	Demand*	Energy*	Demand*	Energy*	Number of Participants		% of
RBudget	Expenses	Budget	kW	kWh	kW	kWh	kW	kWh	Plan	Actual	Plan
\$518,853	\$416,884	80%	973	1,406,000	290	1,327,339	30%	94%	100	697	697%
<b>2011</b>			Plan Savings		Evaluated Savings		% of Plan		2011		
Annual	Actual	% of	Demand*	Energy*	Demand*	Energy*	Demand*	Energy*	Number of Participants		% of
RBudget	Expenses	Budget	kW	kWh	kW	kWh	kW	kWh	Plan	Actual	Plan
\$466,920	\$427,534	92%	200	603,000	328	1,259,460	164%	209%	442	51	12%
<b>3 Year Program Average</b>			Plan Savings		Evaluated Savings		% of Plan		2009 - 2011		
Annual	Actual	% of	Demand*	Energy*	Demand*	Energy*	Demand*	Energy*	Number of Participants		% of
RBudget	Expenses	Budget	kW	kWh	kW	kWh	kW	kWh	Plan	Actual	Plan
\$509,258	\$438,626	86%	715	1,138,333	253	1,092,600	35%	96%	214	385	180%

\*Net Annual Savings



### **Program Events & Training:**

The Small C&I Solutions Program had 17 recruitment and training events in the 2011 program year. The trainings included instructions on program participation, contractor tool training, and program best practices. See the Annual Report Workbook for training details.

### **Program Savings:**

The 2011 annual energy savings goal for the Small Business Program was 603,000 kWh. The program achieved an annual evaluated energy savings of 1,259,460 kWh.

The 2011 demand savings goal for the Small C&I Solutions Program was 200 kW. The program achieved an evaluated demand savings of 328 kW.

### **Program Challenges & Opportunities:**

The market has historically presented challenges due to the unique financial restraints of small business customers. The program was tested in the market during August of 2011 using the new program design concept.

Low incentives are not enough to motivate small business owners to incur the costs of energy efficiency projects.

Incentives provided in the form of coupons caused several obstacles. One such obstacle was lack of contractor buy-in. Program contractors had difficulty utilizing program calculators due to incompatibility with their versions of Microsoft Excel. In some cases contractors did not use computers, these situations became training issues.

Contractors involved in the CoolSaver Program who found HVAC units that required replacement were forced to enroll in the Small C&I Solutions Program. This program had a different documentation and payment protocol in order to receive incentives causing program overlap and contractor confusion.

### **Planned or Proposed Changes to Program & Budget:**

As part of EAI's new Three-Year Plan, approved on June 30, 2011, the Small Business Program will provide energy audits, identify cost-effective efficiency retrofit opportunities and deliver direct install measures. The Small Business Program will also administer financial incentives that will encourage early replacement of existing equipment with high-efficiency alternatives, as well as the installation of new measures. Customer and contractor application will be used in lieu of a coupon. Project applications will take the place of coupons for

reservation of customer funds. Program participants may now take advantage of direct-install measures, including low-flow aerators and pre-rinse spray valves (electric water heat customers only), in addition to rebates for eligible energy efficiency measures that are installed in their business.

**Schedule 3.3.2  
Energy Efficiency Measures Changes**

Existing Measure	Added to 2012 Program	Removed from 2012 Program
Lighting (New Construction) Lighting (Retrofit) HVAC (New Construction) HVAC (Retrofit) Ceiling Insulation Duct Sealing	Interior Lighting (Controls) Exterior Lighting( Retrofit) Window Film Direct Install (Electrically Heated Water) Refrigeration	HVAC (Retrofit) Lighting (New Construction) HVAC (New Construction)

The compressed time frame in which Cadmus was required to conduct its analysis of 2011, resulted in EAI not receiving the evaluated energy savings results until a matter of days before the filing. Accordingly, EAI was unable to consider the cost/benefit results in assessing this program’s change prior to the Annual Report filing. EAI will continue to evaluate the need for changes to this program to achieve Commission savings targets in a cost effective manner, and that more changes may be forthcoming.

EAI will incorporate Cadmus process recommendation to work closely with trade allies to ensure they understand the new program within existing budgets.

EAI will work collaboratively with the PWC to include the TRM updates as discussed in Cadmus impact recommendations.

### 3.4 CitySmart<sup>SM</sup> Program

#### Program Description:

The CitySmart<sup>SM</sup> Program is an energy efficiency program designed to provide technical assistance, energy planning recommendations, and financial incentives to local public entities (cities, counties and schools) for the installation of energy efficiency measures that save energy in their facilities. The program helps local public entities operate their buildings more efficiently by understanding the technical and financial benefits of investing in energy efficiency, developing a plan to make energy efficiency improvements, and providing support in completing projects. After upgrades are completed and verified, the program provides cash incentives for projects that save energy.

The CitySmart<sup>SM</sup> Program was originally designed to assist customers in achieving their energy efficiency goals via program assistance and financial incentives. The projects submitted under the CitySmart<sup>SM</sup> Program could be single measure projects through a trade ally, or they could be comprehensive projects including multiple complex measures requiring M&V. The program provides technical assistance, provides Energy Benchmarking and Energy Master Planning for specific customers, manages program incentive funds, verifies that the savings claimed through the program are accurate and appropriate, and utilizes appropriate M&V methods to prove savings (where necessary).

The CitySmart<sup>SM</sup> Program has not changed names under the new program design concept. The only substantial change to the program (outside the change to kWh based incentives) is the addition of publicly-funded and accredited higher education institutions to the targeted market of this program. The contracting process had minimal impact on the 2011 results. The nature of commercial and industrial projects is they require more time from beginning and completion and the 2011 results were primarily driven by Quick Start Program results.

#### Program Highlights:

- The CitySmart<sup>SM</sup> achieved 91% of its annual kWh goal.
- Thirty-two buildings were benchmarked using EPA's Portfolio Manager Tool.
- The program conducted six Energy Master Planning Workshops.
- The program spent 72% of the original plan.

### Schedule 3.4.1 Number of Retrofit, as Opposed to Replace-on-Burnout Projects

	Lighting	HVAC
Retrofit	25	14
ROB	-	-
New Const.	7	2

#### Program Budget, Savings & Participants:

Table 3.4 is the program budget, annual energy savings and number of participants from workbook tab C4 as required by the AEEP-PAR.

**Table 3.4  
CitySmart Program Budget, Energy Savings & Participants**

City Smart											
<b>2009</b>			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
\$464,000	\$441,993	95%	1,285	2,069,000	823	1,569,000	64%	76%	25	50	200%
<b>2010</b>			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
\$506,115	\$486,205	96%	1,285	2,069,000	1,302	3,338,655	101%	161%	25	82	328%
<b>2011</b>			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
\$453,225	\$327,117	72%	200	1,725,000	377	1,568,473	189%	91%	27	12	44%
<b>3 Year Program Average</b>			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
\$474,447	\$418,438	88%	923	1,954,333	834	2,158,709	90%	110%	26	48	187%

\*Net Annual Savings

#### Program Events & Training:

In 2011, CitySmart<sup>SM</sup> conducted six Energy Master Planning Workshops including benchmarking 32 buildings for those six customers.

Energy Master Planning Workshops address energy management issues, obstacles and questions common to schools, cities and counties. In addition, these workshops present energy performance

benchmarking analysis to assist public entities in benchmarking their facility performance against other similar facilities. See more training details in the Annual Workbook Report.

### **Program Savings:**

The 2011 annual energy savings goal was 1,725,000 kWh. The 2011 evaluated annual energy savings for the program was 1,568,473 kWh which is 91% of the annual kWh goal.

The 2010 demand savings goal was 200 kW. The evaluated demand savings for the program was 377 kW.

### **Program Challenges & Opportunities:**

Customers in this market segment were particularly challenged in 2011 by the current economic climate, and had difficulty funding projects. To help with the economic barriers, EAI worked with customers to identify grants and/or application dates and location of stimulus funds to assist in completing energy projects. The Company has also educated customers on other financial options, such as:

- **Lease Agreement** – low-rate (often tax exempt) funding which allows financing of capital equipment over longer periods of time (10+ years) by utilizing “operating cost” dollars
- **Bond Issues** – legally prepared and taxpayer (public) approved funding mechanism at low rates that funds capital improvements over time (approvals can take substantial time)
- **Performance Contracting** – “guaranteed” or “shared” savings agreement with a performance contractor that funds capital improvements over a period of time using energy and/or operational savings dollars.
- Achieving future targets will a greater number of measures and improved incentives as planned for the 2012 and 2013 program year.
- Commitments to customers are based upon most current TRM values. When TRM changes the program pays customer incentives based upon commitments to customers, but results in less evaluated savings and lower TRC.

### **Program Planned or Proposed Changes to Program & Budget:**

Due to project completion cycles, the new program changes will launch at the beginning of 2012. Increased incentives will help offset up front capital investments made by participants. The new program will be more comprehensive by including additional measures such as lighting controls, HVAC controls, window film, exterior lighting and waste water treatment plant upgrades. Direct install measures including pre-rinse

spray valves and low flow faucet aerators will now be offered at no cost to the customer. Other measures can also be included provided they are cost effective and can be measured and verified. Accredited public funded institutions of higher education have transitioned from the Large C&I Program and are now eligible under this program.

**Schedule 3.4.2  
Energy Efficiency Measures Changes**

Existing Measure	Added to 2012 Program	Removed from 2012 Program
Lighting (Retrofit) HVAC (Retrofit) New Construction Chillers Any eligible measure with kW reduction (M&V)	Interior Lighting (Controls) Exterior Lighting( Retrofit) Window Film Direct Install (Electrically Heated Water) Refrigeration E-Star Kitchen Appliances HVAC Controls Wastewater Treatment Upgrades (kWh type) VFDs (kWh)	HVAC approach (Replace On Burnout)

The compressed time frame in which Cadmus was required to conduct its analysis of 2011, resulted in EAI not receiving the evaluated energy savings results until a matter of days before the filing. Accordingly, EAI was unable to consider the cost/benefit results in assessing this program's change prior to the Annual Report filing. EAI will continue to evaluate the need for changes to this program to achieve Commission savings targets in a cost effective manner, and that more changes may be forthcoming.

EAI will work with IC to continue to develop a formal trade ally network and tracking system as recommended in Cadmus Process Evaluation. Full cost of such tracking system is not known at this time.

EAI will supports Cadmus Impact recommendations to update savings calculator models to most current TRM and agree that a new process should be created to adjust reported savings when TRM modifications are made in the future.

### **3.5 Commercial and Industrial Custom Program**

#### **Program Description:**

In 2011 this program was called the Large C&I Solutions Quick Start Program. It was an energy efficiency program designed to provide assistance and financial incentives to C&I customers for the installation of energy efficiency projects that reduce peak demand loads in their facilities. The program encouraged and enabled large commercial customers to make the most efficient use of energy by upgrading energy consuming equipment and improving energy management practices. The program provided non-cash incentives, such as walk through energy audits, support in completing project documentation and applications, assistance in identifying and completing qualifying energy efficiency projects. After upgrades were completed and verified, the program provided cash incentives for projects that reduce peak demand loads.

The Large C&I Solutions Program was originally designed to assist customers in achieving their energy efficiency goals via program assistance and incentives. The projects submitted under the Solutions program could be single measure projects through a trade ally, or they could be comprehensive projects including multiple complex measures requiring M&V. The program provided technical assistance, managed program incentive funds, verified that the savings claimed through the program were accurate and appropriate, and utilized appropriate M&V methods to prove savings (where necessary).

The Large C& I Custom Program replaces the Large C&I Solutions Program in 2012. This program is designed to offer incentives for complex custom measures for which a simplified savings methodology does not exist. The Custom Program also provides incentives for deemed measures as a part of larger "custom" projects and will provide tiered incentives for comprehensive projects that include multiple energy measures.

The contracting process had minimal impact on the 2011 results. The nature of commercial and industrial projects is they require more time from beginning and completion and the 2011 results were primarily driven by Quick Start Program results.

#### **Program Highlights:**

- The program interacted with 103 potential participants at some level beyond marketing outreach.
- Of these potential participants 21 completed projects and received incentives from the program.

- The program paid incentives on three large projects (over one million kWh). These may have potential to develop into comprehensive projects under the new program design.
- The high contact rate (103 potential participants) allowed the program to achieve 199% of its annual goal.
- The program spent 71% of the original plan.

**Schedule 3.5.1  
Number of Retrofit, as Opposed to Replace-on-Burnout Projects**

	Lighting	HVAC	Motors	VFD	Chillers
Retrofit	19	4	1		1
ROB	-	-	-	-	-
New Const.	-	1	-	-	1

**Program Budget, Savings & Participants:**

Table 3.5 is the program budget, annual evaluated energy savings and number of participants from workbook tab C4 as required by the AEEP-PAR.

**Table 3.5  
Commercial and Industrial Custom Program Budget, Energy Savings & Participants**

C&I Custom Solutions											
<b>2009</b>			Plan Savings		Evaluated Savings		% of Plan		2009		
Annual	Actual	% of	Demand*	Energy*	Demand*	Energy*	Demand*	Energy*	Number of Participants		% of
RBudget	Expenses	Budget	kW	kWh	kW	kWh	kW	kWh	Plan	Actual	Plan
\$985,000	\$744,294	76%	4,166	6,709,000	3,944	24,001,000	95%	358%	110	129	117%
<b>2010</b>			Plan Savings		Evaluated Savings		% of Plan		2010		
Annual	Actual	% of	Demand*	Energy*	Demand*	Energy*	Demand*	Energy*	Number of Participants		% of
RBudget	Expenses	Budget	kW	kWh	kW	kWh	kW	kWh	Plan	Actual	Plan
\$1,306,009	\$990,605	76%	5,000	8,052,000	3,101	15,433,679	62%	192%	110	83	75%
<b>2011</b>			Plan Savings		Evaluated Savings		% of Plan		2011		
Annual	Actual	% of	Demand*	Energy*	Demand*	Energy*	Demand*	Energy*	Number of Participants		% of
RBudget	Expenses	Budget	kW	kWh	kW	kWh	kW	kWh	Plan	Actual	Plan
\$2,001,082	\$1,427,566	71%	900	5,176,000	2,348	10,275,701	261%	199%	66	21	32%
<b>3 Year Program Average</b>			Plan Savings		Evaluated Savings		% of Plan		2009 - 2011		
Annual	Actual	% of	Demand*	Energy*	Demand*	Energy*	Demand*	Energy*	Number of Participants		% of
RBudget	Expenses	Budget	kW	kWh	kW	kWh	kW	kWh	Plan	Actual	Plan
\$1,430,697	\$1,054,155	74%	3,355	6,645,667	3,131	16,570,127	93%	249%	95	78	81%

\*Net Annual Savings



### **Program Events & Training:**

In 2011, the Large C&I Program held 16 technical trainings. In these trainings contractors and participants were instructed on program participation requirements, procedures and best practices. See more training details in the Annual Workbook Report.

### **Program Savings:**

The 2011 annual energy savings goal for the Large C&I Program was 5,176,000 kWh. The program achieved evaluated annual savings of 10,275,701 kWh.

The 2011 demand savings goal for the Large C&I Program was 900 kW. The program achieved an evaluated annual demand savings of 2,348 kW.

### **Program Challenges & Opportunities:**

The 2011 program was operated under the Quick-Start model capturing savings based on demand reduction. The Custom Program approved in 2011 will enhance the customer incentives and encourage additional complex projects that require more M&V. The economic climate and the incentive levels in the 2011 program have presented challenges, which are illustrated by the low success rate in the program (19% of potential participants received incentives). Many C&I customers wanted faster payback or had funding procurement issues which were difficult to offset or assist with the 2011 incentive levels.

The Commission's SD Option will also present new challenges for this program future success. In 2011 12% of the C&I energy base was eliminated from the EAI programs due to SD certification. The SD Option may also complicate the market message for C&I customers. EAI will need to promote the C&I programs, but must also make the customers aware of the SD Option and the limitations of the SD Option if a customer desires to participate in the EAI Programs.

### **Program Planned or Proposed Changes to Program & Budget:**

The C&I Custom Program will provide more robust incentives and will be based on energy savings. The enhanced incentives will assist in reducing the payback of eligible measures and will increase participation driven by the desire for short payback projects. The change to energy savings will increase the number of eligible

measures within the program and will assist in driving more comprehensive projects.

In the C&I Custom Program year new incentive levels and a tiered incentive structure will be implemented to encourage more multi-measure projects. The program is aiming at increasing the occurrence of comprehensive projects, and in doing so will increase customer savings.

In addition, the program will provide co-funding for technical studies to evaluate the feasibility of various measures within customer facilities.

**Schedule 3.5.2  
Energy Efficiency Measures Changes**

Existing Measure	Added to 2012 Program	Removed from 2012 Program
Lighting (Retrofit) HVAC (Retrofit) New Construction Chillers Any eligible measure with kW reduction (M&V)	All new prescriptive measures added if tiered  HVAC controls  VFDs (kWh)	Non-Combined Deemed Measures  New Construction  HVAC approach (ROB)

EAI will work with Cadmus and IC to research effective outreach channels and will support the recommendation of continued development of formal relationships with program partners and trade allies. Cost of research is not known at this time.

EAI will supports Cadmus Impact recommendations to update savings calculator models to most current TRM and agree that a new process should be created to adjust reported savings when TRM modifications are made in the future.

The measures available in this program are limited only by the cost effectiveness of the measure’s application.

**3.6 Commercial and Industrial Prescriptive Program**

**Program Description:**

The predecessor to the 2012 C&I Prescriptive Program was the Large C&I Standard Offer Program (“SOP”). The Large C&I SOP Quick Start Program was an energy efficiency program designed to provide financial incentives to large C&I customers for the installation of a wide range of energy efficiency measures that reduced peak demand loads in their facilities. After upgrades were completed and verified, the

program provided cash incentives given program requirement were met.

The SOP Program was originally designed to be an owner-driven program, providing incentives to customers who had the technical knowledge or professional services to implement energy efficiency projects. The projects submitted under the SOP program could be single measure projects through a trade ally, or they could be comprehensive projects utilizing multiple complex measures where the customer was executing an approved M&V strategy. The program managed program incentive funds, verified that the savings claimed through the program were accurate and appropriate, and verified appropriate M&V methods were implemented to verify savings (where necessary). The program provided minimal technical assistance in identifying savings measures or in preparing calculations. The review of project status and savings was performed at multiple submission points throughout the process, which allowed for updates to savings calculations and program review of ongoing progress.

The C&I Prescriptive Program will replace the SOP Program in the 2012 program year. This program is designed to offer incentives for deemed measures for which a simplified savings methodology exists or can be created. More complex projects requiring M&V whether driven by the customer or program staff, will now be addressed under the Custom Program. The project submittal process has also been simplified to remove some burden of project documentation from the customer.

The contracting process had minimal impact on the 2011 results. The nature of C&I projects is they require more time from beginning and completion and the 2011 results were primarily driven by SOP results.

**Program Highlights:**

- The program interacted with 21 potential participants.
- Of these potential participants 13 completed projects and received incentives from the program.
- The program spent 53% of the original plan.

### Schedule 3.6.1 Retrofit, as Opposed to Replace-on-Burnout Projects

	Lighting	HVAC	VFD	Compressed Air
Retrofit	25	1	1	1
ROB	-	-	-	-
New Const.	-	-	-	-

#### Program Budget, Savings & Participants:

Table 3.6 presents the program budget, annual energy savings, and number of participants from workbook tab C4 as required by the AEEP-PAR.

**Table 3.6  
Commercial & Industrial Prescriptive Solutions Program Budget,  
Energy Savings & Participants**

C&I Prescriptive											
<b>2009</b>			Plan Savings		Evaluated Savings		% of Plan		2009		
Annual	Actual	% of	Demand*	Energy*	Demand*	Energy*	Demand*	Energy*	Number of Participants		% of
RBudget	Expenses	Budget	kW	kWh	kW	kWh	kW	kWh	Plan	Actual	Plan
\$1,058,000	\$684,270	65%	3,622	4,075,000	2,616	12,597,000	72%	309%	60	33	55%
<b>2010</b>			Plan Savings		Evaluated Savings		% of Plan		2010		
Annual	Actual	% of	Demand*	Energy*	Demand*	Energy*	Demand*	Energy*	Number of Participants		% of
RBudget	Expenses	Budget	kW	kWh	kW	kWh	kW	kWh	Plan	Actual	Plan
\$1,013,218	\$564,859	56%	3,140	3,544,000	1,256	7,440,298	40%	210%	60	30	50%
<b>2011</b>			Plan Savings		Evaluated Savings		% of Plan		2011		
Annual	Actual	% of	Demand*	Energy*	Demand*	Energy*	Demand*	Energy*	Number of Participants		% of
RBudget	Expenses	Budget	kW	kWh	kW	kWh	kW	kWh	Plan	Actual	Plan
\$1,410,957	\$749,314	53%	2,000	8,400,000	900	6,634,605	45%	79%	114	13	11%
<b>3 Year Program Average</b>			Plan Savings		Evaluated Savings		% of Plan		2009 - 2011		
Annual	Actual	% of	Demand*	Energy*	Demand*	Energy*	Demand*	Energy*	Number of Participants		% of
RBudget	Expenses	Budget	kW	kWh	kW	kWh	kW	kWh	Plan	Actual	Plan
\$1,160,725	\$666,148	57%	2,921	5,339,667	1,591	8,890,634	54%	167%	78	25	32%

\*Net Annual Savings

#### Program Events & Training:

In 2011, the Large C&I SOP held 16 technical trainings. In these trainings contractors and participants were instructed on program participation requirements, procedures and best practices. See more training details in the Annual Workbook Report.

### **Program Savings:**

The 2011 annual energy savings goal for the C&I SOP was 8,400,000 kWh. The program achieved 6,634,605 evaluated kWh in annual energy savings.

The 2011 demand savings goal for the C&I SOP was 2,000 kW. The program achieved an evaluated annual demand savings of 900 kW.

### **Program Challenges & Opportunities:**

The 2011 program was operated under the Quick-Start model incentivizing customers savings based on demand reduction. This excluded some applicable measures including lighting controls.

The Large C&I SOP Program under the Quick-Start model provides minimal technical assistance and relies upon a certain level of customer knowledge regarding appropriate energy savings measures and technologies, which is often unavailable in this market. This included the need for customers to complete multiple applications to program staff for review. This level of documentation often caused frustration or confusion for participants.

### **Program Planned or Proposed Changes to Program & Budget:**

The C&I Prescriptive Program in 2012 will provide more robust incentives and will be based on energy savings. The enhanced incentives will assist in reducing the payback of eligible measures and will increase participation driven by the desire for short payback projects. The change to energy savings will increase the number of eligible measures within the program.

In 2012 the program intends to standardize measure savings using a deemed savings approach. This will allow the program to recruit more trade allies that can market the program across the territory and assist customers in installing energy efficient projects.

The program will offer more technical assistance in identifying and developing projects which will assist participants and trade allies in completing projects within the program. This will also assist in overcoming the barrier of documentation for submitting projects to the program.

### Schedule 3.6.2 Energy Efficiency Measures Changes

Existing Measure	Added to 2012 Program	Removed from 2012 Program
Lighting (Retrofit) HVAC (Retrofit) Chillers Any eligible measure with kW reduction (M&V)	Interior Lighting (Controls) Exterior Lighting( Retrofit) Direct Install (Electrically Heated Water) Refrigeration E-Star Kitchen Appliances	M&V measures HVAC approach (ROB)

EAI will support the process recommendation of Cadmus to continue the development of formal relationships with program partners and trade allies within the existing program budgets.

EAI will work collaboratively with the PWC to update the TRM as recommended with Cadmus' impact evaluation.

## 3.7 Residential Lighting and Appliances Program

### Program Description:

The CFL Quick-Start Program was limited in nature, with the intention of gaining market knowledge and preparing to potentially provide future programs to additional customers. As a result, the programs were limited in scope, funds available, and the number of customers who could participate. During the initial three-year period, EAI spent over \$21 million on EE CFL programs which saved 1,913,392 MWh of electricity.

For the first half of 2011 this program utilized the above design. In June 2011, the APSC approved EAI's Three-Year Energy Efficiency Plan for the 2011-2013 program years, an expansion of EAI's EE programs. The Residential Lighting and Appliances ("Lighting and Appliances") Program is an energy efficiency program designed to educate and influence EAI residential customers to purchase and use ENERGY STAR®-qualified lighting and appliances and energy-conserving Advanced Power Strips in their homes. While good faith work for program planning was in process prior to contract completion between EAI and Implementing Contractor, the extended contracting process was detrimental to achieving the savings targets planned for this program in 2011.

Working with participating manufacturers and retailers, the program provides all EAI residential customers' instant savings on qualified products at the point of sale and mail-in rebate opportunities for Energy Star® qualified refrigerators that are purchased to replace old, inefficient refrigerators. It also educates consumers about the benefits and advantages of Energy Star® CFLs over incandescent light bulbs, and motivates retailers and manufacturers to promote energy saving and cost saving benefits of CFLs. It likewise educates consumers about the benefits and advantages of Energy Star® Room Air Conditioners, Refrigerators, and Advanced Power Strips over traditional appliances.

### **Program Highlights:**

- The program successfully expanded the participating retailer network details listed below in the Program Challenges & Opportunities section.
- The program successfully expanded the quantity of manufacturers that participated in the program as listed in the Program Challenges & Opportunities section.
- In fall 2011, the markdown program was active in 76 individual retail locations.
- The program expanded the measures in 2011 to include CF fixtures.
- The program spent 34% of the original plan. This was due to both the extended contracting process described earlier and enhance cost terms from Implementing Contractor.

### **Program Budget, Savings & Participants:**

Table 3.7 is the program budget, annual energy savings and number of participants from workbook tab C4 as required by the AEEP-PAR.

**Table 3.7**  
**Residential Lighting and Appliances Program Budget, Energy Savings & Participants**

Lighting & Appliances											
<b>2009</b>			Plan Savings		Evaluated Savings		% of Plan		2009		
Annual	Actual	% of	Demand*	Energy*	Demand*	Energy*	Demand*	Energy*	Number of Participants		% of
RBudget	Expenses	Budget	kW	kWh	kW	kWh	kW	kWh	Plan	Actual	Plan
\$401,000	\$395,065	99%	550	5,199,000	495	2,944,000	90%	57%	32,000	32,869	103%
<b>2010</b>			Plan Savings		Evaluated Savings		% of Plan		2010		
Annual	Actual	% of	Demand*	Energy*	Demand*	Energy*	Demand*	Energy*	Number of Participants		% of
RBudget	Expenses	Budget	kW	kWh	kW	kWh	kW	kWh	Plan	Actual	Plan
\$355,647	\$209,508	59%	550	5,199,000	340	3,121,934	62%	60%	32,000	18,522	58%
<b>2011</b>			Plan Savings		Evaluated Savings		% of Plan		2011		
Annual	Actual	% of	Demand*	Energy*	Demand*	Energy*	Demand*	Energy*	Number of Participants		% of
RBudget	Expenses	Budget	kW	kWh	kW	kWh	kW	kWh	Plan	Actual	Plan
\$3,084,722	\$1,058,032	34%	2,700	21,010,000	1,361	12,142,849	50%	58%	646,984	693,255	107%
<b>3 Year Program Average</b>			Plan Savings		Evaluated Savings		% of Plan		2009 - 2011		
Annual	Actual	% of	Demand*	Energy*	Demand*	Energy*	Demand*	Energy*	Number of Participants		% of
RBudget	Expenses	Budget	kW	kWh	kW	kWh	kW	kWh	Plan	Actual	Plan
\$1,280,456	\$554,202	43%	1,267	10,469,333	732	6,069,594	58%	58%	236,995	248,215	105%

\*Net Annual Savings

### Program Events & Training:

The Lighting and Appliances Program had 79 participants in training sessions to explain program participation and processes, and to ensure a seamless implementation throughout the year. See more training details in the Annual Workbook Report.

### Program Savings:

The Lighting Program annual energy savings goal for 2011 was 21,010,000 kWh. The program achieved an evaluated annual savings of 12,142,849 kWh.

The Lighting Program annual demand reduction goal for 2011 was 2,700 kW. The program had 1,361 evaluated kW in annual savings.

### Program Challenges & Opportunities:

The Lighting and Appliances program, previously known as the CFL Program, has been historically implemented as a coupon program for CFL spiral multi-packs. This simplified program was the appropriate model to introduce to the Arkansas territory, but it limited technology and retailer participation options.

After successfully implementing the coupon model, the CFL Program moved to a comprehensive design during fall 2011. Now implemented



as an in-store markdown and called the Residential Lighting and Appliance Program, the new model greatly expands the manufacturer and retailer participation options. In Fall 2011, four manufacturers (GE, TCP, Philips, and Feit Electric) and five retailers, four of which had not previously participated, were engaged to participate in the Fall launch, and one additional manufacturer (Sylvania) and five additional retailers were engaged to participate in Spring 2012, only three of which had previously participated in the coupon program. Retailers who participated in the program in Fall 2011 include: Lowe's, Wal-Mart, Big Lots, Sam's Club, and Home Depot. Retailers engaged in 2011 to participate in 2012 include: Family Dollar, Dollar General, Kroger, Ace Hardware, and True Value Hardware. Once all retailers are participating in 2012, there will be a total of 10 retailers participating across 268 individual locations, based on recruiting efforts conducted in Fall 2011.

The program had limited time to launch and achieve savings for the 2011 program year.

Low paid, limited energy-efficiency knowledge, and high turn-over rates of retail employees prove challenging in motivating retail staff to promote measures to customers.

Varying reporting formats of various retail stores made invoicing process time consuming.

Standard changes as a result of the Federal Energy Independence and Security Act will reduce the savings related to CFL measures and will result in program needing to find new cost effective energy efficiency measures for program's sustainability.

**Program Planned or Proposed Changes to Program & Budget:**

EAI will explore methods with IC to streamline the reporting where possible, enhance the program manual and incorporate database recommendations within existing program budgets.

**Schedule 3.7**  
**Energy Efficiency Measures Changes**

Existing Measure	Added to 2012 Program	Removed from 2012 Program
CFL Spiral	CFL Specialty CFL Fixtures 2012 Refrigerators 2012 Room A/Cs 2012 Advanced Power Strips	N/A

**3.8 Agricultural Irrigation Load Control Program Description:**

EAI's Agricultural Irrigation Load Control Program ("AIRC") is designed in accordance with the conservation and energy efficiency benefits and objectives set forth in the C&EE Rules. The program year 2011 is the second year of the three-year AIRC Program Plan originally approved by the Commission's Order No. 6 in Docket 08-072-TF issued March 10, 2010. On June 30, 2011 the Commission issued Order 39 in Docket 07-85-TF extending the AIRC Program approval through 2013 and closing Docket No. 08-072-TF thereby transferring the Program into the purview of Docket No. 07-085-TF as part of EAI's EE Plan and EE portfolio of programs.

The AIRC Program provides incentives in the form of billing credits for eligible customers in return for allowing EAI to interrupt their irrigation pump loads up to three hours during peak times of the day for the summer months of June, July, and August. The AIRC Program also has the ability to provide real-time notifications of the program interruptions to the participants. In future program years, participants will have the option to register online as well as be able to remotely control the pumps on and off through the internet.

The 2011 AIRC Program goal was to recruit 600 new accounts, with approximately 24 MW of new contracted load, and 12 MW of new interruptible load. These 2011 goals would allow EAI to reach the two-year cumulative goals of 1,100 participating accounts with 44 MW of contracted load and 22 MW of interruptible load during EAI coincident peak. In 2011 the AIRC Program drew the interest of 639 new accounts with 401 new accounts ultimately being contracted by 86 customers bringing the cumulative participant count to 928. These new accounts provided a total contracted load of 26.7 MW. Out of the 928 participants, a maximum of 617 accounts were scheduled for

interruptions with a maximum actual metered interrupted load of 9.47 MW on EAI's second highest peak usage day. This compares with 6.4 MW of actual interrupted load in the 2010 program year.

In previous reporting, EAI has informed the Commission that the Company would need at least six months to recruit, purchase, install, and test equipment before the season started. In the 2011 program year, EAI's service territory experienced major spring flooding and numerous spring storms including tornados. Both of these natural disasters impacted the installation schedules. Primarily, potential irrigation pumps were either not scheduled to run due to the floods or were made inaccessible due to the floods or storms. This resulted in a shorter implementation schedule, which caused delays in equipment installations continuing through the latter portion of the summer peak season. Additionally equipment and software improvements made as a result of equipment operational experience from the previous program years caused a number of meter locations to be retrofit with modified interruption and metering equipment. EAI has included these equipment modifications into the manufacturer's design specifications for future program years.

The AILC Program is executed by EAI through a combination of in-house management and third party vendors. EAI owns and maintains the equipment, markets the program and provides overall administration services for the program. Third party vendors are used to supply the meters and control equipment, communications equipment, cellular service, equipment installation and for the creation of required software components. EAI pays incentives to the participants in the form of billing credits during the program year. The billing credits are calculated at \$4.16 per kW up to a maximum of 30% of the monthly electric bill.

#### **Program Highlights:**

- In program year 2011 EAI had a chance to interrupt close to 11.7 MW of load on 2011's peak day. Due to a configuration flaw in software controls, the entire curtailment schedule on August 3, 2011 was canceled and interrupted. The failure centered on an attempt to curtail an invalid meter serial number via the meter web services interface. Contradicting databases from the installer and manufacturer caused EAI's control software to falsely indicate the meter was installed at a participating well. The software's inability to resolve the contradiction led to a failure of the entire day's curtailment schedule. Since the event, new process steps have been created to verify the validity of all meter numbers in advance of the meter's scheduled curtailment. These new process steps will mitigate a repeat occurrence of this incident.

- Under normal circumstances EAI estimates it would require six months to recruit, purchase, install, and test equipment before the season starts. In program year 2011, EAI experienced a delayed, hurried, and incomplete installation season. The AILC Program's installation season was delayed due to hardware availability and weather. Equipment and software improvements made as a result of equipment operational experience from the previous program years caused a number of meter locations to be retrofit with modified interruption and metering equipment. EAI has included these equipment modifications into the manufacturer's design specifications for future program years. Approximately 25% of the 2011 meters had to be returned to the manufacturer for re-configuration of embedded firmware. These meters were subsequently re-issued later in the year. In addition to the installations delayed due to unavailable meters, EAI's service territory experienced a major spring flood and numerous spring storms including tornados. Both of these natural disasters further impacted the installation schedules. Installation crews were diverted to restore service and repair electrical infrastructure throughout the damaged service territories. Moreover, potential irrigation pumps were either not scheduled to run due to the floods or were made inaccessible due to the floods or storms. This resulted in a shorter implementation schedule which caused delays in equipment installations continuing through the latter portion of the summer peak season.
- In program year 2011, software enhancements and web portals were developed in addition to hardware and network changes to manage the AILC Program. A series of functional and performance enhancements were developed for the internal web portal. Performance enhancements increased the speed, command response, and overall optimization. Functional enhancements included the redesign of the curtailment display to show, real time load, participating meters, avoided load, disconnected/reconnected meters and disconnect/reconnect exceptions. In addition, the functionality to add, edit, and delete a scheduled load interruption was also provided for specific end users. Further enhancements to the internal web portal included a page which allows the ability to search for a participating meter by specific attributes such as an address, customer, location or meter information as well as participation status.
- A customer self-service portal is being developed to allow EAI customers to enable their AILC account online. Customers will have the ability to request enrollment in the AILC Program, opt out of the AILC program, remotely turn on and off their wells, and change their notification method (email or text).

- A number of meter installation process improvements were identified and introduced for the 2011 season. The automation of field work and the completion process was developed in EAI's proprietary customer service software systems. When a customer is enrolled in the program, an automated work order is created to change the existing meter to an AMI meter. Once the work is completed in the field, the customer's account is automatically updated with the billing credit. Additionally 20 integrated mobile handheld devices were configured for the year's project to assist in the installation process. The devices were enhanced to upload/download work orders, receive the closest geographical work orders per handheld, GPS capability with driving directions to the wells, camera function with document imaging, bar code scan for inventory purposes, and test the remote disconnect/reconnect of the meter. Other items were also added such as a link to the web portal for the EAI call center users to easily identify AILC participants when responding to a trouble/outage ticket and improvements to the reporting tool to increase usability.

**Program Budget, Savings & Participants:**

**Table 3.9  
AILC Program Budget, Energy Savings & Participants**

Agricultural Irrigation Load Control											
<b>2009</b>			Plan Savings		Evaluated Savings		% of Plan		2009		
Annual	Actual	% of	Demand*	Energy*	Demand*	Energy*	Demand*	Energy*	Number of Participants		% of
RBudget	Expenses	Budget	kW	kWh	kW	kWh	kW	kWh	Plan	Actual	Plan
\$174,000	\$219,368	126%	1,000	0	777	0	78%	-	100	44	44%
<b>2010</b>			Plan Savings		Evaluated Savings		% of Plan		2010		
Annual	Actual	% of	Demand*	Energy*	Demand*	Energy*	Demand*	Energy*	Number of Participants		% of
RBudget	Expenses	Budget	kW	kWh	kW	kWh	kW	kWh	Plan	Actual	Plan
\$3,714,811	\$3,431,488	92%	10,000	0	6,400	0	64%	-	500	441	88%
<b>2011</b>			Plan Savings		Evaluated Savings		% of Plan		2011		
Annual	Actual	% of	Demand*	Energy*	Demand*	Energy*	Demand*	Energy*	Number of Participants		% of
RBudget	Expenses	Budget	kW	kWh	kW	kWh	kW	kWh	Plan	Actual	Plan
\$5,263,492	\$4,686,563	89%	19,100	n/a	9,472	n/a	50%	-	1,100	928	84%
<b>3 Year Program Average</b>			Plan Savings		Evaluated Savings		% of Plan		2009 - 2011		
Annual	Actual	% of	Demand*	Energy*	Demand*	Energy*	Demand*	Energy*	Number of Participants		% of
RBudget	Expenses	Budget	kW	kWh	kW	kWh	kW	kWh	Plan	Actual	Plan
\$3,050,768	\$2,779,140	91%	10,033	0	5,550	0	55%	-	567	471	83%

\*Net Annual Savings

### **Program Events & Training:**

Training for the AILC Program involved a compressed but substantial level of internal training for installation, operations and maintenance as follows:

- June 1, 2011 30 Installation crewmembers received 8 hours of classroom installation training from meter manufacturer.
- June 2, 2011 30 Installation crewmembers received a 4 hour classroom instruction course on the new handheld installation devices.
- June 2, 2011 30 Installation crewmembers received a 4 hour classroom training course on load control device repair and replacement conducted by EAI operations,

### **Program Savings:**

As a load control program only, there were no deemed savings used with this program. A maximum of 617 accounts were scheduled for interruptions with a maximum actual metered interrupted load of 9.47 MW on EAI's second highest peak usage day. This compares with 6.4 MW of actual interrupted load in the 2010 program year. All results are based upon the analysis of actual 15 minute interval data from each account with equipment installed to interrupt the loads.

### **Program Challenges & Opportunities:**

The 2011 experience helped EAI understand the need for more robust management systems for recruiting, customer services, and operation monitoring, including outage response. The challenges included material, operational and staffing issues as follows:

- Goal Achievement: The program met only 50% of its demand reduction goals. To increase demand savings and meet increasing participation goals, EAI will need to market the program more aggressively.
- Customer Impact: Interrupting wells every day during the curtailment season rather than limiting interruptions to days when forecasted peak is high, could negatively impact customer satisfaction with the program.
- Customer Impact: Between the 2010 and 2011 program years, EAI changed the customer contracting process. As stipulated by the Irrigation Load Control Tariff, the original program design called for customers to sign and return a contract. However, after encountering difficulties in obtaining signed contracts from

customers, EAI worked with the APSC to update language in the AILC Tariff, changing the contracting process.

- Equipment Issues: Meter Number Validation – In 2011 after a failed curtailment event on August 3, 2011, the Elster Project Manager suggested the creation of a “dummy” read schedule late evening to identify any meters on a Web Services request that is not valid within the supporting software in advance of the next day’s curtailment event. In addition a process was created to ensure that duplicate serial numbers are not generated by meter vendors.
- Equipment Issues: Malfunctions – In 2011 EAI’s IT contractor, SAIC, worked to identify why some the 2010 meters that were running long on the schedule. Additionally Elster and EAI identified the number of 12S meters that couldn’t be installed because of AP Title (software communication issues) meters and returned the 12S meters to manufacture that could not be installed due to software constraints.
- Equipment Issues: Last Gasp - The electrical power configuration at some well locations have the pumps main disconnect switch above the metering equipment. While this is allowable by equipment design standards, it gives the customer the ability to inadvertently or intentionally disconnect the metering and load control devices. As a result the meter will run on emergency backup power until the power source is completely exhausted. Elster, SAIC and EAI have modified future meters to communicate a last gasp message when and if the meter has been disconnected. In addition these recommended meter enhancements can detect if the meter disconnect/reconnect event was successful.
- Equipment Issues: Breaker tripping - Resolved for the 2011 season and purchased additional breakers by increasing the allowable amperage.

#### **Program Outlook for Continuation, Expansion, Reduction or Termination:**

EAI plans to implement this AILC Program in 2012 at the budget level of \$5,505,987. Future changes may be considered once installation of 2012 meters and all existing stock is accomplished.

#### **Planned or Proposed Changes to Program & Budget:**

Taking into account 2011 and previous program experiences the AILC Program plans to modify several processes for the 2012 and future program years as follows:

- Implement a more aggressive material procurement schedule. There is no budgetary impact for this change.
- Complete a customer portal which will enable participants to remotely disconnect or connect an enrolled well (Only available when well is not engaged in a curtailment event). The budget dollars for this implementation are already included and approved in reported budget.
- As currently implemented, the program administrator calls events on each non-holiday weekday during the summer. This practice makes it difficult to establish a valid baseline during event hours, and thus to evaluate the program savings. EAI's EM&V contractor recommends EAI reserve some days for non-events, and call events on a smaller number of days or call events daily, but disconnect the loads of only some participants. In addition to facilitating evaluation of the program, calling events on a smaller number of days may increase program participant satisfaction and retention, and ease the process of customer recruitment. No budgetary impact is expected from this action.

### **3.9 Energy Efficiency Arkansas (“EEA”)**

#### **Program Description:**

The EEA Program is intended to deliver cost-effective, relevant, consistent, and fuel neutral information and training that causes people to consume less energy through energy efficiency and conservation measures. By leveraging the knowledge, experience, and skills of the Arkansas Energy Office and the combined resources of the undersigned utilities, the EEA Program will be able to deliver that information and training in the most cost-effective manner as required for statewide energy efficiency.

#### **Program Highlights:**

See the EEA report as filed by the Arkansas Energy Office on April 1, 2011 in Docket No. 07-083-TF.

#### **Program Budget, Savings & Participants:**

#### **Table 3.10 Energy Efficiency Arkansas Program Budget, Energy Savings & Participants**

See the EEA report as filed by the Arkansas Energy Office in April 2012 in Docket No. 07-083-TF.



**Program Events & Training:**

See the EEA report as filed by the Arkansas Energy Office in April 2012 in Docket No. 07-083-TF.

**Program Savings:**

See the EEA report as filed by the Arkansas Energy Office in April 2012 in Docket No. 07-083-TF.

**Program Challenges & Opportunities:**

See the EEA report as filed by the Arkansas Energy Office in April 2012 in Docket No. 07-083-TF.

**Program Outlook for Continuation, Expansion, Reduction or Termination:**

See the EEA report as filed by the Arkansas Energy Office in April 2012 in Docket No. 07-083-TF.

**Planned or Proposed Changes to Program & Budget:**

See the EEA report as filed by the Arkansas Energy Office on April 2012 in Docket No. 07-083-TF.

### **3.10 Arkansas Weatherization Program**

#### **Program Description:**

The Arkansas Weatherization Program (“AWP”) is a joint statewide program that leverages the low income community action agencies as program implementers and administrators to provide weatherization and energy efficiency improvements to severely inefficient homes throughout the state of Arkansas.

#### **Program Highlights:**

See the AWP report as filed by the Arkansas Community Action Agency Association on April 1, 2011 in Docket No. 07-079-TF.

#### **Program Budget, Savings & Participants:**

##### **Table 3.10 Arkansas Weatherization Program Budget, Energy Savings & Participants**

See the AWP report as filed by the Arkansas Community Action Agency Association on April 2, 2012 in Docket No. 07-079-TF.

#### **Program Events & Training:**

See the AWP report as filed by the Arkansas Community Action Agency Association on April 2, 2012 in Docket No. 07-079-TF.

#### **Program Savings:**

See the AWP report as filed by the Arkansas Community Action Agency Association on April 2, 2012 in Docket No. 07-079-TF.

#### **Program Challenges & Opportunities:**

See the AWP report as filed by the Arkansas Community Action Agency Association on April 2, 2012 in Docket No. 07-079-TF.

#### **Program Outlook for Continuation, Expansion, Reduction or Termination:**

See the AWP report as filed by the Arkansas Community Action Agency Association on April 2, 2012 in Docket No. 07-079-TF.

#### **Planned or Proposed Changes to Program & Budget:**

See the AWP report as filed by the Arkansas Community Action Agency Association on April 2, 2012 in Docket No. 07-079-TF.

### **3.11 Energy Star New Homes**

#### **Program Description:**

The Energy Star New Homes Program is designed increase the supply of qualified home builders that are motivated to design, build, and independently verify energy efficient homes in Arkansas. The program accomplishes this task by providing incentives to local builders that they can then pass on to customers in the form of rebates on their new home purchase. A further purpose of this program is to help establish and create a market in Arkansas for Energy Star New Homes Program that will facilitate obtaining the Energy Star rating. This will be accomplished by encouraging more home raters to enter the marketplace alongside builders that are more willing to build these types of homes as well as generating consumer awareness of energy, cost, and comfort improvements associated with energy efficient homes.

#### **Program Highlights:**

The Energy Star New Homes program was filed with and approved by the APSC in 2011.

#### **Program Budget, Savings, and Participants**

In Table 3.12 are the Energy Star New Homes Program budget, savings, and participants as required by AEEP-PAR.

**Table 3.12  
Energy Star New Homes**

Energy Star New Homes										
<b>2009</b>			Plan Savings		Evaluated Savings		% of Plan		2009	
Annual	Actual	% of	Demand*	Energy*	Demand*	Energy*	Demand*	Energy*	Number of Participants	% of
RBudget	Expenses	Budget	kW	kWh	kW	kWh	kW	kWh	Plan	Actual
\$0	\$0	-	0	0	0	0	-	-	0	0
<b>2010</b>			Plan Savings		Evaluated Savings		% of Plan		2010	
Annual	Actual	% of	Demand*	Energy*	Demand*	Energy*	Demand*	Energy*	Number of Participants	% of
RBudget	Expenses	Budget	kW	kWh	kW	kWh	kW	kWh	Plan	Actual
\$0	\$0	-	0	0	0	0	-	-	0	0
<b>2011</b>			Plan Savings		Evaluated Savings		% of Plan		2011	
Annual	Actual	% of	Demand*	Energy*	Demand*	Energy*	Demand*	Energy*	Number of Participants	% of
RBudget	Expenses	Budget	kW	kWh	kW	kWh	kW	kWh	Plan	Actual
\$90,000	\$60,988	68%	n/a	n/a	n/a	n/a	-	-	n/a	n/a
<b>3 Year Program Average</b>			Plan Savings		Evaluated Savings		% of Plan		2009 - 2011	
Annual	Actual	% of	Demand*	Energy*	Demand*	Energy*	Demand*	Energy*	Number of Participants	% of
RBudget	Expenses	Budget	kW	kWh	kW	kWh	kW	kWh	Plan	Actual
\$30,000	\$20,329	68%	0	0	0	0	-	-	0	0

\*Net Annual Savings

### Program Events & Training:

The Energy Star New Homes Program will launch in 2012 and, as a result, did not conduct any events or training in 2011.

EAI and ICF initiated the final program design planning in late 2011 with face to face and teleconference meetings

### Program Savings:

The Energy Star New Homes Program will launch in 2012 and, as a result, did not produce any savings in 2011.

### Program Challenges & Opportunities:

The amount of the upfront cost to build an Energy Star new home as compared to a standard home might seem steep to a homeowner.

Currently, there are less than five HERS Raters in the state of Arkansas. In order for a home to qualify for the rating it needs to be evaluated by a HERS Rater. As such, there is room for growth in this area which is one aim of the program.

The residential homebuilding sector was hit particularly hard by the economic downturn. Homebuilders are cautious of building homes that are expensive and might not be well received by the market.

Only 146 Energy Star New Homes were built between 2006 and 2010. The goal of this program is to increase that number to over 700 by the end of 2013.

**Program Outlook for Continuation, Expansion, Reduction, or Termination:**

EAI plans to implement this program in 2012 at the budget level of \$453,000.00. Future changes may be considered once market experience and independent EM&V is accomplished.

**Program Planned or Proposed Changes to Program & Budget:**

EAI's contracting process as described in the Executive Summary for this new program will result in a calendar year 2012 launch. EAI will use \$453,000.00 in 2012 to implement this program.

Two types of incentives are available:

- Tier 1: \$600 for each qualifying home, based on ENERGY STAR® Version 2.5 guidelines
- Tier 2: \$1,000 for each ENERGY STAR® qualified home, based on ENERGY STAR Version 3 guidelines

### **3.13 Energy Solutions for Multifamily**

**Program Description:**

The Multifamily Program is designed to benefit the owners and residents of Multi-family dwellings in EAI's service territory as it pertains to energy efficiency. The program provides direct-install measures such as CFL bulbs, low-flow shower aerators, and water heater pipe wrap to target multifamily dwellings. These direct-install measures will be provided at no cost to either the complex owners or the tenants. Furthermore, the program seeks to lower the educational barrier as it pertains to EE by educating tenants and owners about the benefits of having energy saving measures installed on their property.

**Program Highlights:**

The Multifamily Program was filed and approved by the APSC in 2011.

**Program Budget, Savings, and Participants:**

In Table 3.13 are the Multifamily program budget, savings, and participants as required by AEEP-PAR

**Table 3.13  
Energy Solutions Multi-Family**

Energy Solutions Multi-Family										
<b>2009</b>			Plan Savings		Evaluated Savings		% of Plan		2009	
Annual	Actual	% of	Demand*	Energy*	Demand*	Energy*	Demand*	Energy*	Number of Participants	% of
RBudget	Expenses	Budget	kW	kWh	kW	kWh	kW	kWh	Plan	Actual
\$0	\$0	-	0	0	0	0	-	-	0	0
<b>2010</b>			Plan Savings		Evaluated Savings		% of Plan		2010	
Annual	Actual	% of	Demand*	Energy*	Demand*	Energy*	Demand*	Energy*	Number of Participants	% of
RBudget	Expenses	Budget	kW	kWh	kW	kWh	kW	kWh	Plan	Actual
\$0	\$0	-	0	0	0	0	-	-	0	0
<b>2011</b>			Plan Savings		Evaluated Savings		% of Plan		2011	
Annual	Actual	% of	Demand*	Energy*	Demand*	Energy*	Demand*	Energy*	Number of Participants	% of
RBudget	Expenses	Budget	kW	kWh	kW	kWh	kW	kWh	Plan	Actual
\$209,505	\$22,097	11%	100	273,000	n/a	n/a	-	-	245	n/a
<b>3 Year Program Average</b>			Plan Savings		Evaluated Savings		% of Plan		2009 - 2011	
Annual	Actual	% of	Demand*	Energy*	Demand*	Energy*	Demand*	Energy*	Number of Participants	% of
RBudget	Expenses	Budget	kW	kWh	kW	kWh	kW	kWh	Plan	Actual
\$69,835	\$7,366	11%	33	91,000	0	0	0%	0%	82	0

\*Net Annual Savings

### Program Events & Training:

The Multifamily Program will launch in 2012 and, as a result, did not conduct any events or training in 2011.

EAI and ICF initiated the final program design planning in late 2011 with face to face and teleconference meetings

### Program Savings:

The Multifamily Program will launch in 2012 and, as a result, did produce any savings in 2011

### Program Challenges & Opportunities:

The “free” nature of the direct install measures will allow for better market penetration and availability to residents and owners alike. EAI can leverage these experiences to sell and cross promote other programs within the EAI EE portfolio.

**Program Outlook for Continuation, Expansion, Reduction, or Termination:**

EAI plans to implement this program in 2012 at the budget level of \$290,000.00. Future changes may be considered once market experience and independent EM&V is accomplished.

**Program Planned or Proposed Changes to Program & Budget:**

EAI's contract process as described in the Executive Summary will result in launching this program in calendar year 2012. EAI will use \$290,000.00 in 2012 to implement this program.

The measures available for direct installation in properties with eligible rate codes are as

follows:

- Energy Star CFLs (13W, 20W, & 23W) in fixtures and lamps that replace incandescent lamps in areas controlled by customers with eligible rate codes, e.g. local balcony sconces. (limited to ten CFLs per tenant space under direct-install program)
- Pipe wrap when water heater is powered by electricity.
- 1.5 GPM Showerheads and Aerators only when existing fixtures have flow rates of 2.0 GPM or higher and supplies with an electric water heater.

**3.14 Energy Solutions for Manufactured (Mobile) Homes Program**

**Program Description:**

The Manufactured Homes Program is designed to benefit the owners and residents of Manufactured homes and parks in EAI's service territory as it pertains to EE. The program provides direct-install measures such as CFL bulbs, low flow shower aerators, and water heater pipe wrap to target manufactured homes. These direct install measures will be provided at no cost to either the park owners or its residents. Furthermore, this program seeks to lower the EE educational barrier by educating tenants and owners about the benefits of installing energy saving measures on their property.

**Program Highlights:**

The Manufactured Homes Program was filed and approved by the APSC in 2011.

**Program Budget, Savings, and Participants:**

In Table 3.14 are the Manufactured Homes Program budget, savings, and participants as required by AEEP-PAR

**Table 3.14  
Energy Solutions for Manufactured (Mobile) Homes**

Energy Solutions for Manufactured (Mobile) Homes										
<b>2009</b>			Plan Savings		Evaluated Savings		% of Plan		2009	
Annual	Actual	% of	Demand*	Energy*	Demand*	Energy*	Demand*	Energy*	Number of Participants	% of
RBudget	Expenses	Budget	kW	kWh	kW	kWh	kW	kWh	Plan	Actual
\$0	\$0	-	0	0	0	0	-	-	0	0
<b>2010</b>			Plan Savings		Evaluated Savings		% of Plan		2010	
Annual	Actual	% of	Demand*	Energy*	Demand*	Energy*	Demand*	Energy*	Number of Participants	% of
RBudget	Expenses	Budget	kW	kWh	kW	kWh	kW	kWh	Plan	Actual
\$0	\$0	-	0	0	0	0	-	-	0	0
<b>2011</b>			Plan Savings		Evaluated Savings		% of Plan		2011	
Annual	Actual	% of	Demand*	Energy*	Demand*	Energy*	Demand*	Energy*	Number of Participants	% of
RBudget	Expenses	Budget	kW	kWh	kW	kWh	kW	kWh	Plan	Actual
\$289,508	\$100,644	35%	200	214,000	n/a	n/a	-	-	606	n/a
<b>3 Year Program Average</b>			Plan Savings		Evaluated Savings		% of Plan		2009 - 2011	
Annual	Actual	% of	Demand*	Energy*	Demand*	Energy*	Demand*	Energy*	Number of Participants	% of
RBudget	Expenses	Budget	kW	kWh	kW	kWh	kW	kWh	Plan	Actual
\$96,503	\$33,548	35%	67	71,333	0	0	0%	0%	202	0

\*Net Annual Savings

**Program Events & Training:**

The Manufactured Homes Program will launch in 2012 and as a result did not conduct and events or training in 2011.

EAI and ICF initiated the final program design planning in late 2011 with face to face and teleconference meetings

**Program Savings:**

The Manufactured Homes program will launch in 2012 and, as a result, did not produce any savings in 2011.

**Program Challenges & Opportunities:**

Thirteen percent of EAI's housing stock in Arkansas is comprised of manufactured homes. This volume of manufactured homes represents twice the national average. Therefore, there is a considerable market in Arkansas for this program.



The free nature of the direct install measures will allow for better market penetration and availability to residents and owners alike. EAI can leverage the experience to sell and cross promote other programs within the EAI EE portfolio.

**Program Outlook for Continuation, Expansion, Reduction, or Termination:**

EAI plans to implement this program in 2012 at the budget level of \$587,000. Future changes may be considered once market experience and independent EM&V is accomplished.

**Program Planned or Proposed Changes to Program & Budget:**

EAI's contract process as described in the Executive Summary will result in launching this program in calendar year 2012. EAI will use \$587,000 in 2012 to implement this program.

The measures available for direct installation in properties with eligible rate codes are as follows:

- Energy Star CFLs (13W, 20W, & 23W) in fixtures and lamps that replace incandescent lamps in areas controlled by customers with eligible rate codes, e.g. local balcony sconces. (limited to 10 CFLs per tenant space under DI program)
- Pipe wrap when water heater is powered by electricity.
- 1.5 GPM Showerheads and Aerators only when existing fixtures have flow rates of 2.0 GPM or higher.

### **3.15 Residential Benchmarking Pilot**

**Program Description:**

The Residential Direct Load Control Pilot Program is designed to influence a customer's energy usage through societal pressures. Once a customer is enrolled, this will be accomplished by way of a web based portal that the customer can log in to and view their energy usage over the past year. The program will then provide a list of measures the user can implement in order to curtail their energy costs. The end user's behavior will be encouraged both through peer pressure and a rewards system that will provide the customer with points that can then be redeemed with select local or national merchants.

**Program Highlights:**

The Residential Benchmarking Pilot program was filed and approved by the APSC in 2011.

**Program Budget, Savings, and Participants:**

In table 3.15 are the Residential Benchmarking Pilot program budget, savings, and participants as required by AEEP-PAR.

**Table 3.15  
Residential Benchmarking Pilot**

Residential Benchmarking Pilot										
<b>2009</b>			Plan Savings		Evaluated Savings		% of Plan		2009	
Annual	Actual	% of	Demand*	Energy*	Demand*	Energy*	Demand*	Energy*	Number of Participants	% of
RBudget	Expenses	Budget	kW	kWh	kW	kWh	kW	kWh	Plan	Actual
\$0	\$0	-	0	0	0	0	-	-	0	0
<b>2010</b>			Plan Savings		Evaluated Savings		% of Plan		2010	
Annual	Actual	% of	Demand*	Energy*	Demand*	Energy*	Demand*	Energy*	Number of Participants	% of
RBudget	Expenses	Budget	kW	kWh	kW	kWh	kW	kWh	Plan	Actual
\$0	\$0	-	0	0	0	0	-	-	0	0
<b>2011</b>			Plan Savings		Evaluated Savings		% of Plan		2011	
Annual	Actual	% of	Demand*	Energy*	Demand*	Energy*	Demand*	Energy*	Number of Participants	% of
RBudget	Expenses	Budget	kW	kWh	kW	kWh	kW	kWh	Plan	Actual
\$996,000	\$96,087	10%	4,300	12,656,000	n/a	n/a	-	-	50,000	n/a
<b>3 Year Program Average</b>			Plan Savings		Evaluated Savings		% of Plan		2009 - 2011	
Annual	Actual	% of	Demand*	Energy*	Demand*	Energy*	Demand*	Energy*	Number of Participants	% of
RBudget	Expenses	Budget	kW	kWh	kW	kWh	kW	kWh	Plan	Actual
\$332,000	\$32,029	10%	1,433	4,218,667	0	0	0%	0%	16,667	0

\*Net Annual Savings

**Program Events & Training:**

The Residential Benchmarking Pilot Program will launch in 2012 and, as a result, did not conduct any events or training in 2011.

EAI and ICF initiated the final program design planning in late 2011 with face to face and teleconference meetings

**Program Savings:**

The Residential Benchmarking Pilot Program will launch in 2012 and, as a result, did not produce any savings in 2011.

### **Program Challenges & Opportunities:**

The Residential Benchmarking Program is an innovative program that will reach out to customers on a personal level. This type of communication and marketing can provide excellent exposure for EAI's EE programs.

The web portal portion of this program will provide an opportunity for EAI to sell and cross promote not only its own EE programs, but also those programs of other utilities in the APSC jurisdiction. For example, the web portal can provide links to the CenterPoint Energy site if a user wishes to buy a gas water heater.

### **Program Outlook for Continuation, Expansion, Reduction, or Termination:**

EAI plans to implement this program in 2012 at the budget level of \$1,217,000. Future changes may be considered once market experience and independent EM&V is accomplished.

### **Program Planned or Proposed Changes to Program & Budget:**

EAI's contract process as described in the Executive Summary will result in launching this program in calendar year 2012. EAI will use \$1,217,000.00 in 2012 to implement this program.

The measures included in this new program are:

- Points are awarded each month based on energy savings for the past billing cycle. Savings are determined by comparing the current billing cycle to the same cycle one year ago. For each 2 kWh saved, participants earn 1 point: the more energy saved, the more points are earned. Points can be redeemed for special offers at national, local and online retailers. The complete list of rewards is available via the website. Participants receive 100 points upon sign-up. Additional promotional bonus points are occasionally awarded.
- Points are easily redeemable from the website. Once a participant selects to redeem points for an offer, instructions are given on how to redeem the points. For local retailers, a coupon will be mailed to the participant within two business days. The coupon is redeemable at the retailer for the specified offer.

### 3.16 Residential Direct Load Control

#### Program Description:

The Residential Direct Load Control Program is designed to save energy by allowing EAI to cycle off a customer's air conditioning unit during peak use times. This is accomplished by way of a turnkey program wherein a contractor attaches a radio to the condenser. The customer will then be issued an incentive based on how long they allow their unit to be cycled off during these peak times.

#### Program Highlights:

The Residential Benchmarking Pilot Program was filed and approved by the APSC in 2011.

#### Program Budget, Savings, and Participants:

In Table 3.16 are the Residential Benchmarking Pilot Program budget, savings, and participants as required by AEEP-PAR

**Table 3.16  
Residential Direct Load Control**

Residential Direct Load Control										
<b>2009</b>			Plan Savings		Evaluated Savings		% of Plan		2009	
Annual	Actual	% of	Demand*	Energy*	Demand*	Energy*	Demand*	Energy*	Number of Participants	% of
RBudget	Expenses	Budget	kW	kWh	kW	kWh	kW	kWh	Plan	Actual
\$0	\$0	-	0	0	0	0	-	-	0	0
<b>2010</b>			Plan Savings		Evaluated Savings		% of Plan		2010	
Annual	Actual	% of	Demand*	Energy*	Demand*	Energy*	Demand*	Energy*	Number of Participants	% of
RBudget	Expenses	Budget	kW	kWh	kW	kWh	kW	kWh	Plan	Actual
\$0	\$0	-	0	0	0	0	-	-	0	0
<b>2011</b>			Plan Savings		Evaluated Savings		% of Plan		2011	
Annual	Actual	% of	Demand*	Energy*	Demand*	Energy*	Demand*	Energy*	Number of Participants	% of
RBudget	Expenses	Budget	kW	kWh	kW	kWh	kW	kWh	Plan	Actual
\$517,588	\$9,899	2%	3,100	n/a	n/a	n/a	-	-	3,001	n/a
<b>3 Year Program Average</b>			Plan Savings		Evaluated Savings		% of Plan		2009 - 2011	
Annual	Actual	% of	Demand*	Energy*	Demand*	Energy*	Demand*	Energy*	Number of Participants	% of
RBudget	Expenses	Budget	kW	kWh	kW	kWh	kW	kWh	Plan	Actual
\$172,529	\$3,300	2%	1,033	0	0	0	0%	-	1,000	0

\*Net Annual Savings

#### Program Events & Training:

The Residential Benchmarking Pilot Program will launch in 2012 and, as a result, did not conduct any events or training in 2011.

**Program Savings:**

The Residential Benchmarking Pilot Program will launch in 2012 and, as a result, did not conduct any events or training in 2011.

**Program Challenges & Opportunities:**

The Residential Direct Load Control Program will allow EAI to better manage peak load events.

**Program Outlook for Continuation, Expansion, Reduction, or Termination:**

EAI plans to implement this program in 2012 at the budget level of \$2,455,000. Future changes may be considered once market experience and independent EM&V is accomplished.

**Program Planned or Proposed Changes to Program & Budget:**

EAI's contract process as described in the Executive Summary will result in launching this program in calendar year 2012. EAI will use \$2,455,000 in 2012 to implement this program.

The measures included in this new program are:

### **3.17 Agricultural Energy Solutions**

**Program Description:**

The Agricultural Energy Solutions Program is designed to reduce energy usage among the farmers in EAI's service territory through a mixture of farm audits, custom and prescriptive incentives, and educating agricultural suppliers. The program will accomplish these goals by lowering the barriers within this sector, such as the lack of easy access to qualified vendors and installers as well as the lack of information and awareness of energy and non-energy benefits.

**Program Highlights:**

The Agricultural Energy Solutions Program was filed and approved by the APSC in 2011.

**Program Budget, Savings, and Participants:**

In Table 3.17 are the Agricultural Energy Solutions program budget, savings, and participants as required by AEEP-PAR

**Table 3.17  
Agricultural Energy Solutions**

Agricultural Energy Solutions										
<b>2009</b>			Plan Savings		Evaluated Savings		% of Plan		2009	
Annual	Actual	% of	Demand*	Energy*	Demand*	Energy*	Demand*	Energy*	Number of Participants	% of
RBudget	Expenses	Budget	kW	kWh	kW	kWh	kW	kWh	Plan	Actual
\$0	\$0	-	0	0	0	0	-	-	0	0
<b>2010</b>			Plan Savings		Evaluated Savings		% of Plan		2010	
Annual	Actual	% of	Demand*	Energy*	Demand*	Energy*	Demand*	Energy*	Number of Participants	% of
RBudget	Expenses	Budget	kW	kWh	kW	kWh	kW	kWh	Plan	Actual
\$0	\$0	-	0	0	0	0	-	-	0	0
<b>2011</b>			Plan Savings		Evaluated Savings		% of Plan		2011	
Annual	Actual	% of	Demand*	Energy*	Demand*	Energy*	Demand*	Energy*	Number of Participants	% of
RBudget	Expenses	Budget	kW	kWh	kW	kWh	kW	kWh	Plan	Actual
\$147,188	\$47,476	32%	100	326,000	n/a	n/a	-	-	38	n/a
<b>3 Year Program Average</b>			Plan Savings		Evaluated Savings		% of Plan		2009 - 2011	
Annual	Actual	% of	Demand*	Energy*	Demand*	Energy*	Demand*	Energy*	Number of Participants	% of
RBudget	Expenses	Budget	kW	kWh	kW	kWh	kW	kWh	Plan	Actual
\$49,063	\$15,825	32%	33	108,667	0	0	0%	0%	13	0

\*Net Annual Savings

**Program Events & Training:**

The Agricultural Energy Solutions Program will launch in 2012 and, as a result, did not conduct and events or training in 2011.

EAI and ICF initiated the final program design planning in late 2011 with face to face and teleconference meetings

**Program Savings:**

The Agricultural Energy Solutions Program will launch in 2012 and, as a result, did not produce any savings in 2011.

**Program Challenges & Opportunities:**

The agriculture sector contributes 12% to Arkansas' GDP, which is twice the national average.

**Program Outlook for Continuation, Expansion, Reduction, or Termination:**

EAI plans to implement this program in 2012 at the budget level of \$337,000. Future changes may be considered once market experience and independent EM&V is accomplished.

**Program Planned or Proposed Changes to Program & Budget:**

EAI's contract process as described in the Executive Summary will result in launching this program in calendar year 2012. EAI will use \$337,000.00 in 2012 to implement this program.

Typical measures include, but are not limited to:

- Low-energy livestock waterers
- Exhaust fans
- Circulation fans
- High volume low speed fans
- Milk pre-cooler
- Variable speed controllers for vacuum pumps
- Scroll compressor replacements
- Variable frequency drives

## 4.0 Benefit Cost Results

The underlying methodologies followed in the economic evaluation are described in two standard sources: the State of California's publication, California Standard Practice Manual: Economic Analysis of Demand-Side Programs and Projects,<sup>5</sup> and the National Action Plan for Energy Efficiency ("NAPEE") publication, Understanding Cost-Effectiveness of Energy Efficiency Programs: Best Practices, Technical Methods, and Emerging Issues for Policy-Makers.<sup>6</sup> The economic evaluation was conducted for each proposed program with energy savings and/or peak demand savings counting towards EAI's energy efficiency goal. In addition to program-level analyses, the economic evaluation was conducted for the sum of EAI's program offering, referred to as the total portfolio.

In general, the economic evaluation compares the cost to implement energy efficiency and demand response programs to the benefit of avoided costs for EAI's generation, transmission, and distribution functions. The avoided energy cost is a long term forecast of power prices developed by System Planning and Operations ("SPO")<sup>7</sup> for the Entergy market area. Previous economic evaluations used one weighted-average power price for each year of the analysis. This year, annual power prices are represented by nine time differentiated values to better reflect the price of electricity during different times of year and different hours of the day. The avoided capacity cost is the construction cost of a new combustion turbine ("CT") increased to reflect additional capacity savings from line loss and reserve margin reductions. The reserve margin assumption decreases in 2014 to reflect EAI's planned move to the Midwest Independent System Operator ("MISO") market area.

For each proposed energy efficiency program and for EAI's total portfolio of proposed programs, the cost-effectiveness results for each test, expressed as the ratio of benefits-to-costs, the net benefit expressed in dollar value as the net present value of the benefits less the net present value of the costs, and the levelized cost expressed as \$/kWh, are presented in the below table.

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<sup>5</sup> The California Standard Practice Manual: Economic Analysis of Demand-Side Programs and Projects, October 2001, can be found at [www.cpuc.ca.gov/PUC/energy/Energy+Efficiency/EM+and+V](http://www.cpuc.ca.gov/PUC/energy/Energy+Efficiency/EM+and+V).

<sup>6</sup> The NAPEE guide, Understanding Cost-Effectiveness of Energy Efficiency Programs: Best Practices, Technical Methods, and Emerging Issues for Policy Makers, November 2008, can be found at <http://www.epa.gov/cleanenergy/documents/suca/cost-effectiveness.pdf>.

<sup>7</sup> SPO provides various technical and administrative services to the Entergy Operating Companies, including procuring fuel and purchased power for the Entergy Operating Companies and operating and dispatching the generation resources of the Operating Companies.



**Table 4.2  
Benefit Cost Test Table**

Cost-Effectiveness Test	2011 Program Year						
	Annual Energy Savings			Lifetime Energy Savings	Total Resource Cost (TRC)		TRC Levelized Cost
	Net	Gross	Effective		MWh	Net Benefits (\$000's)	
Program	kWh	kWh	Net-To-Gross Ratio (NTGR)	\$ / kWh			
Lighting & Appliances	12,142,849		0.63	60,714	196	1.07	0.05
Arkansas Weatherization Program	1,991,412		1.00	27,947	882	2.54	0.04
Energy Efficiency Arkansas	0		0.00	0	-282	0.00	0.00
Home Energy Solutions	6,685,137		0.80	132,541	5,456	2.09	0.07
Energy Solutions Multi-Family	0		0.80	0	-20	0.00	0.00
Energy Solutions for Manufactured (Mobile) H	0		0.80	0	-93	0.00	0.00
Energy Star New Homes	0		0.80	0	-57	0.00	0.00
Efficient Cooling Solutions	1,400,520		0.80	7,003	-126	0.88	0.18
Residential Benchmarking Pilot	0		0.80	0	-89	0.00	0.00
Residential Direct Load Control	0		0.80	0	-9	0.00	0.00
C&I Prescriptive	6,634,605		0.80	74,676	1,101	1.51	0.03
C&I Custom Solutions	10,275,701		0.80	115,916	1,361	1.26	0.06
Small Business	1,259,460		0.80	14,498	-273	0.77	0.02
City Smart	1,568,473		0.80	15,069	-1,039	0.48	0.18
Agricultural Energy Solutions	0		0.80	0	-44	0.00	0.00
Agricultural Irrigation Load Control	0		0.80	0	4,284	2.46	0.00
Demand Response	0		0.00	0	0	0.00	0.00
Program 18	0		0.00	0	0	0.00	0.00
Program 19	0		0.00	0	0	0.00	0.00
Program 20	0		0.00	0	0	0.00	0.00
<b>EE Portfolio Total</b>	<b>41,958,157</b>			<b>448,364</b>	<b>9,908</b>	<b>1.40</b>	<b>0.0655</b>

Cost-Effectiveness Test	2011 Program Year							
	Participant Cost Test (PCT)		Ratepayer Impact Measure (RIM)		Program Administrator Cost (PAC)		Other Test (Specify)	
	Net Benefits (\$000's)	Ratio	Net Benefits (\$000's)	Ratio	Net Benefits (\$000's)	Ratio	Net Benefits (\$000's)	Ratio
Program								
Lighting & Appliances	5,569	3.70	-98	0.97	1,963	3.00		
Arkansas Weatherization Program	1,394	-	197	1.16	882	2.54		
Energy Efficiency Arkansas	0	N/A	-282	-	-282	-		
Home Energy Solutions	7,453	2.85	4,781	1.84	8,349	4.93		
Energy Solutions Multi-Family	0	-	-20	-	-20	-		
Energy Solutions for Manufactured (Mobile) H	0	-	-93	-	-93	-		
Energy Star New Homes	0.00	-	-57.00	-	-57.00	-		
Efficient Cooling Solutions	582.20	2.19	-234.62	0.80	27.69	1.03		
Residential Benchmarking Pilot	0.00	-	-89.00	-	-89.00	-		
Residential Direct Load Control	0.00	-	-9.00	-	-9.00	-		
C&I Prescriptive	2415.00	2.44	248.00	1.08	2,570.00	4.70		
C&I Custom Solutions	2265.00	1.53	3,724.00	2.32	5,227.00	4.95		
Small Business	259.00	1.29	210.00	1.30	525.00	2.32		
City Smart	-569.00	0.68	104.00	1.12	656.00	3.16		
Agricultural Energy Solutions	0.00	-	-44.00	-	-44.00	-		
Agricultural Irrigation Load Control	101.00	-	83.00	1.01	4,184.00	2.38		
Demand Response	0.00	-	0.00	-	0.00	-		
Program 18								
Program 19								
Program 20								
<b>EE Portfolio Total</b>	<b>16,252</b>	<b>2.09</b>	<b>11,069</b>	<b>1.47</b>	<b>22,337</b>	<b>2.80</b>		

## 5.0 Supplemental Requirement

Table 5.1 is a description of the various training provided for contractors and trade allies in 2010. It also provides information of administration staff training in 2010.

### 5.1 Training:

**Table 5.1  
External Training (contractors, trade allies, consumer groups, etc)**

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	January 6, 2011	RES Orientation	New Contractor Training	Rison	Entergy Arkansas, Incorporated	1	1.5	1.5	N	NA
2	January 12, 2011	CST Classroom	Combustion Safety Testing Class	Little Rock	Entergy Arkansas, Incorporated	3	3	9	N	NA
2	January 12, 2011	CST Classroom	Combustion Safety Testing Class	Little Rock	Entergy Arkansas, Incorporated	2	3	6	N	NA
3	January 14, 2011	RES Orientation	New Contractor Training	Little Rock	Entergy Arkansas, Incorporated	1	1.5	1.5	N	NA
4	January 18, 2011	Sales and Marketing	Home Performance Sales and Marketing	Mountain Home	Entergy Arkansas, Incorporated	1	1	1	N	NA
4	January 18, 2011	Sales and Marketing	Home Performance Sales and Marketing	Mountain Home	Entergy Arkansas, Incorporated	2	4	8	N	NA
4	January 18, 2011	Sales and Marketing	Home Performance Sales and Marketing	Mountain Home	Entergy Arkansas, Incorporated	1	1	1	N	NA
5	January 19, 2011	Sales and Marketing	Home Performance Sales and Marketing	Little Rock	Entergy Arkansas, Incorporated	1	4	4	N	NA
5	January 19, 2011	Sales and Marketing	Home Performance Sales and Marketing	Little Rock	Entergy Arkansas, Incorporated	4	4	16	N	NA
5	January 19, 2011	Sales and Marketing	Home Performance Sales and Marketing	Little Rock	Entergy Arkansas, Incorporated	1	4	4	N	NA
5	January 19, 2011	Sales and Marketing	Home Performance Sales and Marketing	Little Rock	Entergy Arkansas, Incorporated	1	4	4	N	NA
5	January 19, 2011	Sales and Marketing	Home Performance Sales and Marketing	Little Rock	Entergy Arkansas, Incorporated	2	4	8	N	NA
5	January 19, 2011	Sales and Marketing	Home Performance Sales and Marketing	Little Rock	Entergy Arkansas, Incorporated	1	4	4	N	NA
5	January 19, 2011	Sales and Marketing	Home Performance Sales and Marketing	Little Rock	Entergy Arkansas, Incorporated	2	4	8	N	NA
5	January 19, 2011	Sales and Marketing	Home Performance Sales and Marketing	Little Rock	Entergy Arkansas, Incorporated	1	4	4	N	NA
5	January 19, 2011	Sales and Marketing	Home Performance Sales and Marketing	Little Rock	Entergy Arkansas, Incorporated	1	4	4	N	NA
5	January 20, 2011	Sales and Marketing	Home Performance Sales and Marketing	Hot Springs	Entergy Arkansas, Incorporated	2	4	8	N	NA
6	January 20, 2011	Sales and Marketing	Home Performance Sales and Marketing	Hot Springs	Entergy Arkansas, Incorporated	1	4	4	N	NA
7	January 21, 2011	Public Event	Public presentation	Hot Springs	Entergy Arkansas, Incorporated	37	1.25	46.25	N	NA
8	February 1, 2011	Public Event	Public presentation	Little Rock	Entergy Arkansas, Incorporated	15	1	15	N	NA
9	February 7, 2011	RES Orientation	Insulation Program training	Little Rock	Entergy Arkansas, Incorporated	1	1	1	N	NA
10	February 21, 2011	RES Orientation	New Contractor Training	Conway	Entergy Arkansas, Incorporated	1	1.75	1.75	N	NA
11	February 15, 2011	Testing Fundamentals	Blower door/Duct blaster/Programs/Marketing	Mountain Home	Entergy Arkansas, Incorporated	4	7	28	N	NA
12	February 16, 2011	Testing Fundamentals	Blower door/Duct blaster/Programs/CST	Mountain Home	Entergy Arkansas, Incorporated	4	6	24	N	NA
13	February 22, 2011	Testing Fundamentals	Blower door/Duct blaster/Programs/CST	Little Rock	Entergy Arkansas, Incorporated	1	4	4	N	NA
14	February 24, 2011	CST Classroom	Combustion Safety Testing Class	Little Rock	Entergy Arkansas, Incorporated	2	2.5	5	N	NA
15	March 9, 2011	RES Orientation	New Contractor Training	Little Rock	Entergy Arkansas, Incorporated	1	2	2	N	NA
16	March 9, 2011	Testing Fundamentals	Blower door/Duct blaster/Programs/CST	Little Rock	Entergy Arkansas, Incorporated	2	7	14	N	NA
17	March 10, 2011	Public Event	Public presentation	Little Rock	Entergy Arkansas, Incorporated	1	0	0	N	NA
18	March 15, 2011	RES Orientation	New Contractor Training	N Little Rock	Entergy Arkansas, Incorporated	1	1.75	1.75	N	NA
19	March 15, 2011	Testing Fundamentals	Blower door/Duct blaster/Programs/CST	Pine Bluff	Entergy Arkansas, Incorporated	3	6.5	19.5	N	NA
20	March 17, 2011	RES Orientation	New Contractor Training	Little Rock	Entergy Arkansas, Incorporated	1	1.5	1.5	N	NA
21	March 17, 2011	Testing Fundamentals	Blower door/Duct blaster	Dumas	Entergy Arkansas, Incorporated	2	4.5	9	N	NA
22	March 22, 2011	Public Event	Public presentation	Little Rock	Entergy Arkansas, Incorporated	12	1	12	N	NA
23	March 28, 2011	Program Email	Program email: RESNET/BPI training opportunity	email	Entergy Arkansas, Incorporated	38	0	0	N	NA
24	March 29, 2011	Testing Fundamentals	Blower door/Duct blaster/Air sealing	Little Rock	Entergy Arkansas, Incorporated	3	3	9	N	NA
25	April 12, 2011	Program Email	Program update: Flue Dams, e-mail	email	Entergy Arkansas, Incorporated	29	0	0	N	NA
26	April 14, 2011	Program Email	Webinar Notice, web	email	Entergy Arkansas, Incorporated	N/A	0	0	N	NA
27	April 26, 2011	Activity: Ride-a-Long	Contractor ride-a-long, Reeves Insulation	various-mobile	Entergy Arkansas, Incorporated	1	2	2	N	NA
28	April 26, 2011	Activity: Ride-a-Long	Contractor ride-a-long, Hanis Insulation	various-mobile	Entergy Arkansas, Incorporated	2	2	4	N	NA
29	April 27, 2011	Activity: Ride-a-Long	Contractor ride-a-long, Custom Insulation	various-mobile	Entergy Arkansas, Incorporated	1	1	1	N	NA
30	April 27, 2011	Activity: Ride-a-Long	Contractor ride-a-long, Razorback	various-mobile	Entergy Arkansas, Incorporated	2	2.5	5	N	NA
31	May 10, 2011	Program Email	Webinar Notice, web	email	Entergy Arkansas, Incorporated	N/A	0	0	N	NA
32	May 4, 2011	Sales and Marketing	Sales and Marketing	Little Rock	Entergy Arkansas, Incorporated	2	2.5	5	N	NA
33	May 5, 2011	Sales and Marketing	Sales & Marketing	Hot Springs	Entergy Arkansas, Incorporated	4	3.25	13	N	NA
34	May 6, 2011	Sales and Marketing	Sales & Marketing	Batesville	Entergy Arkansas, Incorporated	2	3	6	N	NA
35	May 18, 2011	Testing Fundamentals	Program Training-Insulation	Hot Springs	Entergy Arkansas, Incorporated	3	2	6	N	NA
36	June 8, 2011	Testing Fundamentals	Blower door/Programs/Marketing	Lonoke	Entergy Arkansas, Incorporated	1	3	3	N	NA
37	July 5, 2011	Public Event	Check Presentation	Dumas	Entergy Arkansas, Incorporated	N/A	1.5	0	N	NA
38	July 18, 2011	HES updates	New programs discussion	Little Rock	Entergy Arkansas, Incorporated	1	1	1	N	NA

Table 5.1 Continued

39	July 20, 2011	HES Orientation	New Contractor Training	Dardanelle	Entergy Arkansas, Incorporated	1	1.5	1.5	N	NA
40	July 20, 2011	HES Orientation	CST Classroom	Dardanelle	Entergy Arkansas, Incorporated	1	2	2	N	NA
41	July 20, 2011	HES Orientation	New Contractor Training	Conway	Entergy Arkansas, Incorporated	1	1.5	1.5	N	NA
42	July 22, 2011	Testing Fundamentals	Blower door/Air Sealing	Little Rock	Entergy Arkansas, Incorporated	2	2	2	N	NA
43	August 8, 2011	Testing Fundamentals	Blower door/Air Sealing	Stuttgart	Entergy Arkansas, Incorporated	2	3	6	N	NA
44	October 5, 2011	HES Orientation	program updates and changes, sign agreement	Mn Home	Entergy Arkansas, Incorporated	2	4	8	N	NA
44	October 5, 2011	HES Orientation	program updates and changes, sign agreement	Mn Home	Entergy Arkansas, Incorporated	1	4	4	N	NA
44	October 5, 2011	HES Orientation	program updates and changes, sign agreement	Mn Home	Entergy Arkansas, Incorporated	1	4	4	N	NA
45	October 7, 2011	HES Orientation	program updates and changes, sign agreement	CR Office	Entergy Arkansas, Incorporated	3	4	12	N	NA
45	October 7, 2011	HES Orientation	program updates and changes, sign agreement	CR Office	Entergy Arkansas, Incorporated	2	4	8	N	NA
45	October 7, 2011	HES Orientation	program updates and changes, sign agreement	CR Office	Entergy Arkansas, Incorporated	1	0	0	N	NA
45	October 7, 2011	HES Orientation	program updates and changes, sign agreement	CR Office	Entergy Arkansas, Incorporated	1	4	4	N	NA
45	October 11, 2011	HES Orientation	program updates and changes, sign agreement	CR Office	Entergy Arkansas, Incorporated	2	4	8	N	NA
45	October 11, 2011	HES Orientation	program updates and changes, sign agreement	CR Office	Entergy Arkansas, Incorporated	1	4	4	N	NA
45	October 11, 2011	HES Orientation	program updates and changes, sign agreement	CR Office	Entergy Arkansas, Incorporated	1	4	4	N	NA
45	October 11, 2011	HES Orientation	program updates and changes, sign agreement	CR Office	Entergy Arkansas, Incorporated	2	4	8	N	NA
45	October 11, 2011	HES Orientation	program updates and changes, sign agreement	CR Office	Entergy Arkansas, Incorporated	1	4	0	N	NA
45	October 12, 2011	HES Orientation	program updates and changes, sign agreement	CR Office	Entergy Arkansas, Incorporated	2	4	8	N	NA
45	October 12, 2011	HES Orientation	program updates and changes, sign agreement	CR Office	Entergy Arkansas, Incorporated	2	4	8	N	NA
45	October 12, 2011	HES Orientation	program updates and changes, sign agreement	CR Office	Entergy Arkansas, Incorporated	2	4	8	N	NA
45	October 12, 2011	HES Orientation	program updates and changes, sign agreement	CR Office	Entergy Arkansas, Incorporated	1	4	4	N	NA
45	October 13, 2011	HES Orientation	program updates and changes, sign agreement	CR Office	Entergy Arkansas, Incorporated	1	4	4	N	NA
45	October 13, 2011	HES Orientation	program updates and changes, sign agreement	CR Office	Entergy Arkansas, Incorporated	1	4	4	N	NA
45	October 13, 2011	HES Orientation	program updates and changes, sign agreement	CR Office	Entergy Arkansas, Incorporated	2	4	8	N	NA
45	October 13, 2011	HES Orientation	program updates and changes, sign agreement	CR Office	Entergy Arkansas, Incorporated	1	4	4	N	NA
45	October 13, 2011	HES Orientation	program updates and changes, sign agreement	CR Office	Entergy Arkansas, Incorporated	1	4	4	N	NA
45	October 14, 2011	HES Orientation	program updates and changes, sign agreement	CR Office	Entergy Arkansas, Incorporated	4	4	16	N	NA
45	October 14, 2011	HES Orientation	program updates and changes, sign agreement	CR Office	Entergy Arkansas, Incorporated	2	4	8	N	NA
45	October 18, 2011	HES Orientation	program updates and changes, sign agreement	CR Office	Entergy Arkansas, Incorporated	3	4	12	N	NA
45	October 18, 2011	HES Orientation	program updates and changes, sign agreement	CR Office	Entergy Arkansas, Incorporated	1	4	4	N	NA
45	October 18, 2011	HES Orientation	program updates and changes, sign agreement	CR Office	Entergy Arkansas, Incorporated	2	4	8	N	NA
45	October 18, 2011	HES Orientation	program updates and changes, sign agreement	CR Office	Entergy Arkansas, Incorporated	3	4	12	N	NA
46	October 19, 2011	HES Orientation	program updates and changes, sign agreement	yrne, AR, Mohr off	Entergy Arkansas, Incorporated	2	4	8	N	NA
46	October 19, 2011	HES Orientation	program updates and changes, sign agreement	yrne, AR, Mohr off	Entergy Arkansas, Incorporated	4	4	16	N	NA
47	October 20, 2011	HES Orientation	program updates and changes, sign agreement	CR Office	Entergy Arkansas, Incorporated	1	4	4	N	NA
47	October 20, 2011	HES Orientation	program updates and changes, sign agreement	CR Office	Entergy Arkansas, Incorporated	1	4	4	N	NA
47	October 20, 2011	HES Orientation	program updates and changes, sign agreement	CR Office	Entergy Arkansas, Incorporated	1	4	4	N	NA
48	October 21, 2011	HES Orientation	program updates and changes, sign agreement	El Dorado, AR	Entergy Arkansas, Incorporated	1	4	4	N	NA
48	October 21, 2011	HES Orientation	program updates and changes, sign agreement	El Dorado, AR	Entergy Arkansas, Incorporated	1	4	4	N	NA
48	October 21, 2011	HES Orientation	program updates and changes, sign agreement	El Dorado, AR	Entergy Arkansas, Incorporated	3	4	12	N	NA
48	October 21, 2011	HES Orientation	program updates and changes, sign agreement	El Dorado, AR	Entergy Arkansas, Incorporated	3	4	12	N	NA
49	November 16, 2011	CST Field	Combustion Safety Field Training	Lonoke	Entergy Arkansas, Incorporated	1	4	4	N	NA
50	November 4, 2011	CST Classroom	Combustion Safety classroom	CR Office	Entergy Arkansas, Incorporated	2	4	8	N	NA
50	November 4, 2011	CST Classroom	Combustion Safety classroom	CR Office	Entergy Arkansas, Incorporated	1	4	4	N	NA
50	November 4, 2011	CST Classroom	Combustion Safety classroom	CR Office	Entergy Arkansas, Incorporated	1	4	4	N	NA
50	November 4, 2011	CST Classroom	Combustion Safety classroom	CR Office	Entergy Arkansas, Incorporated	1	4	4	N	NA
50	November 4, 2011	CST Classroom	Combustion Safety classroom	CR Office	Entergy Arkansas, Incorporated	2	4	8	N	NA
51	November 11, 2011	HES Orientation	program updates and changes, sign agreement	Pulaski Tech	Entergy Arkansas, Incorporated	3	4	12	N	NA
51	November 11, 2011	HES Orientation	program updates and changes, sign agreement	Pulaski Tech	Entergy Arkansas, Incorporated	1	4	4	N	NA
51	November 11, 2011	HES Orientation	program updates and changes, sign agreement	Pulaski Tech	Entergy Arkansas, Incorporated	3	4	12	N	NA
51	November 11, 2011	HES Orientation	program updates and changes, sign agreement	Pulaski Tech	Entergy Arkansas, Incorporated	1	4	4	N	NA
51	November 11, 2011	HES Orientation	program updates and changes, sign agreement	Pulaski Tech	Entergy Arkansas, Incorporated	1	4	4	N	NA
51	November 11, 2011	HES Orientation	program updates and changes, sign agreement	Pulaski Tech	Entergy Arkansas, Incorporated	1	4	4	N	NA
52	December 6, 2011	HES Orientation	program updates and changes, sign agreement	CR Office	Entergy Arkansas, Incorporated	2	4	8	N	NA
53	December 7, 2011	HES CST training	Blower door/Duct blaster/Programs/CST	McCoy	Entergy Arkansas, Incorporated	1	6.5	6.5	N	NA
54	December 14, 2011	CST Field Training	Combustion Safety Field Training	Mountain Home	Entergy Arkansas, Incorporated	2	7.5	15	N	NA
54	December 15, 2011	HES Orientation	Program updates and changes	Mountain Home	Entergy Arkansas, Incorporated	2	7	14	N	NA
55	January 31, 2011	CodSaver Orientation Class	2011 CodSaver Plan	own Mountain Hom	Entergy Arkansas, Incorporated	7		8	N	NA
56	February 22, 2011	CodSaver Orientation Class	Business Owner Meeting, Sales technique training?	onel Glenn Plaza Li	Entergy Arkansas, Incorporated	15	4 Hours	12	N	NA
57	February 23, 2011	CodSaver Orientation Class	Business Owner Meeting	onel Glenn Plaza Li	Entergy Arkansas, Incorporated	14	4 Hours	12	N	NA
58	March 7, 2011	CodSaver Orientation Class	In Lab Training	onel Glenn Plaza Li	Entergy Arkansas, Incorporated	15	8	24	N	NA
59	March 8, 2011	CodSaver Orientation Class	In Lab Training	onel Glenn Plaza Li	Entergy Arkansas, Incorporated	18	9	27	N	NA
60	March 9, 2011	CodSaver Orientation Class	In Lab Training	onel Glenn Plaza Li	Entergy Arkansas, Incorporated	19	9	27	N	NA
61	March 10, 2011	CodSaver Orientation Class	In Lab Training	onel Glenn Plaza Li	Entergy Arkansas, Incorporated	20	9	27	N	NA
62	April 12, 2011	CodSaver Orientation Class	In Lab Training	onel Glenn Plaza Li	Entergy Arkansas, Incorporated	18	10	10	N	NA
63	April 13, 2011	CodSaver Orientation Class	In Lab Training	onel Glenn Plaza Li	Entergy Arkansas, Incorporated	14	10	10	N	NA
64	May 9, 2011	CodSaver Orientation Class	College Training	AR College Hariso	Entergy Arkansas, Incorporated	18	9	27	N	NA
65	May 10, 2011	CodSaver Orientation Class	College Training	AR College Hariso	Entergy Arkansas, Incorporated	20	9	27	N	NA
66	May 19, 2011	CodSaver Orientation Class	College Training	ASU Searcy, AR	Entergy Arkansas, Incorporated	14	9	18	N	NA
67	May 20, 2011	CodSaver Customer Orientation	College Training	ASU Searcy, AR	Entergy Arkansas, Incorporated	20	8	16	N	NA
68	5/23-24/2011	CodSaver Customer Orientation	College Training	PCC Hot Springs, A	Entergy Arkansas, Incorporated	11	12	24	N	NA
69	6/1-2/2011	CodSaver Customer Orientation	College Training	UACOH Hope, AR	Entergy Arkansas, Incorporated	8	12	24	N	NA
70	July 12, 2011	CodSaver Customer Orientation	In Field	North Air Pine Bluff,	Entergy Arkansas, Incorporated	2	8	8	N	NA
71	July 14, 2011	CodSaver Customer Orientation	In Field Training Quality Technician	n Company, Mn. H	Entergy Arkansas, Incorporated	4	17	9	N	NA
72	July 15, 2011	CodSaver Customer Orientation	In Field Training Quality Technician	n Company, Mn. H	Entergy Arkansas, Incorporated	4	17	8	N	NA
73	July 20, 2011	CodSaver Customer Orientation	In Field	Camey, Dardanelle	Entergy Arkansas, Incorporated	1	6	6	N	NA
74	July 25, 2011	CodSaver Customer Orientation	In Field Training Quality Technician	Builders, Marked	Entergy Arkansas, Incorporated	2	9	9	N	NA
75	July 26, 2011	CodSaver Customer Orientation	In Field Training Quality Technician	Builders, Marked	Entergy Arkansas, Incorporated	2	9.5	9.5	N	NA
76	July 27, 2011	CodSaver Customer Orientation	In Field Training Quality Technician	Builders, Marked	Entergy Arkansas, Incorporated	2	8	8	N	NA

Table 5.1 Continued

77	July 28, 2011	CoolSaver Customer Orientation	In Field Training Quality Technician	Good Lake Hamilton	Entergy Arkansas, Incorporated	6	8	8	N	NA	
78	August 1, 2011	CoolSaver Customer Orientation	In Field Training Quality Technician	Good Hot Springs, AR	Entergy Arkansas, Incorporated	8	8	8	N	NA	
79	August 4, 2011	CoolSaver Customer Orientation	In Field Training Quality Technician	Good Hot Springs, AR	Entergy Arkansas, Incorporated	7	8.5	8.5	N	NA	
80	August 5, 2011	CoolSaver Customer Orientation	In Field Training Quality Technician	Good Hot Springs, AR	Entergy Arkansas, Incorporated	6	9	9	N	NA	
81	September 7, 2011	CoolSaver Orientation Class	In Field Training Quality Technician	Carney, Dardenfeld Builders, McCro	Entergy Arkansas, Incorporated	1	6	6	N	NA	
82	November 8, 2011	CoolSaver Orientation Class	Training	rd Builders, McCro	Entergy Arkansas, Incorporated	3	8	8	N	NA	
83	November 15, 2011	CoolSaver Customer Orientation	Lighting and Appliances Retailer Training	ocations, Month of S	Entergy Arkansas, Incorporated	10	0.5	5	N	NA	
84	October 31, 2011	Retailer Training	Lighting and Appliances Retailer Training	ions, Month of Sep	Entergy Arkansas, Incorporated	14	0.5	7	N	NA	
85	October 31, 2011	Retailer Training	Lighting and Appliances Retailer Training	, and Lowe's (Multi	Entergy Arkansas, Incorporated	31	0.5	15.5	N	NA	
86	November 30, 2011	Retailer Training	Lighting and Appliances Retailer Training	g Lots Conway, AR	Entergy Arkansas, Incorporated	1	0.5	0.5	N	NA	
87	December 20, 2011	Retailer Training	Lighting and Appliances Retailer Training	g Lots Harrison, AR	Entergy Arkansas, Incorporated	1	0.5	0.5	N	NA	
88	December 19, 2011	Retailer Training	Lighting and Appliances Retailer Training	g Lots Searcy, AR	Entergy Arkansas, Incorporated	1	0.5	0.5	N	NA	
89	December 29, 2011	Retailer Training	Lighting and Appliances Retailer Training	he Depot Conway, AR	Entergy Arkansas, Incorporated	2	0.5	1	N	NA	
90	December 21, 2011	Retailer Training	Lighting and Appliances Retailer Training	he Depot Harrison, AR	Entergy Arkansas, Incorporated	2	0.5	1	N	NA	
91	December 19, 2011	Retailer Training	Lighting and Appliances Retailer Training	Low's Conway, AR	Entergy Arkansas, Incorporated	1	0.5	0.5	N	NA	
92	December 27, 2011	Retailer Training	Lighting and Appliances Retailer Training	Low's Pine Bluff, AR	Entergy Arkansas, Incorporated	1	0.5	0.5	N	NA	
93	December 28, 2011	Retailer Training	Lighting and Appliances Retailer Training	Low's Russellville, AR	Entergy Arkansas, Incorporated	1	0.5	0.5	N	NA	
94	December 21, 2011	Retailer Training	Lighting and Appliances Retailer Training	Walmart Cabot, AR	Entergy Arkansas, Incorporated	1	0.5	0.5	N	NA	
95	December 29, 2011	Retailer Training	Lighting and Appliances Retailer Training	Walmart Conway, AR	Entergy Arkansas, Incorporated	1	0.5	0.5	N	NA	
96	December 21, 2011	Retailer Training	Lighting and Appliances Retailer Training	Walmart Crossett, AR	Entergy Arkansas, Incorporated	1	0.5	0.5	N	NA	
97	December 28, 2011	Retailer Training	Lighting and Appliances Retailer Training	Walmart Rock, AR (Shac	Entergy Arkansas, Incorporated	1	0.5	0.5	N	NA	
98	December 15, 2011	Retailer Training	Lighting and Appliances Retailer Training	Walmart Sheridan, AR	Entergy Arkansas, Incorporated	2	0.5	1	N	NA	
99	December 27, 2011	Retailer Training	Lighting and Appliances Retailer Training	Walmart Searcy, AR	Entergy Arkansas, Incorporated	2	0.5	1	N	NA	
100	December 28, 2011	Retailer Training	Lighting and Appliances Retailer Training	Walmart Sheridan, AR	Entergy Arkansas, Incorporated	2	0.5	1	N	NA	
101	December 21, 2011	Retailer Training	Lighting and Appliances Retailer Training	Sherwood, AR (Sup	Entergy Arkansas, Incorporated	1	0.5	0.5	N	NA	
102	December 20, 2011	Retailer Training	Lighting and Appliances Retailer Training	Shelwood, AR (Neighb	Entergy Arkansas, Incorporated	1	0.5	0.5	N	NA	
103	December 29, 2011	Retailer Training	Lighting and Appliances Retailer Training	Rock Trane Headqu	Entergy Arkansas, Incorporated	10	1	10	N	NA	
104	December 20, 2011	Retailer Training	Lighting and Appliances Retailer Training	Rock Trane Headqu	Entergy Arkansas, Incorporated	40	1	40	N	NA	
105	December 27, 2011	Retailer Training	Lighting and Appliances Retailer Training	Rock Trane Headqu	Entergy Arkansas, Incorporated	40	1	40	N	NA	
106	December 27, 2011	Retailer Training	Lighting and Appliances Retailer Training	Rock Trane Headqu	Entergy Arkansas, Incorporated	40	1	40	N	NA	
107	April 18, 2011	Technical Training	Commercial Program Training	Meeting with Gary Ward (Gibbs Service) to discuss new commercial program data and HVAC requirements	Rock Conference R	3	1	3	N	NA	
108	May 10, 2011	Technical Training	Commercial Program Training	Meeting with Staci Cawer (Osram Sylvania) and sales managers to discuss new commercial program data	EE Meeting in Little	6	1	6	N	NA	
109	September 28, 2011	Technical Training	Meeting with Gary Ward (Gibbs Service) to discuss new commercial program data and HVAC requirements	Rock Conference R	3	1	3	N	NA		
110	October 19, 2011	Technical Training	Meeting with Staci Cawer (Osram Sylvania) and sales managers to discuss new commercial program data	EE Meeting in Little	6	1	6	N	NA		
111	January 14, 2011	Technical Training	Lunch meeting with TME to discuss programs and projects	Little Rock, AR	Entergy Arkansas, Incorporated	5	2	10	N	NA	
112	April 5, 2011	Technical Training	Program Review with D&D Sun Control	Little Rock, AR	Entergy Arkansas, Incorporated	3	1.5	4.5	N	NA	
113	February 11, 2011	Technical Training	Program review and project discussion with Excel Energy Group	Rock Conference R	Entergy Arkansas, Incorporated	6	1.5	9	N	NA	
114	March 1, 2011	Technical Training	Lunch meeting with Airetech to discuss current and upcoming programs	Little Rock, AR	Entergy Arkansas, Incorporated	4	1.5	6	N	NA	
115	August 9, 2011	Technical Training	Meeting with Airetech to discuss new program development	Little Rock, AR	Entergy Arkansas, Incorporated	3	2	6	N	NA	
116	September 1, 2011	Technical Training	Meeting with John Ellington to review program calculator and application process	Rock Conference R	Entergy Arkansas, Incorporated	2	1.5	3	N	NA	
117	October 6, 2011	Technical Training	Lunch meeting with Melanie Hayes (Norelco) to discuss new program concepts	Little Rock, AR	Entergy Arkansas, Incorporated	2	1	2	N	NA	
118	December 13, 2011	Technical Training	New program roll-out training session	Little Rock, AR	Entergy Arkansas, Incorporated	28	2.5	70	N	NA	
119	February 1, 2011	Technical Training	Program Review and Contractor Training	Im Electric - Hot Sp	Entergy Arkansas, Incorporated	3	1	3	N	NA	
120	February 22, 2011	Technical Training	Program Review and Contractor Training	Im Electric - Stutt	Entergy Arkansas, Incorporated	2	1	2	N	NA	
121	March 22, 2011	Technical Training	Program Review and Contractor Training	Training-Little Roc	Entergy Arkansas, Incorporated	4	2	8	N	NA	
122	March 23, 2011	Technical Training	Program Review and Contractor Training	Training-Hot Spring	Entergy Arkansas, Incorporated	14	2	28	N	NA	
123	March 25, 2011	Technical Training	Program Review and Contractor Training	Training-Russellvil	Entergy Arkansas, Incorporated	2	2	4	N	NA	
124	March 25, 2011	Technical Training	Program Review and Contractor Training	ate Electrical - Litt	Entergy Arkansas, Incorporated	2	1	2	N	NA	
125	April 5, 2011	Technical Training	Program Review and Contractor Training	ew Electric - Hot Sp	Entergy Arkansas, Incorporated	3	1	3	N	NA	
126	April 14, 2011	Technical Training	Program Review and Contractor Training	ell Electric - Hot Sp	Entergy Arkansas, Incorporated	2	1	2	N	NA	
127	April 20, 2011	Contractor CoolSaver Orientation Class	Program Review and Contractor Training	ew Electric - Hot Sp	Entergy Arkansas, Incorporated	2	1	2	N	NA	
128	May 6, 2011	Contractor CoolSaver Orientation Class	Program Review and Contractor Training	ew Electric - Hot Sp	Entergy Arkansas, Incorporated	8	1	8	N	NA	
129	May 9, 2011	Contractor CoolSaver Orientation Class	Program Review and Contractor Training	ew Electric - Hot Sp	Entergy Arkansas, Incorporated	8	4	32	N	NA	
130	May 9, 2011	Contractor CoolSaver Orientation Class	Program Review and Contractor Training	ew Electric - Hot Sp	Entergy Arkansas, Incorporated	8	4	32	N	NA	
131	May 9, 2011	Contractor CoolSaver Orientation Class	Program Review and Contractor Training	ew Electric - Hot Sp	Entergy Arkansas, Incorporated	8	4	32	N	NA	
132	May 9, 2011	Contractor CoolSaver Orientation Class	Program Review and Contractor Training	ew Electric - Hot Sp	Entergy Arkansas, Incorporated	8	4	32	N	NA	
133	May 9, 2011	Contractor CoolSaver Orientation Class	Program Review and Contractor Training	ew Electric - Hot Sp	Entergy Arkansas, Incorporated	8	4	32	N	NA	
134	May 13, 2011	Contractor CoolSaver Orientation Class	Program Review and Contractor Training	ew Electric - Hot Sp	Entergy Arkansas, Incorporated	8	4	32	N	NA	
135	June 21, 2011	Program Training	Program Review and Distributor Training	DMOR - Hot Spring	Entergy Arkansas, Incorporated	2	1	2	N	NA	
136	June 21, 2011	Program Training	Program Review and Distributor Training	Electric - Hot Sp	Entergy Arkansas, Incorporated	2	1	2	N	NA	
137	July 18, 2011	Program Training	Program Review and Contractor Training	Im Electric - Hot Sp	Entergy Arkansas, Incorporated	5	1	5	N	NA	
138	July 22, 2011	Program Training	Program Review and Contractor Training	Im Electric - Hot Sp	Entergy Arkansas, Incorporated	4	1	4	N	NA	
139	July 29, 2011	Program Training	Program Review and Contractor Training	Im Electric - Hot Sp	Entergy Arkansas, Incorporated	7	1	7	N	NA	
140	March 1, 2011	Energy Master Planning Session	Benchmarking-EMP for City of Trumann	Trumann, AR	Entergy Arkansas, Incorporated	8	4	32	N	NA	
141	March 2, 2011	Energy Master Planning Session	Benchmarking-EMP for City of Jacksonville	Jacksonville, AR	Entergy Arkansas, Incorporated	11	4	44	N	NA	
142	March 3, 2011	Energy Master Planning Session	Benchmarking-EMP for McGehee SD	McGehee, AR	Entergy Arkansas, Incorporated	8	4	32	N	NA	
143	March 4, 2011	Energy Master Planning Session	Benchmarking-EMP for Stephens SD	Stephens, AR	Entergy Arkansas, Incorporated	6	4	24	N	NA	
144	November 15, 2011	Energy Master Planning Session	Benchmarking-EMP for Bryant SD	Bryant, AR	Entergy Arkansas, Incorporated	6	4	24	N	NA	
145	November 15, 2011	Energy Master Planning Session	Benchmarking-EMP for Sheldan SD	Bryant, AR	Entergy Arkansas, Incorporated	6	4	24	N	NA	
<b>Totals:</b>						<b>Sessions:</b>	145				
							892	1627.25			

**Table 5.2  
Internal Training (Utility or Administrator Staff)**

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
1	November 16, 2011	AAEE Mtg	Water Source Heat Pump Chillers	UAMS	AAEE	5	1/2 hour	2.5	N	N/A
2	October 19, 2011	AAEE Mtg	Air Compressor Optimization	Treane	AAEE	3	3/4 hour	2.25	N	N/A
3	September 21, 2011	AAEE Mtg	Carbon Reduction	Hilards Headquarters	AAEE	2	1/2 hour	2	N	N/A
4	August 18, 2011	AAEE Meeting	How HVAC controls save energy	Cozymids	AAEE	8	1/2 hour	4	N	N/A
5	January 14, 2011	CLEAResult University	Introduction to Utilities and Demand Side Management / Intro to Market Transformation	R Conference Room	CLEAResult	8	4 hours	32	N	N/A
6	January 28, 2011	CLEAResult University	Science 101 and Residential DSM 101	R Conference Room	CLEAResult	8	4 hours	32	N	N/A
7	February 15, 2011	Engineering Summit	Company Engineers Training on Standards, Protocols, etc.	Austin, TX	CLEAResult	7	8 hours	56	N	N/A
8	February 16, 2011	Engineering Summit	Company Engineers Training on Standards, Protocols, etc.	Austin, TX	CLEAResult	7	8 hours	56	N	N/A
9	February 11, 2011	CLEAResult University	CLEAResult Communications and C&I DSM 101	R Conference Room	CLEAResult	8	4 hours	32	N	N/A
10	February 25, 2011	CLEAResult University	CLEAResult Consulting 101 and Using "Insights" at CLEAResult	R Conference Room	CLEAResult	8	4 hours	32	N	N/A
11	February 28, 2011	CLEARtracker Training	CTCI Training for River Region	R Conference Room	CLEAResult	12	2 hours	24	N	N/A
12	March 8, 2011	CLEARtracker Training	CTCI Training - incentive request process	R Conference Room	CLEAResult	12	1 hour	12	N	N/A
13	March 22, 2011	Audit Training	Training on internal engineering and field procedures	R Conference Room	CLEAResult	12	1 hour	12	N	N/A
14	April 18, 2011	Project Training	WWTP Aeration Blowers ECM training	R Conference Room	CLEAResult	12	1 hour	12	N	N/A
15	May 2, 2011	Project Training	Project Cost Data Collection	R Conference Room	CLEAResult	12	1/2 hour	6	N	N/A
16	June 14, 2011	Program Training	Internal Commercial Program Quiz	R Conference Room	CLEAResult	12	1 hour	12	N	N/A
17	July 21, 2011	Project Training	Boiler Options and Maintenance Presentation	R Conference Room	CLEAResult	12	2 hours	24	N	N/A
18	August 24, 2011	Project Training	WWTP ECM Training	R Conference Room	CLEAResult	12	2 hours	24	N	N/A
19	September 21, 2011	Project Training	Advanced Compressed Air System Design	Little Rock, AR	Arkansas Manufacturing Solutions	3	8 hours	24	N	N/A
20	September 22, 2011	Project Training	Advanced Compressed Air System Design	Little Rock, AR	Arkansas Manufacturing Solutions	3	8 hours	24	N	N/A
21	January 23, 2011	Certification	BEP Certification	Little Rock, AR	AEE	4	12 hours	48	Y	4
<b>Totals:</b>						<b>Sessions</b>	<b>21</b>	<b>136</b>	<b>388</b>	<b>4</b>

## 5.2 Lost Contribution to Fixed Cost

### Methodology:

EAI is calculating the projected 2012 LCFC in a manner consistent with the direction provided by the Commission in Order No. 14 in Docket No. 08-137-U. The projected LCFC calculation uses the 2012 projected energy savings developed for the Three-Year Plan. The projected energy savings is adjusted for the NTG ratio of 80% as ordered by the Commission, then an additional adjustment is applied based upon the First Year Monthly Curve Ratio developed from the timing of measures installed throughout a calendar year from industry, best practice programs. The adjustment based upon the First Year Monthly Curve Ratio is used to reduce the potential for over-collection of LCFC associated with all Energy Efficiency Program measures being installed throughout the first calendar year. The resulting adjusted projected energy savings are then multiplied by the rate class lost contribution rate ("LCR"). The LCR is the base rate revenues less customer charge revenues, calculated on a dollar per kWh basis, using the Company's most recently approved base rates. EAI's 2011 projected LCFC is \$1.3 million.

EAI will true up the projected LCFC each year based upon energy savings achieved, adjusted based upon independent EM&V review. The true up energy savings are prorated the first year and last year of installation based upon the install date of each measure by program. The LCR applied to the true up LCFC is the seasonal rate schedule base rates less customer charges.

The projected LCFC in years beyond 2011 also will include the cumulative impact of energy savings associated with energy efficiency measures installed between rate cases, taking into consideration the measure life. The projected LCFC for a filing year would be subject to true-up in the next filing year.

For EAI, the 2011 true up, pro-rated Lost Contribution to Fixed Costs, or LCFC was calculated using the following formula:

$$LCFC = kWh(NTG) * RR * PF * Rate$$

Where:

LCFC = Lost Contribution to Fixed Costs

kWh (NTG) = kWh saved respective of NTG

RR = Realization Rate

PF = Proration Factor

Rate = Entergy's rate for electricity usage

The various components to this calculation are explained thusly:

**kWh (NTG)** is a way to account for free ridership and any additional spillover a program may contain. EAI used an .80 NTG factor for its programs. Essentially, then, any savings realized by an installation could only be counted up to 80% of its measures savings quantity.

**The Realization Rate** is the number in the equation that allows the calculation to account for such factors as evaluated gross savings.

In essence, calculating LCFC requires a true-up at the end of the year as most measures are not installed on the first day of the program year for the first year of a particular measure. This is where the Proration Factor comes into play. For Lighting and Appliances, this is a simple proration of how long in the given calendar year the measure was installed. However, for non-lighting and appliances measures, obtaining a proration factor becomes more complex. Consequently, there are a few more factors to consider as it pertains to calculating the proration factor:

#### **Standard Industrial Classification ("SIC") Code:**

This code is measure specific (i.e. ceiling insulation) and determines which Heating/Cooling/Heating-Cooling degree day table to use for the

proration factor. The SIC Code also informs if the residence is total electric or not unless field information provides better data.

**Heating/Cooling/Heating-Cooling Table:**

These tables measure the amount of heating degree or cooling degree days that were recorded for a given program year. For the purposes of this calculation, a given calendar day's recorded values were taken as a percentage of the overall calendar year. For instance, 1/1/2011 would correspond to a value of 0 on a cooling degree day table as the temperature was not above 65° F.

Once the SIC Code, and Matching Table data are culled, the proration factor can be determined. The date of the installation of the measure determines the initial look up on the appropriate heating/cooling/heating-cooling degree table. Each day's values from that point forward are summed and the proration factor is achieved for that particular installation.

Finally, seasonality in the form of the different rate structures is the last component in the LCFC calculation. EAI accounted for seasonality by applying its summer lost contribution rate to the summer period (June 1 – September 30) and the other period lost contribution rate to the non-summer period (January 1 - May 31 and October 1 – December 31). This is accomplished by taking the above proration factor for the applicable summer and other periods. The resulting factors are multiplied by the appropriate seasonal rates and the rest of the LCFC calculation is carried out as usual.

**Table 5.2**  
**Lost Contribution to Fixed Cost**

<b>Lost Contribution to Fixed Cost (LCFC)</b>						
<b>Program Name</b>	<b>LCFC Energy Savings</b>			<b>LCFC</b>		
	<b>MWh</b>			<b>(\$)</b>		
	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>
Lighting & Appliances	12,142,519			\$ 121,233		
Arkansas Weatherization Program	1,991,412			\$ 63,262		
Energy Efficiency Arkansas	0			\$ -		
Home Energy Solutions	6,670,978			\$ 187,280		
Energy Solutions Multi-Family	0			\$ -		
Energy Solutions for Manufactured (Mobile) Homes	0			\$ -		
Energy Star New Homes	0			\$ -		
Efficient Cooling Solutions	1,565,107			\$ 35,510		
Residential Benchmarking Pilot	0			\$ -		
Residential Direct Load Control	0			\$ -		
C&I Prescriptive	6,605,699			\$ 86,923		
C&I Custom Solutions	10,288,528			\$ 80,856		
Small Business	1,262,392			\$ 19,765		
City Smart	1,566,776			\$ 46,526		
Agricultural Energy Solutions	0			\$ -		
Agricultural Irrigation Load Control	0			\$ -		
Demand Response	0			\$ -		
Program 18	0			\$ -		
Program 19	0			\$ -		
Program 20	0			\$ -		
<b>LCFC Total:</b>				\$ 641,354	\$ -	\$ -
<b>Total Actual Portfolio Expense:</b>				\$ 13,413,739	\$ -	\$ -
<b>LCFC as a % of Portfolio Total:</b>				4.8%	-	-

### 5.3 Utility Performance Incentives

Order No. 15 of Docket No. 08-137-U the APSC provided directives as to both the qualification and calculation of incentives. The qualifications include the amount of a completed program year evaluated savings results meeting at least 80% of the goal established by the commission. The calculation includes a shared savings amount based upon 10% of the portfolio Net Present Value of the Total Resource Cost Test ("TRC") but not to exceed 5% of portfolio cost if evaluated goal achievement is at least 80 up to 100% and not to exceed 7% of portfolio cost for evaluated goal achievement at 100% UP TO 110%.

EAI's goal for 2011 is 52,708 MWh of energy reductions. EAI included NTG as directed in the APSC Order No. 15 of Docket No. 08-137-U for the portfolio of programs in determining the each program's and the portfolio's planned and approved energy savings of 56,262 MWh. EAI's evaluated energy savings for 2011 is 41,958 MWh. This result is less than the minimum threshold to obtain Incentives.

EAI has met the directives and guidance of the APSC to include no performance incentives within the EECR update.



**Table 5.3**  
**Utility Performance Incentives**

<b>Utility Performance Incentives</b>			
<b>2010 Annual Energy Sales (MWh)</b>		<b>Sales as Adjusted for SD Exemptions</b>	
21,082,534		<b>2011</b>	<b>2012</b>
		21,584,000	
<b>Portfolio Level Summary</b>		<b>2011</b>	<b>2012</b>
RBudget (\$)		\$ 18,684,699	
Actual Expense (\$)		\$ 13,413,739	
<b>Net Savings</b>		<b>2011</b>	<b>2012</b>
Commission Established % Goal		0.25%	0.50%
MWh Goal		52,706	0
MWh Achieved		41,958	
% of Goal Achieved		80%	-
<b>Incentive Calculations</b>		<b>2011</b>	<b>2012</b>
Portfolio Net Benefits (\$)		\$ 9,908	
10% of Portfolio Net Benefits (\$)		\$ 991	\$ -
Incentive Cap		0.00%	-
Maximum Allowed Incentive \$		\$ -	\$ -
<b>Eligible Incentive \$'s</b>		\$ -	\$ -

## 5.4 Challenges and Opportunities

The 2011 programs underwent a transition period and will be implemented in full beginning 2012. Cadmus, the EM&V Consultant that reviewed the EAI programs, provided insights to program challenges and recommendations for enhancement, the challenges and opportunities table below summarizes those discussions that are included within the Cadmus EM&V Report in Appendix A.

As a whole, EAI's portfolio exceeded its 2011 participant target but fell short of its energy savings and demand reduction targets. The 2011 program year represented a transition for EAI. For the first half of 2011, the utility offered nine programs in its portfolio (two were statewide programs that were not subject to this evaluation). However, beginning in August through the end of the year, several programs underwent significant transitions over a varying schedule. Six additional approved programs remained in program design and planning phases with launch dates expected in early 2012. While EAI

came close to its portfolio energy savings target, demand reductions fell short of its goals.

Although the portfolio fell short of reaching its energy and demand savings targets, what was accomplished is impressive given the challenges that had to be overcome to get programs ramped up in a truncated program year. In 2011 EAI laid a solid foundation that should lead to longer term program success. In its review of EAI's programs, Cadmus noted the following key success factors:

- Program designs are largely modeled after best practice programs. Additionally, EAI clearly designed its comprehensive programs to leverage lessons learned from its implementation experience with the Quick Start Programs.
- EAI and its implementers have developed robust marketing plans and outreach strategies supported by a high quality of set of marketing materials and other tools.
- Quality program delivery appears to be a high priority. Nearly every program has designed and begun to implement training programs for contractors and implementation staff. EAI and its implementation contractors have also developed comprehensive, high quality program manuals for nearly every program.
- EAI's implementation contractor initiated a trade ally network when the Quick Start Programs launched and has designed and implemented a strategy to recruit trade allies into that network. Although the trade ally network still requires a focus on growth to fully support EAI's programs, particularly in the C&I sector, EAI's progress to date has been laudable.

**Table 5.4  
Challenges and Opportunities**

<b>Program Name</b>	<b>Challenges</b>	<b>Enhancements</b>	<b>Evaluation</b>
Lighting and Appliances	<p>The program had a limited time frame in which to launch and achieve savings for the year.</p> <p>The low pay, limited energy-efficiency knowledge, and high turnover rates in retail stores proved challenging in motivating retail staff to promote program measures to their customers.</p> <p>The volume of participating stores and varying reporting formats made invoice</p>	<p>Cadmus recommends examining methods to streamline reporting, where possible.</p> <p>Cadmus recommends including greater detailed information in the program manual, and correcting formatting and grammatical errors, to make the document more helpful, and appear more professional to customers</p>	Process and Impact

Program Name	Challenges	Enhancements	Evaluation
	<p>processing time consuming.</p> <p>Program staff are concerned that lighting market changes resulting from the Federal Energy Independence and Securities Act (EISA), will reduce savings available from CFLs. EAI will need to explore other options to achieve the same energy savings from its residential programs.</p>	<p>For the tracking database, Cadmus recommends that the wattage column is filled in consistently for all lamps (e.g., reporting the CFL wattage, not the replaced lamp wattage), and that the CFL wattage data correspond with the reported energy and demand savings. We also recommend adding a field to distinguish between indoor and outdoor lamps</p>	
Home Energy Solutions	<p>Limited number of certified contractors</p> <p>Implementing comprehensive projects</p> <p>Attracting air conditioning contractors</p>	<p>Add references in the program manual to supporting documentation (i.e., the inspection QA/QC procedures and Marketing Plan as well as the program's Website).</p> <p>Develop data collection protocols to support EAI's new data collection and tracking software, to be launched in tandem with the new system.</p> <p>Continue active outreach and training, promoting the program among local contractors, to continue expanding the program's approved contractor base.</p>	Process and Impact
CoolSaver / A/C Tune Up	<p>Identifying and maintaining trained technicians capable of executing tune-ups to the program's standards has been a challenge for HVAC companies. Except for those trained through the program, few HVAC contractors or their technicians in Arkansas typically perform AC tune-ups to the standards expected in the program.</p> <p>CLEAResult reported that changing the mindsets of contractors to perform an</p>	<p>Continue to update the CoolSaver program, based on lessons learned and opportunities for improvement. Program managers have proactively applied lessons learned from the Quick Start program to improve the program design, operations, and receptivity in the market place when the comprehensive program rolls out in 2012. These efforts are laudable, and should continue. EAI and IC should</p>	Process and Impact

Program Name	Challenges	Enhancements	Evaluation
	<p>energy-efficiency tune-up, rather than a maintenance-oriented tune-up, has presented difficulties.</p> <p>Performing AC tune-ups to program specifications requires considerable, additional time for contractors.</p> <p>Some HVAC companies do not see benefits in changing their business models to offer tune-ups that meet the program's specifications.</p>	<p>continue to look for ways to facilitate data collection.</p> <p>Track and report customer feedback. EAI should implement mechanisms for gathering and tracking customer satisfaction levels and other program feedback. These could include:</p> <p>Procedures for tracking customer complaints coming in through the call center, including how they were addressed.</p> <p>CLEAResult performs field inspections, which include customer satisfaction questions. These should be summarized and reported to EAI regularly.</p> <p>A mechanism to gather feedback from participants (e.g., a leave-behind postcard with questions about customers' satisfaction with the services provided).</p> <p>Although considerable program materials exist, EAI and CLEAResult should consider developing a comprehensive program operations manual, making it an internal resource with detailed guidelines, forms, marketing and delivery strategies, program resources, training information, staff roles and responsibilities, performance goals and metrics, and ideally a logic model. A consolidated manual would ensure ease of use and consistency.</p> <p>Continue proactively</p>	

Program Name	Challenges	Enhancements	Evaluation
		<p>recruiting contractors. There are currently 19 participating contractors, and it is likely many more could effectively promote and implement the program's services. With program targets increasing, EAI and CLEAResult should consider ways to expand the program's contractor base, especially among larger companies that previously opted not to participate, but are now advertising services similar to the program offerings. Engaging these larger contractor companies will increase the qualified pool of contractors, ensure high-quality standards are met, and reduce confusion in services offered to the customer.</p>	
<p>Small C&amp;I Solutions / Small Business</p>	<p>Many customers receiving free site assessments did not follow through with project implementation.</p> <p>Program staff believes incentive levels were too low to motivate many customers to implement projects, as reflected in the program's low participant results.</p>	<p>EAI and IC work closely with trade allies throughout the year to ensure they understand the new program, effectively market it to customers, and implement comprehensive and cost-effective projects.</p> <p>Update all project savings calculator tools to use TRM values for inputs, including:</p> <ul style="list-style-type: none"> <li>The power adjustment factor for lighting occupancy controls (TRM Table 278);</li> <li>Allowed LPD for new construction lighting (TRM Table 279);</li> <li>HVAC new construction baseline equipment efficiency (TRM Table 186);</li> <li>and</li> <li>EFLH<sub>c</sub> (TRM page 151) for HVAC measures.</li> </ul> <p>Formalize the electricity and</p>	<p>Process and Impact</p>

Program Name	Challenges	Enhancements	Evaluation
		<p>demand factors for lighting interactive effects in the next version of the TRM.</p> <p>Expand the TRM (Table 189) to include coefficients necessary to calculate EFLH<sub>c</sub> for additional building types.</p>	
Large C&I Solutions / Custom	<p>The Quick Start Program had limited incentive and service offerings, and a loosely formed network of program partners. Although C&amp;I Solutions exceeded energy savings targets, design limitations in the Quick Start Program may have prevented EAI from achieving market transformation objectives. The new custom program, launching in 2012, has been designed to address these objectives.</p>	<p>Gather research about effective outreach channels, and continued development of more formal relationships with program partners.</p> <p>For 2012, all workbooks or reported savings calculations should be updated to utilize the methodology described in the current TRM. A process should also be created to adjust reported savings when TRM modifications are made in the future.</p>	Process and Impact
C&I Standard Offer	<p>Program staff believes many customers lacked the technical resources to complete the complex CISOP application process. These customers may have chosen instead to participate in the C&amp;I Solutions Program, which offered more assistance from program staff.</p>	<p>EAI and IC work closely with trade allies to ensure customers receive coordinated and effective support throughout the implementation process.</p> <p>Update all project savings calculator tools to use TRM values for inputs, including the lighting occupancy controls power adjustment factor and HVAC EFLH<sub>c</sub>.</p> <p>Modify the HVAC savings calculator to include savings for high-efficiency equipment replacing higher-capacity equipment.</p>	Process and Impact
CitySmart	<p>Achieving these targets in the future will require a greater variety of measures and incentives. In 2012, incentive levels for CitySmart will be tiered, based on the number of</p>	<p>Continued emphasis on developing a formal trade ally network and tracking system.</p> <p>For 2012, all workbooks or reported savings calculations should be updated to utilize</p>	Process and Impact

Program Name	Challenges	Enhancements	Evaluation
	<p>measures implemented, to encourage customers to complete more comprehensive projects. The incentive rate (in \$ per kWh savings) will increase as customers implement more measures.</p>	<p>the methodology described in the current TRM. A process should also be created that allows reported savings to be adjusted for future modifications to the TRM.</p>	
<p>Agricultural Irrigation Load Control</p>	<p>The program met only 50% of its demand reduction goals. To increase demand savings and meet increasing participation goals, EAI will need to market the program more aggressively.</p> <p>Interrupting wells every day during the curtailment season rather than limiting interruptions to days when forecasted peak is high, could negatively impact customer satisfaction with the program.</p>	<p>Consider calling events in response to high peak load forecasts, rather than calling events every day during the curtailment season. This could help maintain high customer satisfaction, and help mitigate participation barriers for new customers.</p> <p>The program manual could be improved by more clearly defining the customer recruitment process, including customer touch points and responsibilities, staff and vendor roles and responsibilities, and QA/QC protocols in place.</p> <p>EAI should consider to reserve some days for non-events, and call events on a smaller number of days or call events daily, but disconnect the loads of only some participants. In addition to facilitating evaluation of the program, calling events on a smaller number of days may increase program participant satisfaction and retention, and ease the process of customer recruitment.</p>	<p>Process and Impact</p>

## **5.5 Market Maturity**

EAI is not aware of any market assessment study that describes the maturity of energy efficiency in Arkansas. The following discussion by program will show the programs are new by virtue of their modified designs from the Quick Start Programs, resulting in enhanced market delivery approaches and incentives. The programs that were not implemented in 2011 are new to the market place and EAI considers the new approaches to markets and programs have not reach maturity.

### **Lighting and Appliances**

The Quick Start Lighting Program used bill insert coupons routinely and in store promotions to increase awareness of the ENERGY STAR Brand and promoted spiral multi-pack CFLs. In reference to the state of CFLs and market maturity for CFLs on the Arkansas marketplace, it is important to note that for the program year 2011, Docket No. 10-100-R Order No. 15 issued on March 7, 2012 makes adjustments to the deemed savings within the Commission's TRM 1.0. The areas of adjustment are reductions in the hours of use to 2.20 hour/day from 2.28 hours/day, and a reduction in the NTG ratio to 63% from 80%, for CFL-specific programs (per Frontier's Make Your Mark Report). Implicit in these numbers is recognition that the hours of operation of lighting usage has increased with the overall hours/day of bulb operation decreasing and that there is some awareness in the marketplace of CFL bulbs as an EE measure.

Beginning in 2012, federal standards for residential incandescent bulbs are anticipated to be phased-out under the Energy Independence and Security Act of 2007 ("EISA"). This will result in changes to the baseline efficiency for CFLs and may contribute to less potential for programmatic energy savings in the residential and small business sectors from these technologies. Over the next two years, EAI will continue to incentivize most traditional CFL technologies, while focusing heavily on educating the market on more advanced technologies, such as light emitting diodes ("LEDs") to diversify lighting technology acceptance in the program.

### **Home Energy Solutions**

The Home Energy Solutions Program transitioned from a Quick Start model to a comprehensive program model in November 2011. From the period of fall 2007 – June 2011, the Quick Start Program was designed to begin to develop a contractor market with the skills required to successfully implement electric home efficiency measures. During the Quick Start period, the program successfully recruited significant participation on entry-level efficiency measures, such as insulation, as is expected at the starting stage in the program's



lifecycle. As was described in the 2011-2013 EAI Energy Efficiency Program Plan, the 2012 program is building upon the market trust developed during the Quick Start period while gradually introducing the next level of technologies and efficiency measures through easily accessible direct install opportunities as well as previous and expanded measure participation paths. The program will also continue to expand the contractor market through education and contractor technical assistance.

While the evaluation process has yet to complete a formal market assessment, the Quick Start Program significantly recruited, equipped, trained, and evolved the energy efficiency contractor base and prepared enough of a portion of the contractor market to begin to introduce into the program a more comprehensive home upgrade format in 2012 and 2013. The 2012 – 2013 program will continue to recruit and train first time contractors as well as expand its training of the current participating contractor market to continue to elevate the overall level of energy efficiency services.

### **CoolSaver<sup>®</sup>**

CoolSaver<sup>®</sup> was launched in 2008 as a Quick Start Program. While the evaluation process has yet to complete a formal market assessment, the program has steadily increased program and HVAC contractor participation in and engagement of the program's use of advanced measurement tools and a more thorough AC system analysis approach. While the Quick Start program successfully began to create a more technologically advanced trade ally network with early adopters, the program will continue to recruit and train new contractors into the program to expand options for customers. Although the AC Tune-Up market is still in the early stages of energy efficient market maturity, the success of the Quick Start period and the participation levels in 2011 suggests the speed of market development is gradually increasing. The 2012 – 2013 program continues to train and build the starting base of the Quick Start Programs.

### **Small Business**

Throughout the Quick Start period, the Small Business Program worked to educate small business customers on efficiency opportunities, develop a delivery channel through the trade ally market while also building trust in energy efficient technologies such as energy efficient lighting. The Quick Start period conducted more than 17,000 marketing education calls and delivered well over 700 facility assessments since the program's inception.

The comprehensive program builds upon the efforts of the Quick Start period by accelerating customer trust and acceptance of more efficient

technologies through direct install measures. The introduction of the Direct Install measures will build energy efficiency awareness and trust with minimal participation hassle to this difficult to reach market segment. The Quick Start period developed a foundational trade ally network equivalent to a market in the earliest stages of development. This foundation will allow the 2012 – 2103 programs to evolve the measure delivery from simple to more advanced energy efficient technologies, with continued technical introduction trainings to strengthen and expand the existing network.

### **CitySmart<sup>SM</sup>**

In 2012, the CitySmart<sup>SM</sup> Program grows from the Quick Start model of contractors and participants primarily upgrading simple single measures to introducing a comprehensive program implementation design. During the Quick Start period, the program focused on expanding the market awareness of efficiency opportunities while providing technical training to assist the trade ally network. Participant and contractor acceptance and interest in the program steadily increased throughout the Quick Start period.

The 2012 program will add accredited higher education institutions. A portion of those institutions are participating in the Commission's SD Option, indicating their ability to self-realize effective energy efficiency. However, while organizations like large schools and local governments in populated areas may have executed on lighting opportunities, some smaller and rural areas have not, and most have not yet implemented more comprehensive upgrades. The 2012 program introduces energy incentives to expand the list of eligible measures, and institutes a tiered increasing incentive approach to motivate comprehensive upgrades beyond single measures. Training and development of the trade ally network to complete comprehensive measure upgrades will become the program focus to further develop the overall EAI market in 2012 and beyond.

### **C&I Solutions/SOP Programs --- Custom/Prescriptive Programs**

During the QuickStart period, two programs served the overall Large C&I market segment, the Large C&I Solutions and the Large C&I Prescriptive. In the Quick Start period the C&I Prescriptive Program offered incentives to C&I customers that were able to identify and originate their own projects while the C&I Solutions program assisted customers requiring technical assistance. Despite the larger financial cash incentive available for projects in the C&I Prescriptive Program, the relative inexperience and lack of in house resources to analyze energy efficiency projects drove more customers to the solutions program demonstrating the continued need for programs with technical assistance. With the newly approved SD Option, some eligible

customers perform their own energy efficiency projects, while two programs, the C&I Custom and C&I Prescriptive, offer customers technical training and assistance to perform more advanced and comprehensive energy efficiency projects. The 2012 program introduces energy incentives to expand the list of eligible measures, and institutes a tiered increasing incentive approach to motivate comprehensive upgrades beyond single measures. Training and development of the trade ally network to complete comprehensive measure upgrades will become the program focus to further develop the overall EAI market in 2012 and beyond.

## 5.6 Staffing

The 2011 programs had, for the majority of the year two full-time staff, an EE program manager, and a project manager supporting the Agricultural Irrigation load Control Program. By the end of 2011, EAI added three full time project managers to support the EE effort bringing the total to 5 staff. The Certifications, education, and experience of the EAI staff makes for a strong team. Of the five staffers four are degreed engineers with customer service, market planning, product development, construction project experience and transmission planning and transmission project management experience. Four of the five staff have Association of Energy Engineers certified Business Energy Professional, one of the staff is a certified Leadership in Efficiency and Environment Design (“LEED”) with experience in commissioning LEED commercial buildings. One of the staff is also a certified Project Manager Professional. Three of the five staff have Master’s degrees in either business or engineering, and one staffer is close to completing a Masters degree. The utility also leveraged many other non-incremental employees to promote the programs, provide benefit cost analysis, regulatory, legal support, back office billing, contractor recruitment for irrigation load control program. Approximately 30 non-incremental employees supported the 2010 programs. None of the non-incremental employees used more than 50% of their annual man-hours supporting the programs. In 2012 there are plans to bring on an additional two employees to support the EE effort.

For the programs implemented by the Third Party Administrator, the staffing levels include the following:

- The program staff includes two program managers, one for commercial programs and another for residential programs. An administrative assistant is also employed for assistance on all programs.

- On the Residential Programs, the implementer staffs a Program Manager, two Senior Consultants, a Program Coordinator and three Program Specialists.
- On the Commercial Programs, the implementer staffs a Program Manager, three Energy Engineers, an Engineering Analyst, Program Specialist, and four Engineering Interns.
- Future plans for the implementation contractor include adding another Energy Engineer and Program Coordinator in the 2011 program year.

## 5.7 Stakeholder Activities

Table 5.7.1 below shows the 2011 stakeholder processes that included EAI participation

**Table 5.7.1  
Stakeholder Summary**

<b>Stakeholder Meeting</b>	<b>Overall Goals</b>	<b>Approach</b>	<b>Results</b>
Annual Reporting Workbook Numerous Formal meeting	To develop a Annual reporting format and protocol so all utility EE programs can provide consistent information for end of year evaluation	Face-to-face meetings and teleconferences. Effort led by the APSC General Staff. Attendees included all utilities, AG, Audubon, and SEEA.	The APSC General Staff filed working groups recommendations and awaiting APSC approval of those recommendations, forms and protocols
Energy Efficiency Arkansas (EEA) Collaborative  Numerous Formal meetings	To modify the EEA education program to align with customer and utility EE program educational needs	Face-to-face Meetings and teleconferences. Effort Lead by the Arkansas Energy Office. Attendees included all utilities, AG, Audubon, several high education representatives, Arkansas manufactures association, compressed air vendors, Agriculture representative, EE implementer and APSC General Staff.	A proposed comprehensive plan that was filed in 2010 and awaiting regulatory approval. Including more training for installation contractors, Resent, BPI and commercial and industrial training sessions
Arkansas Weatherization Program Collaborative  Quarterly Formal Meetings	To review and enhance the AWP offering to customers	Face-to- face and teleconference meetings. Led by ACAA. Participants include all participating utilities, AG and APSC General Staff	Enhancement to the AWP offering to customers
LCFC Multiple informal and formal meetings	To file a joint LCFC to address barriers to utilities for expanding EE programs. Led by utilities.	Face-to-face meetings and teleconferences. First with utilities to design the LCFC, then inclusion of APSC General Staff and AG.	A filed and approved LCFC

<p>EAI Formal Stakeholder Meeting</p>	<p>Review 2011 Energy efficiency efforts, discuss 2012 plans and solicit input from Stakeholders.</p>	<p>EAI hosted a Stakeholder meeting on January 30<sup>th</sup>. This was an meeting that started at 9:00 AM was open ended for final questions and discussion. The meeting closed around 3:30 PM. The meeting consisted of reports delivered by ICs, Independent EM&amp;V Consultants and EAI employees to discuss each program offering, and potential future changes. At the conclusion of each presentation there was a brief question and answer session with an unconstraint time at the end of the presentations for discussion. Participants could also submit questions via email. The meeting invitations were send to many stakeholders including interveners (Audubon, the Attorney General Office) APSC Staff and APSC staffers, EEA, AWP, Educators that support EE efforts in Arkansas, EM&amp;V consultants including the Arkansas Interdependent Monitor, Implementing Contractors and local participating contractors, Trade Allies and other utilities. 61 participants attended the meeting.</p>	<p>The Stakeholders provided input and questions. The categories included:</p> <p>Interest in overall employment numbers Interest in Measure incentive levels. Interest in understand the training needs in as much detail as possible Concern of the multiple layers of EM&amp;V Identifying additional EE measures to include in the programs An interest in more information how the Quick Start programs that were modified for Comprehensive programs were changing Suggestion on additional potential partners to make the programs more effective. Discussions of concepts to enhance licensing requirements for trade contractors in the State of Arkansas.</p> <p>EAI plans to continue to work with state educators of trade contractors to improve the training for the delivery of EE programs.</p> <p>EAI will meet with other identified Arkansas market participants to explore ways to enhance program offerings.</p> <p>EAI provided responses to specific written and or emailed questions to participants and provided access to the Court Reporter written report of</p>
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			the meeting.
Annual Reporting Workbook	To develop an Annual reporting format and protocol so all utility EE programs can provide consistent information for end of year evaluation	Face-to-face meetings and teleconferences. Effort led by the APSC General Staff. Attendees included all utilities, AG, Audubon, and SEEA.	The APSC General Staff filed working groups recommendations and awaiting APSC approval of those recommendations, forms and protocols
Energy Efficiency Arkansas (EEA) Collaborative	To modify the EEA education program to align with customer and utility EE program educational needs	Face-to-face Meetings and teleconferences. Effort Lead by the Arkansas Energy Office. Attendees included all utilities, AG, Audubon, several high education representatives, Arkansas manufactures association, compressed air vendors, Agriculture representative, EE implementer and APSC General Staff.	A proposed comprehensive plan that was filed in 2010 and awaiting regulatory approval. Including more training for installation contractors, Resent, BPI and commercial and industrial training sessions
Arkansas Weatherization Program Collaborative	To review and enhance the AWP offering to customers	Face-to-face and teleconference meetings. Led by ACAA. Participants include all participating utilities, AG and APSC General Staff	Enhancement to the AWP offering to customers
LCFC Both informal and formal meetings	To file a joint LCFC to address barriers to utilities for expanding EE programs. Led by utilities.	Face-to-face meetings and teleconferences. First with utilities to design the LCFC, then inclusion of APSC General Staff and AG.	A filed and approved LCFC
Home Energy Solutions Informal meetings	To adjust the overall program design to expand the offerings, while maintaining the integrity of the program and addressing concerns from stakeholders	Informal direct contact with contractors, customers and suppliers. Face to face, phone calls, emails and customer and contractor surveys	1. Program moved to market based evaluations 2. Air Sealing, Duct Sealing and HVAC retrofit incentives were enhanced. 3. Program handout

			<p>enhanced with self evaluation tool.</p> <p>4. Bundling bonuses allow customers to receive higher incentives, which they wanted, but encourages comprehensiveness.</p> <p>5. Contractor Bonuses encourage contractor participation in testing intensive measures</p>
CoolSaver Informal meetings	To adjust the overall program design to expand the offerings, while maintaining the integrity of the program and addressing concerns from stakeholders	Informal direct contact with contractors, customers and other stakeholders. Face to face, phone calls and emails	<p>1. HVAC changeouts included in the program for Small Business to assist with contractor participation</p> <p>2. Data gathering approach to be revisited in 2012</p>
Lighting and Appliances Informal meetings	To adjust the overall program design to expand the offerings, while maintaining the integrity of the program and addressing concerns from stakeholders	Informal direct contact with customers and retailers. Customer contact occurred at trade shows and retailer demonstration events. Retailer contact occurred face to face during on-site visits, and other informal contact through email and phone.	<p>1. Added Point of Purchase discount to include more retailers and manufacturers.</p> <p>2. More measures as voiced by customers wanting more discounts.</p>
Small Business Informal meetings	To adjust the overall program design to expand the offerings, while maintaining the integrity of the program and addressing concerns from stakeholders	Contractor pilot program was implemented in August of 2011 to test the incentive level in a test market with one contractor. Informal direct contact with contractors, customers and suppliers. Face to face, phone calls and emails.	<p>1. Aggressive incentive level tested and proved. 20/30 accepted new incentive level during pilot, 67%. Previous rate was &lt;1%.</p> <p>2. Coupons have been removed to streamline with larger programs, and assistance on calculator creation available</p> <p>3. Direct install measures to overcome barriers to program offerings.</p> <p>4. Universal participation agreement for all</p>



			Commercial programs, and is multi-year.
Prescriptive Informal meetings	To adjust the overall program design to expand the offerings, while maintaining the integrity of the program and addressing concerns from stakeholders	Informal direct contact with contractors, customers and suppliers. Face to face, phone calls and emails.	<ol style="list-style-type: none"> <li>1. Streamlined Documentation procedure</li> <li>2. No more SOP contract</li> <li>3. Assistance with calculations where it was customer driven before.</li> <li>4. Formalized Trade Ally list allows contractor lists to be generated and posted.</li> <li>5. kWh incentives allow for expanded measure selection.</li> <li>6. Universal participation agreement for all Commercial programs, and is multi-year.</li> </ol>
Custom Informal meetings	To adjust the overall program design to expand the offerings, while maintaining the integrity of the program and addressing concerns from stakeholders	Informal direct contact with contractors, customers and suppliers. Face to face, phone calls and emails.	<ol style="list-style-type: none"> <li>1. Feasibility study incentive allows Trade Allies to participate in a non-compete scenario with the program</li> <li>2. Tiered Incentives allow customers to receive higher incentives, which they wanted, but encourages comprehensiveness.</li> <li>3. Formalized Trade Ally list allows contractor lists to be generated and posted</li> <li>4. kWh incentives allow for expanded measure selection</li> <li>5. Universal participation agreement for all Commercial programs, and is multi-year.</li> </ol>

<p>CitySmart Informal meetings</p>	<p>To adjust the overall program design to expand the offerings, while maintaining the integrity of the program and addressing concerns from stakeholders</p>	<p>Informal direct contact with contractors, customers and suppliers. Face to face, phone calls and emails.</p>	<ol style="list-style-type: none"> <li>1. Maintained Benchmarking and Energy Master Planning, which had positive feedback from customers.</li> <li>2. Tiered Incentives allow customers to receive higher incentives, which they wanted, but encourages comprehensiveness.</li> <li>3. Formalized Trade Ally list allows contractor lists to be generated and posted</li> <li>4. kWh incentives allow for expanded measure selection</li> <li>5. Universal participation agreement for all Commercial programs, and is multi-year.</li> </ol>
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## 5.8 Estimation of EE Resource Potential

EAI filed its IRP October 30, 2009 in Docket No. 07-016-U. The plan reported the EAI IRP includes the integration of cost effective demand-side management (“DSM”) resources into the overall long-term supply plan. The reference Planning Scenario utilized in the EAI IRP (and discussed in greater detail therein) assumed that, over the Supply Resource Plan (“SRP”) planning horizon, EAI-sponsored DSM programs would reduce peak load by 239 MW and would reduce energy consumption by 607,000 MWh at a cost of \$182 million (nominal \$)<sup>8</sup>.

The same plan also stated that “...DSM is an important component of the resource planning process and requires that the Company properly assess the market achievable potential and make adjustments as needed due to changes in external market forces, changes to schedules for implementing DSM programs, as well as the Automated Metering Infrastructure systems that enable demand response programs. The amount of market-achievable DSM potential that

<sup>8</sup> Entergy Arkansas, Inc.'s, Integrated Resource Plan, Submitted Pursuant To Resource Planning Guidelines, Docket No. 07-016-U.

should be reflected in the 2009 SRP is subject to a variety of factors, many of which are highly uncertain. These DSM assumptions are not intended as definitive commitments to particular programs, program levels, of program timing. The level of DSM programs that will be implemented over the planning horizon will depend on a number of factors including:

- The level of DSM that the APSC approves to be deployed, and the implementation of appropriate regulatory review, approval, and cost recovery mechanisms to allow a reasonable opportunity to recover the costs associated with those programs.
- The relative cost of DSM versus alternative supply-side options. Chapter 10 of the SRP discusses the uncertainties that affect supply-side alternatives, both conventional and renewable alternatives. The cost and availability of supply-side alternatives are matters of uncertainty which could alter the relative attractiveness of DSM alternatives.
- Experience with the DSM programs: EAI's current experience with its energy efficiency portfolio has confirmed adjustments made to the ICF Potential Study as to the appropriate level of market-achievable potential to include in the EAI IRP. As additional energy efficiency and other DSM programs are implemented over time, EAI will be able to refine the estimates of market-achievable potential, the cost of implementing programs, and the speed at which programs can be deployed." The 2010 program and proposed new programs meet or exceed the IPR plan in a cost-effective manner. EAI plans to update the EE potential within the IRP that is to be filed in 2012.

## **5.9 Information Provided to Consumers to Promote EE**

EAI makes energy usage information available to all retail customer classes. Residential customers have free access to use trend information on the bill in the form of annual usage graphs. The customer can also sign up for My Account on line and access a more robust tool to analyze their bill, including comparing weather impacts, historical charts and data tables of usage. Finally, all customers can use the ENsight web page to access free self audits and the EAI energy efficiency programs.

The small business class is also provided on the bill information plus free online access to self energy audits and can sign up for a free newsletter that will be delivered monthly with energy efficiency ideas. The customer also has access to the EAI energy efficiency programs through the EAI web site.

The large C&I class has time-of-use rates that are used by many interruptible service tariffs. These customers have access to historical

15 minute interval data on accounts above 1 MW for a modest fee and to DataLink, a service that provides the customer with additional tools to manipulate data to provide assistance in making energy efficiency and energy use decisions. The large C&I customers also have access to a free newsletter that encourages energy efficiency and bring ideas, benchmarking resources and technology discussion and experts to the customers for their use.

Examples of these services are demonstrated in Section 7.0, Appendix D.

## **6.0 Appendix A EM&V Contractor Report**

Attached is the EM&V Consultant Report by Cadmus. The evaluation report is for the programs excluding AWP and EEA. ADM Associates evaluation report for the AWP program is included in the AWP Annual report.

## **7.0 OTHER APPENDIXES**

- 7.1 Appendix B: Inter-Utility and Inter-Fuel Program Coordination.**
- 7.2 Appendix C Ductless Heat Pump**
- 7.3 Appendix D Sample Information Provided to Consumers to Promote EE**



THE  
**CADMUS**  
GROUP, INC.

# Energy Efficiency Program Portfolio Evaluation, Measurement, and Verification Report

Docket No. 07-085-TF  
2011 Program Year

April 1, 2012

***Prepared by:***

The Cadmus Group, Inc.  
Energy Services Division  
1470 Walnut Street  
Suite 201  
Boulder, CO 80304

***Prepared for:***

Entergy Arkansas, Inc.





Prepared by:  
Amy Ellsworth  
Eric Rambo  
Kate Swayne  
Jeff Cropp  
Brian Shepherd  
Allie Marshall  
Heidi Ochsner  
Christy Gurin  
John Walczyk  
Francine Steininger  
Laruen Mattison  
Kathryn Thomsen  
Andrew Wood  
Jim Stewart  
Ashley Fredi

The Cadmus Group, Inc.

Rohit Vaidya  
NMR Group

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# 1. PORTFOLIO OVERVIEW

In March 2011, Entergy Arkansas, Inc. (EAI) filed a comprehensive three-year Energy Efficiency Program Plan (Docket No. 07-085-TF) with the Arkansas Public Service Commission (APSC). The Plan included a portfolio of energy efficiency, conservation and peak load reduction programs for program years 2011 to 2013 in EAI’s service territory. EAI’s 2011 portfolio combines two portfolios: the APSC approved Quick Start programs for January 2011 through June 2011 and comprehensive programs from July 2011 through December 2013.

In accordance with APSC rules, EAI engaged the Cadmus Group (Cadmus) to conduct an evaluation, measurement, and verification (EM&V) process of its 2011 portfolio. This report presents the results of Cadmus’ evaluation of EAI’s 2011 programs. Two statewide programs included in the EAI portfolios—the Arkansas Weatherization Program and Energy Efficiency Arkansas—were not evaluated as part of Cadmus’ EM&V effort.

Arkansas’ Technical Reference Manual (TRM) sets forth protocols for EM&V activities and a statewide independent evaluation monitor (IEM), which represents the APSC and provides technical guidance and oversight of those activities throughout the state. Cadmus’ evaluation activities were conducted in accordance with applicable Arkansas TRM provisions and under direction from the Arkansas IEM. Because of the brief time available to conduct EM&V of 2011 programs and as recommended by the IEM, Cadmus conducted a desk review of EAI’s programs.

As a whole, EAI’s portfolio is currently exceeded its 2011 participant target but fell short of its energy savings and demand reduction targets. Table 1 provides a summary of EAI’s participant, energy and demand savings targets and results on an evaluated net basis.

**Table 1. EAI Portfolio Targets vs. Actual by Program**

	Participants			Energy Savings (kWh)			Demand Reduced (kW)		
	Goal	Achieved	%	Goal	Achieved	%	Goal	Achieved	%
Lighting and Appliances	646,984	693,255	107%	21,010,000	12,142,849	58%	2,700	1,361	50%
Home Energy Solutions	1,440	3,771	262%	1,604,000	6,685,137	417%	900	3,477	386%
High Performance AC Tune-Up	3,354	1,527	46%	1,383,000	1,400,520	101%	600	899	150%
Small C&I Solutions	442	51	12%	603,000	1,259,460	209%	200	328	164%
Large C&I Energy Solutions	66	21	32%	5,176,000	10,275,701	199%	900	2,348	261%
C&I Standard Offer Program	114	13	11%	8,400,000	6,634,605	79%	2,000	900	45%
City Smart	27	12	44%	1,725,000	1,568,473	91%	200	377	188%
Agricultural Irrigation Load Control	NA	617	NA	326,000	-	0%	19,100	9,472	50%
<b>Total</b>	<b>652,427</b>	<b>699,267</b>	<b>107%</b>	<b>40,227,000</b>	<b>39,966,745</b>	<b>99%</b>	<b>26,600</b>	<b>19,163</b>	<b>72%</b>

The 2011 program year represented a transition for EAI. For the first half of 2011, the utility offered nine programs in its portfolio (two were statewide programs that were not subject to this evaluation). However, beginning in August through the end of the year, several programs underwent significant transitions over a varying schedule. Six additional approved programs

remained in program design and planning phases with launch dates expected in early 2012. While EAI very nearly met its portfolio energy savings target, demand reductions fell short of its goals.

The purpose of this evaluation report is to quantify the energy and demand savings that resulted from EAI's Energy Efficiency Portfolio in 2011. It also provides an overview of program design, operations, and delivery strategies as well as each program's evolution from Quick Start to a full, comprehensive and long-term demand side management offering.

## 2.1 Evaluation Approach

### 1.1.1 Evaluation Objectives

The 2011 impact evaluation sought to achieve the following objectives:

- Verify that program tracking data support total claimed savings.
- Review current database tracking methodology with the recommended formats in PROTOCOL A: Program Tracking and Database Development, as defined by the Arkansas TRM.
- Verify correct use of the Arkansas TRM values.
- Verify incorporation of the stipulated net-to-gross (NTG) value of 0.8.

Additionally, the 2011 evaluation sought to review the process by which programs are accomplishing and through which they account for savings. This included:

- Review inspection and verification protocols for the 2011 programs to identify gaps and ensure the integrity of reported savings.
- Document the program's 2011 evolution, components, and processes.
- Verify that essential program materials have been developed and that they contain critical elements to ensure program success.
- Identify significant gaps, achievements, and areas where improvements are needed.
- Identify key issues and areas of focus for subsequent evaluations.

### 2.1.1 Methodology

Given the short time available for evaluating EAI's 2011 programs, the evaluation methodology relied on a desk review of reported participant data. The primary evaluation activities were to:

- Review EAI's program tracking database to verify that participants and reported savings fell within the expected range.
- Conduct an engineering review of measure savings assumptions, inputs and calculations that were used to determine deemed savings and to estimate program savings in order to verify consistency with each other and with industry best practices.



- Use engineering calculations to verify program *ex ante* savings, and to determine adjusted program gross kilowatt hour (kWh) and kilowatt (kW) reductions.
- Apply the stipulated NTG ratio to estimate adjusted gross program savings.
- Interview utility and implementer program staff.
- Review all program materials, including: manuals, marketing materials, inspection protocols, and program applications.

For each program, Cadmus conducted a unique set of verification and evaluation activities, which are discussed by program in the following sections of this report. At the portfolio level, our evaluation sought to address several key researchable questions about activities and resources common to all programs, as outlined in Table 2.

**Table 2. Key Researchable Questions**

Researchable Question	Activity or Resource Used to Support Question
Are claimed savings are consistent with TRM values?	TRM and measure data
Where no TRM value exists, are claimed savings consistent with secondary research on measure savings?	Tracking databases, individual project workbooks (where available) and secondary data sources on savings values and algorithms
Is the program design appropriate to meet goals?	Program targets, utility and implementer staff interviews, industry best practices, materials review
Are program targets being met?	Program targets, impact evaluation results, utility and implementer interviews
Are tools and resources in place to support necessary program marketing?	Utility and implementer interviews, marketing materials review
Are programs being implemented and delivered effectively?	Utility and implementer interviews, program targets

Due to the brief time available to conduct our analysis, Cadmus research necessarily focused on high level issues and key operating functions essential to program success. During subsequent evaluation years, Cadmus will deepen it’s evaluation of both qualitative and quantitative program results, drawing on a richer set of resources and activities to support our analysis.

## 2.2 Findings

### 2.2.1 Comprehensiveness Checklist

In accordance with the provisions of the Arkansas TRM, Cadmus compared EAI’s programs to the APSC’s stipulated checklist of seven comprehensiveness factors, which must be applied to ensure all Arkansas utility programs and portfolio are comprehensive. EAI’s energy-efficiency programs must:

- Provide **education, training, marketing, or outreach** needed to address market barriers to the adoption of cost-effective energy-efficiency measures.
- Have adequate **budgetary, management, and program delivery resources** to plan, design, implement, oversee, and evaluate energy efficiency programs.
- Reasonably address all **major end-uses** of electricity.

- **Comprehensively address the needs of customers** at one time, in order to avoid cream skimming and lost opportunities.
- Take advantage of opportunities to address the comprehensive needs of **targeted customer sectors** or leverage non-utility program resources.
- Enable delivery of all achievable **cost-effective energy efficiency** within a reasonable period of time and maximize net benefits to customers and to the utility system.
- Have **EM&V procedures adequate** to support program management and improvement, calculation of energy, demand and revenue impacts, and resource planning decisions.

Cadmus’ evaluation assessed EAI’s 2011 portfolio of programs for its adherence to these APSC comprehensiveness factors,<sup>1</sup> to the extent possible.

### Education, Training, Marketing and Outreach

Each of EAI’s programs includes provisions for educating and training utility and implementer staff, trade allies (where applicable), and customers. In general, Cadmus found that EAI’s program manuals are comprehensive and adhere to industry best practices. Table 3 summarizes the training and education components for each of EAI’s programs. Note programs that were expanded from Quick Start to similar comprehensive programs are represented as a single program.

**Table 3. EAI Training Matrix**

Entergy Program	Staff Training	Trade Ally Training	Customer Education
Home Energy Solutions	X	X	X
High Performance AC Tune-Up	X	X	X
Lighting and Appliances	X	X	+
C&I Standard Offer Program	X	X	X
Large C&I Energy Solutions	X	X	X
Small C&I Solutions	X	X	X
City Smart	X	X	X
Agricultural Irrigation Load Control	X	X	+

Key:

- X = hands on or classroom & materials
- + = materials only
- O = none

Additionally, for all of its programs, EAI has developed comprehensive marketing and outreach strategies supported by a robust suite of planning and implementation documents, collateral materials, and on-the-ground activities conducted by EAI staff, experienced implementation contractors, and a substantial network of trade allies and program partners.

### Budgetary, management, and program delivery resources

Utility program best practices dictate that annual budget allocations must be adequate to continue programs uninterrupted throughout the program-planning period. Discontinuing and then

<sup>1</sup> With the exception of cost-effectiveness, which Cadmus did not evaluate.

restarting program offerings due to budget constraints can damage both program viability and customer satisfaction. While Cadmus did not evaluate the budget allocations provided to each program, in all cases our evaluation found that program budgets were sufficient to support program delivery throughout the 2011 program year.

For the majority of its programs, EAI has entered into contracts with experienced third-party implementation contractors for delivery. Each implementation contractor has assigned seasoned professionals to manage and implement the programs, with oversight from EAI’s energy-efficiency program management staff. Cadmus found that EAI has assigned adequate resources to ensure delivery of reliable, successful programs.

**Major End Uses Addressed**

EAI’s portfolio includes the major end uses typically found in best practice utility electric efficiency programs. Table 4 provides a summary of end use categories by customer sector with examples of applicable measures. Each end use category may include multiple available measures and may be offered through multiple program and incentive mechanisms.

**Table 4. EAI Program Major End Uses**

Residential	Commercial & Industrial
Lighting (e.g., lamps, fixtures, ceiling fans)	Lighting (e.g., LED lamps, occupancy sensors, fixtures)
Appliances (e.g., refrigerator, window air conditioners)	HVAC (e.g., air conditioners, chillers, boilers)
HVAC (e.g., central air conditioners, heat pumps, tune-ups)	Compressed air (e.g., air compressors)
Envelope measures (e.g., insulation, duct sealing)	Agricultural equipment
Electronics (e.g., smart strips)	Commercial food service equipment
Behavioral/Conservation	Refrigeration equipment
	High efficiency motors, fans, and variable speed drives

In addition to these end uses, EAI’s Custom, Agricultural Energy Solutions, and CitySmart Programs offer commercial and industrial (C&I), agricultural, and public sector customers an opportunity to install any cost-effective measure not included in its other programs.

**Comprehensively address customer needs**

EAI’s programs are designed to allow customers to participate at a level of the customers’ choice; these levels can range from installation of a single CFL to implementation of a comprehensive suite of energy-efficiency measures. Several programs are designed to reward customers for implementing comprehensive projects or multiple measures.

For example, several EAI programs use incentive mechanisms that reward customers for implementing multiple measures. The Home Energy Solutions program provides customers with home-energy assessments and free direct installation of low-cost efficiency measures, such as compact fluorescent lamps (CFLs). Bonus incentives are offered to customers who install multiple measures. The ENERGY STAR® New Homes Program and Energy Solutions for Multifamily, both scheduled to launch in 2012, will offer options for performance based and custom incentive to promote comprehensive energy-efficiency upgrades.

In the C&I sector, the Custom Solutions program provides technical facility assessments and bonus incentives for C&I customers who implement projects that include multiple measure types and/or end uses. The CitySmart program also offers energy benchmarking, technical assistance, and an incentive structure similar to the Custom Solutions programs and targeted to public facilities.

### Targeted Customer Sectors

EAI’s 2011 portfolio of programs was targeted to customers in the residential, low-income, small commercial, large commercial and industrial, and public sectors. Table 5 provides an overview of customer sectors targeted by each program. Note we do not include the low income sector since low income programs are not included in this evaluation.

**Table 5. EAI Program Target Sectors**

Entergy Program	Residential	Small Commercial	Large Commercial	Agriculture	Public
Residential Lighting and Appliances	X	X			
Home Energy Solutions	X				
High Performance AC Tune-Up	X	X			
Small C&I Solutions		X			
Large C&I Energy Solutions			X		
C&I Standard Offer Program			X		
City Smart					X
Agricultural Irrigation Load Control				X	

### EM&V Supports Program Improvement, Impact Calculation, and Planning Decisions

During more than two decades of working in the energy industry, Cadmus has conducted several hundred process, impact, and program evaluations. Our assessment of EAI’s 2011 programs included close coordination with both EAI’s staff and its implementers to procure the requisite measure installation and customer data in an amicable and productive working relationship. While our time was too limited for a comprehensive assessment of program management and improvement opportunities, we believe the calculation of energy and demand impacts to be accurate and justifiable. In future program years, Cadmus anticipates producing more detailed analyses of program operations, implementation, and savings results to support EAI’s sound strategic and resource planning decisions.

## 2.2.2 Energy Efficiency Programs Summary Results

### Significant Challenges and Accomplishments

EAI’s 2011 portfolio of programs:

- Installed nearly 700,000 measures.
- Achieved net energy savings of 39,966 MWh, which is 99% of target.
- Reduced peak energy demand by 19 MW, which is 72% of the target.

Performance against targets at a program level varied. Several programs exceeded their energy savings targets, including: Home Energy Solutions, High Performance AC Tune-Up, Small Business, and C&I Custom programs. These, along with the Residential Lighting and Appliances Program account for a significant portion of EAI's savings. Only three programs did not meet energy savings targets. Overall, EAI's portfolio level performance achieved 99% of target.

Although the portfolio fell short of reaching its energy and demand savings targets, what was accomplished is impressive given the challenges that had to be overcome to get programs ramped up in a truncated program year.

In both the initial launch of Quick Start programs and the subsequent launch of comprehensive programs EAI and its implementation contractors had little time to prepare for, launch, and ramp up programs. Highly successful energy efficiency programs rely heavily on robust contractor and retailer networks and mature marketing environments to generate awareness and drive program uptake. While EAI and its implementer made significant progress on developing the tools and conducting initial activities to build these support networks, most utility programs facilitate this process over several months and even years.

Given the challenges created by this transitioning market environment, EAI's net energy savings shortfall of 1% is quite modest.

The larger shortfall in demand savings can be largely attributed from weather and technology related issues associated with EAI's largest contributor to demand savings, the Agricultural Irrigation Load Control program, which achieved only 50% of its anticipated demand savings. Cadmus believes these were isolated issues, which EAI has addressed for future program years.

Additionally, in 2011 EAI laid a solid foundation that should lead to longer term program success. In its review of EAI's programs, Cadmus noted the following key success factors.

- Program designs are largely modeled after best practice programs. Additionally, EAI clearly designed its comprehensive programs to leverage lessons learned from its implementation experience with the Quick Start programs.
- EAI and its implementers have developed robust marketing plans and outreach strategies supported by a high quality of set of marketing collateral and other tools.
- Quality program delivery appears to be a high priority. Nearly every program has designed and begun to implement training programs for contractors and implementation staff. EAI and its implementation contractors have also developed comprehensive, high quality program manuals for nearly every program.
- EAI's implementation contractor initiated a trade ally network when the Quick Start programs launched and has designed and implemented a strategy to recruit trade allies into that network. Although the trade ally network still requires a focus on growth to fully support EAI's programs, particularly in the C&I sector, EAI's progress to date has been laudable.

### Portfolio Performance Summary

EAI's portfolio level program results are summarized in the tables and graphs below. Table 6**Error! Reference source not found.** and

	Participants	Measures	Reported Gross Savings (kWh)	Evaluated Gross Savings (kWh)	Gross Realized Savings Ratio	Net Savings
Lighting and Appliances	693,255	693,255	19,853,564	19,274,363	0.97	12,142,849
Home Energy Solutions	3,771	3,771	8,338,722	8,356,421	1.00	6,685,137
High Performance AC Tune-Up	1,527	3,007	1,750,650	1,750,650	1.00	1,400,520
Small C&I Solutions	51	51	1,697,520	1,574,325	0.93	1,259,460
Large C&I Energy Solutions	21	36	12,990,566	12,844,627	0.99	10,275,701
C&I Standard Offer Program	13	3,111	8,175,368	8,293,257	1.01	6,634,605
CitySmart	12	12	2,251,115	1,960,592	0.87	1,568,473
Agricultural Irrigation Load Control	617	617	-	-	-	-
<b>Total</b>	<b>699,267</b>	<b>703,860</b>	<b>55,057,504</b>	<b>54,054,234</b>	<b>0.98</b>	<b>39,966,745</b>

Figure 1 summarize EAI’s 2011 program energy savings results at a portfolio level.

**Table 6. EAI Portfolio 2011 Reported and Evaluated Gross Energy Savings**

	Participants	Measures	Reported Gross Savings (kWh)	Evaluated Gross Savings (kWh)	Gross Realized Savings Ratio	Net Savings
Lighting and Appliances	693,255	693,255	19,853,564	19,274,363	0.97	12,142,849
Home Energy Solutions	3,771	3,771	8,338,722	8,356,421	1.00	6,685,137
High Performance AC Tune-Up	1,527	3,007	1,750,650	1,750,650	1.00	1,400,520
Small C&I Solutions	51	51	1,697,520	1,574,325	0.93	1,259,460
Large C&I Energy Solutions	21	36	12,990,566	12,844,627	0.99	10,275,701
C&I Standard Offer Program	13	3,111	8,175,368	8,293,257	1.01	6,634,605
CitySmart	12	12	2,251,115	1,960,592	0.87	1,568,473
Agricultural Irrigation Load Control	617	617	-	-	-	-
<b>Total</b>	<b>699,267</b>	<b>703,860</b>	<b>55,057,504</b>	<b>54,054,234</b>	<b>0.98</b>	<b>39,966,745</b>

**Figure 1. EAI Portfolio Distribution of Evaluated Gross Energy Savings by Program**

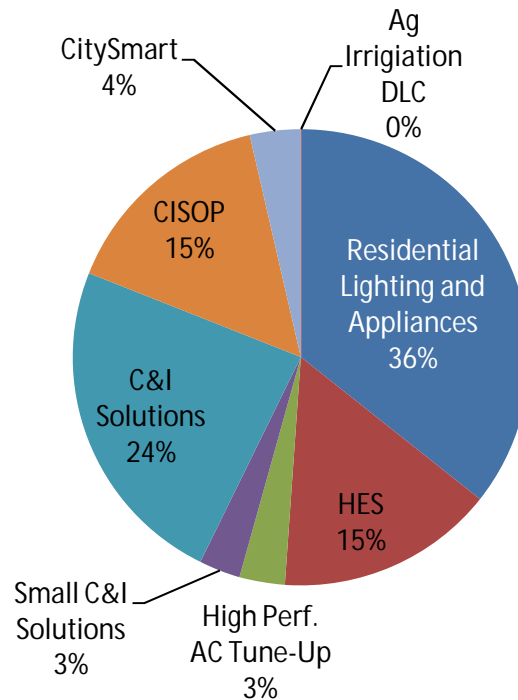


Table 7 and Figure 2 summarize EAI’s 2011 program energy savings results at a portfolio level.

**Table 7. EAI Portfolio 2011 Reported and Evaluated Gross Demand Reduction**

	Participants	Measures	Reported Gross Savings (kW)	Evaluated Gross Savings (kW)	Gross Realized Savings Ratio	Net Savings
Lighting and Appliances	693,255	693,255	2,158	2,160	1.00	1,361
Home Energy Solutions	3,478	3,771	4,233	4,347	1.03	3,477
High Performance AC Tune-Up	1,527	3,007	1,124	1,124	1.00	899
Small C&I Solutions	51	51	399	410	1.03	328
Large C&I Energy Solutions	21	36	3,019	2,935	0.97	2,348
C&I Standard Offer Program	13	3,111	1,120	1,124	1.00	900
CitySmart	12	12	599	471	0.79	377
Agricultural Irrigation Load Control	617	617	9,345	9,472	1.01	9,472
<b>Total</b>	<b>698,974</b>	<b>703,860</b>	<b>21,997</b>	<b>22,044</b>	<b>1.00</b>	<b>19,163</b>

**Figure 2. EAI Portfolio Distribution of Evaluated Gross Demand Savings by Program**

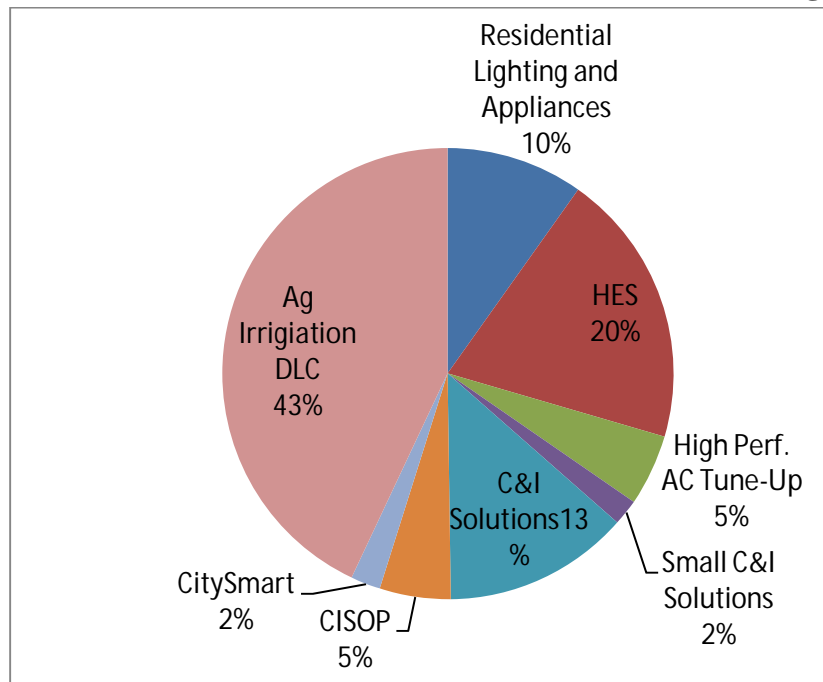


Table 8 provides a summary of EAI’s total portfolio evaluated gross and net savings.

**Table 8. EAI Portfolio 2011 Evaluated Gross and Net Savings**

	Evaluated Gross Savings	Net Savings	Ratio of Net to Evaluated Gross	Ratio of Net to Reported Gross
Annual Energy Savings (kWh)	54,054,234	39,966,745	0.74	0.73
Coincident Peak Demand Savings (kW)	22,044	19,163	0.87	0.87

### 2.2.3 Stipulated NTG

For 2011 program activity, the APSC stipulated net savings should be 80% of the gross value for all measures except residential CFLs, for which net savings should be 63% of the gross value. Cadmus assessed the appropriateness of the stipulated NTG ratio of 0.8 for the 2011 EAI portfolio of energy-efficiency programs. We reviewed impact evaluations in which NTG was calculated for programs similar to those in EAI’s portfolio. For others, where NTG ratios were estimated on a measure level across multiple programs, we chose measures that are offered in one or more programs in the EAI portfolio.

Numerous factors can account for variations in NTG ratios, including climate,<sup>2</sup> the maturity of a program, differences in program delivery, the regional market for offered measures, incentive structure and levels, and the method for calculating NTG ratio and the components that comprise

<sup>2</sup> We used the U.S. Department of Energy’s map of climate zones to identify the climate zone for each program. See [http://apps1.eere.energy.gov/buildings/publications/pdfs/building\\_america/ba\\_climateguide\\_7\\_1.pdf](http://apps1.eere.energy.gov/buildings/publications/pdfs/building_america/ba_climateguide_7_1.pdf).



it.<sup>3</sup> In general, given the variety of factors affecting NTG values, comparing these values across different programs should be done cautiously, and the NTG values reported here should be taken only as a rough indication of the appropriateness of the stipulated NTG ratios in the portfolio.

A detailed review of Cadmus’ research efforts and the results of our analysis is provided in Appendix A of this report. Overall, the analysis found that the stipulated NTG for Arkansas is reasonable. To gain economies of scale, the analysis reviewed programs for both EAI and EAI, using general program categories for comparison. Table 9 provides high level results of this analysis.

**Table 9. Net-To-Gross Review**

Program Category	Conclusion
Residential Audit Programs	The analysis suggests the stipulated NTG ratio of 0.8 for SWEPCO’s and Entergy’s residential audit programs is reasonable. Nearly all NTG ratios from the evaluations reviewed, both on a program-level and a measure-level, are over 0.8. Only heating systems had a slightly lower NTG. Considering the relatively cold climate of the areas we compared to Arkansas, however, we would expect freeridership to be lower for the Arkansas programs. Customers in colder climates are more likely to purchase or replace heating systems without the benefit of the program. Therefore, we expect the NTG ratio for heating systems to be higher in Arkansas—perhaps closer to 0.8—than in colder climates.
Residential Lighting and Appliance Programs	Considering the three evaluations reviewed for this analysis, the stipulated NTG ratio of 0.63 for Arkansas’ residential lighting/appliances programs seems reasonable and maybe even conservative. The lighting measure NTGs from all the reviewed evaluations were above 0.8. Although our review of California’s retrofit programs found much lower NTG ratios, the comparability of these programs with those in Arkansas is limited. As mentioned, the market for energy-efficient products is more mature in California than in Arkansas.
Commercial and Industrial Programs	The NTG ratios for the C&I programs reviewed ranged from 0.41 to 0.93. The ratios for programs that focus on lighting equipment tend to be in the higher range. It is important to note that the Arkansas portfolio of C&I programs tends to focus on lighting. The lower NTG ratios for the evaluations we reviewed tended to include freeridership only, and in a few cases evaluators adjusted NTG upward to account for self-report bias and spillover. Taking these factors into consideration, the stipulated NTG ratio of 0.8 seems reasonable.

**1.1.2 Portfolio Level Conclusions and Recommendations**

EAI’s efforts and achievements in 2011 are commendable. EAI and its implementation contractors have laid a solid foundation for a strong energy efficiency program portfolio and should continue to implement their plans for outreach, training, developing contractor networks, and ensuring quality measure installations. Cadmus’ high level conclusions and recommendations regarding EAI’s 2011 efficiency program portfolio are outlined below.

- Although Cadmus found that EAI assigned adequate internal and external resources to ensure successful delivery of its programs in 2011, as its programs grow and savings goals increase in 2012 and 2013, EAI should consider increasing its staff resources to ensure adequate oversight and management of its expanding programs.

<sup>3</sup> Free ridership, spillover, snapback (the extent to which energy efficient equipment causes behavioral changes that decrease the savings derived from the equipment) and snapforward (the extent to which energy efficient equipment causes behavioral changes that increase the savings derived from the equipment).

- EAI and its implementation contractors have a good understanding of the importance of trade allies to support program promotion and implementation. They have established plans for and laid the groundwork to build robust contractor and retailer trade ally networks to support this essential program outreach mechanism. Going forward, EAI should continue to build on its efforts in this area, providing training, marketing, and implementation support to ensure trade allies are rewarded for their participation.
- Cadmus found that many programs are referred to by multiple different names in different documents (regulatory filings, program manuals, marketing materials, internal planning documents, etc.). While this was certainly exacerbated by the shift from Quick Start to comprehensive programs, it will be important to use consistent naming conventions going forward to avoid confusion among customers, trade allies, and other stakeholders.
- Three programs, Home Energy Savings, Small C&I Solutions, and Large C&I Solutions, stood out as those most significantly exceeding EAI's energy savings goals, with ceiling insulation (HES) and lighting contributing the majority of savings in those programs. EAI should monitor participation against goals going forward, and potentially increase its goals to better reflect market demand. However, ongoing changes in the U.S. lighting market resulting from 2007 Energy Independence and Security Act (EISA) will adjust the baseline for some lighting measures resulting in a decrease in energy savings. Considering this change, Cadmus believes the margin of excess savings resulting from fluorescent lighting will decrease over time.
- Some elements required to calculate savings based on the TRM were missing from the tracking database. Cadmus recommends that EAI review the impact findings for data items that were found missing. Most or all of this information is being recorded by the program implementer; however, we identified several cases where this information had not been transferred from project documentation to the tracking database.
- Cadmus identified instances where reported savings calculations had not been updated to use the methodology described in the current TRM. We recommend that all calculations be reviewed for conformity to the TRM.

We offer a final, general recommendation related to the application of the TRM. The use of deemed savings estimates, often in the form of a compiled manual (e.g., a TRM), offer the advantages of timely assessments of program savings as well as greater certainty for program managers in planning allocations of program resources. In a well-conceived process for updates to savings estimates, both the evaluators and program implementers collaborate to recommend review of specific existing or new measures. This process can provide dual perspectives on deemed savings estimates that result in balanced, well-supported estimates. In addition, this collaboration between evaluation and program implementers is most successful when periodic changes to savings estimates are applied prospectively. That is, updates and changes to deemed savings values affect *ex ante* savings estimates going forward, rather than retrospectively revising previously applied program savings estimates. This method helps ensure that the active (current) deemed savings values closely parallel assumptions used in program implementation. It is also recommended that all input assumptions and calculations for all deemed savings values are reviewed at least once during a program and evaluation cycle.

The sections below provide program-specific impact and process evaluation findings and recommendations.

## 2. LIGHTING AND APPLIANCES PROGRAM

This report section report presents the evaluation approach, findings, conclusions, and recommendations for the Lighting and Appliances Program in EAI’s Residential Energy Efficiency Portfolio.

In 2011, EAI offered two residential lighting programs. From January through July, the Residential CFL program operated as a coupon-based, CFL buy-down program. The lighting portion of the Lighting and Appliance program launched on August 22, 2011, and the Residential CFL program discontinued<sup>4</sup> at that time. For this evaluation, Cadmus reviewed the program processes and other operational functions for only the currently operational 2011 Lighting and Appliances Program. Program savings data and other impact results for both programs, reviewed and analyzed separately, are presented independently in this section.

### 2.1 Program Description

On June 30, 2011, EAI received APSC approval for the Lighting and Appliances Program. Before then, EAI had offered the Residential CFL Program, a Quick Start program launched at the end of 2007. The Residential CFL Program offered incentives for standard spiral bulbs through coupons, distributed to customers several times a year as bill inserts. In replacing this program with the Lighting and Appliances Program, EAI sought to offer incentives for a larger suite of lighting and appliance measures, either through a point-of-purchase (POP) or mail-in rebate incentive structure.

The following program measures were included in 2011:

- ENERGY STAR Standard CFL Bulbs
- ENERGY STAR Specialty CFL Bulbs
- ENERGY STAR Dimmable CFL Bulbs
- ENERGY STAR Compact Florescent (CF) Fixtures (Including Ceiling Fan & Light Combination Units)

The program delivers rebates using an upstream incentive mechanism, which provides discounted pricing on qualifying products at participating retail stores. Program incentives are:

- \$1 per bulb for standard spiral CFLs;
- \$1.50 per bulb for specialty CFLs; and
- \$3 per bulb for CFLs with dimmable features.

Incentives for CFL fixtures and ceiling fans range from \$10 to \$25 per fixture. Each retailer tracks sales, and either the retailer or the manufacturer reports program participation monthly (or,

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<sup>4</sup> Although the program was discontinued, some coupons remained valid and were awarded incentives for a period of time after August 22, 2100.

in some cases, weekly) to the program implementer. CLEAResult implements the Lighting and Appliance Program (and also implemented the Residential CFL Program).

The 2012 program adds incentives for the following appliances:

- ENERGY STAR Refrigerators
- ENERGY STAR Window Air Conditioner Units (A/Cs)
- Advanced Power Strips

The program will also offer ENERGY STAR window air conditioners through a POP delivery model, and refrigerators will be offered through a mail-in rebate incentive structure. Currently, the delivery mechanism for advanced power strips is under development, but will most likely include an in-store POP incentive option and an instant online manufacturer rebate channel, enabling customer eligibility verification and broader participant data collection. EAI considered introducing these appliance measures to the program in 2011, but chose to delay these offerings until 2012, allowing the program to focus on rolling out lighting measures in 2011.

### 2.1.1 Accomplishments and Challenges

Table 10 outlines the Residential Lighting and Appliances program’s goals and achievements.

**Table 10. Lighting and Appliance Program Targets and Achievements**

	Participants*	Energy Savings (kWh)	Demand Savings (kW)
Target	646,984	21,010,403	2,700
Actual (Evaluated Net)	489,081	12,142,849	1,361
% of Target	107.2%	58%	50%

\*Each purchase is considered a participant.

In 2011, the Lighting and Appliance program exceeded its participation targets, but fell short of meeting its energy and demand savings and targets.

Accomplishments in 2011 include:

- The program implementer recruited five partner retailers, each with multiple store locations.
- EAI expanded the Residential CFL Program to include specialty CFLs and CF fixtures, and conducted the necessary planning and preparation to add appliances in 2012.
- The program exceeded its 2011 participation targets, distributing over 500,000 high-efficiency light bulbs and appliances.

Challenges identified in 2011 include:

- The program had a limited time frame in which to launch and achieve savings for the year.

- The low pay, limited energy-efficiency knowledge, and high turnover rates in retail stores proved challenging in motivating retail staff to promote program measures to their customers.
- The volume of participating stores and varying reporting formats made invoice processing time consuming.
- Program staff are concerned that lighting market changes resulting from the Federal Energy Independence and Securities Act (EISA), will reduce savings available from CFLs. EAI will need to explore other options to achieve the same energy savings from its residential programs.

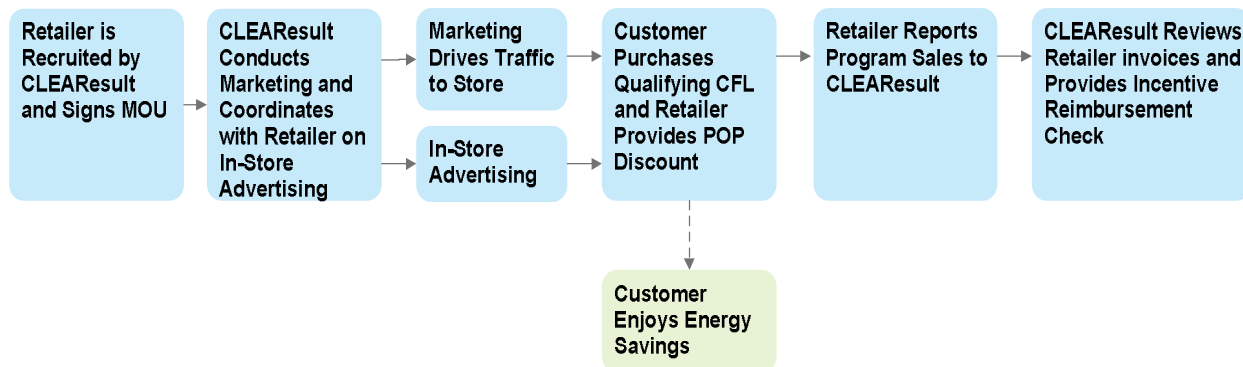
## 2.2 Program Management and Implementation Strategies

CLEAResult implements the Lighting and Appliance program, with EAI providing management and oversight. EAI collaborated with the implementer on program planning and design. CLEAResult processes and tracks rebates and manufacturer invoices, conducts marketing and outreach, manages and oversees the retailer network, and conducts quality assurance and quality control activities, as outlined in the Lighting and Appliances Operations Manual. As lighting measures are offered through a POP delivery model, customers need not provide qualifying information for these products.

Both CLEAResult and EAI conduct quality assurance activities to ensure the program operates as intended. In 2011, CLEAResult reviewed retailer and manufacturer invoices for accuracy as they arrived. CLEAResult also conducted drop-in visits to ensure in-store advertising materials were properly displayed. These quality assurance activities will continue into 2012, and additional quality assurance and control activities will be added, including inspections for advanced power supplies, and possibly other measures. EAI provides another layer of quality assurance each month through reviewing participation reports provided by CLEAResult.

All measures offered in 2011 utilized a POP delivery model; however, in 2012, some additional measures offered will use mail-in rebates. Figure 3 shows the Lighting and Appliance Program process flow chart for lighting measures rolled out in 2011. To create the flow diagrams, Cadmus relied on the description in the program manual, along with interviews and correspondence with program utility staff and implementation staff. Boxes in Figure 3 represent key program activities in chronological order.

**Figure 3. Lighting and Appliances Program Process Flow (upstream mechanism)**



CLEAResult manages the entire program delivery process, including: working with retailers to offer qualifying products through a POP delivery model; developing marketing materials; coordinating in-store advertising; and conducting outreach. Customers purchasing qualifying lighting products receive instant rebates, which automatically discount the products. Participating retailers track sales of qualifying bulbs, and they or the manufacturer submit a monthly invoice to the implementer for reimbursements through incentives. The implementer reviews the invoice, and provides the retailer or manufacturer with a check for total incentive amounts for bulbs sold through the program. In 2012, EAI will continue to use this delivery model for lighting measures.

## 2.3 M&V Approach

This report's Portfolio Overview section describes the evaluation's overall research objectives and general methodology. This section describes the M&V methodology specific to the Lighting and Appliance Program, where it differs from the overall approach.

### 2.3.1 Processes Evaluation

For the Lighting and Appliance Program evaluation, we gathered information and feedback on the program through interviews with EAI program management staff and CLEAResult. In addition, we reviewed the following program materials:

- 2011–2013 Lighting & Appliances Program Manual (Revised: 10/12/2011)
- Lighting & Appliances Program 2011–2013 Operations Manual (Revised: 11/25/2011)
- 2011–2013 Residential Programs Marketing Plan (Revised: 11/11/2011)
- Rebate application forms
- In-store signage
- Website: <http://www.energy-arkansas.com/homeappliances.aspx#lights1>
- Retailer training materials

### 2.3.2 Impact Evaluation

Cadmus verified and adjusted gross savings estimates based on savings algorithms in the Arkansas TRM. The hours of use were adjusted from 2.28 hours per day, as stated in the TRM, to 2.20 hours per day based on APSC Docket No. 10-100-R. A net-to-gross ratio of 0.63 was applied to all lamps, per the Commission Order.

Cadmus reviewed CFLs based upon the measure description and CFL wattage provided in CLEAResult's database. CLEAResult also provided supporting documentation including their wattage lookup tables and the methodology for CFLs not deemed in the TRM, such as outdoor lamps. Either the manufacturer and model number or SKU number was included in the measure description and in the lookup tables, allowing a sample of CFLs to be verified using the internet.

For lamps without deemed savings in the TRM, energy and demand savings were assigned based on CLEAResult's methodology, presented in Table 11. Energy and demand savings were calculated

using the methodology in the TRM, however outdoor fixtures were assigned different hours of use and coincidence factors.

**Table 11. Energy Savings and Demand Reduction Values Applied to CFLs Not in the TRM**

Light Type	CFL Wattage	Baseline Wattage	Hours of Operation per Day	Coincidence Factor	kWh Savings	kW Reduction
lamp	7	40	2.28	9%	27	0.0030
lamp	40	95	2.28	9%	46	0.0050
indoor fixture	40	95	2.28	9%	46	0.0050
outdoor fixture*	42	95	5	0%	97	0.0000

\*For an outdoor fixture, the hours of operation are based on the ENERGY STAR calculator. Demand savings are zero since an outdoor fixture would not be operated during the peak period, which falls during daylight hours.

In calculating the energy savings for lamps not included in the TRM, the hours of use for all indoor fixtures was stipulated as 2.20 hours per day. Guidance for the hours of use for outdoor fixtures was not provided in the TRM, and Cadmus assumed these lamps operated 5 hours per day based on the ENERGY STAR calculator, and that their use occurred at night so there are no peak demand savings.

## 2.4 Impact Evaluation Findings

### 2.4.1 Reporting and Tracking Systems

Cadmus reviewed the database and tracking methodology in use by Entergy and CLEAResult, against the EM&V PROTOCOL A, as defined by the Arkansas TRM.

CLEAResult provided a database in Excel format containing claimed savings values for two separate delivery mechanisms: coupon and markdown. The coupon database contained complete information for: measure type, coupon redemption date, coupon description, lamp wattage, quantity, claimed energy savings, and claimed demand reduction. The markdown database contained identifying information for: the retail store, measure description, quantity, lamp wattage, claimed energy savings, and claimed demand reduction.

### 2.4.2 Review of TRM Values

TRM values were applied correctly in both the markdown and coupon database, based on the CFL wattage reported. Deemed savings values from the TRM were not applied to CFLs where the lamps did not fit the description within the TRM. Such cases include lamps installed in outdoor fixtures, or lamps outside the wattage range outlined in the TRM.

### 2.4.3 Baseline Assumptions

In the TRM, energy and demand savings for CFLs are deemed based on the CFL's wattage. The baseline assumption used to calculate the deemed value is an incandescent lamp of similar lumen output; however, the baseline data are not required to determine savings. For CFLs not deemed in the TRM, the baseline incandescent lamp wattage was assumed, as outlined in Table 11 in the Methodology section.



### 2.4.4 Program Impacts

Entergy fell short in meeting its 2011 annual net energy savings goal of 21,010 MWh, and its peak demand savings goal of 2.7 MW. Table 12 and Table 13 present the Lighting and Appliances 2011 reported gross energy and demand savings and participants. Table 14 shows evaluated gross and net annual savings.

**Table 12. Lighting and Appliances 2011 Reported and Evaluated Gross Energy Savings by Measure Category**

	Measures (units)	Reported Gross Savings (kWh)	Evaluated Gross Savings (kWh)	Gross Realized Savings Ratio
CFLs	489,081	19,853,564	19,274,363	0.97
Total	489,081	19,853,564	19,274,363	0.97

**Table 13. Lighting and Appliances 2011 Reported and Evaluated Gross Demand Reduction by Measure Category**

	Measures	Reported Gross Savings (kW)	Evaluated Gross Savings (kW)	Gross Realized Savings Ratio
CFLs	489,081	2,158	2,160	1.00
Total	489,081	2,158	2,160	1.00

**Table 14. Lighting and Appliances 2011 Evaluated Gross and Net Savings**

	Evaluated Gross Savings	Net Savings	Net to Gross Ratio
Annual Energy Savings (kWh)	19,274,363 kWh	12,142,849 kWh	0.63
Coincident Peak Demand Savings (kW)	2,160 kW	1,361 kW	0.63

For the coupon database, Cadmus found a calculation error in several line items, where energy savings and demand savings for one lamp type were multiplied by the quantity corresponding to a different lamp type. This error affected 30% of the total number of lamps within that database, resulting in an increase in savings. Hours-of-use were adjusted from 2.28 to 2.20 hours, resulting in decreased energy savings.

In the markdown database, Cadmus checked the energy and demand savings against the TRM, CLEAResult’s lookup tables and supporting documentation. Energy savings matched the TRM and supporting documentation when 2.28 hours-of-use were used. For the evaluated energy savings, the hours-of-use for indoor lamps and fixtures were adjusted from 2.28 to 2.20 hours per APSC order. Reported peak demand savings matched evaluated peak demand savings.

### 2.4.5 Quality Assurance

A Cadmus engineer reviewed and compared evaluated energy and demand savings against the TRM algorithms or CLEAResult’s methodology. Evaluation results were reviewed for consistency and accuracy by the task manager.

## 2.5 Process Evaluation Findings

The program appears to operate smoothly, although it did not achieve 2011 savings targets, program staff reported that they believe the program is on track to achieve savings goals in 2012 for lighting.

### 2.5.1 Program Design, History, and Goals

On August 22, 2011, CLEAResult officially launched the program's lighting portion. In 2011, the program offered POP rebates for qualifying measures through multiple retailer partners, including Home Depot, Lowe's, Sam's Club, and Wal-Mart. All of approximately 570,000 residential customers in EAI's service territory are eligible to participate.

In 2011, the program achieved 93.3% of its gross energy savings goals, from its launch through the end of the year. Although the program did not completely fulfill its targets in 2011 due to a late launch, program staff are confident 2012 goals can be achieved.

### 2.5.2 Program Delivery and Implementation

The POP delivery model, considered a best practice approach for residential lighting programs, has effectively worked for EAI. Given the program achieved 93.3% of its goal in four-and-a-half months, the goal most likely would have been too low, had the program launched earlier. Insufficient time has passed to determine whether the 2012 incentive delivery models and appliance types offered will be effective.

Both EAI Program staff and CLEAResult implementation staff reported that coordination across teams proved very effective. The two companies' program staff collaborated on program design and planning and EAI reported that CLEAResult was flexible and accommodating throughout this process. Staff remain in daily contact, and have strong working relationships.

Although EAI reported satisfaction with CLEAResult's implementation, the tracking system emerged as an area for improvement. CLEAResult's current system consists of various databases, which do not allow reports to be run efficiently. Although CLEAResult is upgrading its tracking system, it is uncertain when the transition will be complete. Some features are expected to be available in 2012. The new system will function as a company-wide tracking system, allowing all data points to be tracked centrally. Options for electronically uploading retailer reports are also being explored.

### 2.5.3 Marketing and Outreach

EAI is working to create an integrated marketing approach for its residential energy-efficiency programs. This seamless, customer-facing approach can be considered both a best practice and a cost-effective marketing strategy.

CLEAResult markets the program through bill inserts, events, in-store advertising, and the program Website. The program markets to retailers through sales associate training and in-store collateral. CLEAResult does not, however, currently measure the effectiveness of its marketing and outreach efforts; so the results of these strategies cannot be determined.

#### **2.5.4 Training**

CLEAResult reported its efforts to train retail sales associates at participating retail stores have worked well, providing an effective channel for advocating program participation to customers. Sales associates' limited knowledge about energy-efficient products, however, can present a challenge. As retailers serve as an integral program component, the program considers staff training a priority for the program, though this priority might not always be shared by retailers

The program operation manual serves to document program procedures and train new staff regarding program operations. This comprehensive document seems to be an effective internal tool for communicating program processes within the implementer organization.

#### **2.5.5 Trade Ally Response**

Program staff reported, overall, that retailers expressed excitement about the program as it increases their sales. Contracting processes can be burdensome for some retailers, but, generally, relations with retailers and manufacturers have been positive. To make the program available to all EAI customers, CLEAResult recruited a large number of retail stores for program participation. A wide range of geographically dispersed stores across the service territory appears to have effectively driven participation in 2011.

The program has experienced some challenges, however, due to the significant number of participating retailer stores and the high number of invoices submitted to CLEAResult each month. Retailers and manufacturers have their own formats for submitting information to CLEAResult. As the parent retailer may work with multiple utilities regionally or nationally, they often will not provide information in a specific format for an individual program. The large volume of retailers also creates challenges for conducting site inspections.

#### **2.5.6 Customer Response**

As the 2011 lighting measures were incentivized through a POP delivery model, data on participating customers are not available. This limits the opportunities for surveying 2011 lighting participants. Program staff found customers generally respond favorably to the energy-efficiency initiatives offered by EAI, but lack of formal research in this area makes identifying widespread effects difficult.

#### **2.5.7 Program Materials**

Reviewing materials for the 2011 program sought to verify essential program materials have been developed and contain critical elements to ensure program success. Table 15 indicates whether the Residential Lighting & Appliances Program uses critical program materials.

**Table 15. Presence of Program Materials for Residential Lighting and Appliances Program**

Required Program Materials	Achieved
Presence of a program manual, handbook, and/or implementation plan.	+
Presence of process flowcharts and organizational charts.	+
Presence of data collection protocols and QA/QC protocols.	+
Presence of training materials for program staff (e.g., program managers, account executives, engineers, support staff).	+
Presence of application and rebate forms, customer contracts, and agreements.	+
Presence of educational materials for customers, including program handouts or general energy-efficiency literature.	+
Presence of marketing materials.	+

EAI’s 2011–2013 Lighting & Appliances Program Manual, 2011–2013 Operations Manual, and the 2011–2013 Residential Programs Marketing Plan thoroughly describe program details and processes. The operations manual serves as a training tool for educating new staff on program processes.

Cadmus reviewed contents of the 2011–2013 Lighting & Appliances Program Manual to verify the document includes critical information, clearly defines roles, and represents key best practice elements. Table 16 summarizes research questions guiding this review, and research results.

**Table 16. Program Manual/Handbook, Review for Residential Lighting and Appliances Program**

Researchable Topics	Achieved
Program staff roles clearly defined.	+
Implementer staff roles clearly defined.	+
Other stakeholder’s roles clearly defined (trade allies, etc.).*	+
Presence of eligibility requirements.	+
Eligible program measures clearly defined.	+
Incentive structure clearly defined.	+
Presence of program processes/ step-by-step instructions.	+
Customer touch points defined.	+
All program systems clearly defined (for example, any database software is mentioned by name, who will use it, and when in the process).	-
Inspection and verification protocols included or referenced.	+
If applicable, reference to partnership with other utilities’ programs.	N/A
Reference to program Website.	+
Presence of program staff contact information.	+
All acronyms clearly defined.	+
QA/QC protocols included or referenced.	+
Data collection protocols included or referenced.	NA
Marketing materials included or referenced.	+

\* This category refers to trade allies and other contractors participating in program delivery, but not part of the formal utility and implementation contractor program team.

The 2011–2013 Lighting & Appliances Program Manual includes program information organized by seven main topics:

1. Program overview
2. Program eligibility
3. Program incentives
4. Program participation process
5. Quality management system
6. Trade ally performance standards
7. Frequently asked questions.

Cadmus found the program manual well-organized, clearly defining program information. While the document does not discuss marketing activities, staff training, and detailed descriptions of program systems, EAI’s internal operations manual describes these in full detail. Additionally, Cadmus found a few minor formatting and grammatical errors, and inconsistencies within the program manual’s text, which detracts from the reader’s ability to comprehend the information. For example, bolding and bulleting errors in the Program Roles & Responsibilities section make it difficult for the reader to quickly grasp different program actors and their respective duties.

Finally, Cadmus conducted a high-level assessment of the program’s marketing materials and outreach channels. This review focused only on marketing elements critical to ensuring marketing tactics and collateral materials sufficient to support key outreach channels.

**Table 17. Marketing Material Review for the Residential Lighting and Appliances Program**

Researchable Topics	Achieved
Presence of a marketing plan	+
Are marketing roles clearly defined?	+
Supporting collateral provided (brochures, factsheets, etc.)*	-
Does collateral clearly describe the program and benefits?	+
Presence of a network to promote the program through targeted outreach	+

\* At the time of this report, these documents had not been received.

The 2011–2013 Residential Program Marketing Plan describes: program objectives, team roles and responsibilities, key messages, target audiences, marketing channels and initiatives. It includes a calendar of activities. EAI held a marketing “soft launch” in 2011, with advertising limited to several key channels. The campaign will fully launch in 2012. The marketing plan sufficiently outlines marketing activities. Key messages provide both rational and emotional reasons for customers to engage with the program—a best practice. Channels utilized in 2011 included: bill inserts, online advertising, advertising in sports programs, earned media/PR, retailer outreach and training, and customer outreach. The Website includes information about: program offerings, benefits, typical home projects and savings, and locations of participating retailers.

## 2.6 Conclusions and Recommendations

The Lighting and Appliance Program processes appear effective. The retail employee training efforts serves as a vital component of program success, and support promotion to customers through retailers. This approach, coupled with more traditional marketing and outreach activities, effectively raises awareness of program opportunities. Although finding solutions to challenges created by a large pool of participating retailers may be difficult, Cadmus recommends examining methods to streamline reporting, where possible.

Additionally, Cadmus recommends including greater detailed information in the program manual, and correcting formatting and grammatical errors, to make the document more helpful, and appear more professional to customers.

For the tracking database, Cadmus recommends that the wattage column is filled in consistently for all lamps (e.g., reporting the CFL wattage, not the replaced lamp wattage), and that the CFL wattage data correspond with the reported energy and demand savings. We also recommend adding a field to distinguish between indoor and outdoor lamps.

### 3. HOME ENERGY SOLUTIONS PROGRAM

This section of the report presents the evaluation approach, findings, conclusions, and recommendations for the Home Energy Solutions (HES) program in EAI's Residential Portfolio. For the majority of 2011, EAI offered its Quick Start residential energy assessment program, Residential Solutions, however the critical program delivery and implementation strategies remained largely unchanged through the transition, in November 2011, to the HES program. Cadmus reviewed impact data from the Residential Solutions program from January to October, 2011 as well as the data from the HES program for November and December, 2011. Cadmus process evaluation looked primarily at the HES program's materials, implementation, delivery and outreach strategies as well as the transition from Residential Solutions to HES.

#### 3.1 Program Description

The HES program offers multiple participation opportunities for owners and renters of single-family homes as well as those living in multifamily complexes that are four or fewer units in EAI's service territory. The program is designed to help customers achieve significant long-term electric savings through the use of local Home Energy Consultants (HEC) and contractors.

Participating customers may receive incentives in the form of coupons, for one of two possible types of home evaluations: a walk through energy survey or a more comprehensive energy assessment with diagnostic testing, as well as eligible energy efficiency measures that are installed in their homes. The coupons offset the initial cost of the survey or assessment, and installed measures for participating customers and are paid one of three ways: 1) 100% of incentive deducted directly from the contractor invoice; 2) 50% of incentive directly deducted from the contractor invoice and the remaining 50% sent to the customer after verification; or 3) 100% of incentive sent to the customer after verification. See Table 18 for incentive structure.

**Table 18. HES Incentive Structure**

100% Off Invoice	\$300 Off Invoice and \$200 After Verification	100% After Verification
Tier 1 Survey	Tier 1 Survey Bonus	Customer savings bonus 1*
Tier 2 Assessment	Tier 2 Assessment Bonus	Customer savings bonus 2**
Ceiling insulation	AC bundle 2 (AC replacement and commissioning)	
Air sealing	AC bundle 3 (AC replacement, duct sealing, and commissioning)	
Ceiling insulation upgrade bundling bonus (ceiling insulation and air sealing)	Heat pump bundle 2 (heat pump replacement and commissioning)	
Wall insulation		
Duct sealing		
AC replacement		
AC bundle 1 (AC replacement and duct sealing)		
Heat pump replacement		
Heat pump bundle 1 (heat pump replacement and duct sealing)		
Replacement air handler with ECM		

\* Fifteen percent of total implemented incentive value when the customer completes a Tier 2 assessment, installs at least two recommended measures, and achieves saving of at least 15%.

\*\* Thirty percent of total implemented incentive value when the customer completes a Tier 2 assessment; installs at least two recommended measures, and achieves saving of at least 30%.

In addition to the incentives listed in Table 18, participating customers are eligible for direct installation measures. All participants may receive up to six compact fluorescent lamps (CFLs) (60 watt equivalent) and one smart power strip. Customers with electric hot water heaters are also eligible for:

- Faucet aerators
- Low-flow showerhead
- Water heater wrap
- Water heater pipe insulation

### 3.1.1 Accomplishments and challenges

The HES program’s goals and achievements are outlined in the table below:

**Table 19. 2011 Goals and Achievements**

	Participants	Energy Savings (kWh)	Demand Savings (kW)
Target	1,440	1,604,000	900
Actual (Evaluated Net)	3,771	6,685,137	3,477
% of Target	262%	417%	386%

Overall, the HES program has benefitted from several years of lessons learned through the delivery of its predecessor Quick Start program, and is a successful program.

Accomplishments in 2011 include:

- The program served 3,771 participants and saved 6,685,137 kWh, achieving 417% of its energy savings goal.
- Feedback on the program from both customers and contractors has been generally positive.
- The relationship between EAI and CLEAResult is positive and collaborative.

Challenges identified in 2011 include:

- Limited number of certified contractors
- Implementing comprehensive projects
- Attracting air conditioning contractors

## 3.2 Program Management and Implementation Strategies

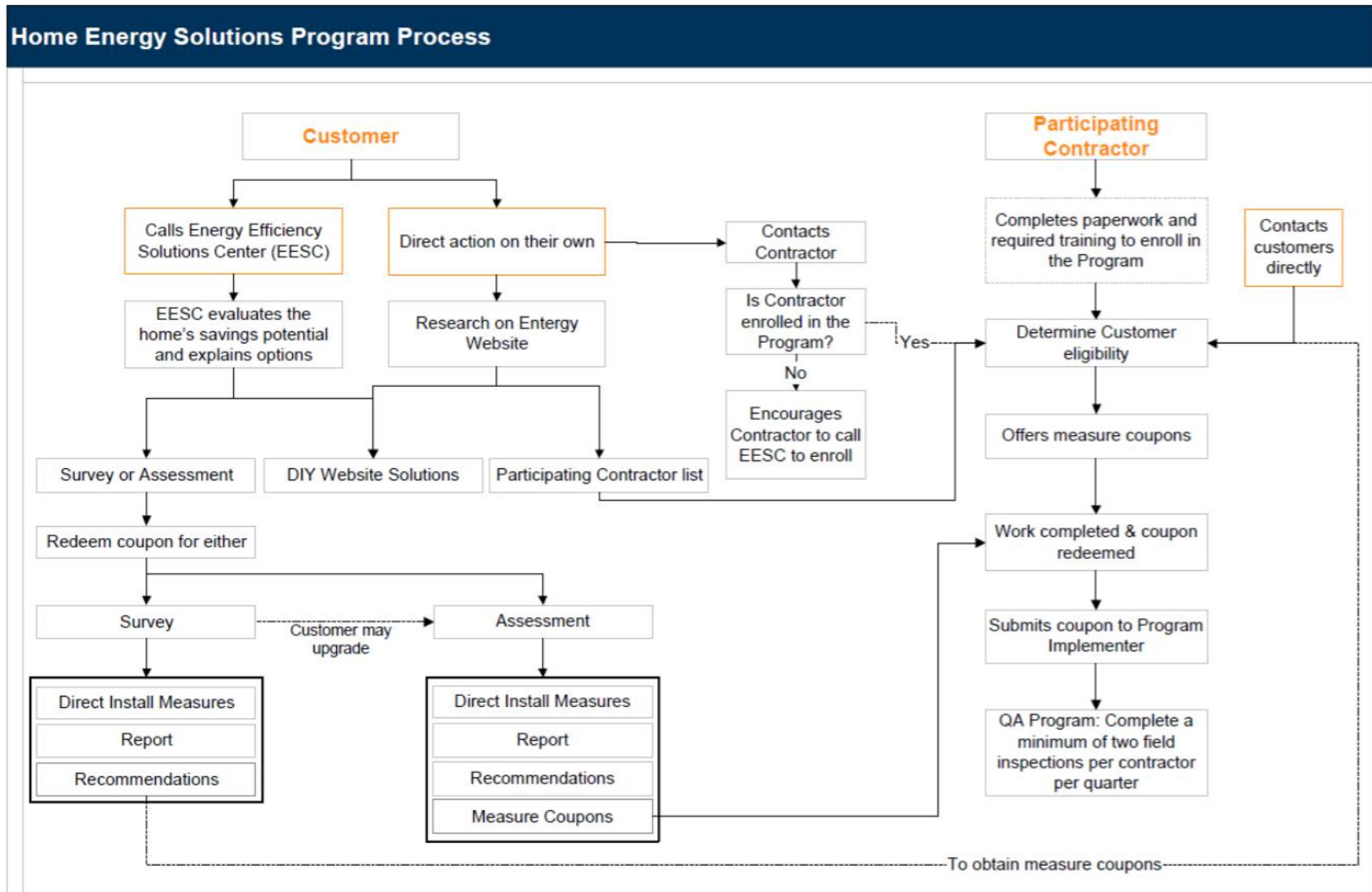
CLEAResult implemented EAI’s Quick Start program, the Residential Solutions program, and now implements the HES program with oversight from EAI. Concurrent with launching the HES program, EAI hired a program manager to oversee implementation by CLEAResult.



CLEAResult markets the program to customers and contractors. They field customer calls through their Energy Efficiency Solutions Center (EESC), approve customer eligibility and enrollment, and process qualifying program coupons. In addition, they recruit and train contractors, conduct quality control and assurance activities, and maintain a database of all necessary program information.

The HES program process flowchart shown in Figure 4 was provided by CLEAResult and confirmed by the program manual and interviews and correspondence with EAI and CLEAResult staff. The two key actors in the program, participating contractors and customers, are highlighted orange. The boxes outlined in orange identify the three possible entry points for customers. Additional program process steps, in chronological order, for both customers and participating contractors are also included below.

**Figure 4. Home Energy Solutions Program Recruiting and Installation Process Flow Diagram**



Customers may access the program three ways:

1. Call the EESC;
2. Act through the EAI website, i.e., follow energy efficiency tips listed on the site, or
3. Contact a participating contractor directly.

Customers who call the EESC are screened to assess their home’s saving potential and offered two options:

1. Participate in a survey or assessment; or
2. Take action on their own (using EAI tools such as online calculators and efficiency tips).

Customers who decide to participate in a survey or assessment contact CLEAResult who either sends them a list of participating HECs or directs them to the EIA website where they may view a list of qualifying HECs. The customer then schedules a convenient time with the HEC to come to their home. Once at the customer’s home, the HEC conducts either the survey or assessment. Table 20 outlines the differences between a survey and an assessment.<sup>5</sup>

**Table 20. HES Comparison Matrix**

Measure	Tier 1 Survey	Tier 2 Assessment
Direct install devices	●	●
Walk-through inspection	●	●
Blower-door test		●
Duct blaster test		●
Combustion safety education		●
Walk-through report	●	●
Tier 2 report		●
Program coupons issued		●

Customers who opt for a survey may contact a participating installation contractor to determine if they are eligible to receive any measure coupons. Customers who opt for an assessment receive measure coupons from their HEC for eligible measures recommended in the assessment. The participating installation contractors deduct the coupon amount directly from the customer invoice thereby reducing the upfront customer cost. The contractors submit all coupons to CLEAResult for processing and payment.

Customers who contact a participating contractor directly are assessed by their contractors for eligibility and then offered appropriate measure coupons. The process to redeem the coupons is the same as for customers who participate in assessments.

All contractors are subject to quality assurance procedures conducted by CLEAResult. These procedures consist of a minimum of two field inspections per contractor per quarter. Should any re work need to be conducted, contractors are required to provide repairs or corrections at no additional cost to participating customers.

<sup>5</sup> Matrix provided in program manual page 8.

### 3.3 M&V Approach

This report's Portfolio Overview section describes the evaluation's overall research objectives and general methodology. This section describes the M&V methodology specific to the HES program where it differs from the overall approach.

#### 3.3.1 Processes Evaluation

For the HES program evaluation, Cadmus gathered information and feedback on the program through interviews with EAI program management staff and the implementation contractor, CLEAResult. In addition, Cadmus reviewed the following program materials.

- Residential Solutions Program Manual
- 2011-2013 Home Energy Solutions Program Manual
- 2011-2013 Residential Programs Marketing Plan
- Home Energy Solutions Program Website
- Fact Sheet: 2011- 2013 Home Energy Solutions Program
- Draft March 2012 bill insert
- Draft program brochure
- Partnering contractor list
- 2011-2013 Home Energy Solutions Contractors Program Manual
- Home Energy Assessment example report
- Measure coupons: energy evaluation, air conditioner replacement, air infiltration, ceiling insulation, duct insulation, wall insulation, and heat pump replacement.
- 2011-2013 Home Energy Solutions Program Inspection QA/QC Process
- Home Energy Solutions Program Verification Report
- Program orientation presentation for trade allies

#### 3.3.2 Impact Evaluation

Verified and adjusted gross savings estimates were based on the Arkansas TRM for all program measures, except duct sealing. The TRM does not provide deemed savings or recommended inputs for this measure. The evaluation team used a duct sealing savings calculator created by Frontier Associates LLC to estimate *ex post* savings for this measure. We used this tool to verify that all inputs had been correctly entered, and correct savings were realized for duct sealing installations.

For all other measures, the evaluation team utilized TRM inputs, such as weather zone, HVAC type, and efficiency level, to create savings lookup tables. The evaluation team used these lookup tables to assign a TRM savings value to each unique record in the program tracking data. After assigning *ex post* energy (kWh) and demand (kW) savings values, based on the TRM, the evaluation team estimated the ratio of *ex post* savings to *ex ante* savings, for the gross realized savings ratio.

## 3.4 Impact Evaluation Findings

### 3.4.1 Reporting and Tracking Systems

Cadmus reviewed the database and tracking methodology in use by Entergy and its program implementation contractor, CLEAResult, against the EM&V PROTOCOL A, as defined by the Arkansas TRM.

The tracking system review revealed some instances of obvious data entry error. For example, in a few cases, the *ex ante* energy savings value was entered as a decimal exactly one-tenth of the *ex post* energy savings value. The tracking data review also discovered a few instances where savings should not have been awarded for a measure installation.

The evaluation team verified 142% of *ex ante* energy savings, and 101% of *ex ante* demand savings for heat pumps. The tracking data showed 12 measures were installed through the program: 11 heat pumps, and one ground-source heat pump. A review of tracking data revealed CLEAResult inconsistently applied energy savings for heat pump measures. Of 11 heat pump installations, CLEAResult correctly applied heating and cooling energy savings for four. For the seven others, CLEAResult applied energy savings from cooling only. These inconsistencies explained the high 1.42 gross realization rate. Such inconsistencies did not impact demand savings, as demand savings derived only from cooling.

The evaluation team verified 102% of *ex ante* energy savings and 105% of *ex ante* demand savings for installation of the air sealing measure.<sup>6</sup> We reduced energy and demand savings for one installation of this measure where the reduction was less than 10%. The TRM specifies a minimum 10% reduction as one of the criteria for claiming savings for this measure.

The Cadmus team verified 100% of claimed *ex ante* energy savings and 103% of claimed *ex ante* demand savings for the ceiling insulation measure. While we verified 100% of energy savings, it should be noted that many *ex post* savings values were significantly below *ex ante* values. Many *ex post* energy savings values were also significantly above *ex ante* energy savings. The combined impact of significantly lower and higher *ex post* energy savings was largely offsetting. Further review showed, in about 20 records, *ex ante* energy savings may have been keyed-in incorrectly. We did not attempt to correct these data entry errors, but recommend the program implementer review all data entry to ensure that *ex ante* savings are being applied correctly. The majority of the differences between *ex ante* and *ex post* savings, however, could not be explained, based solely on the tracking data.

We verified duct sealing savings with a savings calculator that Frontier Associates LLC created for this measure. This verification process was used rather than the TRM input method described above as the TRM did not provide savings estimates for duct sealing. While we verified more than 100% of energy and demand savings for this measure, many records resulted in *ex post* values significantly higher or lower than *ex ante* values. The gross realization ratios for energy and demand were largely due the offsetting effects of the low and high realization rates.

<sup>6</sup> The TRM (Vol.2 / Version 1.0: Deemed Savings) did not provide per unit savings estimates for installations of air sealing in homes located in weather zone 8 with heat pumps as the main HVAC system. We reviewed the January 2011 Updated TRM to obtain appropriate per unit savings values for these three cases.

Due to missing data fields (duct type and leakage testing method), we could not estimate *ex post* savings for two duct sealing installations. Additionally, we found two cases where the savings calculator would not populate with fields entered in the tracking data, possibly due to data entry error; therefore, we could not estimate *ex post* savings for these two records. In other cases of possible data entry error or fields not populating, we had to substitute different field values—for example, for the air handler location—in the data tool. The tracking data contained an air handler location not listed as an input option in the tool. In one case, the tool returned a negative kW value.

Other inconsistencies with the tool prevent the user from inputting data as entered in the tracking system. For example, for multifamily, top-floor building types, the only option for foundation type is conditioned space, but some tracking data show other foundation types entered.

Lastly, many records show the air handler location as “outside/pkg unit,” but the data tool does not show this option in the drop-down menu. Tracked savings for air conditioners and wall insulation closely aligned with *ex post* evaluated savings estimates.

### 3.4.2 Review of TRM Values

As discussed in Section 5.2.1, many cases occurred where *ex post* savings value (based on data inputs and the TRM) differed from the *ex ante* savings values. In such cases, the evaluation team could not confirm CLEAResult correctly applied TRM savings values, as we could not access the implementer’s savings calculator, assumptions, and so on. For duct sealing, the evaluation team received the implementer’s savings calculation tool, and entered all data from duct sealing installation records to ensure the implementer correctly entered relevant data, and generated accurate program savings. While the evaluation team verified more than 100% of savings for the duct sealing measure, this resulted from offsetting differences, with many *ex post* savings values differing from the *ex ante* savings values claimed by the implementer.

### 3.4.3 Baseline Assumptions

The TRM specified baseline efficiency levels per measure, except duct sealing. These baseline assumptions were independent of other TRM inputs.

**Table 21. TRM Baseline Assumptions by Measure**

Measure	TRM Baseline Assumption
Ceiling Insulation	Varies by site: R-0 to R-4, R-5 to R-8, R-9 to R-14, and R-15 to R-22
Air Conditioner	ARI-listed 13 SEER
Duct Sealing	Not specified
Wall Insulation	Un-insulated wall
Heat Pump	ARI-listed 13 SEER
Air Sealing	Existing leakage rate

### 3.4.4 Program Impacts

The HES program tracking data review showed EAI achieved more than 300% of energy and demand savings goals on a net basis in 2011 (Table 19). The program also greatly exceeded its participation goal for the 2011 program year.

The evaluation team verified 100% of *ex ante* energy savings across all measures for the 2011 HES program. Table 22 presents HES 2011 reported and evaluated gross energy savings and participation.

**Table 22. Entergy 2011 Reported and Evaluated Gross Energy Savings by Measure**

Measure	Participants	Measures Installed	Reported Gross Savings (kWh)	Evaluated Gross Savings (kWh)	Gross Realized Savings Ratio
Ceiling Insulation	3,478	3,478	7,817,781	7,809,607	1.00
Air Conditioner	25	25	31,105	31,755	1.02
Duct Sealing	162	162	402,542	416,553	1.03
Wall Insulation	9	9	18,972	18,970	1.00
Heat Pumps	12	12	24,960	35,362	1.42
Air Sealing	85	85	43,362	44,174	1.02
Total	3,771	3,771	8,338,722	8,356,421	1.00

The evaluation verified 103% of *ex ante* demand savings across all program measures. Table 23 presents the HES 2011 reported and evaluated gross demand savings and participation.

**Table 23. Entergy 2011 Reported and Evaluated Gross Demand Reduction by Measure**

Measure	Participants	Measures Installed	Reported Gross Savings (kW)	Evaluated Gross Savings (kW)	Gross Realized Savings Ratio
Ceiling Insulation	3,478	3,478	3,974.5	4,077.3	1.03
Air Conditioner	25	25	13.5	13.6	1.00
Duct Sealing	162	162	211.6	221.8	1.05
Wall Insulation	9	9	2.8	2.8	1.00
Heat Pumps	12	12	7.9	8.0	1.01
Air Sealing	85	85	22.2	23.3	1.05
Total	3,771	3,771	4,232.5	4,346.7	1.03

Table 24 shows gross savings derived from the program evaluation, and net savings, based on a stipulated NTG ratio of .80.

**Table 24. EAI Home Energy Solutions 2011 Statewide Evaluated Gross and Net Savings**

Measure	Evaluated Gross Savings	Net Savings	Net to Gross Ratio
Annual Energy Savings (kWh)	8,356,421	6,685,137	0.80
Coincident Peak Demand Savings (kW)	4,346	3,477	0.80

### 3.4.5 Quality Assurance

The HES impact evaluation team conducted the following, quality assurance activities during the evaluation process:

- The impact evaluation team lead reviewed the TRM and *ex post* savings calculation steps with senior engineering staff;
- The impact evaluation team lead corresponded with the implementer on a number of occasions to ensure correct interpretation of data fields, inputs, and other items; and;
- Senior project managers reviewed *ex post* savings methodologies and results periodically with impact evaluation team lead as well as junior project staff.

## 3.5 Process Evaluation Findings

This section presents key findings from Cadmus’ process evaluation interviews and analysis of program materials.

### 3.5.1 Program Design, History, and Goals

The HES program began in late 2007 as the Residential Energy Solutions program, a Quick Start program which primarily sought to transform the residential market by providing assessments and encouraging contractors to use a whole-house approach and to help customers achieve long-term savings.

EAI has a target market estimated between 457,000 and 570,000 customers, including all owners and renters of single-family homes and those living in small (four units or fewer) multifamily complexes. The Residential Energy Solutions program repeatedly has exceeded its participation and savings goals.

In 2011, EAI worked closely with CLEAResult to modify the Quick Start program, integrating key lessons learned, such as ensuring incentive amounts sufficiently large enough and correctly structured to motivate customers to complete comprehensive upgrades.

Starting November 1, 2011, the program reemerged as the HES program, utilizing a more comprehensive approach. Significant program changes to the program included:

- Eliminating the free assessment, although the program included a coupon to offset some or all costs.
- Restructuring program incentives to promote measure bundling.



- Adding bonus incentives for AC commissioning and air handlers with ECM.
- Adding direct install measures to survey and assessment tiers.
- Requiring all participating contractors to be BPI/BPA or RESNET certified. HECs must be certified starting in 2012, and installation contractors must be certified by 2013.

### 3.5.2 Program Delivery and Implementation

EAI and CLEAResult reported maintain a productive relationship. The EAI program manager and CLEAResult lead communicate weekly through phone, e-mail, or in-person meetings. EAI staff reported CLEAResult’s key strengths include training/educating contractors and motivating them. EAI noted the CLEAResult staff have solid administrative skills—specifically for QA/QC—and effectively collect project data. CLEAResult expressed enthusiasm about the new EAI program manager, and believes the position will increase communication and the flow of ideas regarding the program in the coming year. Both CLEAResult and EAI consider it is too early to determine whether the program changes (e.g., incentives for bundling measures) will lead to significant increases in multiple measure installations, as hoped.

EAI and implementer staff indicated that program administration goes smoothly. In 2011, roughly 20 customers per week called to participate. CLEAResult reviews coupons for eligibility, and processes reimbursements to contractors. Under the Residential Solutions program, if coupons were submitted by noon on Wednesday, incentives would be processed by Friday of the same week. Going forward, EAI will review all applications prior to payment, which may add an extra week to the process.

CLEAResult also manages contractor participation in the program. To participate, all contractors must attend program overview training, and, if contractors are interested in becoming an HEC, they must attend additional training. This training reviews all program and participation requirements. Contractors also must provide proof of certification, as stipulated in the contractor program manual, when agreeing to participate.

Currently, data tracking is in transition. In 2011, CLEAResult used a series of spreadsheets to track all participation and measure data. Although this worked, both parties agreed it could be improved. EAI is currently building a database, which that CLEAResult will use to track detailed program participation data, including the assessment/survey report, customer accounts, measures, quantities installed, and incentives provided. The new system will provide detailed information and reports in a timely manner, while reducing risk of human error. In addition, the implementation contractor will continue to track savings and maintain its own database.

CLEAResult developed a program inspection QA/QC process manual as well as a verification report, providing on-site verification of at least 10% of all projects submitted by each participating contractor. If CLEAResult finds issues during inspections, they notify contractors, and a QA specialist determines the difference between claimed and verified savings. Adjusted savings are recorded in the tracking database, and the incentive is adjusted, if necessary.

CLEAResult staff noted the only notable program challenge has been cost-effectively covering the entire service territory. Scheduling and implementing surveys, assessments and on-site verification can be difficult when sites are located in distant or rural areas.

### 3.5.3 Training

The program faced an initial barrier due to a limited number of certified contractors; however, CLEAResult staff indicated the HES program re-launch appears to be inducing additional contractors to become certified. CLEAResult provides training on program offerings, processes, sales, and technical skills (such as for diagnostic testing). EAI also provides funding to Energy Efficiency Arkansas, which conducts technical training for local contractors.

### 3.5.4 Marketing and Outreach

Prior to October 2011, the program did not have a formal marketing initiative. In October 2011, EAI began to roll out a new marketing plan. To date, specific outreach activities have included:

- Contractor training (October and November, 2011);
- Contractor outreach (November 2011); and
- Direct mail campaign to cross promote programs (December 2011).

Although the marketing plan currently is too new to indicate whether it will have a significant impact on program participation, the plan includes key messages, marketing channels, and initiatives, such as: direct mail; events (e.g., Little Rock Home Show, Arkansas Earth Day, and the Arkansas Sustainability Network); meetings/presentations/education; printed collateral; a Website; cross-promotion with other energy-efficiency programs; paid advertising; earned media; and tools to enlist participating contractors in promoting the program.

### 3.5.5 Trade Ally Response

EAI and CLEAResult stated trade ally feedback generally has been positive (from installation contractors and HECs). EAI staff have heard positive feedback from excited contractors, who related the program's new incentive structure (e.g., measure bundling) may offer a competitive advantage over nonparticipating contractors. One contractor, initially skeptical, attended training, and recently told CLEAResult he was "extremely impressed with how the program works for the contractors." In addition, the number of HECs has increased since the new program's launch, and more are expected to be certified in 2012. CLEAResult staff noted that one contractor expects to submit 50 to 60 applications a month.

EAI and CLEAResult staff reported many insulation contractors, with the help of the program, have increased or at least maintained business, despite the difficult economy, and are generally enthusiastic about the program. They also expressed optimism that the new bundled incentives would increase air conditioning contractor participation in the program.

CLEAResult leads outreach to trade allies. Their efforts include: attending trade association gatherings; cold-calling potential contractors; one-on-one visits; some e-mails; and even one fax. They have found one-on-one visits prove most effective for recruiting new contractors. Word-of-mouth promotion appears to be a successful method of engaging contractors.

### 3.5.6 Customer Response

Although customer surveys were not conducted specifically for the program in 2011, the general EAI customer survey concluded customer satisfaction is increasing. This satisfaction level does not reflect the revamped program. Customers are provided with a brief satisfaction survey

following the assessment, and no significant problems or complaints have been reported; customers generally seem pleased with their program experiences. In addition, EAI received unsolicited letters commending the program, and several participants called CLEAResult to express their enthusiasm regarding the program.

Although the program has been so successful that EAI has twice requested additional funding, EAI and CLEAResult staff believe some customers do not understand energy efficiency or the program’s value. EAI and CLEAResult staff hope 2012’s enhanced marketing plan will continue to boost program awareness and participation.

### 3.5.7 Program Materials

The materials review for the 2011 program sought to verify essential program materials had been developed, and that they contain critical elements to ensure program success. Table 25 indicates whether critical program materials are available for the HES program.

**Table 25. Presence of Program Materials for the HES Program**

Required Program Materials	Achieved
Presence of a program manual, handbook, and/or implementation plan.	+
Presence of process flowcharts and organizational charts.	+
Presence of data collection protocols and QA/QC protocols.	+
Presence of training materials for program staff (TA).	+
Presence of application and rebate forms, customer contracts, and agreements.	+
Presence of educational materials for customers, including program handouts or general energy-efficiency literature.	+
Presence of marketing materials.	+

Cadmus reviewed the HES Program Manual to verify that it included critical information, clearly defined roles, and key best practice elements. Table 26 summarizes research questions guiding this review.

**Table 26. Program Manual Review for the HES Program**

Researchable Topics	Achieved
Program staff roles clearly defined.	+
Implementer staff roles clearly defined.	+
Other stakeholder’s roles clearly defined (trade allies, etc.).*	+
Presence of eligibility requirements.	+
Eligible program measures clearly defined.	+
Incentive structure clearly defined.	+
Presence of program processes’ step-by-step instructions.	+
Customer touch points defined.	+
All program systems clearly defined (for example, any database software is mentioned by name, who will use it and when in the process).	-/+
Inspection and verification protocols included or referenced.	+
If applicable, reference to partnership with other utilities’ programs.	NA
Reference to program Website.	-
Presence of program staff contact information.	+

Researchable Topics	Achieved
All acronyms clearly defined.	+
QA/QC protocols included or referenced.	+
Data Collection Protocols included or referenced	NA
Marketing materials included or referenced	-/+

\* This category refers to trade allies and other contractors that participate in program delivery but are not part of the formal utility and implementation contractor program team.

The HES program manual’s objectives are to inform staff of program requirements, and provide guidelines for operational procedures. Cadmus found the HES program manual presents thorough direction, starting with a clear program description and objectives. The manual provides a detailed list of key program staff, including contact information. In addition, it clearly articulates roles and responsibilities of all parties, including EAI, CLEAResult, contractors, HECs, and customers. Program eligibility for HECs, contractors, and customers is clearly defined.

The manual describes the two energy evaluation tiers (Tier 1: Survey and Tier 2: Assessment), and their differences are explained via written description and visual elements. All relevant measures, including direct installation measures, are presented, with detailed descriptions of eligibility and incentive amounts. Step-by-step bullets outline the incentive payment process. A clear and detailed program process flow chart is coupled with concise verbal description. In addition, the manual includes several frequently asked questions to be used as a reference.

Although the program manual does not include details on the QA/QC process, these elements are described in the 2011-2013 Home Energy Solutions Program Inspection QA/QC Process manual.

Although the only marketing reference in the program manual occurs under implementer’s roles and responsibilities, CLEAResult has developed a comprehensive marketing plan and calendar, which supplements the program manual.

Finally, Cadmus conducted a high-level assessment of the program’s marketing materials and outreach channels. This review focused only on marketing elements critical to ensuring marketing tactics and collateral materials remain sufficient to support key outreach channels.

**Table 27. Marketing Material Review for the HES Program**

Researchable Topics	Achieved
Presence of a marketing plan.	+
Supporting collateral provided (Website, brochures, direct mail, etc.).	+
Does collateral clearly describe the program and benefits?	+
Presence of a network to promote the program through targeted outreach.	+
Clearly defined marketing roles.	+

Clear and detailed, the marketing plan sets forth critical success factors, budget, and key staff contacts and positions. In addition, the plan lists key messages for the program, the target audience, and the marketing channels used. Specific marketing initiatives are included, with supporting details. For example, under *Participating Contractor Marketing Assistance*, the following detailed description is provided: “Create a Contractor Marketing Toolkit including

resources such as: print ad templates [and] yard signs” (Entergy Arkansas, Inc. 2011-2013 Residential Programs Marketing, p.5).

The plan also includes a marketing calendar through 2013, which clearly sets forth all marketing activities for the three residential programs covered (HES, CoolSaver, and Home Appliance). In addition to marketing activities, the plan outlines a brief evaluation plan to assess impacts of marketing initiatives, including benchmarking, a customer survey, periodic contractor communication, and regular meetings with the program team.

Although in draft form, the program bill insert is simple and to the point: it provides customers with program benefits and easy contacts (phone and Website) to take actions. The program brochure, also in draft form, appears to highlight program benefits, while offering customers more detailed participation information (e.g., the difference between Tier 1 and Tier 2).

The program fact sheet provides nearly identical information as the current Website. That is: a clear list of participation benefits; eligibility requirements and measures; steps to participation; and an example project, identifying measures installed and corresponding incentives. Cadmus supports EAI’s recognition that redesigning the HES program Website is in order. Using Website best practices such as: promoting messages by adding testimonials (currently planned by EAI); avoiding industry terms such as “measure”; and practicing “less is more” with Web content—will refresh the program Website, and encourage customers to take advantage of the program.

## 3.6 Conclusions and Recommendations

### 3.6.1 PROCESS

As discussed, the HES program appears to have benefitted from a solid understanding of program best practices and lessons learned through several years’ delivery of its predecessor program, Residential Solutions.

Although it remains too early to tell whether the changes EAI and CLEAResult have made to the program will result in anticipated increases in participation and comprehensive projects, the program appears to be running smoothly and be on track to meeting its targets. Early feedback from customers and trade allies has been positive. The team is engaged and enthusiastic about changes to contractor certification requirements, incentive bundling, and marketing enhancements, and how these may impact the next program year.

Due to the program’s youth (HES launched in November 2011), Cadmus offers minor recommendations, provided with the understanding that some program administrative and delivery details may still be under development and/or not fully implemented, and a more thorough process evaluation will be conducted following the 2012 program year.

- Add references in the program manual to supporting documentation (i.e., the inspection QA/QC procedures and Marketing Plan as well as the program’s Website).
- Develop data collection protocols to support EAI’s new data collection and tracking software, to be launched in tandem with the new system.

- Continue active outreach and training, promoting the program among local contractors, to continue expanding the program's approved contractor base.

### 3.6.2 IMPACT

As part of the program tracking data transfer, Cadmus recommends CLEAResult provide the following items to expedite the evaluation process and to enhance the clarity of tracking data. This will enable the evaluation team to more efficiently review tracking data, and will minimize potential verification errors resulting from misunderstandings or incorrect interpretations of program data.

- Provide all calculation tools and assumptions used in estimating *ex ante* savings;
- Provide detailed summaries of data fields by measure, including the purpose of the collected data, and how each field was used for estimating *ex ante* savings;
- Ensure all fields in the tracking system are populated;
- Review all measure, household, and savings data entries in the tracking database to ensure—especially—that the correct *ex ante* savings values are being reported;
- If data are missing, provide an explanation for missing data, or indicate a proxy used to estimate *ex ante* savings;
- Provide an explanation or notes where savings estimates have been revised post-measure installation; and
- Specify the direct source of per unit savings estimates used in calculating *ex ante* savings. For example, indicate which version/volume of the TRM was used for each savings calculation.

## 4. HIGH PERFORMANCE AC TUNE-UP PROGRAM

This section presents the evaluation approach, findings, conclusions, and recommendations for High Performance AC Tune-Up, a Quick Start program in EAI's Residential Portfolio. A comprehensive version of EAI's air conditioning (AC) system tune-up program, CoolSaver, currently under development, will launch in Spring 2012. This evaluation exclusively examined the Quick Start High Performance AC Tune-Up program, which operated throughout 2011.

### 4.1 Program Description

The High Performance AC Tune-Up program seeks to maximize the efficiency of air conditioning and heat pump systems for EAI residential and small business customers. The program was initially filed a Quick Start program and launched in late 2007. CLEARResult is the implementer for this program. The Quick Start High Performance AC Tune-Up program officially ended in June 2011, but services continued through October 2011, to accommodate the fall tune-up season, and EAI closed its books in November 2011.<sup>7</sup> The new 2012, full-scale version of this program, CoolSaver, filed in March 2011, will be launched in April 2012.<sup>8</sup>

The High Performance AC Tune-Up program offered incentives for customers and contractors implementing cooling system tune-ups. Recommended HVAC equipment replacements were available through the Home Energy Savings (HES) program for residential units, and through the Small Business Direct Install program for commercial applications.

#### 4.1.1 Accomplishments and Challenges

Table 28 outlines the High Performance AC Tune-Up program's 2011 goals and achievements.

**Table 28. High Performance AC Tune-Up 2011 Targets and Results**

	Participants	Energy Savings (kWh)	Demand Savings (kW)
Target	3,354	1,383,000	600
Actual (Evaluated Net)	1,527	1,400,520	899
% of Target	46%	101%	150%

With three years of implementation history, the High Performance AC Tune-Up program developed a solid operational foundation and noteworthy results. In 2011, the program achieved 1,400,520 kWh in energy savings and built a robust training program and contractor network.

Accomplishments specific to 2011 include:

- The program achieved its 2011 energy savings target and exceeded its demand saving goal by a significant margin.

<sup>7</sup> The Commission filing allowed for this extension.

<sup>8</sup> Although filed as High Performance AC Tune-Up program, EAI and CLEARResult commonly refer to both the Quick Start and comprehensive programs as CoolSaver in both internal and external program documentation. However, to avoid confusion, this report refers to the Quick Start program as High Performance AC Tune-Up and the comprehensive program as CoolSaver wherever feasible.

- CLEAResult developed a training program that has, according to CLEAResult and EAI program staff, significantly raised the knowledge and skill sets of HVAC contractors and technicians participating in the program.
- EAI worked with four technical colleges to raise the technical standards of graduating students, who can then be recruited into HVAC service companies.
- The program's operations are supported by a strong set of marketing, training, and other program materials.
- CLEAResult developed a targeted outreach strategy and as a result the program has increased awareness among HVAC contractors:
  - Contractors actively request to participate (according to CLEAResult).
  - Some larger companies are now offering higher quality tune-ups even if they don't participate in the program in order to remain competitive, effectively facilitating market transformation.

Challenges identified in 2011 include:

- Identifying and maintaining trained technicians capable of executing tune-ups to the program's standards has been a challenge for HVAC companies. Except for those trained through the program, few HVAC contractors or their technicians in Arkansas typically perform AC tune-ups to the standards expected in the program.
- CLEAResult reported that changing the mindsets of contractors to perform an energy-efficiency tune-up, rather than a maintenance-oriented tune-up, has presented difficulties.
- Performing AC tune-ups to program specifications requires considerable, additional time for contractors.
- Some HVAC companies do not see benefits in changing their business models to offer tune-ups that meet the program's specifications.

## 4.2 Program Management and Implementation Strategies

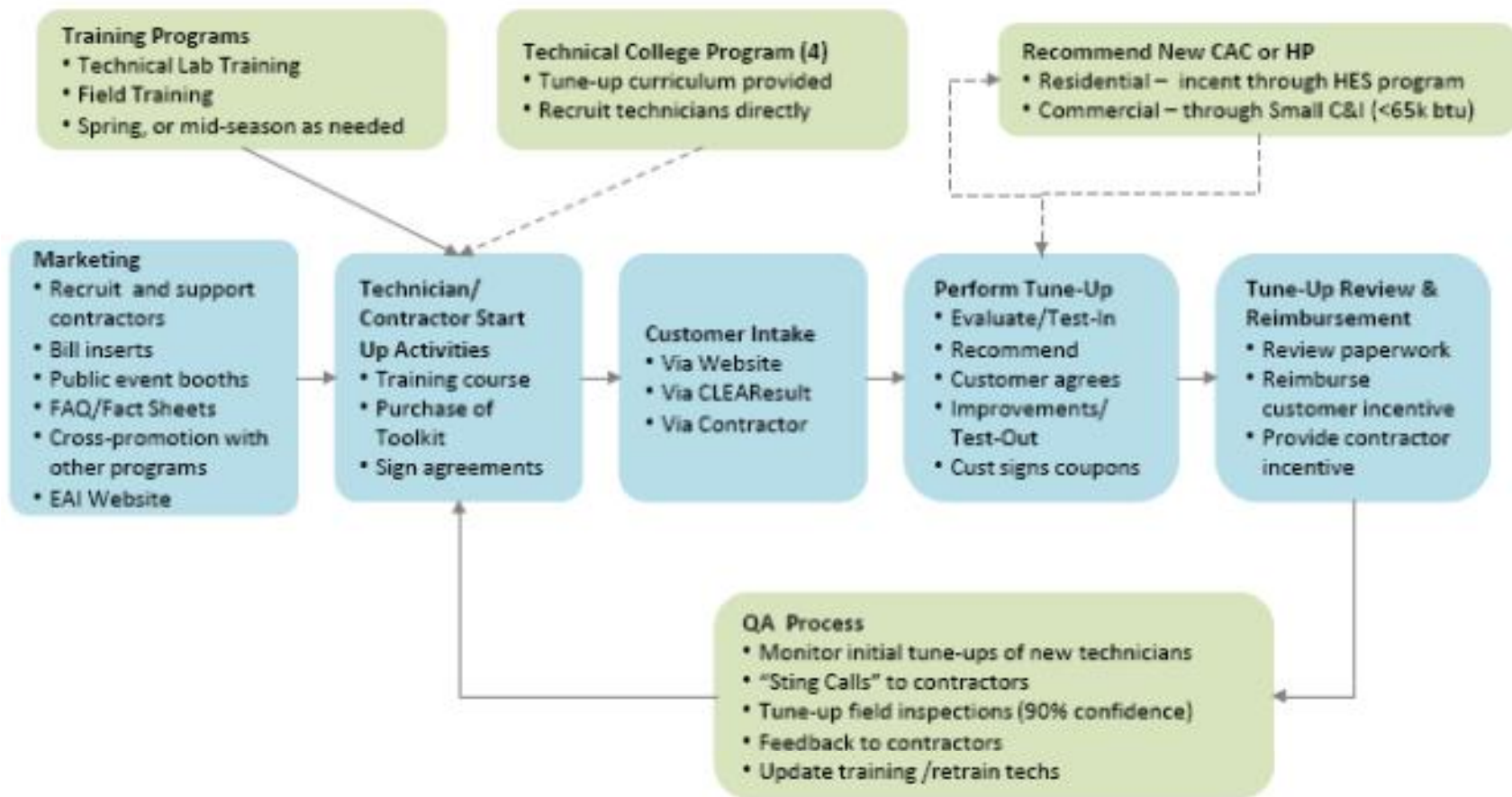
CLEAResult, a third-party contractor, implemented the High Performance AC Tune up program, which is delivered through a network of participating contractors trained to carry out quality tune-up evaluations and high-performance efficiency corrections. To participate, contractors must purchase and use a program AC and heat pump (HP) tune-up toolkit.<sup>9</sup>

The High Performance AC Tune-Up program offers incentives for both customers and contractors, as shown in Table 34. In creating the program process flowchart, shown in Figure 5, below, Cadmus relied on descriptions in the program manual and on interviews and correspondence with EAI program staff and CLEAResult. The blue boxes in **Error! Reference source not found.** represent key activities, in chronological order, for each program participant. Green boxes identify additional steps that may occur in the program process. **Error! Reference source not found.** presents a program flow chart developed by the program management team.

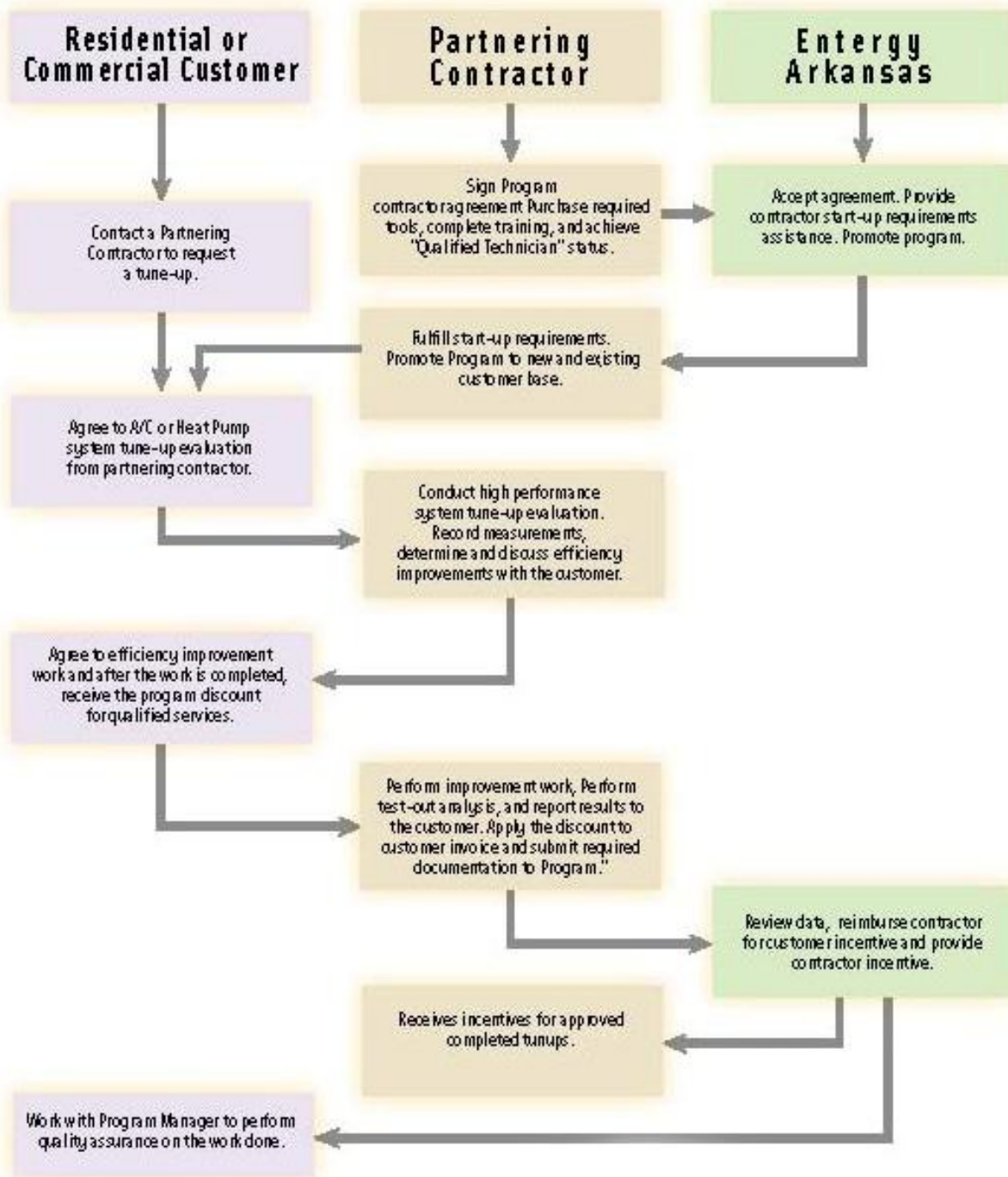
<sup>9</sup> The toolkit is a set of tools necessary for contractors to follow the program's tune-up processes and procedures. CLEAResult purchases toolkits at volume discounted prices, offering them to contractors at lower costs.



**Figure 5. High Performance AC Tune-Up Program Recruiting and Installation Process Flow Diagram**



**Figure 6. EAI High Performance AC Tune-Up Process Flow Diagram**



CLEAResult focused most of its efforts on recruiting and training contractors to participate effectively in the program. Contractors are rigorously trained to use the tune-up toolkit the program requires they purchase. CLEAResult also collaborated with technical colleges to train students to perform the high-quality tune-ups required for the program.

Contractors evaluated residential and small commercial HP or AC systems using the program tune-up tool to test the efficiency of the existing unit, identifying potential repairs and improvements. Contractors then generated a report, outlining tune-up or replacement recommendations.<sup>10</sup> If a customer selected any of the three possible tune-up measures, the contractor was eligible for a \$75 incentive. The customer also received a direct discount of \$25 for any or all three of the tune-up options.

Once the customer agreed to specific measures, the contractor provided them with a coupon: the CoolSaver Maintenance Invoice. Following installation of the recommended measures, contractors submitted documentation on system improvements and signed coupons<sup>11</sup> to CLEAResult for review, and reimbursement. CLEAResult conducted quality assurance checks of contractor work by: placing “sting calls”;<sup>12</sup> monitoring work by contractors new to the program; and conducting field spot inspections post tune-up.

Note some program components identified in the process flowcharts above will change when the High Performance AC Tune-Up program transitions to CoolSaver in 2012. A summary of differences between the High Performance AC Tune-Up program and CoolSaver is provided in Table 34.

## 4.3 M&V Approach

The Portfolio Overview section of this report describes the evaluation’s overall research objectives and general methodology. This section describes the M&V methodology specific to the High Performance AC Tune-Up program, where it differs from the overall approach.

### 4.3.1 Process Evaluation

Cadmus gathered information for the High Performance AC Tune-Up program evaluation through interviews with EAI and CLEAResult program management staff. In addition, we reviewed the program materials shown in Table 29.

<sup>10</sup> Replacements are implemented through other EAI residential programs.

<sup>11</sup> The coupon serves as part of documentation provided to contractors, listing types of tune-up services eligible for a rebate. The customer must sign off on the coupon to obtain the rebate. To be reimbursed, the contractor includes the signed coupon with documentation sent to CLEAResult.

<sup>12</sup> A “sting call” is when CLEAResult calls the contractor as a customer, asking about the service to see how the contractor responds, what they offer a customer, how they explain the program offering, etc.

**Table 29. Summary of CoolSaver Program Materials Reviewed**

Program Material	High Performance HVAC Tune-Up	CoolSaver
Program Manual	x	x
EAI Residential Marketing Plan (11-10-11)	x	x
High Performance A/C Tune-Up Customer FAQ Sheet	x	~
High Performance A/C Tune-Up Contractor FAQ Sheet	x	~
Entergy Arkansas High Performance A/C Tune-up Customer Dispute Resolution Process	x	~
CoolSaver Fact Sheet (targeted to customers)	x	~
CoolSaver Residential A/C Tune-Up Program Website	x	~
Website Partnering Contractors List (19 contractors)	x	x
Home Energy Solutions Program Website	x	x
Entergy High Performance A/C Tune-up Program Contractor Enrollment Process Flow Chart	x	~
A/C Tune-Up Process Flow Chart	x	~
CoolSaver AC Tune-Up Program QA/QC Plan	x	~
2011 CoolSaver Program Participating Facility Agreement Form	x	~
CoolSaver Training Binder Materials	x	~
Entergy Toolkit	x	~
CLEAResult Tune-Up Protocol 2010	x	~
CoolSaver Protocol 2011	x	~
CoolSaver Program Equipment Specifications	x	~
EAI CoolSaver Fact Sheet 4-27-2011	x	~
CoolSaver Leave Behind	x	~
CoolSaver sticker FINAL	x	~
EAI CoolSaver Postcard 4027-2011	x	~
CoolSaver Maintenance Invoice	x	~
Entergy Arkansas CoolSaver Program – Replacement Coupon		x
Commissioned AC Tune-Up Data Collection Form	x	~

NOTE: An X indicates the document is relevant to that program. A ~ indicates the document is relevant but may require updating to incorporate changes planned for the CoolSaver 2012 program (even if only the title).

### 4.3.2 Impact Evaluation

#### Research Objectives

The impact evaluation primarily sought to assess and verify systems EAI currently has in place to document, track, evaluate, and report energy savings. Objectives specific to this program included:

- Reviewing CLEAResult’s M&V plan and report;
- Conducting an engineering review of contractor inputs in CLEAResult’s data tracking system; and
- Reviewing CLEAResult’s quality control (QC) process.

#### Methodology

Verified gross savings estimates were based on CLEAResult reported savings, verified by:

- Reviewing the data tracking system;

- Comparing unit savings estimates in the tracking system to TRM savings estimates; and
- Reviewing CLEAResult's M&V methodology.

## 4.4 Impact Evaluation Findings

### 4.4.1 Reporting and Tracking Systems

Cadmus reviewed the database and tracking methodology in use by EAI and CLEAResult, comparing it with the EM&V PROTOCOL A, as defined by the Arkansas TRM.

The Arkansas TRM requires tune-up programs to record and report the following pre and post measurements for residential tune-ups:

- 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.

Although these measurements are not required to estimate energy savings, they are considered industry best practices and are recorded in CLEAResults' tracking database along with the measurements used to estimate savings for each unit serviced.

In addition to the items listed above, the TRM requires commercial tune-ups include actions to ensure program quality, such as:

- Calibrate thermostat.
- Inspect fan belt condition and belt tension. Adjust and replace as required.
- Test all controls, switches, relays, transformers, contactors, motors, and fans.
- Leak test refrigeration lines.
- Monitor fan motors and compressor operating temperature.

These items are more qualitative than quantitative, serving as general guidelines for thorough servicing of an HVAC system. These actions are not used in the estimation of energy savings.

EAI's tracking database is thorough. It contains all spot measurements necessary to estimate improvements in system efficiency resulting from the tune-up maintenance performed through the High Performance AC Tune-Up program. For the period reviewed, the tracking database was missing only a few data points, such as weather zone (<1% of data points), which did not affect savings estimates. The database had a few abnormal data points (such as 0.3 tons and 305 tons), which were out of range. Overall, these and other minor anomalies had no appreciable effect on savings estimates.

## 4.4.2 Review of TRM Values

### Residential AC Tune-ups

The Arkansas TRM provides deemed savings for residential AC tune-ups for energy (kWh) based on location and nominal system size (tons). The TRM provides deemed savings for demand (kW) based on nominal system size (tons). The TRM does not provide a savings estimate for tune-up of heat pumps. Savings from heat pumps is higher than savings from central ACs because heat pumps operate year-round.

### Commercial AC Tune-ups

The TRM provides a savings algorithm for commercial AC tune-ups for energy (kWh) based on estimated equivalent full load hours, 5% savings for any tune-up, and integrated part load value (IPLV) of the cooling equipment. The commercial AC tune-up requirements listed above—such as “calibrate thermostat”—are rigorous, but reasonable and applicable to typical commercial package units. The savings algorithm, however, is impractical for the majority of HVAC systems encountered by a tune-up program. The algorithm applies to very large package units or other types of HVAC equipment (DX systems or chillers). Manufacturers of 1-10 ton systems typically provide SEER and EER ratings. Less than 1% of the commercial systems receiving incentives in 2011 were greater than 10 tons. The TRM savings methodology also does not consider heating energy savings attributable to the tune-up of a heat pump. Review of the tracking database showed that the majority of the commercial systems serviced through the program were similar to residential systems:

- 1,147 split units averaging 3.3 tons; and
- 385 package units averaging 4.5 tons.

The main difference between commercial and residential systems is the hours of operation. Hours of operation values and their uncertainty is discussed in Section **Error! Reference source not found.**

As equipment test-in and test-out data are reported by contractors and tracked by CLEAResult, and since CLEAResult has developed a detailed M&V report, we believe a thorough review of its M&V efforts, and an independent review of the contractor data, are superior to application of TRM deemed savings estimates. For the sake of comparison, however, we provide reported and TRM savings estimates in Table 30, which shows the TRM savings estimate for residential AC tune-ups. We could not apply TRM savings estimates for heat pumps or commercial tune-ups for the reasons described above.

**Table 30. Residential AC Tune-Up Savings Comparison\***

	# Measures	EAI Reported Gross Savings	TRM Gross Savings	Gross Realized Savings Ratio
Energy Savings (kWh)	1,204	642,914	409,227	0.64
Demand Savings (kW)	1,204	407	203	0.50

\* For comparison purposes only; not final evaluation results

### 4.4.3 Impact Verification

CLEAResult provided Cadmus with a document entitled “CoolSaver AC Tune-Up Program Option A M&V Plan.” This describes the program approach and tune-up savings estimation methodology. As Cadmus did not conduct field verification in 2011, we verified program impacts by reviewing the M&V document and the contractor tracking data. We reviewed the following calculations and adjustments and found them to represent sound engineering algorithms or protocols:

- Electrical power measurement;
- Evaporator (air-side) psychrometrics;
- EER correction to AHRI conditions; and
- Energy Savings Calculation.

We note several key items in the M&V calculation method and focus our review and discussion around these items, which include:

- EER calculation technique and uncertainty in airflow measurement;
- Uncertainty of EFLH; and
- Effects of tune-ups that change cooling capacity.

#### EER Calculation Technique and Uncertainty in Airflow Measurement

Airflow is difficult to accurately measure in the field. Most techniques claim measurement uncertainty is greater than  $\pm 10\%$ . EER can be estimated in two ways from field measurements. CLEAResult uses one technique: evaporator capacity based on air flow and enthalpy, which has similar or greater uncertainty. Another method is to estimate condenser capacity, based on mass flow of refrigerant and refrigerant enthalpy. All data needed for estimating EER, based on evaporator capacity from refrigerant enthalpy is available. The following sections describe the two methods.

##### **Evaporator Capacity: Psychrometrics**

Evaporator capacity is the ratio of cooling delivered by the evaporator over system power (from air enthalpy difference and spot measured mass flow rate of air).<sup>13</sup>

The following equation represents sensible and latent heat absorbed by the evaporator coil:

$$Q \text{ (BTU)} = \dot{m}(h_{\text{return}} - h_{\text{supply}})$$

Air-side EER is calculated by the equation:

$$EER = \frac{Q}{\text{Condenser Power} + \text{Fan Power}}$$

---

<sup>13</sup> Airflow-based field measurement of EER is limited by the accuracy of airflow measurement (as much as  $\pm 10\%$ ); and accuracy of enthalpy measurement of the supply temperature is variable (can be greater than  $\pm 5\%$ ).

### **Evaporator Capacity: Refrigerant Enthalpy**

Evaporator capacity may be calculated from the refrigerant enthalpy difference and estimated mass flow from compressor maps. The following equation represents heat absorbed by the evaporator:

$$Q \text{ (BTU)} = \dot{m}(h_{\text{suction}} - h_{\text{liquid}})$$

Cadmus uses the standard Air-Conditioning, Heating, and Refrigeration Institute (AHRI) equation to obtain the compressors design mass flow rate. When refrigerant superheat exceeds the design conditions, the mass flow is adjusted accordingly. Design mass flow is a function of the suction dew point temperature (S) and discharge dew point temperature (D).<sup>14</sup>

$$\dot{m} = c_1 + c_2S + c_3D + c_4S^2 + c_5S \cdot D + c_6D^2 + c_7S^3 + c_8D \cdot S^2 + c_9S \cdot D^2 + c_{10}D^3$$

We used generic compressor coefficients ( $c_1 - c_{10}$ ) that best represent systems in the tracking database at various capacities. We made general assumptions for the suction line length and elevation change from furnace to condenser to account for pressure drops in the refrigerant line.

Refrigerant-side EER is calculated using the following equation:

$$\text{EER} = \frac{Q}{\text{Condenser Power} + \text{Fan Power}}$$

We tested a small sample of systems and compared to the EER difference reported in the tracking database. The refrigerant enthalpy method produced a slight increase in savings (~10%), verifying EER estimates are reasonable.

### **Uncertainty of EFLH**

CLEAResult explains: “The equivalent full load cooling and heating hours for specific regions in the program were determined using a proprietary model developed using data from the Energy Star Calculator [developed by Cadmus], cooling degree days (CDD), heating degree days (HDD), and building type information. EFLH for each county, building type, and equipment type in the participating region were calculated using the proprietary model input with CDD and HDD for the location.”

Cadmus is not in a position to refute the estimates used. Metering studies have shown equivalent full-load cooling hours listed in the ENERGY STAR calculator tend to overestimate savings for residential HVAC equipment by an average of 40%. The average EFLH used to estimate savings for residential participants is 1,543 hours. The ENERGY STAR calculator uses 1,583 EFLH for Little Rock and 1,432 for Fort Smith. We believe actual run times and total seasonal energy consumption determined through long-term metering should be considered relative to its cost, to verify actual EFLH in EAI’s territory.

### **Effects of Tune-Ups that Change Cooling Capacity**

Some tune-ups result in major performance improvements, which results in a change in AC load. **Error! Reference source not found.** shows a metering participant from a previous study

<sup>14</sup> Pressure is metered at the liquid line. We add 15 psi to estimate discharge pressure.

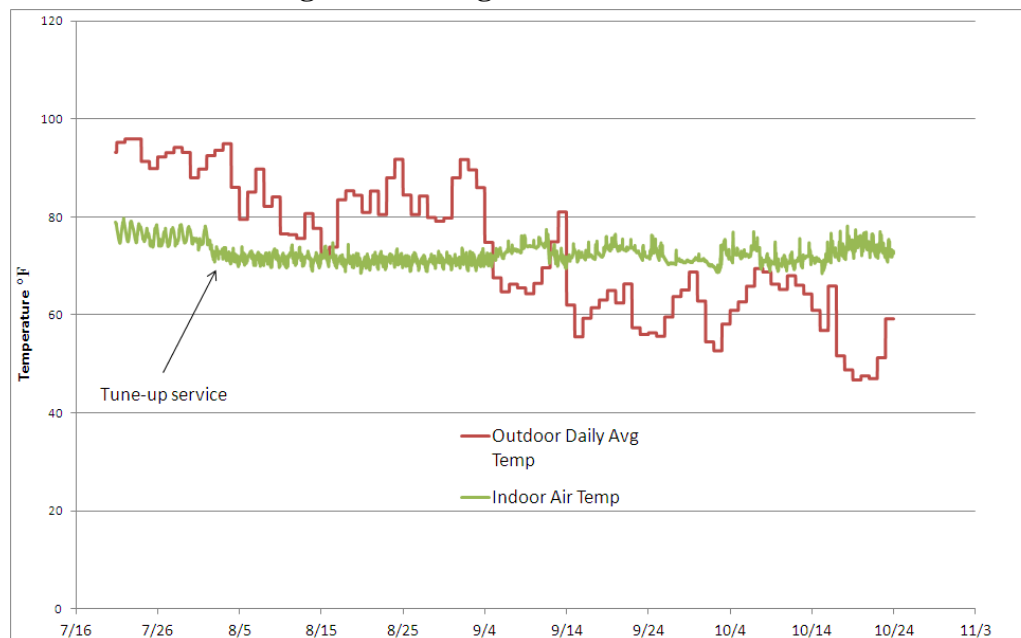


conducted by Cadmus. The conditioned space had a notable decrease in indoor temperature after the AC was tuned-up. The participant noted:

*I did not see a drop in my bill. It stayed almost the same if not a tad higher. But the BIG improvement was that the system worked much better.*

Review of the meter data for this participant showed a significant improvement in EER (from around 2.5 to 6 EER). Even though efficiency improved dramatically, the peak demand (and possibly even the overall energy consumption) increased.

**Figure 7. Change in Indoor Comfort**



The M&V plan assumes that if cooling capacity output increases, the system will cycle off for longer periods of time, resulting in increased overall demand savings. The savings equations are conservative because they assume nominal (initial design) capacity would achieve a coincidence factor of 0.75. If the unit is tuned up and still does not achieve nominal capacity, the coincidence factor is effectively increased. The result may be zero or even negative demand savings. The database shows approximately 25% of the systems receiving a tune-up reported 0 kW demand savings, even though average EER increased from pre to post tune-up.

We believe this approach is appropriate for estimating peak demand savings. Peak demand savings are used to estimate seasonal energy savings, and this is technically inaccurate and overly conservative (further described in the recommendations section). A more accurate estimate of energy savings uses average demand savings and actual system runtimes, not peak demand savings and equivalent full-load hours. Since EFLH may be overstated (especially for residential customers), we believe the total program energy savings estimate is reasonable.

#### 4.4.4 Baseline Assumptions

The participating HVAC technician records and reports “test-in” measurements which are used to estimate the baseline efficiency (EER) of each system. CLEAResult calculated the baseline efficiency (EER) using the method described in Section 1.2.3.1 - EER CALCULATION TECHNIQUE AND UNCERTAINTY IN AIRFLOW MEASUREMENT. Test-in and test-out measurements are used to estimate the baseline EER and post-measure EER for each system receiving a tune-up incentive.

#### 4.4.5 Program Impacts

Table 31 and Table 32 present the High Performance AC Tune-Up program’s 2011 reported gross energy and demand savings and participation. The program exceeded its goal of 1.383 million kWh of energy saved. It also exceeded its goal of 0.6 MW demand savings. We have provided caveats and concerns regarding energy and demand savings estimates throughout the impact verification section. Overall, we find the data tracking, savings analysis methodology, and reported savings are reasonable. Despite the caveats and concerns, we believe savings estimates provided by CLEAResult are superior to the TRM estimates, and accept the reported demand and energy savings.

**Table 31. High Performance AC Tune-Up 2011 Reported and Evaluated Gross Energy Savings by Measure Category**

	Participants	Measures	Reported Gross Savings (kWh)	Evaluated Gross Savings (kWh)	Gross Realized Savings Ratio
Tune-Ups: Commercial	265	1,536	753,455	753,455	1.0
Tune-Ups: Residential	1,262	1,471	997,195	997,195	1.0
Total	1,527		1,750,650	1,750,650	1.0

**Table 32. High Performance AC Tune-Up 2011 Reported and Evaluated Gross Demand Savings by Measure Category**

	Participants	Measures	Reported Gross Savings (kW)	Evaluated Gross Savings (kW)	Gross Realized Savings Ratio
Tune-Ups: Commercial	265	1,536	614	614	1.0
Tune-Ups: Residential	1,262	1,471	510	510	1.0
Total	1,527		1,124	1,124	1.0

The High Performance AC Tune-Up program evaluated gross and net energy savings are shown in Table 33.

**Table 33. CoolSaver 2011 Statewide Evaluated Gross and Net Savings**

Measure	Evaluated Gross Savings	Net Savings	Net to Gross Ratio
Annual Energy Savings (kWh)	1,750,650	1,400,520	0.80
Coincident Peak Demand Savings (kW)	1,124	899	0.80

#### 4.4.6 Quality Assurance

We have discussed the QA/QC process with CLEAResult, and reviewed the protocol in provided documentation, which is meant to ensure contractors are performing maintenance service as the program intends. The numbers directly reported by contractors are critical because they are used to directly estimate savings. If the quality assurance protocol is followed, we have full confidence these numbers may be used reliably to estimate savings.

### 4.5 Process Evaluation Findings

#### 4.5.1 Program Design, History, and Goals

The High Performance AC Tune-Up program was launched in late 2007 as part of EAI’s Quick Start portfolio of energy-efficiency programs. Because tune-ups must be performed during warm weather, the program is seasonal, implemented primarily between early April and late October.

According to CLEAResult program managers, 2011 was a successful year for the program, with contractors performing 3,007 tune-ups for 1,527 customers. The program achieved 127% of its 2011 kWh goal of 1.383 million kWh,<sup>15</sup> and 187% of its kW goal of 0.6 MW.<sup>16</sup> According to CLEAResult, the 2012 goal will be approximately twice the 2011 goal. EAI filed a revised program description in March 2011 under the name “Cooling Solutions”;<sup>17</sup> the new program is expected to begin in the spring of 2012.

Over the program’s three implementation years, program managers:

1. Developed greater awareness in the HVAC community about the need for high quality tune-ups;
2. Trained program contractors to carry out tune-up evaluations and system improvements at a much higher level than the previous standard; and
3. Adjusted the program based on lessons learned.

The 2012 program design and operations will reflect lessons learned during the High Performance AC Tune-Up program. These include:

<sup>15</sup> According to 2011 AR Joint Utilities EM&V summary data

<sup>16</sup> Ibid.

<sup>17</sup> The name CoolSaver has been used during the QuickStart program and contractors know the program by this name; thus EAI and stakeholders refer to the program as CoolSaver rather than Cooling Solutions. New marketing material also uses the name CoolSaver.

- Providing additional incentives that facilitate linkages between CoolSaver and the HES program. New incentives will be offered for commissioning installed equipment to encourage contractors to perform quality installations.
- Continuing to raise the standard of technician tune-up skills through partnerships with four technical colleges developed during the High Performance AC Tune-Up program.

Further automate the data collection and upload process to reduce contractor paperwork. **Error! Reference source not found.** summarizes key differences between the High Performance AC Tune-Up program and the planned 2012 CoolSaver program.

**Table 34. Key Differences: High Performance AC Tune-Up and CoolSaver Programs**

Program Component	High Performance AC Tune-Up	CoolSaver
Tune-up Measures	<ul style="list-style-type: none"> <li>• CAC and HP for residential and small biz</li> <li>• Cleaning blower (\$25)</li> <li>• Clean evaporator cooler (\$25)</li> <li>• Digitally adjust refrigerant charge (\$25)</li> </ul>	<ul style="list-style-type: none"> <li>• CAC and HP for residential and small biz</li> <li>• Cleaning blower (\$25)</li> <li>• Clean evaporator cooler (\$25)</li> <li>• Digitally adjust refrigerant charge (\$25)</li> </ul>
Equipment Measures	<p><u>Residential</u></p> <ul style="list-style-type: none"> <li>• None (only through HES)</li> <li>• No rebates for commissioning</li> </ul> <p><u>Commercial</u></p> <ul style="list-style-type: none"> <li>• None (only through Small C&amp;I)</li> <li>• No rebates for commissioning of new unit</li> </ul>	<p><u>Residential</u></p> <ul style="list-style-type: none"> <li>• None (CoolSaver contractors can promote through HES: CAC, HP &amp; commissioning)</li> </ul> <p><u>Commercial</u></p> <ul style="list-style-type: none"> <li>• Energy Star HP or CAC (moved from Small C&amp;I)</li> <li>• Commissioning of new unit</li> </ul>
Customer Incentives	<ul style="list-style-type: none"> <li>• Total potential \$75 in \$25 increments</li> </ul>	<ul style="list-style-type: none"> <li>• Total potential \$75 in \$25 increments for tune-up</li> <li>• \$300 for commercial unit</li> <li>• \$300 for commissioning</li> <li>• \$300 for residential unit (offered under HES)</li> </ul>
Contractor Incentives	<ul style="list-style-type: none"> <li>• Total \$75 for any # of tune-up measures</li> <li>• EAI provides training</li> </ul>	<ul style="list-style-type: none"> <li>• Total \$75 for any # of tune-up measures</li> <li>• EAI provides training</li> </ul>
Contractor Requirements	<ul style="list-style-type: none"> <li>• Purchase tune-up toolkit*</li> <li>• Initial tune-up evaluation (including test-in) not reimbursed</li> <li>• Clean condenser and verify filter is clean</li> </ul>	<ul style="list-style-type: none"> <li>• Purchase tune-up toolkit*</li> <li>• Initial tune-up evaluation (including test-in) not reimbursed</li> <li>• Clean condenser and verify filter is clean</li> </ul>

\*Initially offered discounted financing to purchase toolkit if 15 tune-ups completed within certain time frame

### 4.5.2 Program Delivery and Implementation

CLEAResult is responsible for program delivery and implementation. This includes recruiting HVAC companies to participate, training technicians, tracking progress, and performing QA/QC activities. EAI reported being satisfied with CLEAResult and the way the program has been managed so far. They also reported CLEAResult has developed a good relationship with contractors, and contractors seem to be happy with the program. Interviews suggest CLEAResult has been proactive in addressing program challenges and identifying opportunities for streamlining. CLEAResult and EAI appear to have developed a good working relationship and communication and responsibilities are clear.

The only concern EAI noted related to CLEAResult’s database management. EAI believes the data retention and retrieval aspect could be improved. They would prefer data consolidated into an EAI-housed database; so all the information can be located in one place and be quickly

accessed and presented in user-friendly formats. EAI is working with CLEAResult to resolve these issues for the 2012 program. CLEAResult has not reported any major difficulties, apart from the following challenges, which it is actively working to address:

- Most contractors in Arkansas perform a maintenance oriented tune-up rather than one focusing on improving the efficiency of equipment. CLEAResult has made an effort to train and work with contractors early in their partnership to ensure their work meets the program’s technical standards.
- Contractors prefer to work quickly, and this program requires testing that adds to time normally required for a system tune-up. Although some contractors are willing to take this extra time, this could be a barrier for others’ participation. CLEAResult is looking for ways to streamline the program, making it more attractive to contractors.

CLEAResult uses multiple methods to recruit contractors. As explained by CLEAResult representatives, to identify potential contractor participants, CLEAResult checks the Yellow Pages, Websites, contractors that are members of other programs, and uses word-of-mouth. CLEAResult targets mid-sized HVAC equipment and service companies; past experience has shown these companies are most likely to participate in the program. Smaller companies do not always have the technical capacity, and large companies may not want to change successful business models. The best candidates are contractors receptive to using new technologies and learning state-of-the-art techniques for A/C and HP tune-ups. CLEAResult tries to ensure comprehensive coverage of EAI’s service territory, but acknowledges it is difficult to recruit contractors to service low-income counties.

### **4.5.3 Marketing and Outreach**

CLEAResult is primarily responsible for marketing the program. Program marketing is designed to recruit contractors, and to help them educate their customers about the program. Customers primarily learn about the program through contractors, but also learn about it from bill inserts, community events/fairs, the EAI Website, and through other programs.

CLEAResult developed a comprehensive 2011–2013 marketing plan for all of EAI’s residential programs, including High Performance AC Tune-Up/CoolSaver. This marketing plan, launched in October 2011, includes tactics for educating customers through direct outreach, earned media, and paid media. It outlines planned initiatives, including: public events booths, home owner association meetings, bill inserts, fact and FAQ sheets, the EAI Website, and cross-promotion with other EAI energy-efficiency programs. The marketing plan also lists contingency initiatives, should the initial set of activities not be successful. These include: paid advertising, PR/earned media; and customer-oriented marketing materials for use by contractors, such as print ad templates and yard signs.

### **4.5.4 Training**

CLEAResult is responsible for training HVAC contractors and technicians. All participating contractors and technicians must complete training on best practices for tune ups. Contractors are required to purchase a specific set of high-quality tools to perform HVAC system evaluations and tune-ups. CLEAResult offers training as needed when new contractors have joined the program. The training program includes laboratory and on-site exercises.

CLEAResult has developed a training manual with scripts, fact sheets, FAQ sheets, PowerPoint presentations, data delivery instructions, customer referral sheets and checklists, and business outreach modules, among other materials. After a technician has taken the required training, CLEAResult representatives observe their first few jobs, providing supervision, and making corrections as needed.

CLEAResult has also established a collaborative arrangement with four technical colleges in the area to address the shortage of well-qualified technicians. Technicians graduating from these technical colleges have already received the appropriate training through curriculum developed by the colleges with the assistance of CLEAResult.

#### 4.5.5 Trade Ally Response

According to CLEAResult program managers, trade ally responses have generally been positive, particularly among younger technicians and more progressive companies interested in new technologies and staying competitive by adapting their business models to offer the program’s services. CLEAResult program managers report some larger and more successful contractors are resistant to change. In addition, CLEAResult program managers say a small group of contractors have not been successful with the program, and no longer offer it to their customers. However, according to program managers, more and more contractors are calling EAI and CLEAResult to join the program, and some larger firms are marketing higher-end tune-ups, even though they do not participate in the program.

#### 4.5.6 Customer Response

EAI and CLEAResult have little direct interaction with customers. EAI program managers indicate there are no mechanisms for collecting customer feedback, either directly or through contractors and technicians. The only ways for customers to contact EAI are through its call center or by e-mail to a local customer service manager, and the majority of these interactions occur when customers call to complain. However, EAI program managers say they have only received three complaints over the last three years. These few instances occurred when an HVAC technician left the customers’ residence without completing the work. While EAI indicates there is no mechanism for collecting customer feedback, the program manual states that during the inspection process, customer satisfaction is assessed.

#### 4.5.7 Program Materials

The objective of the materials review for 2011 programs was to verify essential program materials have been developed, and they contain critical elements to ensure program success. Table 35 indicates whether critical program materials were in use for the High Performance AC Tune-Up program or are planned for the CoolSaver program.

**Table 35. Presence of Program Materials for High Performance AC Tune-Up/CoolSaver**

Required Program Materials	Achieved
Presence of a program manual, handbook, and/or implementation plan.	+
Presence of process flowcharts and organizational charts.	+
Presence of data collection protocols.	+
Presence of data submission instructions (contractor to CLEAResult).	+
Presence of QA/QC protocols.	+

Required Program Materials	Achieved
Presence of training materials for program staff (e.g., program managers, account executives, engineers, support staff).	+
Presence of Website program page.	+
Presence of customer coupon forms.	+
Presence of customer contracts and agreements.	NA
Presence of Participant (contractor) agreement.	+
Presence of participating facility agreement.	+
Presence of participating contractor list.	+
Presence of educational materials for customers: including program handouts or general energy efficiency literature (e.g., fact sheets).	+
Presence of marketing materials.	+

Cadmus reviewed the contents of the program manual to verify critical information is included, roles are clearly defined, and key best practice elements are represented. Table 36 summarizes research questions guiding this review and results.

**Table 36. Program Manual/Handbook, Review for High Performance AC Tune-Up /CoolSaver**

Researchable Topics	High Performance AC Tune-Up	Res CoolSaver	Commercial CoolSaver
Program utility staff roles clearly defined.	-	-	-
Implementer staff roles clearly defined.	+	+	+
Other stakeholder's roles clearly defined (trade allies, etc.).*	+	+	+
Presence of eligibility requirements.	+	~	~
Eligible program measures clearly defined.	+	+	+
Incentive structure clearly defined (Tune-up).	+	+	+
Incentive structure clearly defined (Equipment).	-	-	+
Presence of program processes' step-by-step instructions.	+	+	+
Customer touch points defined.	+	+	+
Inspection and verification protocols included or referenced.	~	~	~
If applicable, reference to partnership with other EAI programs.	N.A	~	~
Reference to program Website.	~	-	-
Presence of program staff contact information.	~	~	~
All acronyms clearly defined.	+	+	+
QA/QC protocols included or referenced.	+	+	+
Data collection protocols included or referenced.	-	-	-
Marketing materials included or referenced.	-	-	-

+ indicates it was included or present, - indicates the element was not included, NA indicates the element was not applicable to this program, ~ indicates the element was mentioned but no protocols were referenced.

\*This category refers to trade allies and other contractors that participate in program delivery but are not part of the formal utility and implementation contractor program team.

Cadmus reviewed program manuals for both the High Performance AC Tune-Up program and the CoolSaver program to determine whether best practice components are included (e.g.,

objectives, key players and their responsibilities, eligibility requirements, incentives, process steps and a process flow diagram, and contact information), as shown in Table 37.

Although we found the program manual for the High Performance AC Tune-Up program to lack adequate detail on some program components typically covered in a program manual (e.g., performance goals, marketing plans, and guidelines on use of marketing strategy and materials), because the program manual is a customer-facing document, these details may not be appropriate. EAI and CLEAResult have developed two new program manuals for the residential and commercial CoolSaver program components. The new manuals are still presented as customer-facing documents and lack operational information required for internal program training and to govern implementation procedures.

While the manuals mention the QA/QC inspection, they do not discuss inspection procedures, reference QA/QC protocols, or customer dispute resolution processes. The manuals do not provide links to the EAI Website, but do provide a links to the participating contractor list on the Website. In some cases, however, additional material is available (e.g., forms, marketing plan that covers all residential programs, data collection protocols), in other documents.

Finally, Cadmus reviewed the program’s marketing materials to ensure critical pieces existed to support key outreach channels.

**Table 37. Marketing Material Review for the High Performance AC Tune-Up program /CoolSaver Program**

Researchable Topics	Achieved
Presence of a marketing plan.	+
Supporting collateral provided (Website, brochures, direct mail, etc.).	+
Does collateral clearly describe the program and benefits?	+
Presence of a network to promote the program through targeted outreach.	+
Clearly defined marketing roles.	+

Our review showed program marketing materials were clear and easy to understand. A more thorough review of marketing materials, their appropriateness to the target market, how businesses and residents are targeted differently, and how persuasive they are will be discussed in more detail as part of the 2012 evaluation.

## 4.6 Conclusions and Recommendations

### 4.6.1 PROCESS

The High Performance AC Tune-Up program is well on its way to being a successful full-scale program. EAI selected an experienced implementation contractor, CLEAResult, which is proactive in resolving challenges and identifying opportunities for streamlining.

EAI and CLEAResult are applying lessons learned during the High Performance AC Tune-Up program to the CoolSaver program, which will be rolled out in the spring of 2012. EAI has looked for opportunities to expand and streamline the program for contractors. Several new elements will be introduced in the CoolSaver program.



EAI and CLEAResult have developed an impressive set of program and marketing materials, including flow diagrams, QA protocols, data collection protocols, contractor agreements, Websites, contractor lists, and extensive training materials. However, these are not compiled into a comprehensive program operational guide that would serve as an internal reference for program implementation.

Cadmus presents the following, initial recommendations.

- Continue to update the CoolSaver program, based on lessons learned and opportunities for improvement. Program managers have proactively applied lessons learned from the Quick Start program to improve the program design, operations, and receptivity in the market place when the comprehensive program rolls out in 2012. These efforts are laudable, and should continue. CLEAResult should continue to look for ways to facilitate data collection.
- Track and report customer feedback. EAI should implement mechanisms for gathering and tracking customer satisfaction levels and other program feedback. These could include:
  - Procedures for tracking customer complaints coming in through the call center, including how they were addressed.
  - CLEAResult performs field inspections, which include customer satisfaction questions. These should be summarized and reported to EAI regularly.
  - A mechanism to gather feedback from participants (e.g., a leave-behind postcard with questions about customers' satisfaction with the services provided).
- Although considerable program materials exist, EAI and CLEAResult should consider developing a comprehensive program operations manual, making it an internal resource with detailed guidelines, forms, marketing and delivery strategies, program resources, training information, staff roles and responsibilities, performance goals and metrics, and ideally a logic model. A consolidated manual would ensure ease of use and consistency.
- Continue proactively recruiting contractors. There are currently 19 participating contractors, and it is likely many more could effectively promote and implement the program's services. With program targets increasing, EAI and CLEAResult should consider ways to expand the program's contractor base, especially among larger companies that previously opted not to participate, but are now advertising services similar to the program offerings. Engaging these larger contractor companies will increase the qualified pool of contractors, ensure high-quality standards are met, and reduce confusion in services offered to the customer.

#### 4.6.2 IMPACT

In Section **Error! Reference source not found. - Error! Reference source not found.**, we note the actual run-time and total seasonal energy consumption determined through long-term metering is necessary to verify actual EFLH in EAI's territory. Savings are directly proportional to EFLH, and therefore uncertainty of savings is equivalent to the uncertainty of full-load hours. A metering study of representative HVAC equipment may be useful to better estimate savings for any HVAC program that incents split or package ACs and heat pumps (such as the Lighting and Appliance program).

In Section **Error! Reference source not found.**, we describe issues with using peak demand savings to estimate total energy savings. A different approach is recommended for energy savings. While SEER is formally calculated using several specific conditions, the concept of SEER is as follows:

$$SEER = \frac{\text{Total Seasonal Cooling Capacity Provided (kBTU)}}{\text{Total Seasonal Energy Consumption (kWh)}}$$

An adjusted SEER is developed based on field measurements:

$$SEER_{adj} = \text{Adjusted SEER} = \frac{EER_{measured}}{EER_{nominal}} \times SEER_{nominal}$$

Cooling capacity and pre- and post- measure SEER ratings are used to estimate savings.

$$\Delta kWh = \text{Cooling Capacity (kBTU)} \times \left( \frac{1}{SEER_{adj,pre}} - \frac{1}{SEER_{adj,post}} \right)$$

EAI should consider conducting a metering study to facilitate a more accurate estimation of energy savings by the described method.

## 5. SMALL C&I SOLUTIONS PROGRAM

This section of the report presents the evaluation approach, findings, conclusions and recommendations for the 2011 Small C&I Solutions Program. Throughout 2011, Small C&I Solutions operated as a Quick Start program. In 2012, it will be replaced by the new Small Business Program. For this evaluation, Cadmus reviewed 2011 program processes, energy savings and other impacts as well as major changes planned for the transition to the new program.

### 5.1 Program Description

EAI's Small C&I Solutions program began in approximately 2008, and operated as a Quick Start program through 2011. The program supported the implementation of commercial and industrial energy-efficiency projects generating peak demand reduction less than 20 kW.

CLEAResult implemented the Quick Start program, and will transition implementation responsibilities to the new comprehensive program in 2012. Implementation staff or partnering contractors assisted customers in identifying energy-efficiency projects, and customers were provided with coupons toward the installed costs of recommended measures. When choosing to implement the measures, the customer redeemed the coupon with the contractor, and paid them the remaining project cost. The program reimbursed the coupon as the incentive to the contractor. The incentive rate was \$115 per kW peak demand reduction.

In 2011, EAI worked with one contractor to introduce pilot changes to the program. The success of that pilot informed the design of a new Small Business program, which will launch in 2012 to replace Small C&I Solutions. The Small Business program will offer increased incentives, expanded measure offerings, and a direct-install component for selected measures. The new program focuses on electricity savings, with incentives determined by a set rate per kWh saved for each eligible measure type. Contractors will be able to provide an instant rebate to customers installing measures, and incentives will be paid directly to participating contractors after project completion.

#### 5.1.1 Accomplishments and Challenges

Table 38 outlines the Small C&I Solutions Program goals and achievements.

**Table 38. Small C&I Solutions 2011 Targets and Results**

	Participants	Energy Savings (kWh)	Demand Savings (kW)
Target	422	603,000	200
Actual (Evaluated Net)	51	1,259,460	328
% of Target	12%	209%	164%

Despite achieving lower participation than expected, the Small C&I Solutions program exceeded its 2011 energy and demand savings goals. The new program was designed to address the challenges EAI found in the Quick Start program and is expected to be a successful model.

Accomplishments in 2011 include:

- The program achieved evaluated net energy savings of 1,259,460, and 328 kW demand reductions, or 209% and 164% of its 2011 targets respectively.
- EAI ran a successful pilot program, in which 30 customers who had previously chosen not to implement projects were approached with a new package of recommendations and incentives. Twenty moved forward with implementation under the modified program model. The new Small Business Program will be implemented based on the success of that pilot.
- EAI developed a comprehensive suite of program documentation for Small C&I Solutions, and for the January 2012 launch of the new Small Business program.

Challenges identified in 2011 include:

- Many customers receiving free site assessments did not follow through with project implementation.
- Program staff believe incentive levels were too low to motivate many customers to implement projects, as reflected in the program's low participant results.

## 5.2 Program Management and Implementation Strategies

As the implementation contractor for the Small C&I Solutions Program, CLEAResult was responsible for recruiting contractors, operating the Energy Efficiency Solutions call center, assisting customers in identifying projects, conducting inspections, and processing incentives in the form of coupon reimbursements.

To create the process flowchart shown in Figure 8 Cadmus relied on the description in the program manual, and on interviews and correspondence with program utility and implementation staff. The blue boxes in Figure 8 represent key activities, in chronological order, for each program participant.

**Figure 8. Small C&I Solutions Process Flow Diagram**

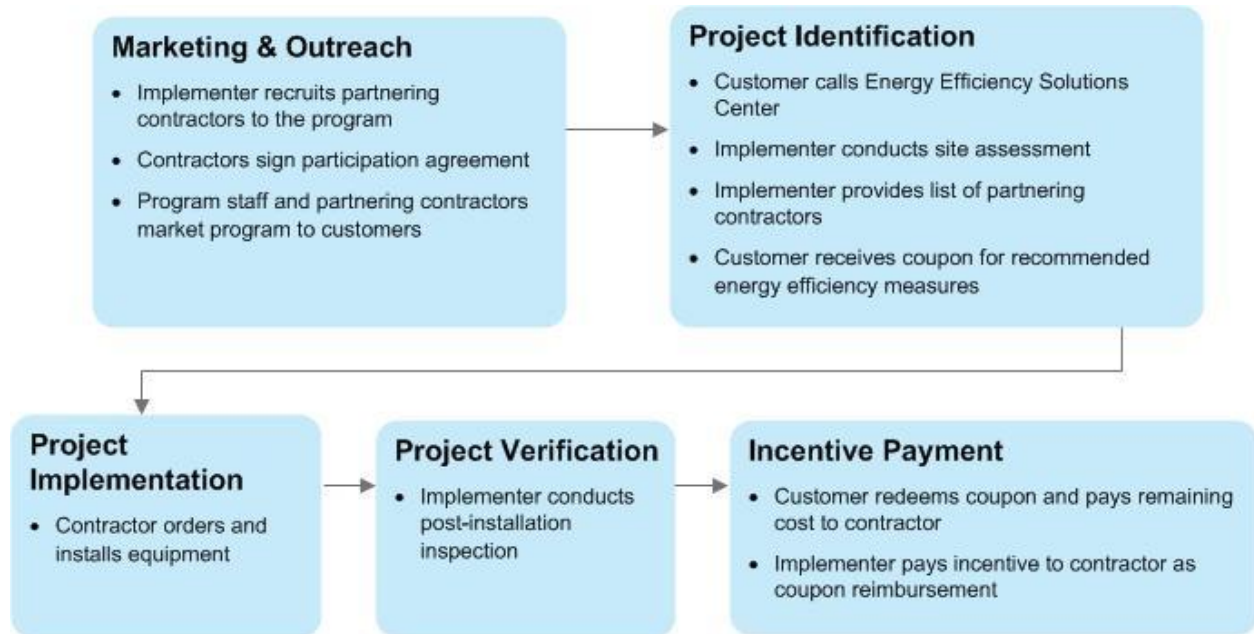
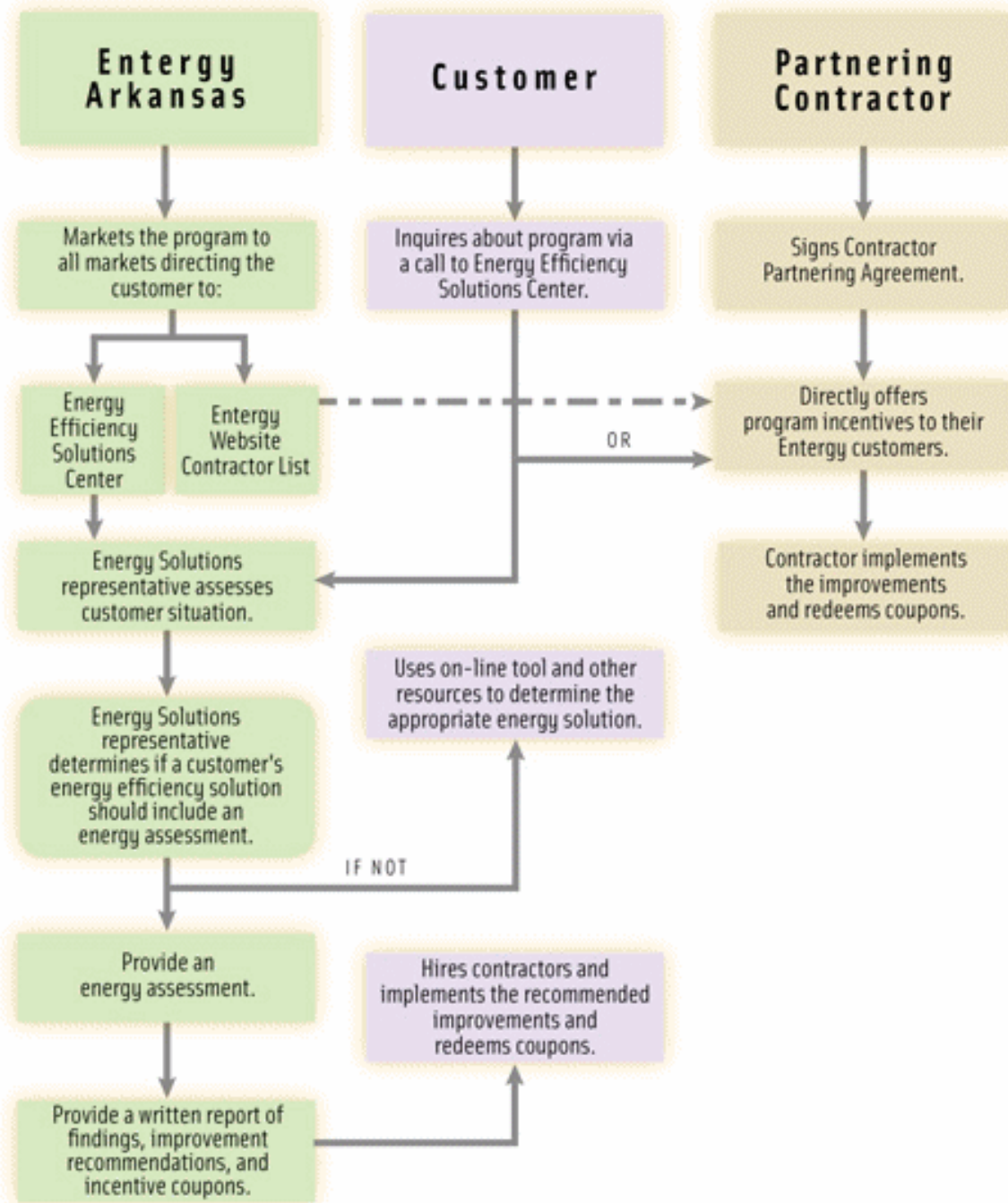


Figure 9 presents a flowchart from the Small C&I Program Manual, showing the project process in greater detail.

**Figure 9. Small C&I Solutions Project Flow Diagram**



To participate, interested customers called the Energy Efficiency Solutions Center, where a CLEAResult representative assessed the customer’s level of interest and potential for energy-efficiency projects. CLEAResult staff conducted a site assessment at customer facilities that had promising project potential, and provided interested customers with a list of partnering contractors. Alternatively, partnering contractors could market the program and work directly

with customers to identify projects. Customers were provided with coupons toward the installed cost of recommended measures.

CLEAResult inspected the first five projects installed by each contractor, and a random sample after that. The customer applied the coupon, with a value of \$115 per kW of peak demand reduction, to their project costs, and the program then provided the incentive to the contractor, in the form of reimbursement for the coupon.

CLEAResult tracks projects through a CRM database and program worksheets, and provides monthly reports to EAI. A new database system is under development, which will be used to track C&I projects, and enable greater real-time electronic communication with CLEAResult.

## 5.3 M&V Approach

This report's Portfolio Overview section presents the evaluation's overall research objectives and general methodology. This section describes the M&V methodology specific to the Small C&I Solutions Program, where it differs from the overall approach.

### 5.3.1 Processes Evaluation

For the Small C&I Solutions evaluation, we gathered information and feedback on the program through interviews with EAI program management staff and CLEAResult. In addition, we reviewed the following program materials.

- Program manuals:
  - Small Commercial & Industrial Energy Solutions Program Manual, January 2011
  - Small C&I Solutions Procedure Manual
  - 2011-2013 Small Business Program Manual (revised 2/9/12)
- Application forms:
  - Lighting Efficiency Coupon
  - HVAC Efficiency Upgrade Coupon
- Trade ally materials
  - Participating Contractor Agreement
  - Lighting – Best Practices Manual
  - 2011 Best Practices Efficiency Standards
  - Energy Rebate Program Overview presentation
  - Business Solutions Programs presentation
- Marketing materials:
  - Small Commercial & Industrial Energy Solutions Program Fact Sheet
  - Fact Sheet: 2011-2013 Small Business Program
  - Bill insert for small business customers
  - EAI C&I Program Marketing Schedule (2011)
  - EAI 2011-2013 C&I Program Marketing Plan

- Entergy Arkansas Website<sup>18</sup>

### 5.3.2 Impact Evaluation

#### Research Objectives

This impact evaluation primarily sought to assess and verify systems EAI has in place to document, track, evaluate, and report energy savings. Objectives specific to this program included:

- Review of EAI’s approach for estimating electricity and demand savings from the Small C&I Solutions Program;
- Review of preliminary electricity and demand savings estimates for 2011; and
- Review of data to assess whether data required for impact evaluation are available and complete.

#### Methodology

Cadmus used the TRM and measure data provided by CLEAResult to calculate adjusted gross savings. The following measure types were implemented in 2011:

- Lighting: retrofit and new construction
- HVAC
- Ceiling insulation
- Duct sealing

For lighting measures, Cadmus verified the wattage of each fixture, using lookup tables in the project calculator files. For retrofits, we calculated annual lighting electricity savings using operating hours reported in each project file, and power adjustment factors specified in the TRM for a given control type. For new construction lighting, we looked up the allowed lighting power density (LPD) in the TRM for a given building type, and then used the operating hours and building areas in the project file to calculate annual electricity savings. For both lighting measure types, we used the TRM-deemed coincident demand factor for the given building type to calculate the peak lighting demand reduction.

For HVAC equipment in C&I facilities, we verified baseline efficiency values using the TRM. The baseline for retrofits is the reported existing equipment efficiency. For new construction, Table 186 of the TRM specified the baseline. We then calculated demand reduction, based on the baseline and reported efficiency rating, and the capacity of the new equipment. We calculated the equivalent full-load cooling hours (EFLH<sub>c</sub>) for the given location and building type, using a formula in the TRM, and using the hours to calculate annual electricity savings. For building types not listed in the TRM, we made no adjustments to the reported EFLH<sub>c</sub>.

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<sup>18</sup> [http://www.energy-arkansas.com/your\\_business/business.aspx](http://www.energy-arkansas.com/your_business/business.aspx)



Duct sealing measures and some HVAC and ceiling insulation measures were implemented in single-family homes owned by a local housing authority; so measures in a residential setting fell within this C&I program.

For residential AC units, we looked up deemed savings values in the TRM for the given location, equipment size, and efficiency rating.

Ceiling insulation savings were calculated using TRM tables of energy savings per square foot. Tables from the TRM's residential or C&I sections were used, depending on the measure's location. Cadmus looked up savings rates for each measure, based on the customer location, heating fuel, and existing and new insulation levels.

As the TRM did not provide deemed savings or recommended inputs for residential duct sealing, for these measures, Cadmus reviewed duct sealing savings calculator files provided by CLEAResult. These files were checked to ensure correct weather locations were used, and other inputs, including leakage rates, were reasonable.

## 5.4 Impact Evaluation Findings

### 5.4.1 Reporting and Tracking Systems

Cadmus reviewed the database and tracking methodology used by EAI and CLEAResult against the EM&V PROTOCOL A, defined by the Arkansas TRM. Cadmus totaled measure savings from each project file in the Small C&I Solutions program, and verified totals matched the total savings shown in the program summary spreadsheet.

### 5.4.2 Review of TRM Values

Cadmus found the following discrepancies between the TRM and the method used to calculate reported savings for the Small C&I Solutions program:

- TRM Table 278 specified a power adjustment factor of 0.65 for lighting occupancy controls. A factor of 0.70 was used instead to calculate reported savings for many occupancy controls measures. This resulted in a slight underestimation of lighting controls electricity savings.
- As stated in the TRM, the total impact of C&I lighting measures may include interactive effects of lighting on HVAC equipment. The TRM recommends considering the interactive effect, but does not specify a method for calculating impacts on savings. EAI and its implementer accounted for this effect by estimating 5% additional lighting electricity savings, and 10% additional demand reduction for measures in air-conditioned areas. Two documents supported these factors: deemed savings for Arkansas Quick Start programs and for Texas programs.<sup>19,20</sup> Cadmus engineering staff conducted a basic calculation of the interactive effect, and determined that these are reasonable estimates

<sup>19</sup> Nexant. November 16, 2007. *Arkansas Deemed Savings Quick Start Program Commercial Measures*. submitted revision, page 2-14.

<sup>20</sup> *Petition by Frontier Associates for Approval of Deemed Savings Estimates*, submitted to the Public Utility Commission of Texas, 2000, page 25.

for Arkansas C&I facilities. Therefore, we consider it appropriate to include these estimates, and did not adjust the calculation of the interactive effect. We recommend adding specific information on calculations of interactive effects to the next version of the TRM.

- On page 151, the TRM included a formula for calculating HVAC EFLH<sub>c</sub> values. EFLH<sub>c</sub> values used to calculate reported electricity savings did not match values calculated using the TRM. Coefficients provided in TRM Table 189 for calculating EFLH<sub>c</sub> were limited to eight building types; so data were unavailable to update values for all HVAC measures.
- For HVAC unitary equipment installed in new construction, the TRM defined the baseline efficiency as the federal standard, while reported savings calculations used higher efficiency levels.
- In Tables 28 through 35, the TRM provided deemed savings values for residential AC replacements, with values higher than savings values determined by savings calculators in the project files.
- As explained, the TRM did not include information on residential duct sealing; so savings calculations for these measures could not be checked against the TRM.

The current TRM used for this evaluation was filed in September 2011. Values in the project files that did not match the TRM may have resulted from current TRM data not being available at the time projects were implemented.

### 5.4.3 Baseline Assumptions

Baseline equipment for lighting retrofits included light fixtures installed in a facility prior to implementation. For new construction lighting, the baseline was defined by the allowed LPD stated in the TRM.

The TRM defined the baseline for new HVAC equipment installed in new construction as the federal standard efficiency. For HVAC equipment replacement, the baseline was defined as the efficiency of the existing equipment, or the federal standard, if the existing equipment efficiency rating was unavailable.

For ceiling insulation and duct sealing measures, the baseline was the existing condition, measured in terms of insulation R-level, and duct leakage rates (cubic feet per minute), respectively.

### 5.4.4 Program Impacts

Table 39 and Table 40 present Small C&I Solutions 2011 reported gross energy and demand savings and participation. Table 41 presents evaluated gross and net savings for the program.

**Table 39. EAI Small C&I Solutions 2011 Reported and Evaluated Gross Energy Savings by Measure Category**

	Participants*	Reported Gross Savings (kWh)	Evaluated Gross Savings (kWh)	Gross Realized Savings Ratio
Lighting – Retrofit	38	1,313,366	1,309,012	1.00
Lighting - New Construction	3	202,141	109,764	0.54

	Participants*	Reported Gross Savings (kWh)	Evaluated Gross Savings (kWh)	Gross Realized Savings Ratio
HVAC	13	149,418	126,295	0.85
Ceiling Insulation	2	17,546	17,547	1.00
Duct Sealing	1	15,049	15,049	1.00
Total	51	1,697,520	1,574,325	0.93

\*Total is less than the sum of measure participants because of multiple measures per participant.

**Table 40. EAI Small C&I Solutions 2011 Reported and Evaluated Gross Demand Reduction by Measure Category**

	Participants*	Reported Gross Savings (kW)	Evaluated Gross Savings (kW)	Gross Realized Savings Ratio
Lighting – Retrofit	38	275	279	1.01
Lighting - New Construction	3	20.3	19.7	0.97
HVAC	13	83.9	91.5	1.09
Ceiling Insulation	2	11.7	11.7	1.00
Duct Sealing	1	8.3	8.3	1.00
Total	51	399	410	1.03

\*Total is less than the sum of measure participants because of multiple measures per participant.

**Table 41. EAI Small C&I Solutions 2011 Evaluated Gross and Net Savings**

	Evaluated Gross Savings	Net Savings	Net to Gross Ratio
Annual Energy Savings (kWh)	1,574,325	1,259,460	0.80
Coincident Peak Demand Savings (kW)	410	328	0.80

Overall, the Small C&I Solutions program had gross realized savings ratios of 0.93 for electricity and 1.03 for demand. Lighting new construction and HVAC equipment exhibited the largest differences in reported and evaluated savings.

One lighting new construction project used a higher baseline LPD value than that in the TRM. Changing its value to match the TRM reduced electricity and demand savings. Another new construction project contained an error in the project file, with in which the baseline-allowed lighting electricity was calculated in place of electricity savings; this exaggerated electricity savings.

HVAC projects saw a reduction in electricity savings as EFLH<sub>c</sub> values used in the project files generally were higher than those calculated using the TRM. Adjusting the baseline for new construction, as described above, increased the HVAC peak demand reduction.

No adjustments were made to ceiling insulation or duct sealing measures.

### 5.4.5 Quality Assurance

Cadmus determined evaluated savings values by independently calculating savings for each measure using the TRM and raw data provided in the project file. Engineering staff reviewed each measure where reported and evaluated savings did not match, investigating the cause of the discrepancy to ensure each adjustment was made correctly.

## 5.5 Process Evaluation Findings

### 5.5.1 Program Design, History, and Goals

Small C&I Solutions was offered as a Quick Start program from 2008 to 2011. The program sought to assist small businesses in implementing energy-efficiency projects. Program staff reported participation barriers included: limited measure offerings, due in part to the program's focus on demand savings, and low incentive levels.

During 2011, EAI ran a small pilot to test program modifications and higher incentive levels. Thirty customers who had previously chosen not to implement projects were approached with a new package of recommendations and incentives. Twenty of those customers (67%) moved forward with implementation under the modified program model. EAI developed the new Small Business Program for 2012, based on that pilot's success.

### 5.5.2 Program Delivery and Implementation

CLEAResult's role included operating the Energy Efficiency Solutions Center, performing free initial site assessments and project inspections, and processing program applications and incentives. Many customers who participated in the assessments did not follow through with implementation of recommendations. In the new Small Business program, CLEAResult's role will focus more on recruiting and training trade allies, and trade allies will market the program, perform site assessments, and install projects.

Utility staff reported monthly meetings with the implementer did not occur as planned, but communication occurred much more frequently leading up to the launch of modified programs for 2012. EAI anticipates receiving more frequent reports from CLEAResult in the future, allowing the utility to track program progress.

### 5.5.3 Training

CLEAResult and EAI developed documented procedures used for staff training. An internal procedure manual and the contractor agreement form detail the program's key operational and administrative tasks, ranging from participant enrollment to payment processing. A customer factsheet and program manual are also used to educate program staff.

Beginning in 2012, trade allies will be required to attend an introductory workshop to become familiar with the program, eligibility requirements, and methods for identifying project opportunities.

### 5.5.4 Marketing and Outreach

EAI marketed the Small C&I Solutions program through bill inserts and direct mail, but some program staff reported they found direct contact with customers to be most effective. In the new Small Business Program, EAI will rely on trade allies for much of the program marketing.

Cadmus reviewed a detailed marketing plan provided by CLEAResult, which included events planned over a two-year period. Key marketing messages seek to increase awareness, communicate the benefits of energy-efficiency upgrades, and address barriers. Marketing initiatives target small business customers through Chamber of Commerce meetings, bill inserts, and e-mail blasts.

### 5.5.5 Trade Ally Response

The Small C&I Solutions program leveraged a network of trade allies for project installation. Trade allies are required to attend a training session and sign a participation agreement. After conducting initial outreach to potential trade allies, program staff reported a high level of interest in participating. In the new program structure, trade allies have more responsibility for helping market the program and identify potential projects.

Informal feedback from trade allies to program staff has been positive. Program staff reported the primary challenges in their trade ally relationships have been: persuading trade allies to think in terms of energy efficiency, educate customers about efficiency, and understand the program's goals.

### 5.5.6 Customer Response

While surveys have not yet been conducted for small business program participants, informal feedback from customers has been positive. Program staff reported the lower incentive levels proved to be a challenge in past years, but they expected program changes and increased incentives would lead to greater success in 2012.

### 5.5.7 Program Materials

Our materials review for 2011 programs sought to verify essential program materials were developed, and contain critical elements to ensure program success. Table 42 indicates whether critical program materials were in use for the Small C&I Solutions Program in 2011. A third column indicates which materials Cadmus identified for the new C&I Prescriptive program, launched in 2012.

**Table 42. Presence of 2011 Small C&I Solutions and 2012 Small Business Materials**

Required Program Materials	2011	2012
Presence of a program manual, handbook, and/or implementation plan.	+	+
Presence of process flowcharts and organizational charts.	+	+
Presence of data collection protocols and QA/QC protocols.	+	+
Presence of training materials for program staff (e.g., program managers, account executives, engineers, support staff, etc.).	+	+
Presence of application and rebate forms, customer contracts, and agreements.	+	+
Presence of educational materials for customers: including program handouts or general energy-efficiency literature.	+	+
Presence of marketing materials.	+	+

EAI has developed essential program materials and guidelines for program staff and customers. Detailed program materials describe the program goals, types of measures included, the project process, and responsibilities of all participants. The program Website provides comprehensive guidelines for customers, including eligibility requirements and contact information.

Cadmus reviewed the program manuals to verify that critical information was included, roles were clearly defined, and key best practice elements were represented. Table 43 summarizes research questions guiding this review and results.

**Table 43. Review of 2011 Small C&I Solutions and 2012 Small Business Program Manuals**

Researchable Questions	2011	2012
Program staff roles clearly defined	+	+
Implementer staff roles clearly defined	+	+
Other stakeholder's roles clearly defined (trade allies, etc.).	+	+
Presence of eligibility requirements	+	+
Eligible program measures clearly defined	+	+
Incentive structure clearly defined	+	+
Presence of program processes' step-by-step instructions	+	+
Customer touch points defined	+	+
All program systems clearly defined (for example any database software is mentioned by name, who will use it and when in the process)	-	-
Inspection and verification protocols included or referenced	+	+
If applicable, reference to partnership with other utilities' programs	N/A	N/A
Reference to program website	-	-
Presence of program staff contact information	+	+
All acronyms clearly defined	+	+
QA/QC protocols included or referenced	+	+
Data collection protocols included or referenced	-	-
Marketing materials included or referenced	-	-

\*This category refers to trade allies and other contractors participating in program delivery, but not part of the formal utility and implementation contractor program team.

Small C&I Solutions featured a customer-facing program manual as well as an internal operations procedures manual. Together, these documents provided essential program guidelines for staff and customers. The new Small Business program manual details trade ally and customer eligibility requirements, eligible technologies, incentive structures, inspection guidelines, and program procedures from enrollment to incentive payment. The manuals do not include information about marketing resources or references to the program’s Website.

Finally, Cadmus conducted a high-level assessment of the program’s marketing materials and outreach channels. This review focused only on the existence of marketing elements critical to ensuring tactics and collateral materials sufficient to support key outreach channels.

**Table 44. Marketing Material Review for 2011 Small C&I Solutions and 2012 Small Business Programs**

Researchable Questions	2011	2012
Presence of a marketing plan.	+	+
Supporting collateral provided (website, brochures, direct mail, etc.).	+	+
Does collateral clearly describe the program and benefits?	+	+
Presence of a network to promote the program through targeted outreach.	+	+
Clearly defined marketing roles.	+	+

## 5.6 Conclusions and Recommendations

### 5.6.1 PROCESS

In the Small C&I Solutions Program, many customers participated in free site assessments, but did not follow through with implementation of energy-efficiency projects. Although the program exceeded its energy savings goals, staff believe the incentives offered were insufficient to motivate many customers; so the program achieved only 12% of its participant goals.

EAI made significant changes in the transition from the Small C&I Solutions program to the new Small Business Program, launching in 2012. The new program design was based on the success of a pilot in 2011, and seeks to address challenges faced in the Quick Start program. The new Small Business Program will provide higher incentives and expanded measure offerings, with trade allies performing more of the marketing and project identification work.

Trade ally recruitment and engagement will be key to the success of this new program. According to interviews with program staff, outreach to trade allies is off to a good start, and initial feedback has been positive. Cadmus recommends program staff work closely with trade allies throughout the year to ensure they understand the new program, effectively market it to customers, and implement comprehensive and cost-effective projects.

### 5.6.2 IMPACT

Based on the impact evaluation findings, Cadmus offers the following four recommendations:

- Update all project savings calculator tools to use TRM values for inputs, including:
  - The power adjustment factor for lighting occupancy controls (TRM Table 278);
  - Allowed LPD for new construction lighting (TRM Table 279);
  - HVAC new construction baseline equipment efficiency (TRM Table 186); and
  - EFLH<sub>c</sub> (TRM page 151) for HVAC measures.
- Formalize the electricity and demand factors for lighting interactive effects in the next version of the TRM.
- Expand the TRM (Table 189) to include coefficients necessary to calculate EFLH<sub>c</sub> for additional building types.



## 6. LARGE C&I ENERGY SOLUTIONS PROGRAM

This report section presents the evaluation approach, findings, conclusions, and recommendations for the Large C&I Energy Solutions (C&I Solutions) program in EAI’s C&I Energy Efficiency Portfolio. In 2011, C&I Solutions, implemented by CLEAResult, operated as a Quick Start program. In 2012, C&I Solutions will transition to a new program, called the C&I Custom Program. As both custom programs used similar delivery and implementation strategies, Cadmus reviewed the program processes and other operational functions as a whole, but primarily focused on 2011 C&I Solutions. Impact results are provided only for the C&I Solutions program in 2011.

### 6.1 Program Description

The C&I Solutions program was a custom program designed for large C&I customers in EAI’s service territory with the ability to install projects that reduce peak demand by 20 kW or greater. C&I Solutions provided energy-efficiency assessments, technical assistance, and incentive payments up to \$159/kW for peak demand reduction projects. Eligible project measures included: lighting; premium efficiency motors; HVAC equipment; and water chillers. Under the Quick Start program, participants could enlist their own staff, engineering consultants, or choose from a network of professionals provided by the program for technical and installation support.

In 2012, the new C&I Custom program will offer incentives based on kWh savings, providing a wider offering of available measures, with incentives to cover up to 75% of incremental project costs.

Prescriptive measures include six measure groups, with incentives ranging from \$0.07 to \$0.15 per kWh. All other project incentives range from \$0.15 to \$0.23 per kWh. New measures may involve industrial process efficiency, chillers, data center efficiency, refrigeration and kitchen upgrades, and improved building design.

#### 6.1.1 Accomplishments and Challenges

Table 45 outlines C&I Solutions program goals and achievements.

**Table 45. C&I Solutions Program 2011 Targets and Results**

	Participants	Energy Savings (kWh)	Demand Savings (kW)
Target	66	5,176,000	900
Actual (Evaluated Net)	21	10,275,701	2,348
% of Target	32%	199%	261%

Overall, C&I Solutions responded swiftly to C&I customer needs for energy efficiency in EAI’s service territory, and exceeded the utility’s forecasts for the custom program offering.

Accomplishments in 2011 included:

- C&I Custom Solutions exceeded its energy and demand savings targets, achieving 199% of energy savings and 261% of demand savings goals.

- EAI planned, designed, and developed new energy-efficiency services, offerings, and incentives in preparation for a comprehensive custom program launch on January 1, 2012.

Challenges identified in 2011 included:

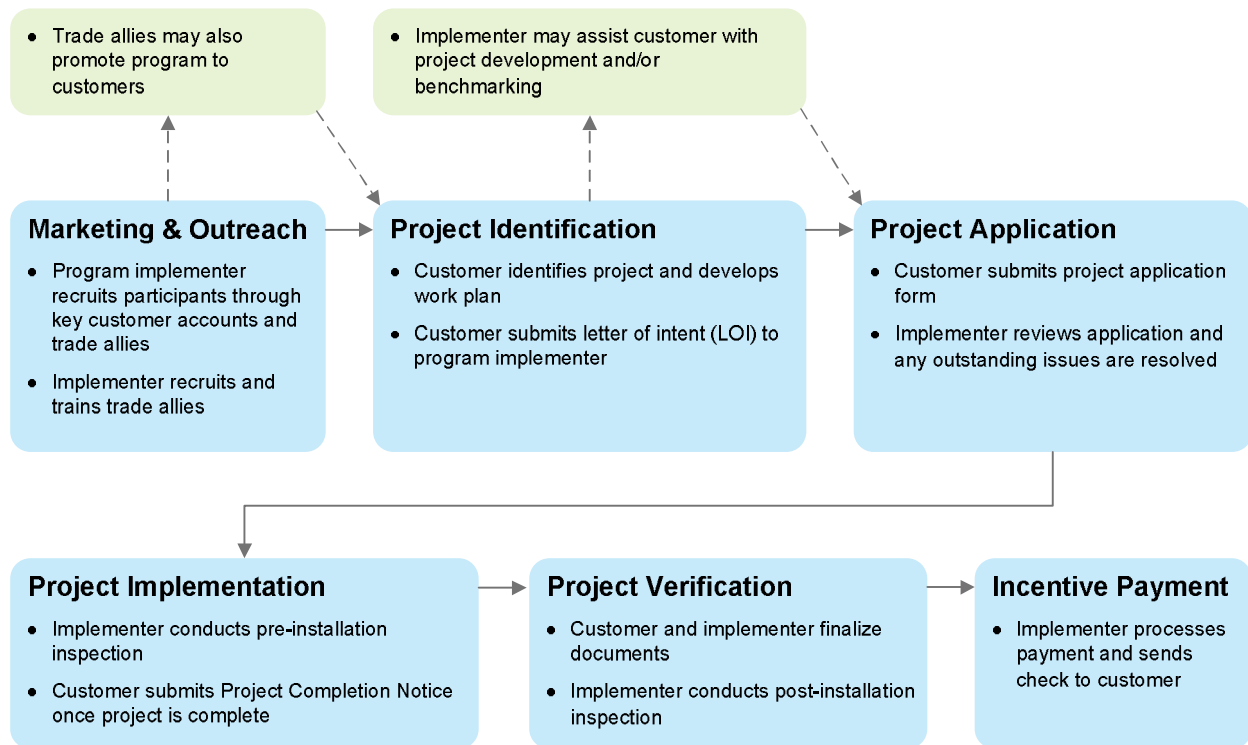
- The Quick Start program had limited incentive and service offerings, and a loosely formed network of program partners. Although C&I Solutions exceeded energy savings targets, design limitations in the Quick Start program may have prevented EAI from achieving market transformation objectives. The new custom program, launching in 2012, has been designed to address these objectives.

## 6.2 Program Management and Implementation Strategies

CLEAResult implemented all program phases, from conducting outreach to processing incentive payments, working closely with EAI program staff and customer service representatives to help identify eligible projects. CLEAResult's implementation team managed day-to-day program delivery functions, leveraging EAI's customer service representatives, account managers, and local trade allies.

The process flowchart shown in **Error! Reference source not found.**, below, presents critical program functions for EAI's C&I Solutions program. To create the process flowchart, Cadmus relied on descriptions in the C&I Solutions program manual and on interviews and correspondence with program utility staff and implementation staff. The blue boxes represent key activities, in chronological order, for each program participant. Green boxes with dashed arrows above and below the blue boxes identify additional steps that may occur in the program process.

**Figure 10. C&I Solutions Process Flow Diagram**



To participate in C&I Solutions, interested customers first submit a letter of intent (LOI) to CLEAResult. Implementation staff contacts the customer to determine whether assistance is needed to identify project opportunities or to suggest funding options. The customer submits a project application to the implementer for project approval. If the project is eligible, the implementer approves the application, and schedules a pre-installation inspection with the customer. The customer submits all completed project documentation following installation, and schedules a post-inspection with the program implementer. Upon successful completion of post-inspection, CLEAResult processes and delivers the incentive payment to the customer.

## 6.3 M&V Approach

This report’s Portfolio Overview section describes the evaluation’s overall research objectives and general methodology. This section describes the M&V methodology specific to the C&I Custom program where it differs from the overall approach.

### 6.3.1 Processes Evaluation

For the C&I Custom program evaluation, Cadmus gathered information and feedback on the program through interviews with EAI program management and CLEAResult staff. In addition, we reviewed the following program materials:

- Program manuals:
  - Large Commerical & Industrial Solutions Program Manual, January 2011

- 2011–2013 Commercial & Industrial Custom Program Manual
- Entergy Arkansas Large C&I Solutions Procedure Manual
- Application forms:
  - 2011 EAI Solutions Letter of Intent
  - Entergy AR C&I Solutions Program Project Application Forms (2011-2013)
  - 2011–2013 Business Solutions Programs Participation Agreement
  - Efficiency Program Inspection Form
- Trade ally materials
  - Lighting Training Manual 2010–10
  - HVAC Training Manual 2010–09
  - CLEAResult Savings Protocol
  - Energy Rebate Program Overview
  - Entergy Arkansas Trade Ally Agreement
  - Commercial Business Solutions Trade Ally List
- Marketing materials:
  - EAI Large C&I Energy Solutions Program Factsheet
  - Fact Sheet: 2011–2013 C&I Custom Program
  - EAI C&I Program Marketing Schedule (2011)
  - EAI 2011–2013 C&I Program Marketing Plan
  - Recommendation Letters
- Entergy Arkansas’ Website<sup>21</sup>

### 6.3.2 Impact Evaluation

#### Research Objectives

This impact evaluation primarily sought to assess and verify systems EAI currently has in place to document, track, evaluate, and report energy savings. Objectives specific to this program included:

- Review of the reported savings summary spreadsheet; and
- Review of project-specific workbooks used to calculate savings.

#### Methodology

Cadmus verified and adjusted gross savings estimates for projects with an installation date (or post-inspection date, in the absence of an installation date) on or after January 1, 2011. If a measure’s reported savings were based on a deemed methodology, adjusted gross savings are determined using the information contained in each project’s workbook and the methodologies presented in the Arkansas TRM, approved on October 14, 2011.

If a project utilized an M&V method to estimate savings, all documentation provided was reviewed for accuracy and comprehensiveness.

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<sup>21</sup> [http://www.energy-arkansas.com/your\\_business/business.aspx](http://www.energy-arkansas.com/your_business/business.aspx)

## 6.4 Impact Evaluation Findings

### 6.4.1 Reporting and Tracking Systems

Cadmus reviewed the database and tracking methodology used by EAI and CLEAResult against the EM&V PROTOCOL A, as defined by the Arkansas TRM.

Currently, information contained in the database contains no information that can be used to determine adjusted gross savings. The database contains total savings associated with each major measure at each location and savings claims are supported by individual workbooks associated with each project completed. Savings based on M&V are also supported through project reports.

### 6.4.2 Review of TRM Values

Overall, savings reported were based on methodologies described in the TRM. In some cases, the methodology used to determine a specific project input was based on deemed savings documents that existed at the time of the application, that were superseded by the TRM. For some of these inputs, the TRM represented a change in methodology, resulting in adjusted savings.

Reported and adjusted gross savings deviated from the TRM as follows:

- As stated in the TRM, the total impact of C&I lighting measures may include interactive effects of lighting on HVAC equipment. The TRM recommends considering the interactive effect, but does not specify a method to calculate impacts on savings. Both EAI and its implementer, accounted for this by estimating 5% additional lighting electricity savings and 10% additional demand reduction for measures in air-conditioned areas. These factors are supported in two documents: the deemed savings for Arkansas Quick Start programs and for Texas programs.<sup>22,23</sup> Cadmus engineering staff conducted a basic calculation of the interactive effect, and determined that these are reasonable estimates for Arkansas C&I facilities. Therefore, we believe it appropriate to include these estimates, and we did not adjust the calculation of the interactive effect. We recommend specific information on calculation of the interactive effect be added to the next version of the TRM.

### 6.4.3 Baseline Assumptions

The impact evaluation followed the TRM in determining a baseline for each project. If the original estimate used project-specific existing equipment as the baseline, adjusted gross savings were based on the same equipment specifications provided. If the original estimate used a default lookup table to determine baseline equipment specifications, the lookup tables associated with the TRM were used to determine baseline equipment specifications.

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<sup>22</sup> Nexant, November 16, 2007. *Arkansas Deemed Savings Quick Start Program Commercial Measures*. Submitted revision, page 2-14.

<sup>23</sup> *Petition by Frontier Associates for Approval of Deemed Savings Estimates*, submitted to the Public Utility Commission of Texas, 2000, page 25.

### 6.4.4 Program Impacts

Table 46 and Table 47 present the Custom 2011 reported gross energy and demand savings and participation. Table 48 shows net savings.

**Table 46. Custom 2011 Reported and Evaluated Gross Energy Savings by Measure Category**

Measure Category	Participants	Measures	Reported Gross Savings (kWh)	Evaluated Gross Savings (kWh)	Gross Realized Savings Ratio
Lighting	15	24	11,074,883	11,082,405	1.00
HVAC	1	2	6,992	13,602	1.95
Chiller Air Cooled	1	1	71,447	71,447	1.00
HVAC-DX	2	6	161,770	81,729	0.51
Motor	1	1	1,177,929	1,177,929	1.00
Chiller Water Cooled	1	2	497,545	417,515	0.84
Total	21	36	12,990,566	12,844,627	0.99

**Table 47. Custom 2011 Reported and Evaluated Gross Demand Reduction by Measure Category**

Measure Category	Participants	Measures	Reported Gross Savings (kW)	Evaluated Gross Savings (kW)	Gross Realized Savings Ratio
Lighting	15	24	2,581	2,581	1.00
HVAC	1	2	6	12	2.07
Chiller Air Cooled	1	1	53	53	1.00
HVAC-DX	2	6	102	13	0.13
Motor	1	1	158	158	1.00
Chiller Water Cooled	1	2	119	119	1.00
Total	21	36	3,019	2,935	0.97

**Table 48. Custom 2011 Evaluated Gross and Net Savings**

	Evaluated Gross Savings	Net Savings	Net to Gross Ratio
Annual Energy Savings (kWh)	12,844,627	10,275,701	0.80
Coincident Peak Demand Savings (kW)	2,935	2,348	0.80

HVAC projects achieved an energy realization rate of 195%. Three HVAC units were rebated under this measure category as retrofits. One workbook covered all three installations, including existing equipment efficiencies for two of the three units. The TRM states that existing equipment efficiency can be used, if available. Reported savings, however, did not use that information, instead using the federal standard as the baseline efficiency. Adjusted gross savings calculated as part of this evaluation were based on the existing equipment efficiency shown in the workbook for the two units, where that was known, resulting in increased energy savings.

HVAC-DX projects achieved a 51% energy realization rate and a 13% demand realization rate. Two projects were completed within this measure category. One project included installation of single-phase, 1.5-ton, high-efficiency heat pumps to serve apartments at two complexes. This project was included in the commercial program since each apartment complex, had a commercial account, and reported savings for the project were accordingly based on the commercial HVAC section of the TRM. As measures were in a residential application, we

adjusted gross savings for this project, based on deemed energy savings for a residential heat pump replacement. The change to a more appropriate savings value resulted in a 70% energy realization rate and a 36% demand realization rate for this project.

The second project in this measure category supported replacement of multiple unitary HVAC units in commercial buildings. Reported savings were developed using a spreadsheet from 2008 that uses IECC 2003 to determine the baseline efficiency of existing equipment. Adjusted gross savings calculated as part of this evaluation used Table 186 in the Arkansas TRM to determine the baseline efficiency. Consequently, the project received zero savings, as the TRM baseline equaled the installed equipment efficiency.

#### 6.4.5 Quality Assurance

Cadmus determined evaluated savings values by independently calculating savings for each measure using the TRM and raw data provided in the project file. Engineering staff reviewed each measure where reported and evaluated savings did not match, investigating the cause of the discrepancy to ensure each adjustment was made correctly.

### 6.5 Process Evaluation Findings

#### 6.5.1 Program Design, History, and Goals

The C&I Solutions program was designed to engage large commercial and industrial customers that may need technical assistance and other resources to overcome barriers to installing specialized energy-efficiency projects. CLEAResult has implemented C&I Solutions since the program's approval by the APSC in 2007. The Quick Start program design was based on reducing peak demand by providing incentives for each kW reduced. The new custom program will enable a more comprehensive approach, with expanded measures and added technical assistance, if needed.

C&I Solutions' key program objectives were to promote energy-efficiency benefits in the C&I sector and minimize market barriers. The program greatly exceeded its energy-savings target in 2011. EAI's implementation team reported that meeting targets in the future may prove more challenging for several reasons. In 2012, EAI will strive to promote market transformation by doubling the new custom program's energy savings targets. Mandatory energy savings targets will increase another 50% above 2012 levels in 2013. Additionally, competing interests, such as the APSC's Self Direct program, may impact the available pool of energy reductions to large customers.

#### 6.5.2 Program Delivery and Implementation

The EAI program manager reported C&I Solutions participants typically are recruited through EAI's managed accounts. Account managers help identify potential projects by promoting energy efficiency as a service to customers. Contractors may also refer potential projects to EAI or CLEAResult.

Typical projects in the C&I Solutions program are large custom retrofits, involving engineering studies and M&V. For example, project savings may result from combined deemed and measured, or just measured savings. The EAI program manager noted most custom projects in 2011 were lighting projects. All custom projects require pre- and post-inspections. However, in

the future, EAI may use a sampling approach, based on program maturity and contractor experience.

Implementer staff reported they track customer profiles, applications, and relevant project information in their CRM database, and send monthly reports to EAI. Although EAI does not currently have a database system for tracking custom projects, a new system is in development. The new database will enable the utility to move beyond spreadsheet and paper tracking, providing more real-time electronic communication between EAI and the program implementer.

### **6.5.3 Marketing and Outreach**

C&I Solutions relies on leveraging relationships between customers, customer services representatives, account managers, and trade allies. The CLEAResult and EAI implementation team collaborates to manage marketing and outreach efforts.

Cadmus reviewed a comprehensive marketing strategy, with events planned over a two-year period. Key marketing messages seek to increase awareness, and communicate the benefits of energy-efficiency upgrades. Marketing initiatives target large customers through direct outreach with customers and trade allies, e-mail blasts, direct mail, conferences, trade shows, media, and paid advertising.

### **6.5.4 Training**

CLEAResult and EAI developed documented procedures for staff training. A comprehensive procedures manual details all C&I Solutions' key operational and administrative tasks, ranging from program partner enrollment to data collection and payment processing. A customer fact sheet and a program presentation provide an overview of the program, information about participation requirements, and updates about recent program changes.

In 2012, participating contractors will be required to attend an introductory training workshop to become a trade ally, and to demonstrate familiarity with the program's eligibility requirements and project opportunities. In addition to a program overview and technical guidance, the trade ally training, developed by CLEAResult, instructs trade allies to identify project opportunities.

### **6.5.5 Trade Ally Response**

Trade allies under the Quick Start program were an informal network of local contractors. In 2012, the program implementation team intends to develop formal trade ally relationships. Trade allies will be required to sign participation agreements in addition to participating in training.

### **6.5.6 Customer Response**

Customer feedback was not available for the 2011 program. Though EAI regularly conducts satisfaction surveys with C&I managed accounts, customer satisfaction surveys do not collect targeted feedback about C&I energy-efficiency programs.

### **6.5.7 Program Materials**

Cadmus' materials review for 2011 programs sought to verify essential program materials have been developed, and that they contain critical elements to ensure program success. Table 49 indicates whether critical program materials were in use for the C&I Solutions program in 2011.



A third column indicates which materials Cadmus reviewed for the new C&I Custom program, launching in 2012.

**Table 49. Presence of C&I Solutions and C&I Custom Materials**

Required Program Materials	2011	2012
Presence of a program manual or handbook.	+	+
Organizational charts.	+	+
Presence of process flowcharts.	+	+
Presence of data collection protocols and QA/QC protocols.	+	+
Presence of training materials for program staff (e.g., program managers, account executives, engineers, support staff, etc.).	+	+
Presence of application and rebate forms, customer contracts, and agreements.	+	+
Presence of educational materials for customers: including program handouts or general energy-efficiency literature.	+	+
Presence of marketing materials.	+	+

C&I Solutions contained many essential program materials and guidelines for customers, from enrollment guidelines to participation requirements. New program materials in 2012 provide more comprehensive information about new services and expanded offerings. Some of these materials are available online, such as application forms, fact sheets, and contact information.

Cadmus reviewed the contents of the C&I Solutions and C&I Custom Program Manuals to verify critical information is included, roles are clearly defined, and key best practice elements are represented. Table 50 summarizes research questions guiding this review and review results.

**Table 50. Review of C&I Solutions and C&I Custom Manuals**

Researchable Topics	2011	2012
Program staff roles clearly defined.	-	+
Implementer staff roles clearly defined.	+	+
Other stakeholder's roles clearly defined (trade allies, etc.).*	-	+
Presence of eligibility requirements.	+	+
Eligible program measures clearly defined.	+	+
Incentive structure clearly defined.	+	+
Presence of program processes' step-by-step instructions.	+	+
Customer touch points defined.	+	+
All program systems clearly defined (for example any database software is mentioned by name, who will use it and when in the process).	-	-
Inspection and verification protocols included or referenced.	-	+
If applicable, reference to partnership with other utilities' programs.	NA	N/A
Reference to the program's Website.	-	+
Presence of program staff contact information.	+	+
All acronyms clearly defined.	+	+
QA/QC & verification protocols included or referenced.	-	+
Data collection protocols included or referenced.	+	+
Marketing materials included or referenced.	-	-

\*This category refers to trade allies and other contractors participating in program delivery, but not part of the formal utility and implementation contractor program team.

C&I Solutions featured a customer-facing program manual as well as an internal operations procedures manual. Together, these documents provided essential program guidelines for staff and customers. The new, comprehensive program manual (C&I Custom) details staff roles, eligibility requirements, incentive structures, M&V guidelines, and program procedures, from enrollment to incentive payments.

Finally, Cadmus conducted a high-level assessment of program marketing materials and outreach channels. This review focused only on the existence of marketing elements critical to ensuring marketing tactics and collateral materials were sufficient to support key outreach channels.

**Table 51. Marketing Materials Review**

Researchable Topics	2011	2012
Presence of a marketing plan.	+	+
Supporting collateral provided (Website, brochures, direct mail, etc.).	+	+
Does collateral clearly describe the program and benefits?	+	+
Presence of a network to promote the program through targeted outreach.	In Process	In Process
Clearly defined marketing roles.	+	+

## 6.6 Conclusions and Recommendations

### 6.6.1 PROCESS

In 2011, the C&I Solutions Quick Start program far exceeded its energy-savings expectations, indicating: EAI's ability to reach the intended C&I market; and market demand for energy-efficiency services in that sector.

EAI and CLEAResult effectively used lessons learned from delivering the C&I Solutions program to design a more comprehensive program approach. The new program, C&I Custom, was swiftly launched and implemented at the beginning of 2012, leveraging key lessons and incorporating many program components essential for a successful custom program. As the new program expands and energy-savings targets increase, the C&I Custom program may benefit from collecting direct customer and trade ally feedback. Cadmus recommends gathering research about effective outreach channels, and continued development of more formal relationships with program partners.

### 6.6.2 IMPACT

For 2012, all workbooks or reported savings calculations should be updated to utilize the methodology described in the current TRM. A process should also be created to adjust reported savings when TRM modifications are made in the future.

## 7. C&I STANDARD OFFER PROGRAM

This report section presents evaluation approach, findings, conclusions, and recommendations for the C&I Standard Offer Program (CISOP). In 2011, CISOP operated as a Quick Start program. In 2012, it will be replaced by a new program, called C&I Prescriptive. In this evaluation, Cadmus reviewed the 2011 program processes, energy savings, and other impacts as well as major changes planned for transition to the new program.

### 7.1 Program Description

Throughout 2011, CISOP operated as a Quick Start program. This program supported implementation of energy-efficiency projects in the C&I sector by providing incentive payments of \$230 per kW of peak demand reduction. CISOP was a customer-driven program, targeting customers who did not need technical assistance. While a wide range of measures qualified for the program, most CISOP projects in 2011 were lighting retrofits, along with one project each for compressed air, HVAC, and variable frequency drives (VFDs).

Beginning in 2012, the new C&I Prescriptive program will engage with trade allies to deliver the program, and offer technical assistance from program staff. The C&I Prescriptive program will offer incentives based on kWh savings for measures with deemed savings in the Arkansas TRM. Incentives are set at \$0.09 per kWh savings, with a maximum of 75% of project installed costs.

#### 7.1.1 Accomplishments and Challenges

Table 52 outlines CISOP goals and achievements.

**Table 52. CISOP 2011 Targets and Results**

	Participants	Energy Savings (kWh)	Demand Savings (kW)
Target	114	8,400,000	2,000
Actual (Evaluated Net)	13	6,634,605	900
% of Target	11%	79%	45%

CISOP did not achieve its program goals in 2011, but the 2012 program has been designed to address challenges found in the Quick Start program.

Accomplishments in 2011 include:

- The program delivered more than 6 million kWh net energy savings.
- EAI’s implementation team leveraged lessons learned from delivery of the 2011 CISOP to plan, design, and launch a new program with expanded offerings, in January 2012.
- EAI developed a comprehensive suite of program documentation for CISOP and for the new Prescriptive program.

Challenges identified in 2011 include:

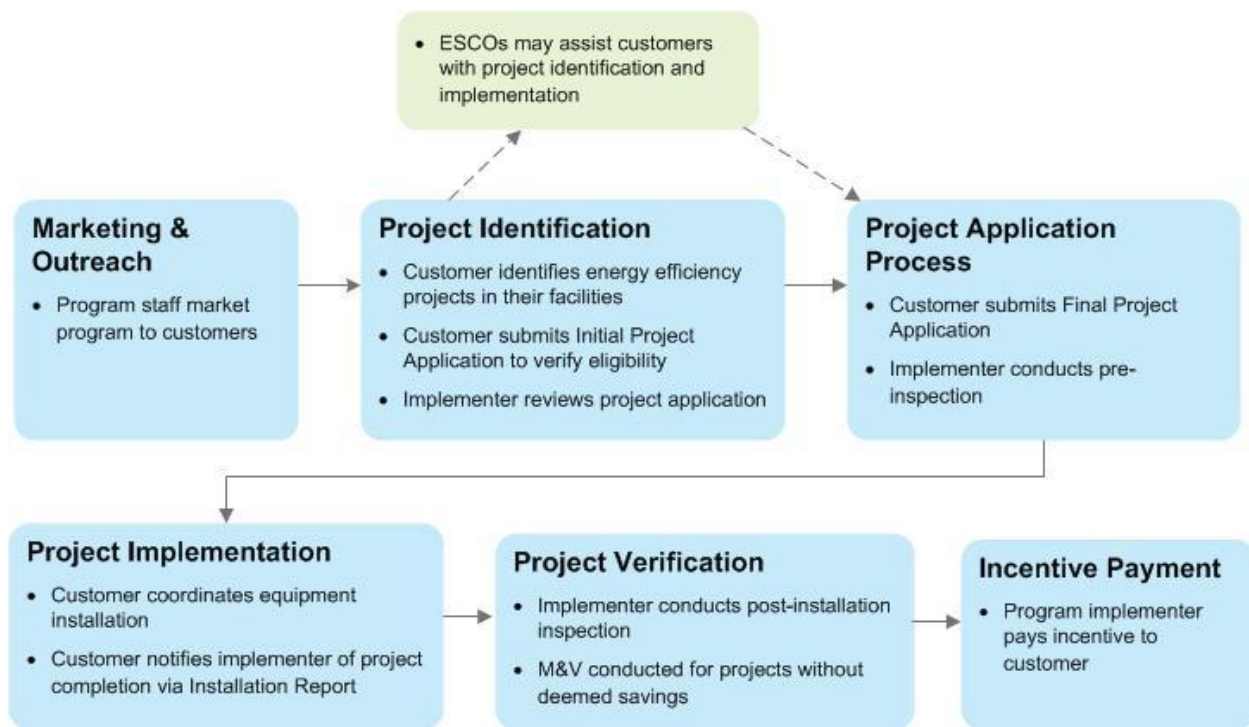
- Program staff believes many customers lacked the technical resources to complete the complex CISOP application process. These customers may have chosen instead to participate in the C&I Solutions Program, which offered more assistance from program staff.

## 7.2 Program Management and Implementation Strategies

Customers drove CISOP, assuming responsibility for: identifying energy-efficiency projects; submitting a project application and other required forms; and coordinating installation. If a customer needed technical assistance in 2011, EAI referred them to the C&I Solutions program rather than CISOP. The two programs differed not by eligible measure types but by assistance levels required by the customer. CLEAResult, managed program delivery functions, including conducting pre- and post-inspections, and processing applications and incentive payments.

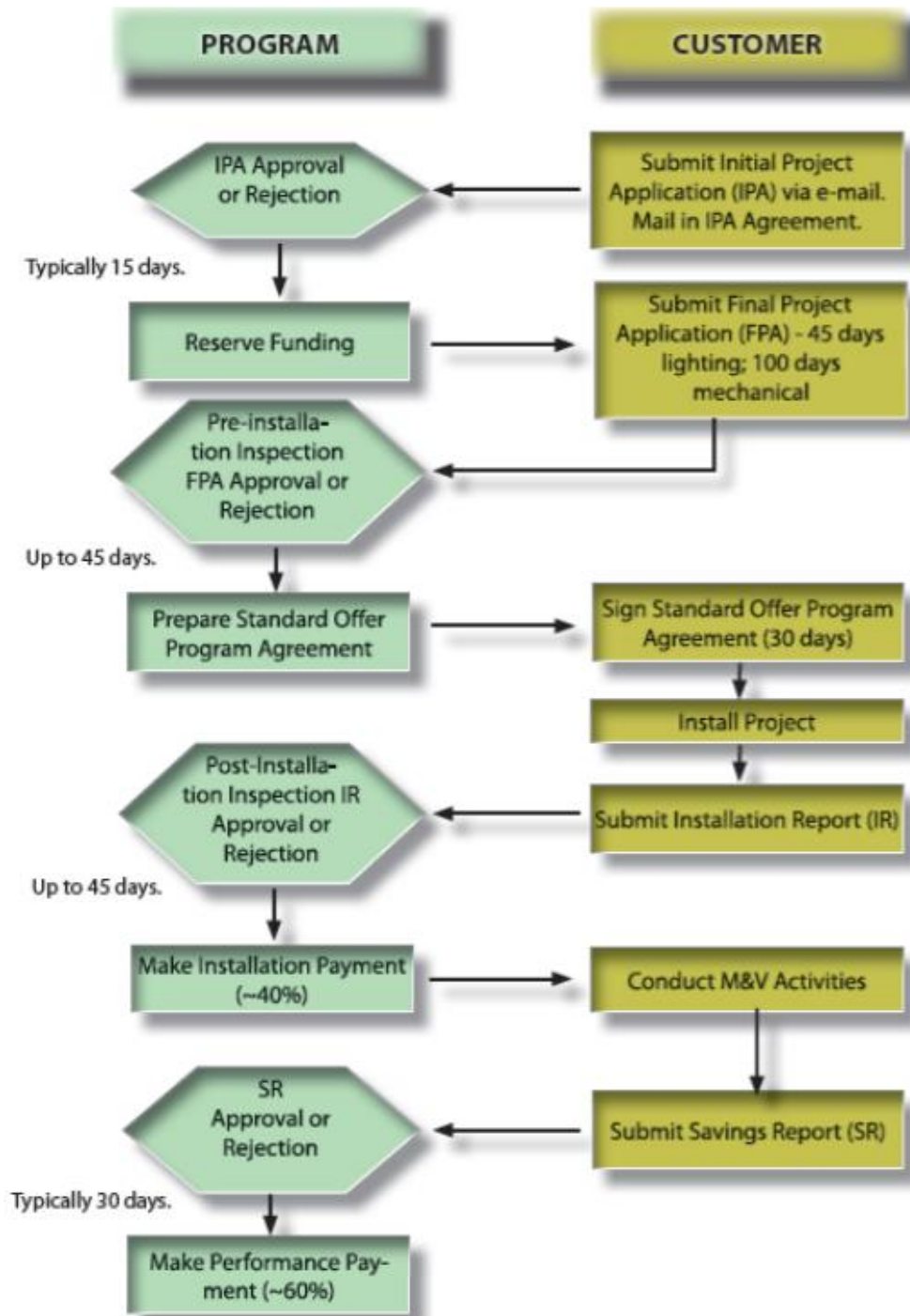
The process flowchart shown in Figure 11, below, depicts CISOP as it was offered in 2011. In creating this flowchart, Cadmus relied on descriptions in the program manual and on interviews and correspondence with utility and implementation staff. The figure’s blue boxes represent key activities, in chronological order, for each program participant. The green box with dashed arrows identifies additional steps that may occur in the program process.

**Figure 11. CISOP Process Flow Diagram**



**Error! Reference source not found.** presents a flowchart from the CISOP program fact sheet, showing the project process in detail.

**Figure 12. CISOP Project Flow Diagram**



Customers learned about CISOP through program marketing or utility staff, such as account managers and customer service representatives. To participate, a customer identified an energy-efficiency project, either independently or with the support of an external resource (such as an energy services company [ESCO]), and then submitted a project application to CLEAResult.

Prior to installation, CLEAResult inspected all projects, and the customer signed a program agreement. Following installation, CLEAResult conducted a post-inspection.

For projects with deemed savings, CLEAResult provided incentives in a single payment. For custom projects requiring M&V, incentives were split into two payments: 40% after installation, and the remaining 60% after approval of the M&V report.

CLEAResult tracks projects through a CRM database and program worksheets, and provides monthly reports to EAI. A new database system under development will be used to track C&I projects and enable increased, real-time electronic communication with CLEAResult.

## 7.3 M&V Approach

This report's Portfolio Overview section describes the evaluation's overall research objectives and general methodology. This section describes the M&V methodology specific to the C&I Standard Offer Program, where it differs from the overall approach.

### 7.3.1 Processes Evaluation

For the CISOP program evaluation, Cadmus gathered information and feedback on the program through interviews with EAI program management and CLEAResult staff. Additionally, we reviewed the following program materials:

- Program manuals:
  - Large C&I Standard Offer Program Manual, January 2011
  - 2011–2013 Commercial & Industrial Prescriptive Program Manual
  - Entergy Arkansas Large C&I Standard Offer Procedure Manual
- Application forms:
  - Initial Project Application
  - Final Project Application
  - Large C&I Standard Offer Quickstart Program Contract
- Trade ally materials:
  - Lighting Training Manual 2010–10
  - HVAC Training Manual 2010–09
  - CLEAResult Savings Protocol
  - Energy Rebate Program Overview presentation
  - Entergy Arkansas Trade Ally Agreement
  - Commercial Business Solutions Trade Ally List
  - Business Solutions Programs presentation
- Marketing materials:
  - EAI Large C&I Standard Offer Program Factsheet
  - Fact Sheet: 2011–2013 C&I Prescriptive Program
  - EAI C&I Program Marketing Schedule (2011)
  - EAI 2011–2013 C&I Program Marketing Plan

- Entergy Arkansas Website<sup>24</sup>

### 7.3.2 Impact Evaluation

#### Research Objectives

This impact evaluation primarily sought to assess and verify systems EAI currently has in place to document, track, evaluate, and report energy savings. Objectives specific to this program included:

- Review of EAI’s approach to estimating electricity and demand savings from the C&I Standard Offer Program;
- Review of preliminary electricity and demand savings estimates for 2011; and
- Assess whether sufficient data have been collected to conduct an impact evaluation.

#### Methodology

Cadmus used the TRM and measure data provided by CLEAResult to calculate adjusted gross savings. In 2011, the program implemented the following measure types:

- Lighting retrofits
- HVAC
- Compressed air
- VFDs

For lighting measures, we verified the wattage of each fixture using lookup tables in the project calculator files. We then calculated annual lighting electricity savings using operating hours reported in each project file, and calculated the lighting demand reduction using the deemed coincident demand factor the TRM provided for each building type. For lighting controls measures, we calculated lighting electricity savings resulting from controls, using the lighting controls adjustment factor in the TRM, and assumed zero demand savings, as specified in the TRM.

For HVAC measures, we verified the baseline efficiency using the TRM. We then calculated the demand reduction, based on the verified baseline and on the reported efficiency rating and capacity of the new equipment. We calculated the EFLHc for the given location and building type using a formula in the TRM, and used the EFLHc to calculate annual electricity savings.

Reported savings for compressed air and VFD projects were based on an M&V approach rather than deemed savings in the TRM. To evaluate these measures, Cadmus reviewed the project files, including meter data and explanations of the measures and methodologies for calculating savings.

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<sup>24</sup> [http://www.entergy-arkansas.com/your\\_business/business.aspx](http://www.entergy-arkansas.com/your_business/business.aspx)



## 7.4 Impact Evaluation Findings

### 7.4.1 Reporting and Tracking Systems

Cadmus reviewed the database and tracking methodology in use by EAI and CLEAResult against the EM&V PROTOCOL A, as defined by the Arkansas TRM. Cadmus totaled measure savings from each project file in the C&I Standard Offer program, and verified totals matched total savings shown in the program summary spreadsheet.

### 7.4.2 Review of TRM Values

Cadmus found the following discrepancies between the TRM and methods used to calculate reported savings for the C&I Standard Offer program:

- TRM Table 278 specifies a power adjustment factor of 0.65 for lighting occupancy controls. For many occupancy controls measures, a power adjustment factor of 0.70 was used. This resulted in a slight underestimate of lighting controls electricity savings.
- The TRM indicates the total impact of C&I lighting measures may include interactive effects of lighting on HVAC equipment. The TRM recommends the interactive effect be considered, but does not specify methods for calculating impacts on savings. EAI and its implementation contractor accounted for this effect by estimating 5% additional lighting electricity savings and 10% additional demand reduction for measures in air-conditioned areas. These factors are supported in two documents: deemed savings for Arkansas Quick Start programs and for Texas programs.<sup>25,26</sup> Cadmus engineering staff conducted a basic calculation of the interactive effect, and determined these are reasonable estimates for Arkansas C&I facilities. Therefore, we believe it appropriate to include these estimates, and did not adjust calculations of interactive effects. We recommend specific information on calculation of interactive effects be added to the next version of the TRM.
- On page 151, the TRM includes a formula for calculating HVAC EFLH<sub>c</sub> values. EFLH<sub>c</sub> values in the project files, used to calculate reported electricity savings, did not match values calculated using the TRM.

The current TRM in use during this evaluation was filed in September 2011. Values in the project files may not match the TRM due to the current TRM data not being available at the time projects were implemented.

### 7.4.3 Baseline Assumptions

Lighting retrofit baseline equipment are light fixtures installed in a facility before implementation. HVAC replacement baseline equipment equals the efficiency of existing equipment, or the federal standard, if the existing equipment efficiency rating is unavailable. For the compressed air and VFD measures, the baseline was the existing operation, quantified by metering before project implementation.

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<sup>25</sup> Nexant. November 16, 2007. *Arkansas Deemed Savings Quick Start Program Commercial Measures*. Submitted revision, page 2-14.

<sup>26</sup> *Petition by Frontier Associates for Approval of Deemed Savings Estimates*, submitted to the Public Utility Commission of Texas, 2000, page 25.

### 7.4.4 Program Impacts

Table 53 and Table 54 present the C&I Standard Offer 2011 reported gross energy and demand savings and participation. Table 55 presents evaluated gross and net savings for the program.

**Table 53. EAI C&I Standard Offer 2011 Reported and Evaluated Gross Energy Savings by Measure Category**

	Participants*	Reported Gross Savings (kWh)	Evaluated Gross Savings (kWh)	Gross Realized Savings Ratio
Lighting	13	7,403,643	7,547,639	1.02
HVAC	1	58,966	32,858	0.56
Compressed Air	1	584,718	584,718	1.00
VFD-Motor	1	128,041	128,041	1.00
Total	13	8,175,368	8,293,257	1.01

\*Total is less than the sum of measure participants because of multiple measures per participant.

**Table 54. EAI C&I Standard Offer 2011 Reported and Evaluated Gross Demand Reduction by Measure Category**

	Participants*	Reported Gross Savings (kW)	Evaluated Gross Savings (kW)	Gross Realized Savings Ratio
Lighting	13	1,060	1,064	1.00
HVAC	1	24	25	1.03
Compressed Air	1	17	17	1.00
VFD-Motor	1	19	19	1.00
Total	13	1,120	1,124	1.00

\*Total is less than the sum of measure participants because of multiple measures per participant.

**Table 55. EAI C&I Standard Offer 2011 Evaluated Gross and Net Savings**

	Evaluated Gross Savings	Net Savings	Net to Gross Ratio
Annual Energy Savings (kWh)	8,293,257	6,634,605	0.80
Coincident Peak Demand Savings (kW)	1,124	900	0.80

C&I Standard Offer program had an overall gross realized savings ratio of 1.01 for electricity and 1.00 for demand.

For lighting, changing occupancy controls power adjustment factor to match the TRM value, as described above, slightly increased reported electricity savings.

HVAC projects saw reductions in electricity savings as EFLH<sub>c</sub> values used in the project files were higher than those calculated using the TRM.

The calculation tool used to determine reported savings for HVAC projects checked the capacity of the replacement unit against the original, and did not calculate savings when capacities differed by more than 20%. Given this filter, one HVAC unit with capacity of 79% of the original unit showed no reported savings. While an increase in equipment size could reduce or eliminate savings from higher-efficiency equipment, a smaller, high-efficiency unit should

provide savings. Therefore, Cadmus applied electricity and demand savings for that unit, which led to a greater HVAC demand reduction than reported.

The review found no errors in approaches or calculations used to determine savings for the compressed air and VFD projects; thus, we did not make adjustments for those measures.

#### 7.4.5 Quality Assurance

Cadmus determined evaluated savings values by independently calculating savings for each measure, using the TRM and raw data provided in the project file. Engineering staff reviewed each measure where reported and where evaluated savings did not match, investigating the cause of the discrepancy to ensure each adjustment had been made correctly.

### 7.5 Process Evaluation Findings

#### 7.5.1 Program Design, History, and Goals

A customer-driven program, CISOP sought to provide incentives to C&I customers requiring little assistance in implementing energy-efficiency projects. The Quick Start program design was based on reducing peak demand by providing incentives based on kW reductions.

As program staff believed many customers lacked the technical resources needed to complete the complex CISOP application process, the new Prescriptive program was designed to address this issue. Program staff will now offer technical assistance to customers with proposed projects having projected annual electricity savings of 10,000 kWh or greater. Limited assistance with savings calculations and documentation may be offered for smaller projects. Trained trade allies will also play an active role in the new program, supporting customers through the implementation process. The new Prescriptive program focuses on reducing energy consumption by providing incentives based on kWh savings, and is expected to provide substantially higher savings than CISOP did in 2011.

#### 7.5.2 Program Delivery and Implementation

CLEAResult, which implemented CISOP, will continue to implement the C&I Prescriptive program. The CISOP implementer was responsible for all day-to-day delivery functions, with oversight from EAI. However, as projects were customer-driven, implementation tasks were primarily limited to conducting inspections and processing program documentation.

As CISOP's program structure did not include assistance by program staff, implementation of successful projects required motivated customers, needing little technical assistance or receiving assistance from another source. Program staff reported many customers participating in CISOP worked with an ESCO. EAI directed customers requiring more assistance from program staff to the C&I Solutions program.

#### 7.5.3 Marketing and Outreach

Cadmus reviewed a detailed marketing plan provided by CLEAResult, which included events planned over a two-year period. Key marketing messages seek to increase awareness, communicate benefits of energy-efficiency upgrades, and address barriers. Marketing initiatives target large customers through direct outreach, trade allies, e-mail blasts, direct mail,

conferences, trade shows, media, and paid advertising. In 2012, CLEAResult also plans to compile program success stories from participants.

#### 7.5.4 Training

CLEAResult and EAI developed documented procedures for staff training, including a comprehensive procedure manual detailing the program’s key operational and administrative tasks, ranging from participant enrollment to data collection and payment processing. Program staff also had access to a customer factsheet and program manual.

Beginning in 2012, trade allies will be required to attend an introductory workshop to become familiar with the program, its eligibility requirements, and methods for identifying project opportunities.

#### 7.5.5 Trade Ally Response

For project installation, CISOP leveraged an informal network of trade allies, established through word-of-mouth. EAI’s new programs will be based on more formal trade ally relationships, with trade allies required to attend a training session and sign a participation agreement. After conducting initial outreach to potential trade allies, program staff reported high interest in participating.

#### 7.5.6 Customer Response

Though customer satisfaction surveys are regularly conducted with EAI’s managed accounts, these surveys currently do not gather targeted feedback about individual C&I energy-efficiency programs.

#### 7.5.7 Program Materials

Our materials review for 2011 programs sought to verify essential program materials have been developed, and whether they contain critical elements to ensure program success. Table 56 indicates whether critical program materials were in use for CISOP in 2011. A third column indicates materials Cadmus identified for the new C&I Prescriptive program, launching in 2012.

**Table 56. Presence of 2011 CISOP and 2012 C&I Prescriptive Program Materials**

Required Program Materials	2011	2012
Presence of a program manual, handbook, and/or implementation plan.	+	+
Presence of process flowcharts and organizational charts.	+	+
Presence of data collection protocols and QA/QC protocols.	+	+
Presence of training materials for program staff (e.g., program managers, account executives, engineers, support staff, etc.).	+	+
Presence of application and rebate forms, customer contracts, and agreements.	+	+
Presence of educational materials for customers: including program handouts or general energy-efficiency literature.	+	+
Presence of marketing materials.	+	+

EAI has documented essential program materials and guidelines for program staff and customers. Detailed program materials describe the program’s goals, the project process, and

requirements for all participants. The program Website provides comprehensive guidelines for customers, including eligibility requirements and contact information.

Cadmus reviewed the program manual’s contents to verify that critical information is included, roles are clearly defined, and key best practice elements are represented. Table 57 summarizes the research questions guiding this review and results.

**Table 57. Review of 2011 CISOP and 2012 C&I Prescriptive Program Manuals**

Researchable Topics	2011	2012
Program staff roles clearly defined.	+	+
Implementer staff roles clearly defined.	+	+
Other stakeholder’s roles clearly defined (trade allies, etc.).*	N/A	+
Presence of eligibility requirements.	+	+
Eligible program measures clearly defined.	+	+
Incentive structure clearly defined.	+	+
Presence of program processes’ step-by-step instructions.	+	+
Customer touch points defined.	+	+
All program systems clearly defined (for example any database software mentioned by name, who will use it, and when in the process).	-	-
Inspection and verification protocols included or referenced.	+	+
If applicable, reference to partnership with other utilities’ programs.	N/A	N/A
Reference to program Website.	-	-
Presence of program staff contact information.	+	+
All acronyms clearly defined.	+	+
QA/QC & verification protocols included or referenced.	+	+
Data collection protocols included or referenced.	+	+
Marketing materials included or referenced.	-	-

\*This category refers to trade allies and other contractors participating in program delivery, but not part of the formal utility and implementation contractor program team.

CISOP featured a customer-facing program manual as well as an internal operations procedures manual. Together, these documents provided essential program guidelines for staff and customers. The new C&I Prescriptive program has a comprehensive manual, detailing staff roles, eligibility requirements, incentive structures, inspection guidelines, and program procedures—from enrollment to incentive payment. The manual does not include information about marketing resources or references to the program’s Website.

Finally, Cadmus conducted a high-level assessment of the program’s marketing materials and outreach channels. This review only focused on the existence of marketing elements critical to ensuring tactics and collateral materials are sufficient to support key outreach channels.

**Table 58. Marketing Material Review for 2011 CISOP and 2012 C&I Prescriptive Programs**

Researchable Topics	2011	2012
Presence of a marketing plan.	+	+
Supporting collateral provided (Website, brochures, direct mail, etc.).	+	+

Researchable Topics	2011	2012
Does collateral clearly describe the program and benefits?	+	+
Presence of a network to promote the program through targeted outreach.	-	In process
Clearly defined marketing roles.	+	+

## 7.6 Conclusions and Recommendations

### 7.6.1 PROCESS

CISOP did not reach its goals for 2011, and staff believes the required level of independence was a challenge for many customers.

The C&I Prescriptive Program replacing CISOP in 2012 has been designed to address CISOP’s challenges, and leverage lessons learned. It includes: training trade allies; creating a formal trade ally network to deliver the program; and offering support from program staff to facilitate energy-efficiency projects for customers. To ensure new program’s success and meet increased participation and savings goals, Cadmus recommends program staff work closely with trade allies to ensure customers receive coordinated and effective support throughout the implementation process.

### 7.6.2 IMPACT

Based on the impact evaluation findings, Cadmus offers the following recommendations:

- Update all project savings calculator tools to use TRM values for inputs, including the lighting occupancy controls power adjustment factor and HVAC EFLH<sub>c</sub>.
- Modify the HVAC savings calculator to include savings for high-efficiency equipment replacing higher-capacity equipment.

## 8. CITYSMART PROGRAM

This section of the report presents the evaluation approach, findings, conclusions, and recommendations for the CitySmart program in EAI's C&I Energy Efficiency Portfolio. CitySmart operated as a Quick Start program throughout 2011. Starting in 2012, the program will continue under the same name, with expanded services and incentives. As the delivery and implementation strategies for the Quick Start and the comprehensive CitySmart programs were similar, Cadmus reviewed the program processes and other operational functions as a whole, focusing primarily on 2011 program delivery and the transitional program elements. Program savings data and other impact results are provided only for the 2011 CitySmart program.

### 8.1 Program Description

The CitySmart program offers energy-efficiency incentives, benchmarking, and technical assistance to institutional and public entities in EAI's service territory, including schools and universities. The program helps facility supervisors understand the benefits of energy efficiency in local public facilities, while planning and investing in energy-efficient improvements for new or existing buildings. CitySmart program participants may install custom or prescriptive measures, such as retrofit LED traffic lights, energy-efficient lighting, high-efficiency heating and cooling equipment, electronic chillers, and efficient motors. EAI pays CitySmart incentives at the rate of \$144 per kW of peak demand reduced.

In 2012, the CitySmart program will offer increased incentives and an expanded list of measure offerings, with a greater focus on kWh savings within public facilities. The program will use an incentive structure with tiered bonuses, similar to EAI's new C&I Custom program. If deemed savings have not been established for any given measure, incentives may be based on verified peak demand reductions or energy savings using performance M&V protocols. Incentives will range from \$0.10 to \$0.14 per kWh saved.

#### 8.1.1 Accomplishments and Challenges

Table 59 outlines the CitySmart program's 2011 goals and achievements.

**Table 59. CitySmart Program 2011 Targets and Results**

	Participants	Energy Savings (kWh)	Demand Savings (kW)
Target	27	1,725,000	200
Actual (Evaluated Net)	12	1,568,473	377
% of Target	44%	91%	188%

Although the CitySmart program's net savings fell short of its participant and energy savings targets, the program exceeded its demand reduction target and received exemplary recommendations from several public entities served by the program. The Quick Start program provided a solid foundation for success for the 2012 comprehensive program.

Accomplishments in 2011 include:

- EAI's implementation team leveraged lessons learned from delivery of the 2011 CitySmart program, and mobilized quickly to plan, design, and launch a new program with expanded offering of incentives on January 1, 2012.

Challenges identified in 2011 include:

- The CitySmart Quick Start program had limited incentive options to support the expected savings. Although CitySmart exceeded demand savings targets in 2011, it achieved only 91% of its energy savings targets. Achieving these targets in the future will require a greater variety of measures and incentives. In 2012, incentive levels for CitySmart will be tiered, based on the number of measures implemented, to encourage customers to complete more comprehensive projects. The incentive rate (in \$ per kWh savings) will increase as customers implement more measures.

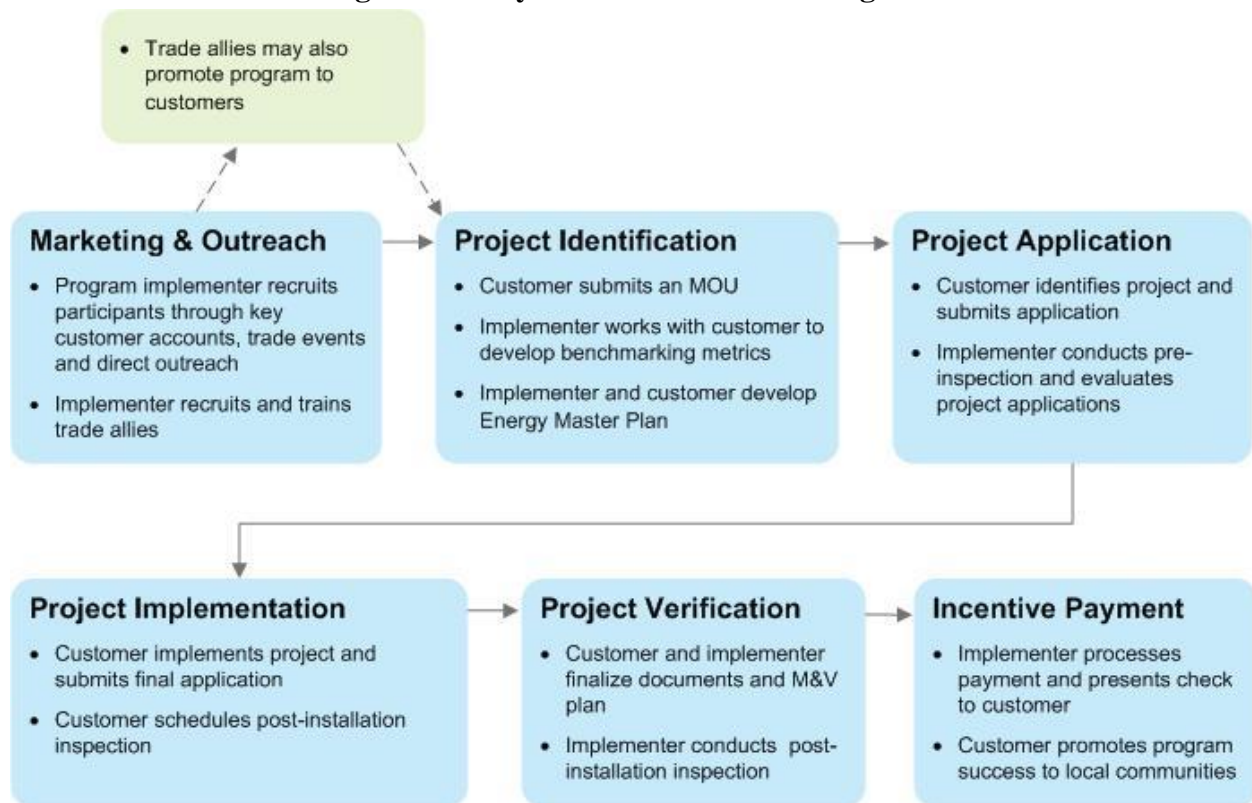
## 8.2 Program Management and Implementation Strategies

CLEAResult implements all phases of the CitySmart program, from conducting trade ally outreach to processing incentive payments, and works closely with the EAI customer service managers to help identify customers with potentially eligible, energy-efficiency projects. EAI's customer service managers work with city, county, and school districts to promote the program. CLEAResult will continue to implement the CitySmart program in 2012.

The process flowchart shown in Figure 13, below, represents critical program functions for EAI's CitySmart program. To create the CitySmart process flowchart shown, Cadmus relied on descriptions in the program manual and on interviews and correspondence with program utility staff and implementation staff. The blue boxes in Figure 13 represent key activities, in chronological order, for each program participant. Green boxes with dashed arrows above and below the blue boxes identify additional steps that may occur in the program process.



**Figure 13. CitySmart Process Flow Diagram**



A local public entity interested in the CitySmart program must first execute a Memorandum of Understanding (MOU) with EAI. Implementation staff then works with the customer to develop a building performance score, benchmarking metrics, and an Energy Master Plan, which outlines potential energy-efficiency improvements. The customer may elect to attend a workshop to gain more hands-on experience with planning and benchmarking. If requested, the implementation team helps customers identify project opportunities and funding options.

After submitting an initial project application, the customer schedules a pre-inspection with the implementer. Following project installation, the implementer conducts a post-inspection, and the customer submits all required documentation. CLEAResult conducts a QA review, and approves all post-installation inspections prior to processing and delivering an incentive check to the customer. If requested, CLEAResult can also assist customers with promotional activities.

### 8.3 M&V Approach

This report’s Portfolio Overview section describes the evaluation’s overall research objectives and general methodology. This section describes the M&V methodology specific to the CitySmart program, where it differs from the overall approach.

#### 8.3.1 Processes Evaluation

For the CitySmart program evaluation, Cadmus gathered information and feedback on the program through interviews with EAI’s program management staff and CLEAResult. In addition, we reviewed the following program materials:

- Program manuals:
  - CitySmart Quick Start Program Manual
  - EAI 2011–2013 C&I CitySmart Program Manual
- Application forms:
  - CitySmart Program MOU
  - CitySmart Program Project Application Form
  - Efficiency Program Inspection Form
- Trade ally materials:
  - Entergy Arkansas Trade Ally Agreement
  - 2011 Program Trade Ally list
  - Energy Rebate Program Overview
- Marketing:
  - CitySmart Program Fact Sheet
  - C&I Program Marketing Schedule (2011)
  - 2011–2013 C&I Program Marketing Plan
- Entergy’s Website<sup>27</sup>

### 8.3.2 Impact Evaluation

#### Research Objectives

This impact evaluation primarily sought to assess and verify the systems EAI currently has in place to document, track, evaluate, and report energy savings. Objectives specific to this program included:

- Review of reported savings summary spreadsheet; and
- Review of project-specific workbooks used to calculate savings.

#### Methodology

Cadmus verified and adjusted gross savings estimates for projects with an installation date (or post-inspection date, in the absence of an installation date) on or after January 1, 2011. If a measure’s reported savings were based on a deemed methodology, adjusted gross savings were determined using the information contained in each project’s workbook and the methodologies in the Arkansas TRM, approved on October 14, 2011. In one case, an application signature date occurred in 2010 for a project which is considered ineligible in the current TRM. Since the application signature occurred at a time when the measure was eligible for participation, adjusted gross savings were determined using the most recently approved calculation methodology.

If a project utilized an M&V method to estimate savings, all documentation provided was reviewed for accuracy and comprehensiveness.

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<sup>27</sup> [http://www.energy-arkansas.com/your\\_business/business.aspx](http://www.energy-arkansas.com/your_business/business.aspx)

## 8.4 Impact Evaluation Findings

### 8.4.1 Reporting and Tracking Systems

Cadmus reviewed the database used by EAI and CLEAResult, against the EM&V PROTOCOL A, as defined by the TRM.

Currently, the database does not contain information that can be used to determine adjusted gross savings. The database only contains total savings associated with each major measure at each location. Savings claims are supported by individual work books associated with each project completed. M&V-based savings also are supported through project reports.

### 8.4.2 Review of TRM Values

Overall, savings reported are based on methodologies described in the TRM. In some cases, the methodology used to determine a specific project input was based on deemed savings documents that existed at the time of initial project interest, that were superseded by methodologies in subsequent deemed savings documents. For some of these inputs, the 2011 deemed savings documents represented a change in methodology, resulting in adjusted savings.

Reported and adjusted gross savings deviate from the TRM in the following way:

As stated in the TRM, the total impact of C&I lighting measures may include the interactive effect of lighting on HVAC equipment. The TRM recommends considering the interactive effect, but does not specify a method for calculating impacts on savings. EAI and its implementer, accounted for this effect by estimating 5% additional lighting electricity savings and 10% additional demand reduction for measures in air-conditioned areas. These factors are supported by two documents: deemed savings for Arkansas Quick Start programs and for Texas programs.<sup>28,29</sup> Cadmus engineering staff conducted a basic calculation of the interactive effect, and determined these were reasonable estimates for Arkansas C&I facilities. Therefore, we believe it appropriate to include these estimates, and we did not adjust calculations of the interactive effect. We recommend specific information on calculation of the interactive effect be added to the next version of the TRM.

### 8.4.3 Baseline Assumptions

The impact evaluation followed the TRM when determining the baseline for each project. If the original estimate used project-specific existing equipment as the baseline, adjusted gross savings were based on the same equipment specifications provided. If the original estimate used a default lookup table to determine baseline equipment specifications, lookup tables associated with the TRM were used to determine baseline equipment specifications.

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<sup>28</sup> Nexant. November 16, 2007. *Arkansas Deemed Savings Quick Start Program Commercial Measures*. Submitted revision, page 2-14.

<sup>29</sup> *Petition by Frontier Associates for Approval of Deemed Savings Estimates*, submitted to the Public Utility Commission of Texas, 2000, page 25.

### 8.4.4 Program Impacts

Table 60 and Table 61 presents the CitySmart 2011 reported gross energy and demand savings and participation. Table 62 shows net savings.

**Table 60. CitySmart 2011 Reported and Evaluated Gross Energy Savings by Measure Category**

Measure Category	Participants	Measures	Reported Gross Savings (kWh)	Evaluated Gross Savings (kWh)	Gross Realized Savings Ratio
Lighting - Retrofit	7	38	881,722	743,822	0.84
Traffic Lights - Retrofit	1	1	732,210	732,210	1.00
HVAC - Retrofit	3	13	178,540	38,907	0.22
HVAC - NC	2	2	4,535	6,701	1.48
Lighting - NC	4	7	428,873	435,036	1.01
HVAC DX	1	1	25,235	3,916	0.16
Total	12	12	2,251,115	1,960,592	0.87

**Table 61. CitySmart 2011 Reported and Evaluated Gross Demand Reduction by Measure Category**

Measure Category	Participants	Measures	Reported Gross Savings (kW)	Evaluated Gross Savings (kW)	Gross Realized Savings Ratio
Lighting - Retrofit	7	38	190	188	0.99
Traffic Lights - Retrofit	1	1	84	84	1.00
HVAC - Retrofit	3	13	221	104	0.47
HVAC - NC	2	2	7	11	1.64
Lighting - NC	4	7	76	76	1.00
HVAC DX	1	1	22	9	0.41
Total	12	12	599	471	0.79

**Table 62. CitySmart 2011 Evaluated Gross and Net Savings**

	Evaluated Gross Savings	Net Savings	Net to Gross Ratio
Annual Energy Savings (kWh)	1,960,592	1,568,473	0.80
Coincident Peak Demand Savings (kW)	471	377	0.80

Lighting-retrofit projects achieved an 84% energy realization rate and a 99% demand realization rate. The reduction in energy savings resulted from elimination of the “24 Hour Facility” building type designation for the current TRM, and the creation of the “Police/Fire” building type. The new “Police/Fire” building type has fewer annual hours of lighting operation than the previous “24 Hour Facility” type used to calculate reported savings. Adjusted gross savings for lighting installations at police or fire stations use the new “Police/Fire” annual hours of operation, resulting reduced energy savings at these locations.

HVAC-Retrofit projects achieved a 22% energy realization rate and a 47% demand realization rate. The spreadsheet workbook used to develop reported savings for these projects was developed in 2007. The spreadsheet utilizes equipment baseline and EFLHc calculations, changed for the current TRM. The baseline equipment efficiencies used are lower and EFLHc

are higher than those currently stated in the TRM. Both modifications result in reduced energy and demand savings.

HVAC-NC projects achieved a 148% energy realization rate and a 165% demand realization rate. The increase in savings results from use of a too-stringent baseline in calculating reported savings. Reported savings workbooks used the required minimum efficiency of the rebated equipment as the baseline, rather than the applicable standard as the baseline efficiency. Adjusted gross savings calculated as part of this evaluation utilize the applicable standard shown in Table 186 of the TRM, resulting in increased energy savings.

HVAC-DX projects achieved a 16% energy realization rate and a 41% demand realization rate. Reasons for reduced energy savings match the discussion for the HVAC–Retrofit measure category.

#### 8.4.5 Quality Assurance

Cadmus determined evaluated savings values by independently calculating savings for each measure using the TRM and raw data provided in the project file. Engineering staff reviewed each measure where reported and evaluated savings did not match, investigating the cause of the discrepancy to ensure each adjustment was made correctly.

### 8.5 Process Evaluation Findings

#### 8.5.1 Program Design, History, and Goals

CLEAResult has implemented the CitySmart Quick Start program since the APSC approved the program in 2007. Although the program will no longer operate as a Quick Start program in 2012, its basic design and objectives will not change. The program seeks to help facility supervisors plan and invest in energy-efficiency improvements in public facilities. CitySmart program objectives include: promoting cost-effective energy-efficiency in EAI’s service territories; transforming these markets through training and education; and minimizing barriers to implementation of energy-efficiency projects within the public sector.

The CitySmart program did not meet its energy savings targets in 2011. EAI’s implementation team reported that achieving savings targets for the C&I programs may prove even more challenging in the future, due to a substantial increase in mandatory energy savings each year through the 2013 reporting period.

#### 8.5.2 Program Delivery and Implementation

CLEAResult implements CitySmart, and is responsible for all phases of the program’s day-to-day delivery and operations. Participating facilities are owned by public entities, such as municipalities, counties, and schools. Projects are identified as one per tax ID number. For example, all buildings in a school district would be considered one project.

CLEAResult reported that they track customer profiles, applications, and relevant project information in their CRM database, and send monthly reports to EAI. Although EAI currently does not have a formal database system for tracking custom projects, a new system is in development. The new database will enable the utility to move beyond spreadsheet and paper

tracking, and provide more real-time, electronic communication between EAI and the program implementer.

CLEAResult and EAI implementation teams reported all CitySmart projects currently are inspected pre- and post-installation, which is made possible due to close relationships established during the participation process.

### **8.5.3 Marketing and Outreach**

CLEAResult and EAI developed a comprehensive marketing strategy that targets public sector facilities with a project potential of 25,000 kWh or greater. The marketing strategy details numerous initiatives, such as direct mail, e-mail blasts, phone follow ups, newsletters, and direct outreach with business associations and trade allies through training, educational meetings, and presentations. In 2012, the marketing strategy will leverage additional outreach opportunities with program partners. CLEAResult reported its plans to attend trade shows in the region, such as those sponsored by the Arkansas School Board Association.

### **8.5.4 Training**

CLEAResult and EAI have developed documented procedures, used for staff training. A comprehensive procedure manual details the program's key operational and administrative tasks, ranging from enrollment to inspections, and payment processing. CLEAResult also uses a customer fact sheet and trade ally training presentation to educate implementation staff about program changes.

In 2012, CLEAResult will conduct formal trade ally training workshops, which will include technical information, and a program overview, detailing incentives, customer eligibility, and enrollment requirements.

CitySmart program participants and their stakeholders may require additional information to assist with the decision-making process. To facilitate this, CLEAResult provides training to help elected board officials understand energy-efficiency funding options for their school districts.

### **8.5.5 Trade Ally Response**

Trade ally participation under the Quick Start program was structured as an informal network, established through word-of-mouth between EAI, CLEAResult, and local contractors. In 2012, the implementation team intends to develop formal trade ally relationships. Trade allies will be required to sign participation agreements, and demonstrate an understanding of best practices and program requirements.

### **8.5.6 Customer Response**

The EAI implementation team reported that they received positive feedback from customers regarding their experiences with the CitySmart program in 2011. Cadmus reviewed a number of recommendation letters from participating school districts, highlighting their appreciation for technical assistance, praise for exceptional service, and energy savings. The EAI program manager noted that 2012 promotional materials will integrate these recommendation letters.

### 8.5.7 Program Materials

Cadmus’ materials review for the CitySmart program sought to verify essential program materials have been developed, and contain critical elements to ensure program success. Table 63 indicates whether the CitySmart program uses critical program materials. Two columns identify the program years where materials were identified.

**Table 63. Presence of CitySmart Materials**

Required Program Materials	2011	2012
Presence of a program manual or handbook.	+	+
Presence of process flowcharts and organizational charts.	+	+
Presence of data collection protocols and QA/QC protocols.	+	+
Presence of training materials for program staff (e.g. program managers, account executives, engineers, support staff, etc.).	+	+
Presence of application and rebate forms, customer contracts, and agreements.	+	+
Presence of educational materials for customers: including program handouts or general energy-efficiency literature.	+	+
Presence of marketing materials.	+	+

EAI’s implementation team developed comprehensive, detailed program materials. A program Website contains program guidelines, relevant contact information, access to the program handbook and educational information about energy efficiency and best practices.

Cadmus reviewed the CitySmart Program Manual to verify critical information is included, roles are clearly defined, and key best practice elements are represented. Table 64 summarizes questions guiding this review and the results.

**Table 64. Review of CitySmart Manual**

Researchable Topics	2011	2012
Program staff roles clearly defined.	+	+
Implementer staff roles clearly defined.	+	+
Other stakeholder’s roles clearly defined (trade allies, etc.).*	-	+
Presence of eligibility requirements.	+	+
Eligible program measures clearly defined.	+	+
Incentive structure clearly defined.	+	+
Presence of program processes’ step-by-step instructions.	+	+
Customer touch points defined.	+	+
All program systems clearly defined (e.g., database software is mentioned by name, who uses it and when).	-	+
Inspection and verification protocols included or referenced.	+	+
If applicable, reference to partnership with other utilities’ programs.	NA	N/A
Reference to program Website.	+	+
Presence of program staff contact information.	+	+
All acronyms clearly defined.	+	+
QA/QC & verification protocols included or referenced.	-	+
Data collection protocols included or referenced.	-	+
Marketing materials included or referenced.	-	-

\*This category refers to trade allies and other contractors participating in program delivery, but not part of the formal utility and implementation contractor program team.

In 2011, the CitySmart program featured a customer program manual as well as a comprehensive operations manual. Together, these documents provided essential program guidelines for staff and customers. The new, 2012 program manual is more comprehensive, and details staff roles, eligibility requirements, incentive structures, and program procedures, from enrollment to incentive payment. It also highlights additional technical services.

Finally, Cadmus conducted a high-level assessment of the program’s marketing materials and outreach channels. This review focused only on the existence of marketing elements critical to ensuring marketing tactics and collateral materials are sufficient to support outreach channels.

**Table 65. Review of CitySmart Marketing Materials**

Researchable Topics	2011	2012
Presence of a marketing plan.	+	+
Supporting collateral provided (Website, brochures, direct mail, etc.).	+	+
Does collateral clearly describe the program and benefits?	+	+
Presence of a network to promote the program through targeted outreach.	+	+
Clearly defined marketing roles.	+	+

## 8.6 Conclusions and Recommendations

### 8.6.1 PROCESS

In 2011, the CitySmart program worked well, achieving its demand-savings targets, but fell short of its energy goals. The program appeared to meet its objectives by providing training and education, and by promoting energy-efficiency investments in public facilities within EAI’s service territory. In the future, as the program expands and its targets increase, the CitySmart program may benefit from additional technical support for outreach and facility assessments, a larger range of measure options, and further investigation of successes and challenges associated with outreach channels and market barriers. Cadmus recommends continued emphasis on developing a formal trade ally network and tracking system.

### 8.6.2 IMPACT

For 2012, all workbooks or reported savings calculations should be updated to utilize the methodology described in the current TRM. A process should also be created that allows reported savings to be adjusted for future modifications to the TRM.



## 9. AGRICULTURAL IRRIGATION LOAD CONTROL PROGRAM

This report section presents the evaluation approach, findings, and conclusions and recommendations for the Agricultural Irrigation Load Control (AILC) program in EAI’s Demand Response Portfolio. The AILC program launched in 2008 as a pilot program and transitioned to a comprehensive program in 2010. With the exception of technology changes, customer contracting, and internal efficiency improvements, discussed in more detail below, the program has not changed significantly since its launch.

### 3.1 Program Description

The AILC program provides eligible agricultural water pumping customers with incentives for allowing EAI to interrupt service to participating wells. Customers on the Agricultural Water Pumping Service Schedule can receive bill credits of \$4.16 per maximum kW per month for allowing EAI to interrupt service to participating wells up to three hours each weekday, during June, July, and August. EAI notifies customers of events in real-time via text message, telephone, or e-mail, and provides notification when events end, giving customers an opportunity to verify well operations have returned to normal. EAI has no limit on the number of events that can be called during the curtailment season.

EAI has not altered program processes significantly since 2008. For the 2011 program, EAI updated the program brochure, and increased direct mail outreach compared to efforts conducted during the pilot program.

More significantly, the technology used to interrupt wells during curtailment events has evolved since the pilot program’s launch. In 2008, the AILC program relied on mesh network metering—meters communicating with one another and back to a head-end device. Issues arising from such communications caused EAI to explore other technology options. In 2009, after trying to use broadband over power lines, EAI moved to more reliable cellular communications, which remains in use.

#### 3.1.1 Accomplishments and Challenges

The AILC program goals and achievements are outlined in the table below.

**Table 66. AILC Program 2011 Targets and Results**

	Participants	Demand Savings (kW)
Target	NA	19,100
Actual (Evaluated Net)	617	9,472
% of Target	NA	50%

With the exception of technology updates, customer contracting, and internal efficiency improvements, the AILC program has not changed significantly since launching in 2008. While

the program appears to run smoothly and enjoys high customer satisfaction, it did not meet its 2011 demand reduction goal due to weather and technology challenges.

Accomplishments in 2011 include:

- Between 2010 and 2011 program years, EAI changed the customer contracting process to make it easier for customers and encourage participation in the program.
- Cadmus did not identify any issues related to program implementation or delivery and, based on feedback from program staff, customer satisfaction with the AILC program is high.

Challenges identified in 2011 include:

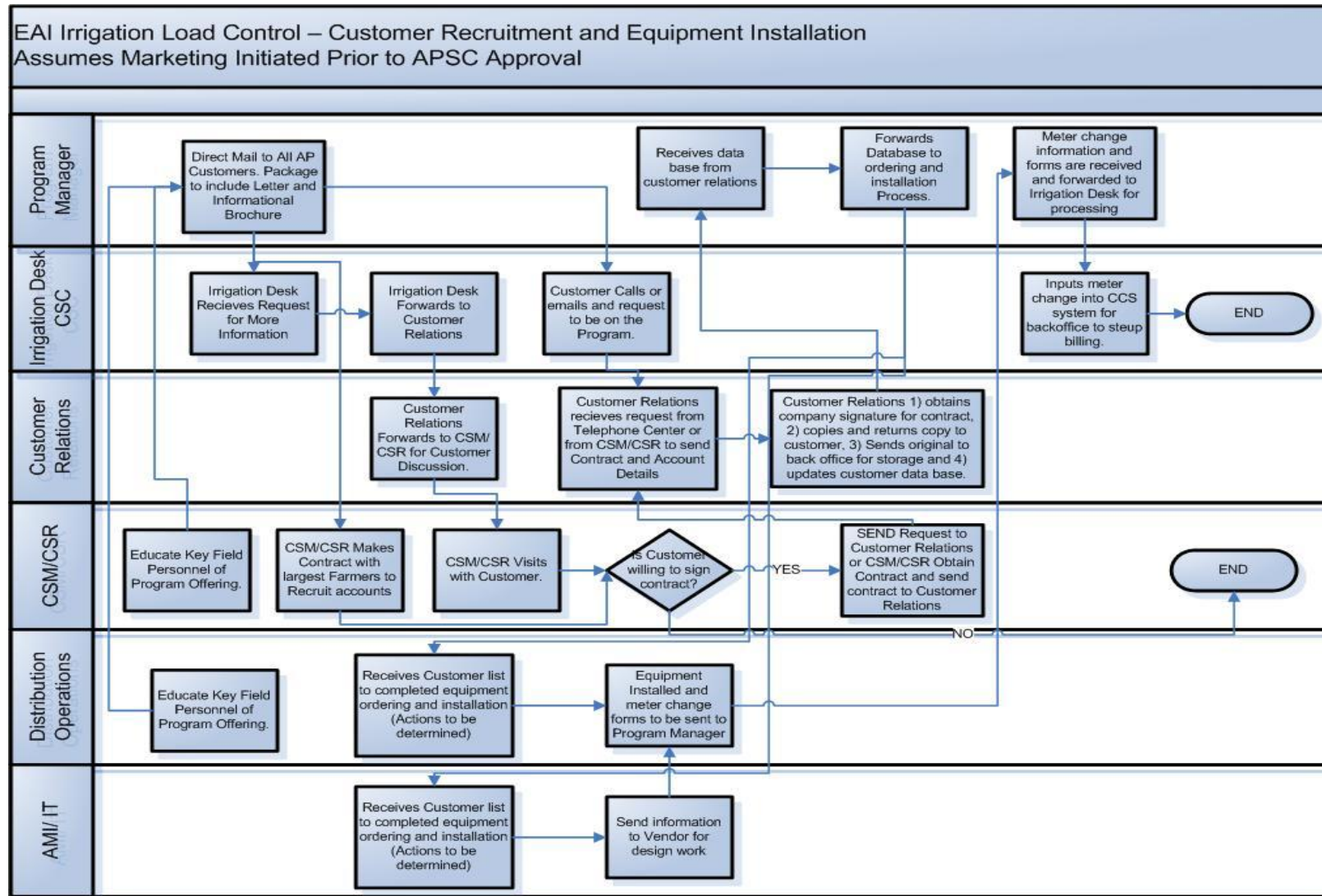
- The program met only 50% of its demand reduction goals. To increase demand savings and meet increasing participation goals, EAI will need to market the program more aggressively.
- Interrupting wells every day during the curtailment season rather than limiting interruptions to days when forecasted peak is high, could negatively impact customer satisfaction with the program.

## 3.2 Program Management and Implementation Strategies

EAI manages and implements the AILC program internally. Program staff are responsible for contracting with vendors, ordering equipment, overseeing equipment installation, recruiting customers, providing customer support, and providing overall administrative services. EAI contracts with specialized teams, including journeymen, linemen, and electricians, to install and maintain meters and to disconnect boxes used to execute curtailment events. EAI purchases the Advanced Metering Infrastructure (AMI) meters and disconnect boxes, required for program participation, from Elster, which also provides EAI with technical support for the equipment and training for installation contractors. Customers are not responsible for equipment costs.

EAI developed the process flow presented in **Error! Reference source not found.**, verifying it as an accurate representation of customer recruitment and equipment installation processes.

**Figure 14. AILC Program Recruiting and Installation Process Flow Diagram**



As shown in Figure 14, the AILC program's execution relies on multiple parties at EAI. Successful implementation depends on clearly defined utility staff roles and responsibilities as well as clearly defined customer and vendor responsibilities. The process flow diagram lacks information specific to vendor and customer responsibilities.

The AILC program is marketed through direct mail and through telephone calls to larger customers. Once the recruitment and contracting phases are completed and customers have identified wells to be included, EAI works with the equipment vendor and installation contractors to purchase and install AMI meters and disconnect boxes. Following successful equipment installation, EAI can call curtailment events every weekday, during June, July, and August. EAI pays incentives to participating customers as bill credits (not addressed in the diagram above).

### 3.3 M&V Approach

This report's Portfolio Overview section describes the evaluation's overall research objectives and general methodology. This section describes the M&V methodology specific to the AILC, where it differs from the overall approach.

#### 3.3.1 Processes Evaluation

For the AILC evaluation, we gathered information and feedback on the program through interviews with EAI program management staff. In addition, we reviewed the following program materials:

- Agricultural Irrigation Load Control Program Manual
- Agricultural Irrigation Load Control Customer Participation Letter and Data Confirmation Form
- Agricultural Irrigation Load Control Recruiting and Installation Process Flow
- Entergy 2011 Arkansas Irrigation and Load Control Installer Training

#### 3.3.2 Impact Evaluation

##### Research Objectives

The impact evaluation's primary purpose was to assess and verify systems EAI currently has in place to document, track, evaluate, and report energy savings. Objectives specific to this program included:

- Assessing whether data collection adequately supports estimation of the program demand savings;
- Assessing the current methodology for estimating program demand savings; and
- Verifying gross demand savings for 2011.

##### Methodology

As the Arkansas TRM does not address evaluation, measurement, and verification (EM&V) of savings from demand response (DR) programs, verification of gross savings estimates were

based on best evaluation practices, as described in different industry evaluation protocols, such as the California Protocols for Estimating Demand Response Load Impacts and the *Estimation for Demand Response: Protocols and Guidance*.<sup>30</sup> For this evaluation, we examined the program’s data tracking and collection, critically reviewed the current methodology for estimating demand savings, and verified the savings estimates.

## 3.4 Impact Evaluation Findings

### 3.4.1 Reporting and Tracking Systems

Cadmus reviewed EAI’s program database and tracking methodology, comparing the data collection and tracking methodology to data requirements of existing protocols for estimating DR program savings (including the California Protocols for the Evaluation of Demand Savings and PJM).

The AILC program uses Automated Meter Infrastructure (AMI) and a cellular, two-way communication system to monitor and control customers’ irrigation pumps during June, July and August. The AMI system allows EAI to collect 15-minute interval kWh data for all pumps with direct load control equipment installed. EAI also collects data about the outcomes of attempts to communicate with the direct control units, and to disconnect and reconnect the loads. Universal metering at a 15-minute frequency of all pumps is consistent with industry best practices, and supports precise estimation of program demand savings.

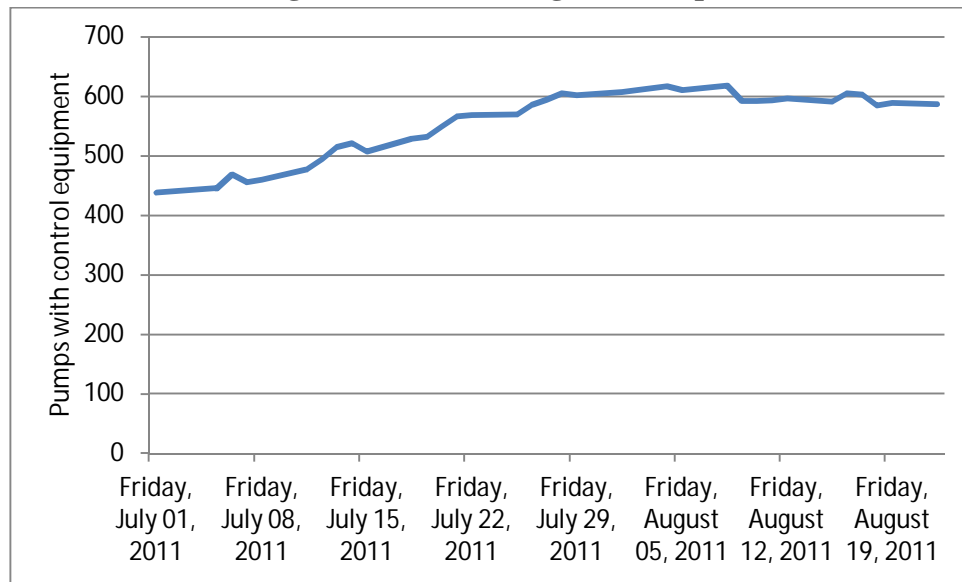
Cadmus’ requested 15-minute interval consumption data from June 1, 2011, to August 22, 2011, for all irrigation pumps controlled through the program as well as data on the outcomes of attempts to disconnect and reconnect the loads. Cadmus also requested dates and times of 2011 program events. EAI called events on weekdays, between July 1 and August 31, except for July 4 and August 3, between 2:00 and 5:00 pm.

Figure 15 shows the number of pumps under the utility’s control between July 1 and August 22. During this period, EAI remained in the process of installing load control equipment and meters on program pumps.

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<sup>30</sup> California Public Utilities Commission. 2008. “Load Impact Estimation for Demand Response: Protocols and Regulatory Guidance.” PJM Forward Market Operations. 2010 “PJM Manual 18B: Energy Efficiency Measurement and Verification.”

**Figure 15. Active Program Pumps**



As seen in the figure, pumps with control equipment rose from 438 on July 1 to a maximum of 618 on August 8. Numbers then decreased slightly, before leveling off just below 600.

### 3.4.2 Review of TRM Values

The TRM has no savings values for this type of equipment, as it does not address EM&V of savings from demand response programs.

### 3.4.3 Impact Verification

Cadmus analyzed interval demand data to verify that the data supported EAI’s demand savings claim of 9.4 MW. Claimed savings were the maximum achieved, daily demand savings during Summer 2011. The maximum occurred on August 4, 2011.

Cadmus also reviewed EAI’s methodology for estimating savings. EAI first converted the 15-minute kWh values to 15-minute average kW.<sup>31</sup> EAI then estimated demand savings for each event as the difference between the average kW in the interval 30 minutes before the event’s start (i.e., the attempt to disconnect the pump loads), and the average kW in the interval 15 minutes after the event’s start.<sup>32</sup>

### 3.4.4 Baseline Assumptions

EAI’s methodology assuming the load in the interval begins 30 minutes before the event represents a valid estimate of what the load would have been, had the event not occurred. The methodology also assumes the load in the 15-minute interval after the event begins represents a valid estimate of demand during a whole event, which lasts three hours.

<sup>31</sup> This was done by multiplying the kWh values by 4.

<sup>32</sup> Though we used demand before the event, no preference exists regarding use of demand before rather than demand after the event to establish a baseline.

Finally, this methodology does not account for irrigators’ behavioral responses, as it assumes they do not adjust their irrigation schedules in anticipation of events or increase irrigation after events.

### 3.4.5 Program Impacts

This section presents the AILC Program’s reported and evaluated gross demand savings. Though gross demand savings equaled the maximum of event-hour demand savings in 2011, it should be noted demand savings varied across the season. For example, when underlying irrigation demand ran high, as in the end of July or beginning of August, demand savings also tended to be high. Irrigation loads and demand savings in other summer weeks were lower.

We independently estimated demand reductions, using an approach similar to that used by EAI for estimating reported gross reductions. Rather than estimating demand savings as the difference in average demand between two 15-minute intervals on either side of the event’s beginning, however, we performed analysis using average demand over hour-long intervals. This technique, consistent with industry best practices, provides a more reliable baseline estimate (as the average of four 15-minute intervals more closely represents the true baseline than one 15-minute interval), yielding load reduction estimates in each event hour.

We first converted the 15-minute kW to average hour kW, and summed over the irrigation pump demands. We then estimated demand savings in an event hour by taking the difference between the sum of the average kW in the hour before the event and the sum of the average kW in the event hour. As EAI phased in events by disconnecting loads beginning at 1:45, the 15-minute interval between 1:45 and 2:00 pm reflected some load control activity. To avoid contaminating our baseline, we excluded this interval when estimating demand in the hour before the event. Our baseline included demands for intervals ending 1:00, 1:15, 1:30, and 1:45. Demand savings in the first event hour were measured using the interval values ending with 2:15, 2:30, 2:45, and 3:00 pm. Savings for the second and third event hours were calculated similarly.<sup>33</sup> Demand savings in the first and third event hours generally were lower than savings in the second hour, as some pumps were being disconnected at the event’s beginning or reconnected at its close.

Table 67 presents the AILC Program’s 2011 reported gross demand savings and participation.

**Table 67. AILC 2011 Reported and Evaluated Gross Demand Reduction by Measure Category**

	Irrigation Pumps with Control Equipment*	Reported Gross Savings (kW)*	Evaluated Gross Savings (kW)*	Gross Realized Savings Ratio
Total	617	9,345	9,472	1.01

\*On August 4, 2011, when the maximum load reduction occurred.

<sup>33</sup> For some 15 meter (pump)-day combinations, a baseline or event hour kW could not be estimated due to missing 15 minute kW. As demand savings could not be estimated for these pumps, they were excluded from analysis.

Table 68 presents the AILC Program’s 2011 evaluated gross and net demand savings.

**Table 68. AILC Program 2011 Evaluated Gross and Net Savings**

	Evaluated Gross Savings	Net Savings	Net to Gross Ratio
Coincident Peak Demand Savings (kW)	9,472	9,472	1.00

Maximum demand savings of 9,472 kW occurred on August 4, 2011, during event hour 2 (3:00 to 4:00 pm). This day, the utility had control equipment installed on 617 irrigation pumps, though the load was not successfully disconnected on all these pumps due to equipment malfunctions and communications problems. Pumps not receiving the signal to disconnect the load or experiencing a malfunction of the direct control unit would not have experienced a load reduction.

Evaluated gross savings represented 101% of 9,345 kW reported gross savings.

Cadmus did not estimate program net savings as neither a sufficient number of non-event weekdays nor a control group of non-program pumps existed with which to establish a valid baseline.

### 3.4.6 Quality Assurance

Cadmus evaluated program impacts using an engineering approach, which assumed demand before an event reflects demand during an event. This strong assumption may not hold true. Though current evaluation protocols generally do not recommend using an engineering approach for estimating demand savings, in this case, no alternative was available. The California Demand Response Evaluation Protocols note: “Engineering analysis is much less useful for estimating the impacts associated with most DR resources because impacts are driven much more by consumer behavior than by technology implementation.”<sup>34</sup>

The Agricultural Irrigation Direct Load Control Program technically is an event-based DR program, as the administrator must initiate events. In evaluating such programs, best practice uses loads in hours on non-event days to establish a baseline for loads in event hours. However, as load control events were called almost every summer weekday, this strategy for establishing a baseline was not practicable. In evaluating non-event based programs, in which a participant experiences the program treatment daily, such as a time-of-use (TOU) pricing program, best practice suggests using a control group of customers to identify baseline energy use. Again, this strategy was not practicable, as a control group of irrigation customers was not available.

Evaluation protocols recommend using participant demand on non-events days, nonparticipant demand in event hours, or both, as these approaches generally result in a valid baseline. In particular, the approaches establish a valid baseline by adjusting observed energy use for behavioral changes in irrigation demand before and after events.<sup>35</sup> Such changes can be

<sup>34</sup> “Load Impact Estimation for Demand Response: Protocols and Regulatory Guidance.” California Public Utilities Commission, 2008. p.77.

<sup>35</sup> The engineering savings estimate will understate demand savings if demand before the event is lower than normal. This might occur if growers curtail their irrigation in the hours before the event. The engineering



substantial, resulting in significant differences between the baseline and observed demand. Other irrigation direct load control program studies have documented such behavior, demonstrating their effects on demand. If such behavior proved substantial in Arkansas, it would threaten the validity of the estimation approach used here. Behavioral changes in irrigation in the 30 minutes before the event would skew the baseline and bias the savings estimation.

## 3.5 Process Evaluation Findings

### 3.5.1 Program Design, History, and Goals

As noted, the AILC program launched in 2008 as a pilot program, transitioning to a full program in 2010. Other than technology changes, EAI has not made significant changes to program operations between the pilot and comprehensive programs. However, changes in customer contracting, discussed below, occurred between the 2010 and 2011 program years.

The AILC program’s target market includes all customers under the Agricultural Water Pumping Service Schedule—approximately 10,000 customers based on June 2011 EAI data.<sup>36</sup> Most participants grow row crops, but aquaculture customers can also participate. A majority of participants run larger farming operations, some with 20 to 30 wells, but some growers choose to participate with only one or two wells. Agricultural irrigation operations typically are seasonal and only 2% to 3% of wells remain on all year. Most growers begin irrigating in spring and stop when harvest begins in August.

EAI had a 2011 demand reduction goal of 19.1 MW. Over the three-year period from 2011 to 2013, EAI plans to recruit 2,260 accounts to the AILC program, and reduce demand by 39.2 MW. In 2011, the AILC program did not meet its demand reduction goal due to weather and technology challenges.

In March 2011, EAI learned from the manufacturer that some AMI meter components did not pass quality control checks, which delayed shipment. Additionally, flooding and tornadoes damaged transmission and distribution lines and delayed the start of equipment installation until June, well after the anticipated installation date, and into the program’s first curtailment month. In July, EAI learned some new meters were not communicating successfully with the head-end software. As the meters were built to communicate with a newer version of the software, an equipment shortage occurred, and meters were not installed on about 87 wells. Further, a curtailment event on August 3, 2011, EAI’s peak day, failed due to an attempt to interrupt an invalid meter serial number, which prevented the entire schedule from running. EAI staff expressed confidence that these equipment issues have been resolved, and looks forward to a 2012 program year without major technology issues.

### 3.5.2 Program Delivery and Implementation

Between the 2010 and 2011 program years, EAI changed the customer contracting process. As stipulated by the Irrigation Load Control Tariff, the original program design called for customers to sign and return a contract. However, after encountering difficulties in obtaining signed

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savings estimate then overstates demand savings, if demand before the event is higher than normal, as growers increase their irrigation, knowing an event is likely.

<sup>36</sup> EAI Agricultural Irrigation Load Control Program Manual.

contracts from customers, EAI worked with the APSC to update language in the Irrigation Load Control Tariff, changing the contracting process.

In the beginning of the program year, EAI now sends a packet of information to all potential participants. In addition to general program information, the packet includes a list of all of the customers' eligible wells. Customers can then select wells they would like to include in the program. They can mail or fax the information to EAI, or can call the EAI Irrigation Desk and verbally communicate the wells they have selected. EAI then sends the documentation back to the customer, using a Data Confirmation Form, which acts as a contract. Once customers opt to participate, the wells they selected are automatically enrolled each program year until the customer decides to no longer participate.

Based on feedback from program staff, the new contracting process works well, and EAI hopes to add a feature in 2012 that would allow customers to sign up online.

In 2011, EAI made some internal program efficiency improvements. Most notably, installation contractors are now equipped with handheld GPS devices to help them locate wells, which proves especially helpful in more remote locations. Contractors use the handheld devices to scan barcodes on the old and new meters, helping to cut down on data entry errors. After resolving minor issues during the 2011 program year, EAI expects this process to run smoothly in 2012.

### **3.5.3 Marketing and Outreach**

Beginning in February or early March, EAI sends its information packet to potential participants; this includes a brochure describing the program and contact information. The 2011 packet also included a CD of customer testimonials for the AILC program. EAI noted it takes a great deal of personal, one-on-one contact to successfully recruit customers to the AILC program. EAI customer service representatives are responsible for contacting large customers, defined as farmers with 15 or more wells. A call center helps reach out to smaller customers, or those with five to 15 wells. The call center contacts customers to verify they received the information packet and to encourage them to select wells they would like to enroll.

Feedback from program staff indicated this system works well, but staff also noted the overall marketing effort could be improved. EAI has tried to work with farmer cooperatives and county extension services to help improve outreach efforts, but has experienced limited uptake among these potential program partners. For the 2012 program year, EAI plans to take a more aggressive marketing approach, including personal outreach to customers who previously showed interest but declined to participate.

### **3.5.4 Training**

EAI contracts with Elster to provide meters and disconnect boxes for the AILC program. In addition to supplying equipment, Elster provides technical support for the equipment and training for contractors hired to install and maintain the equipment. Although EAI field staff are not highly involved with equipment installation or maintenance for the AILC program, they sometimes must address emergency situations; therefore, they receive some training from Elster, but to a lesser degree than installation and maintenance contractors. EAI does not provide training for customers.

### 3.5.5 Trade Ally Response

Elster is the sole trade ally involved in AILC. At this time, no information is available on this trade ally's response to the program.

### 3.5.6 Customer Response

Based on feedback from program staff, overall customer satisfaction with the program is high. However, as EAI interrupts participating wells every weekday for three hours during June, July, and August, EAI expressed concern that customers do not like these frequent interruptions. Some farmers have land in more than one utility's service territory, and are familiar with similar programs in other jurisdictions. EAI noted other irrigation DR programs do not interrupt every day, and they may need to "get smarter" about interruptions to maintain high customer satisfaction. Customers cannot choose to opt out of single events, though they can opt out of the program at any time. If they choose to do so, they must refund any billing credits received that year.

### 3.5.7 Program Materials

The materials review of the 2011 program sought to verify essential program materials have been developed, and that they contain critical elements to ensure program success. Table 69 indicates whether critical program materials are in use for the AILC program.

**Table 69. Presence of Program Materials for AILC Program**

Required Program Materials	Achieved
Presence of a program manual, handbook, and/or implementation plan.	+
Presence of process flowcharts and organizational charts.	+
Presence of data collection protocols and QA/QC protocols.	-
Presence of training materials for program staff (e.g. program managers, account executives, engineers, support staff).	-
Presence of training materials for installation contractors.	+
Presence of application and rebate forms, customer contracts, and agreements.	+
Presence of educational materials for customers: including program handouts or general energy efficiency literature.	+
Presence of marketing materials.	+

EAI developed a program manual and process flow diagrams for the AILC program. In addition, Elster developed detailed training for installation contractors hired by EAI. To Cadmus' knowledge, training materials do not exist specifically for program staff. EAI also developed a program brochure they include in the informational packet sent to potential participants. Detailed data collection and QA/QC protocols specific to the AILC program have not been developed.

Cadmus reviewed the AILC program manual to verify critical information is included, roles are clearly defined, and key best practice elements are represented. Table 70 summarizes research questions guiding the review and results.

**Table 70. Program Manual/Handbook, Review for AILC Program**

Researchable Topics	Achieved
Program staff roles clearly defined.	-

Researchable Topics	Achieved
Implementer staff roles clearly defined.	NA
Other stakeholder's roles clearly defined (trade allies, etc.).*	+
Presence of eligibility requirements.	+
Eligible program measures clearly defined.	+
Incentive structure clearly defined.	+
Presence of program processes' step-by-step instructions.	+
Customer touch points defined.	+
All program systems clearly defined (for example any database software mentioned by name, who will use it, and when in the process).	-
Inspection and verification protocols included or referenced.	+
If applicable, reference to partnership with other utilities' programs.	NA
Reference to program Website.	-
Presence of program staff contact information.	-
All acronyms clearly defined.	+
QA/QC protocols included or referenced.	+
Data collection protocols included or referenced.	-
Marketing materials included or referenced.	-

\*This category refers to trade allies and other contractors participating in program delivery, but are not part of the formal utility and implementation contractor program team.

The AILC program manual provides an overview of the program, including customer eligibility requirements and the incentive structure. In addition, the program manual identifies the responsibilities of EAI and the equipment vendor at a high level. However, it does not clearly define program staff roles. As this program relies not only on the program manager, but on customer service representatives and other utility staff for marketing, outreach, and administrative support, well-defined staff roles are important.

While the AILC program manual references marketing channels, it does not discuss the marketing materials themselves. Similarly, the AILC program manual references QA/QC and project verification, but does not fully describe required protocols or reference a separate QA/QC document. The "Delivery Strategy" section of the AILC program manual begins to lay out program processes step-by-step, but does not clearly define the customer recruitment process, including customer touch points and responsibilities.

Finally, Cadmus planned to conduct a high-level assessment of the program's marketing materials and outreach channels, focusing only on the existence of marketing elements critical to ensuring marketing tactics and collateral materials are sufficient to support key outreach channels. Although the materials shown in Table 71 may be available, they have not been provided to Cadmus at this time.

**Table 71. Marketing Material Review for AILC Program**

Researchable Topics	Achieved
Presence of a marketing plan.	+
Supporting collateral provided (Website, brochures, direct mail, etc.).	+
Does collateral clearly describe the program and benefits?	+
Presence of a network to promote the program through targeted outreach.	+
Clearly defined marketing roles.	+

Cadmus reviewed the AILC program marketing plan, presented as a matrix. The marketing plan describes marketing activities and identifies responsible parties and expected costs. However, the marketing plan does not include details on expected completion dates for each activity.

As noted, the AILC marketing strategy includes direct mail. Customers receive a letter specific to their situation (current or potential participant), which includes a list of eligible wells when appropriate. EAI also includes the AILC program brochure in targeted customer mailings. The letters and program brochure provide a clear summary of the program, including information on the incentive structure, what customers can expect if they participate, and how to enroll. Both also include contact information for program staff and a “Commonly Asked Questions” section. The customer letters and program brochure encourage participation by highlighting program benefits, summarizing participant feedback, and including participant quotations.

### 3.6 Conclusions and Recommendations

#### 3.6.1 PROCESS

Excepting technology changes, customer contracting, and internal efficiency improvements, the AILC program has not changed significantly since its launch in 2008 as a pilot program. Despite weather and technology issues affecting the 2011 program, EAI successfully delivers and implements the AILC program, and, based on feedback from program staff, customers express high satisfaction with the program. Regardless, EAI should consider calling events in response to high peak load forecasts, rather than calling events every day during the curtailment season. This could help maintain high customer satisfaction, and help mitigate participation barriers for new customers.

The process flow diagram developed by EAI sets forth the customer recruitment and equipment installation process. However, the diagram could be improved by adding rows specific to customer and vendor responsibilities. This information would help define customer touch points and the roles of equipment vendors.

Although the 2011 AILC program did not meet demand reduction goals due to weather and technology issues, EAI is confident the technology issues have been resolved, and looks forward to a 2012 program year without major delivery issues.

While the AILC program manual provides an overview of the program, including customer eligibility requirements and the incentive structure, it does not fully describe customer responsibilities, program staff roles, or QA/QC protocols. The program manual could be improved by more clearly defining the customer recruitment process, including customer touch

points and responsibilities, staff and vendor roles and responsibilities, and QA/QC protocols in place.

The AILC marketing plan, presented to Cadmus in the form a matrix, clearly defines marketing activities and the parties responsible for each activity. However, the marketing matrix could be improved by adding information on expected completion dates for each step in the plan. The customer-specific letters and program brochure EAI utilizes as part of their direct mail marketing campaign clearly describe the AILC program, addresses common customer concerns, and encourages participation by highlighting program benefits and participant testimonials.

### **3.6.2 IMPACT**

As currently implemented, the program administrator calls events on each non-holiday weekday during the summer. This practice makes it difficult to establish a valid baseline during event hours, and thus to evaluate the program savings.

Cadmus recommends EAI reserve some days for non-events, and call events on a smaller number of days or call events daily, but disconnect the loads of only some participants. In addition to facilitating evaluation of the program, calling events on a smaller number of days may increase program participant satisfaction and retention, and ease the process of customer recruitment.

## APPENDIX A

### Comparative Assessment of Entergy/SWEPCO Stipulated NTG Value in Arkansas

The purpose of this memorandum is to assess the appropriateness of the current stipulated Net-to-Gross (NTG) ratio of 0.8 used for the 2011 Entergy and SWEPCO portfolio of energy efficiency programs. Toward this end, the evaluation team conducted a limited review of impact evaluations in which NTG was calculated. Some of the evaluations we reviewed and which we discuss here are for programs that are similar to the individual programs in the portfolio, while for others NTG ratios were estimated on a measure level across multiple programs. For these measure-level evaluations, we chose measures that are offered in one or more programs in the Arkansas portfolio.

There were several challenges involved in this effort. First, many of the Entergy and SWEPCO programs changed significantly mid-year, in some cases offering different measures and different delivery mechanisms. Also, it was not easy to find impact evaluations of programs in first or second year. Finally, energy efficiency programs/evaluations are more numerous in other climate regions and parts of the country (e.g., the Northeast and California) and the evaluation reports from these other areas are more easily accessible through large databases. This factor also limited the comparability of the NTG ratios found in evaluations we reviewed with the stipulated NTG ratios used for Arkansas.

Numerous factors can account for variations in NTG ratios, including climate,<sup>37</sup> the maturity of a program, differences in program delivery, the regional market for offered measures, incentive structure and levels, and the method for calculating NTG ratio and components<sup>38</sup> that comprise it. In general, given the variety of factors affecting NTG values, comparing these values across different programs should be done cautiously, and the NTG values reported here should be taken only as a rough indication of the appropriateness of the stipulated NTG ratios in the portfolio.

Since Entergy and SWEPCO have largely similar programs, this analysis reviews both programs together.

#### Residential Energy Audit Programs

##### *Entergy's Residential Energy Solutions/ Home Energy Solutions Program and SWEPCO's Residential Solutions Program/ Residential Standard Offer Program*

These residential “umbrella” programs offered walk-through energy assessments with direct install measures, such as CFLs, water heater tank wraps, and faucet aerators, as well as recommendations to install incentivized measures such as energy-efficient HVAC equipment and tune-up, insulation, and duct sealing. Both programs underwent changes during the 2011

<sup>37</sup> We used the U.S. Department of Energy's map of climate zones to identify the climate zone for each program. See [http://apps1.eere.energy.gov/buildings/publications/pdfs/building\\_america/ba\\_climateguide\\_7\\_1.pdf](http://apps1.eere.energy.gov/buildings/publications/pdfs/building_america/ba_climateguide_7_1.pdf).

<sup>38</sup> Free ridership, spillover, snapback (the extent to which energy efficient equipment causes behavioral changes that decrease the savings derived from the equipment) and snapforward (the extent to which energy efficient equipment causes behavioral changes that increase the savings derived from the equipment).

program year: the implementation contractor for SWEPCO’s residential audit program transitioned from Clear Result to Geavista in July (when the “Home Energy Solutions” program launched), and Entergy’s transition from “Residential Energy Solutions” to “Home Energy Solutions” involved re-tooling the incentive structure.

Four impact evaluations of residential “umbrella” programs (i.e., programs with walk-through assessments, direct install of measures, and recommendations of further incented measures) were reviewed to obtain a sense of the reasonableness of the NTG ratio of 0.8 used for the 2011 programs. We discuss each in turn.

1. An evaluation of Massachusetts’ Home Energy Assessment (Cadmus, 2011), another audit-based residential program with direct installs, also derived NTGs, both for the program as a whole and for a number of measures, using a self-report method. In general, the NTG ratios, which included free ridership (FR), participant spillover (PSO), and non-participant spillover (NPSO), were quite high. The overall program’s NTG was 1.12, and the measure-level NTGs ranged from 0.72 (for heating systems) to 1.38 (for insulation/duct insulation). The NTG ratio for directly installed CFLs was 0.97. The evaluation was for the program’s third year, but it should be noted that Massachusetts has had similar programs for many years.
2. An evaluation of Illinois’ Home Energy Performance Electric Program Evaluation for its second program year (Cadmus, 2011), an audit-based program similar to Entergy’s and SWEPCO’s residential audit programs, used a participant self-report method to derive NTG ratios for several measures offered by the program. They ranged from 0.58 (for ceiling/wall insulation and air leak sealing) to 0.99 (for direct install faucet aerators). Other NTG ratios reported in the study were for directly installed CFLs (0.75), low-flow showerheads (0.97), and water heater pipe insulation (0.93). These NTG ratios included both FR and PSO.
3. Maine’s Home Energy Savings Program was evaluated for its 2009-2011 program years (Cadmus, 2011). Predominantly a weatherization program, HESP focused on air sealing and wall, attic and ceiling insulation measures. Other eligible measures included heating system replacement, domestic hot water (DHW) system replacement, controls, windows, doors, and renewable energy systems. No measures were directly installed at the time of the energy assessor’s walk-through. The NTG ratio was estimated to be 0.86 for the program overall, and only included FR, as there was little evidence of SO.
4. The final evaluation we reviewed was for the 2003-2004 program years of Oregon’s Home Energy Savings Program (Itron, 2006). This program offered walk-through energy audits, recommendations for energy efficiency measures, and direct installation of CFLs. NTG ratios were estimated on a measure level, and include FR, PSO, and NPSO derived from a self-report method. The evaluators recommended using a final NTG ratio of 1.0 for CFLs and 0.78 for insulation.



**Table 72: Residential Audit Programs**

ENERGY AND SWEPCO PROGRAMS	Sample Measures	NTG Ratios	Components of NTG
<b>Entergy Residential Energy Solutions/Home Energy Solutions and SWEPCO Residential Solutions Program/Residential Standard Offer Program</b> Evaluation Period: 2011 Program Age: 1 year State/Climate: AR/Mixed-humid"	Direct install measures such as CFLs, water heater tank wraps, and faucet aerators; recommendations to install HVAC equipment and tune-up, insulation, and duct sealing.	Program Overall: 0.8	N/A
REVIEWED PROGRAMS	Sample Measures	NTG Ratios	Components of NTG
<b>MA 2010 NTG Findings: Home Energy Assessment (Cadmus, 2011)</b> Evaluation Period: 2010-2012 Program Age: 3 years State/Climate: MA/Cold"	Heating systems Direct install of CFLs Insulation/duct insulation	Heating systems: 0.72 Direct install of CFLs: 0.97 Insulation/duct insulation: 1.38 Program Overall: 1.12	FR, PSO, NPSO
<b>Home Energy Performance Electric Program Evaluation (Cadmus, 2011)</b> Evaluation Period: 2009 Program Age: 2 years State/Climate: IL/Cold	Ceiling/wall insulation, air leak sealing Direct install of CFLs Water heater pipe insulation Direct install of low-flow showerheads Direct install of faucet aerators	Ceiling/wall insulation, air leak sealing: 0.58 CFLs: 0.75 Water heater pipe insulation: 0.93 Low-flow showerheads: 0.97 Faucet aerators: 0.99	FR, PSO
<b>Efficiency Maine Trust Home Energy Savings Program Final Evaluation Report (Cadmus, 2011)</b> Evaluation Period: 2009-2011 Program Age: N/A State/Climate: ME/Cold	Air sealing Wall, attic and ceiling insulation Heating system replacement Hot water system replacement Windows	Program Overall: 0.86	FR
<b>2003-2004 Home Energy Savings Program Residential Impact Evaluation (Itron, 2006)</b> Evaluation Period: 2003-2004 Program Age: 2 years State/Climate: OR/Cold	Direct install of CFLs Insulation	CFLs: 1.0 Insulation: 0.78	FR, PSO, NPSO

Conclusion: The NTG ratios derived for the four program evaluations reviewed here suggest that the stipulated NTG ratio of 0.8 for Entergy’s and SWEPCO’s residential audit programs is quite reasonable. Nearly all the NTG ratios from the evaluations, both on a program-level and a measure-level, are over 0.8. The one exception is for heating systems, with a slightly lower NTG. Considering the relatively cold climate of the areas of the programs compared to that of Arkansas, however, it would be expected that freeridership would be lower for these programs. Customers in colder climates are more likely to be planning to purchase or replace heating systems without the benefit of the program. Therefore, we would expect the NTG ratio for heating systems to be higher in Arkansas than in colder climates—perhaps closer to 0.8.

## Residential Lighting and Appliances Programs

### *Entergy’s Residential Lighting and Appliances, SWEPCO’s Residential and Small Commercial CFL / Energy Star CFL Rebate Program, and SWEPCO’s Energy Star Appliance Program*

These programs offer discounted Energy Star products to residential and small commercial customers. Entergy’s Residential Lighting and Appliances program started as a CFL-only program and then transitioned in August of 2011 to offering other energy-efficiency lighting and appliances, such as lighting fixtures, ceiling fans, room air conditioners, refrigerators and power strips. At the same time, the lighting portion of the program transitioned from coupons to an upstream buy-down program involving retailers. SWEPCO’s Residential and Small Commercial CFL program, which was launched in 2008, is also an upstream buy-down program, similar to the newer incarnation of the lighting portion of Entergy’s Lighting and Appliances program. SWEPCO’s Energy Star Appliance Program offers rebates for Energy Star appliances for residential customers, including refrigerators, AC window units, and clothes washers. Also launched in 2008, this program transitioned from an HVAC program to an appliance program in July of 2011.

Three impact evaluations of programs that offer discount lighting and/or appliances were reviewed. In all three cases, NTG ratios were estimated on a measure level.

1. An evaluation of New Hampshire’s Residential Lighting Program in its first year (NMR, 2003) estimated NTG ratios for a number of lighting products. These ratios included FR, PSO, snapback and snapforward and are based on self-report methods. For CFLs, the resulting NTG ratio was 0.86; similar NTG ratios were estimated for the other lighting products: 0.87 for permanent indoor fixtures, 0.91 for portable fixtures, and 0.84 for exterior fixtures.
2. The next evaluation we reviewed was for California’s Residential Appliance Efficiency Incentives Program for the 1996 program year (Hagler Bailly Consulting, 1998). The evaluation focused on the NTG ratio of refrigerators. The program had both upstream and downstream elements. The estimated NTG ratio was quite high, at 1.3, and included both FR (24%) and SO (54%).
3. Finally, we reviewed an evaluation of high-impact measures across a number of California’s residential retrofit programs for program years 2006-2008 (Cadmus, 2010). We considered these measure-level NTG ratios to be relevant to this review because they include appliances. NTG ratios were calculated for each utility separately; here we report

the average NTG ratio for each measure. The ratios are relatively low, partially because they only included FR (and thus are not offset by SO effects) and possibly also because, although the specific programs were relatively new, similar programs had been in effect in California for many years; thus, the market for energy-efficient products was quite mature and FR would be expected to be higher (and NTG to be lower) than for less mature markets. For clothes washers, the average NTG ratio was about 0.28, while for air conditioner window units the average ratio was 0.36.

**Conclusion:** Considering the three evaluations reviewed here, the stipulated NTG ratio of 0.63 for Arkansas' residential lighting/appliances programs seems reasonable and maybe even conservative. The lighting measure NTGs from all the reviewed evaluations were above 8.0. Although our review of California's retrofit programs found much lower NTG ratios, the comparability of these programs with those in Arkansas is limited. As mentioned before, the market for energy efficient products is more mature in California than it is in Arkansas.

**Table 73: Residential Lighting and Appliances**

ENERGY AND SWEPCO PROGRAMS	Sample Measures	NTG Ratios	Components of NTG
<p><b>Entergy Residential Lighting and Appliances, SWEPCO Residential and Small Commercial CFL and SWEPCO Energy Star Appliance Program</b>                      Evaluation Period: 2008-2011                      Program Age: 3 years                      State/Climate: AR/Mixed-humid</p>	<p>CFLs, lighting fixtures, ceiling fans, room ACs, refrigerators, power strips, HVAC equipment, clothes washers.</p>	<p>Program Overall: 0.8</p>	<p>N/A</p>
REVIEWED PROGRAMS	Sample Measures	NTG Ratios	Components of NTG
<p><b>Process and Impact Evaluation of the NH Residential Lighting Program (NMR, 2003)</b>                      Evaluation Period: 2002                      Program Age: 1 year                      State/Climate: NH/Cold</p>	<p>CFLs                      Permanent indoor fixtures                      Exterior fixtures</p>	<p>CFLs: 0.86                      Indoor fixtures: 0.87                      Exterior fixtures: 0.84</p>	<p>FR, PSO, Snapback, Snapforward</p>
<p><b>Residential Appliance Efficiency Incentives Program: High Efficiency Refrigeration 1996 First Year Statewide Load Impact Study Net-to-Gross Analysis (Hagler Bailly Consulting, 2008)</b>                      Evaluation Period: 1996                      Program Age: N/A                      State/Climate: CA/Hot-dry</p>	<p>Refrigerators</p>	<p>Refrigerators: 1.3</p>	<p>FR, SO</p>
<p><b>Residential Retrofit High Impact Measure Evaluation Report (Cadmus, 2010)</b>                      Evaluation Period: 2006-2008                      Program Age: 3 years (but similar programs for many years)                      State/Climate: CA/Hot-dry</p>	<p>Clothes washers                      AC window units</p>	<p>Clothes washers: 0.28                      AC: 0.36</p>	<p>FR</p>

## Commercial and Industrial Programs

The six C&I programs in Arkansas’ portfolio are targeted to specific markets—small commercial, large C&I, public facilities, etc. In addition, some provide prescriptive measures, some offer custom measures, and others provide both types of measure. The six evaluations we reviewed to assess the reasonability of the NTG ratio of 0.8 for these programs assess programs that tend to be less specific, including C&I customers of many types and sizes, and offering both custom and prescriptive measures. For this reason, we did not “match up” specific programs with evaluations, but rather consider the various evaluations as a whole to give an indication of the range of NTG values for C&I programs with measures that are similar to those in the Arkansas portfolio—mainly lighting and HVAC, as all six C&I programs in the portfolio offer lighting (and many of the 2011 projects were lighting-only) and a few of the programs offer HVAC equipment.

### ***Large C&I Programs: Entergy’s C&I Standard Offer Program / C&I Prescriptive Program, Entergy’s C&I Custom Solutions Program, Entergy’s City Smart and SWEPCO’s Commercial Solutions Program / Targeted C&I Standard Offer Program***

These programs offer incentives to large C&I customers for various energy efficiency measures, plus a walk-through assessment and technical assistance.

Entergy’s C&I Standard Offer Program was in place in 2011, and will transition to the C&I Prescriptive Program in 2012. The C&I Prescriptive Program will offer incentives to large C&I customers based on deemed measures, such as lighting and controls, VSDs, HVAC equipment, refrigeration equipment, etc. A subset of these measures was offered in the 2011 Standard Offer Program, but it is not clear from the program information exactly which measures were offered. There were thirteen program participants in 2011.

Entergy’s C&I Custom Solutions Program is designed for large C&I customers who have specialized energy efficiency projects that require technical assistance. Most of the projects in 2011 (70-80%) were for custom lighting. Thirteen customers participated in 2011.

Entergy’s City Smart program targets public facilities and offers both prescriptive and custom measures, including HVAC systems, lighting and controls, ECMs, fans, and pumps. In 2011, most of the twelve projects completed through this program were for lighting and HVAC.

SWEPCO’s Commercial Solutions Program, launched in 2010, transitioned to the Targeted Standard Offer Program in July of 2011. Both programs target large C&I customers and offer incented measures such as lighting, air compressors, refrigeration, etc., plus technical assistance. In 2011, 90% of the projects were lighting only.

### ***Entergy’s C&I Energy Solutions / Small Business Direct Install and SWEPCO’s Small Business Direct Install***

These programs target small business customers and provide audits to identify energy efficiency opportunities and provide direct installations as well as recommendations for incented measures. Whereas Entergy’s program only offers lighting, SWEPCO’s program offers lighting plus HVAC, refrigeration controls, and customized measures. Entergy’s program adjusted the incented levels in mid-2011, and SWEPCO’s program did not launch until August of 2011.

1. An evaluation of Colorado's Business Lighting Program for the 2007-2008 program years (Wirtshafter Associates, 2009) estimated a NTG ratio of 0.73 for the program using self-report methods. However, the evaluators determined that this ratio was too low because it did not include SO, and there was qualitative information that suggested the existence of spillover among the participants. The final recommended NTG ratio for the program was 0.84. This evaluation also reported that evaluations of other, similar programs had estimated NTG ratios of 0.6 to 1.0. The Business Lighting Program served businesses of all sizes, offering rebates for installation of ten types of lighting measures.
2. Another evaluation we reviewed for this task estimated NTG ratios for indoor lighting measures across California's Industrial Sector Energy Efficiency Incentives Programs in program year 1997 (Pacific Gas and Electric Company, 1999). While the programs offered various measures in addition to lighting, this report focuses on indoor lighting. The resulting NTR ratio for indoor lighting measures was 0.7, based on a self-report method. This ratio includes both FR and SO, but SO was found to be very low.
3. California's Statewide Nonresidential Standard Performance Contract Program was evaluated for the 2004-2005 program year (Itron, 2008). The program offered financial assistance for many types of energy efficiency projects, including lighting, lighting controls, and HVAC equipment. The evaluation reported NTG ratios for 2004 and 2005 as well as for prior program years. The 2004-2005 NTG ratio, based on a participant self-report survey, was 0.57. The authors noted that if this ratio, which only included FR, were adjusted to include a standard 10% SO and 5% for a previously found self-report bias, the NTG ratio would be 0.7. The previous (unadjusted) NTG ratios reported were 0.53 for 1998, 0.51 for 1999, 0.41 for 2000, 0.65 for 2001, 0.45 for 2002, and 0.59 for 2003. Note that the NTG ratio changed by only 0.4 from the first year of the program to its eighth year.
4. An evaluation of Oregon's Building Efficiency Program for the 2004-2005 program years (RIA, 2008) was also included in this review. The program provided both prescriptive and custom incentives for lighting, HVAC equipment, and retrofit of electric motors, as well as audits and assistance finding and working with contractors. All sizes of C&I customers were eligible. The evaluators estimated the NTG ratio for the program to be 0.84 for the 2004-2005 program period. Based on a self-report method, this NTG ratio included only FR, although 22% of participants indicated the existence of spillover.
5. California's Nonresidential Audit and PG&E Local Program was evaluated for the 2004-2005 program years (Itron, 2008). Targeted to medium and large commercial customers, the program provided energy efficiency audits and recommendations for incented lighting and AC equipment. NTG ratios were reported on a measure level for three different types of audit channels. For lighting, they ranged from 0.77 to 0.93, and for HVAC they range from 0.44 to 0.6. The report did not explicitly indicate which components (i.e., FR, SO, etc.) were included in these ratios.
6. Finally, we reviewed an evaluation of California's Nonresidential Large SPC Evaluation Study for the 2000-2001 program years (XENERGY, 2001). This program, launched in 1998, provided incentives for lighting, HVAC equipment, refrigeration, motors, and other equipment. Using a self-report method, the evaluators estimated a NTG ratio of 0.41 for 2000 and 0.65 for 2001.

**Table 74: Commercial and Industrial Programs**

ENERGY AND SWEPCO PROGRAMS	Sample Measures	NTG Ratios	Components of NTG
<p><b>Large C&amp;I Programs: Entergy C&amp;I Standard Offer Program / C&amp;I Prescriptive Program, Entergy C&amp;I Custom Solutions Program, Entergy City Smart and SWEPCO Commercial Solutions Program / Targeted C&amp;I Standard Offer Program</b>                      Evaluation Period: 2011                      Program Age: 1 year                      State/Climate: AR/Mixed-humid</p>	<p>Lighting and controls, VSDs, HVAC equipment, refrigeration equipment, ECMs, fans, air compressors</p>	<p>Program Overall: 0.8</p>	<p>N/A</p>
<p><b>Entergy C&amp;I Energy Solutions / Small Business Direct Install and SWEPCO Small Business Direct Install</b>                      Evaluation Period: 2011                      Program Age: 1 year                      State/Climate: AR/Mixed-humid</p>	<p>Lighting, HVAC, refrigeration controls, customized measures</p>	<p>Program Overall: 0.8</p>	<p>N/A</p>
REVIEWED PROGRAMS	Sample Measures	NTG Ratios	Components of NTG
<p><b>Evaluation of Xcel Energy's Business Lighting Program (Wirshafter Associates, 2009)</b>                      Evaluation Period: 2007-2008                      Program Age: 2                      State/Climate: CO/Cold</p>	<p>Lighting measures</p>	<p>Program Overall: 0.73 (Final recommendation: 0.84)</p>	<p>FR</p>
<p><b>Impact Evaluation of Pacific Gas &amp; Electric Company's 1997 Industrial Sector Energy Efficiency Incentives Programs: Process and Indoor Lighting End Uses (Pacific Gas and Electric Company, 1999)</b>                      Evaluation Period: 1997                      Program Age: Unclear from report                      State/Climate: CA/Hot-dry</p>	<p>Lighting, lighting controls</p>	<p>Lighting: 0.7</p>	<p>FR, SO</p>
<p><b>2004-2005 Statewide Nonresidential Standard Performance Contract Prog Measurement and Evaluation Study</b>                      Evaluation Period: 2004-2005                      Program Age: 8                      State/Climate: CA/Hot-dry</p>	<p>Lighting, lighting controls, HVAC equipment</p>	<p>Program Overall: 0.57 (.7 if adjusted for SO and self-report bias)</p>	<p>FR</p>
<p><b>Evaluation of Building Efficiency Program 2004 &amp; 2005 (ADM Associates, Inc., 2008)</b>                      Evaluation Period: 2004-2005                      Program Age: 5                      State/Climate: OR/Cold</p>	<p>Lighting, HVAC equipment, electric motors</p>	<p>Program Overall: 0.84</p>	<p>FR</p>

<b>Evaluation of the 2004-2005 Nonresidential Audit and PG&amp;E Local Program (Itron, 2008)</b> Evaluation Period: 2004-2005 Program Age: Unclear from report State/Climate: CA/Hot-dry	Lighting AC equipment	Lighting: 0.77 - 0.93 AC: 0.44 - 0.6	N/A
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**Table 75: Commercial and Industrial Programs (continued)**

REVIEWED PROGRAMS	Sample Measures	NTG Ratios	Components of NTG
<b>2000 and 2001 Nonresidential Large SPC Evaluation Study (XENERGY, 2001)</b> Evaluation Period: 2000-2001 Program Age: 4 State/Climate: CA/Hot-dry	Lighting, HVAC equipment, refrigeration, motors, etc.	Program Overall 2000: 0.41; 2001: 0.65	FR

**Conclusion:** The NTG ratios for the C&I programs reviewed here range from 0.41 to 0.93. The ratios for lighting measures, or for programs that focus on lighting equipment, tend to be in the higher range. Importantly, the Arkansas portfolio of C&I programs tends to be focused on lighting. Even programs that offer a variety of measures tended to conduct mostly lighting projects in 2011. The lower NTG ratios for the evaluations reviewed tended to include FR only, and in a few cases the evaluators recommended adjusting them upward to account for self-report bias and spillover. Taking these factors into consideration, the stipulated NTG ratio of 0.8 seems reasonable.





## **7.1 Appendix B: Inter-Utility and Inter-Fuel Program Coordination.**

### **Background**

The Arkansas Public Service Commission (“APSC” or “Commission”) in the following Dockets and Orders approved the following comprehensive energy programs:

- Docket No. 07-085-TF, Order No. 39, approved the Entergy Arkansas, Inc. (“EAI”)
- Docket No. 07-081-TF, Order No. 31 for CenterPoint Energy Resources Corp., d/b/a Center point Energy Arkansas Gas (“CenterPoint Energy”)
- Docket No. 07-082-TF, Order No. 35 for Southwestern Electric Power Company (“SWEPCO”)
- Docket No. 07-078-TF, Order No. 25 for SourceGas Arkansas Inc.
- (“SGA”)

The Commission also ordered the utilities to “consult with the other Investor Owned Utilities (“IOUs”) and to report by April 1, 2012, regarding all reasonable inter-utility coordination of EE programs, including inter-utility coordination to promote inter-fuel energy savings” within each utility’s respective 2011 annual reports in the EE portfolio approval orders. Of particular interest are “energy savings that depend on improving the thermal envelope of buildings, in order to maximize lasting energy savings that would not have occurred without the intervention of EE programs.” Additional instructions within the Orders includes language that the “report shall include proposed reasonable program modifications to effectuate inter-utility and inter-fuel EE program coordination. Where inter-utility coordination is an impractical means of promoting inter-fuel energy savings (e.g., owing to non-overlapping service territories), the Commission invited the utilities to propose methods to effectuate inter-fuel energy savings.”

This is a joint report prepared by EAI, CenterPoint Energy, SWEPCO, and SGA. It is included by each of these utilities as a part of its 2012 Annual Reports. The report summarizes discussions, which in some cases included Oklahoma Gas Electric Company (“OG&E”) and Arkansas Oklahoma Gas Company (“AOG”), however, these utilities did not participate in the development of this joint report. OG&E and AOG will file a report on their joint activities separate from this document.

### **General Discussion**

Energy efficiency programs in Arkansas have been approved as individual utility programs with the exception of the statewide joint utility Arkansas Weatherization Program (“AWP”) and the Energy Efficiency Arkansas Program (“EEA”). These programs were developed in accordance with the directive in the Rules for Conservation and Energy Efficiency Programs and Order No. 17 of Docket No. 08-144-U (order defining “comprehensive” in the planning, approval and implementation of essential energy efficiency services). This order defining comprehensiveness introduced a list of seven factors for the Commission to base their decision as to whether a utility’s

proposed programs can be approved as Comprehensive. This report is intended, in part to review and address two of those checklist factors:

- Whether the programs and/or portfolio, reasonably address all major end-uses of electricity or natural gas, or electricity and natural gas, as appropriate;
- Whether the programs and/or portfolio, to the maximum extent reasonable, comprehensively address the needs of customers at one time, in order to avoid cream-skimming and lost opportunities.

Each utility prepared, filed, and received approval for each respective utility's portfolio, which contained programs that were developed to at least address all major end uses for each utility and which were designed to encourage customers to avoid "cream-skimming" while balancing the project's and the program's need to be cost effective

### **Inter-Utility Coordination to Date**

The utilities have been consulting with each other since the Commission orders approving the utilities' portfolios were issued in June of 2011. These discussions were conducted to understand the current programs, explore options to develop new coordination efforts with the current programs, and begin to explore future options.

The utilities increased the coordination of programs while implementing new programs during the second half of 2011. There are several areas where the utilities have coordinated efforts underway. Some examples include:

- **Custom Energy Programs for the Commercial and Industrial Sectors** – EAI, SGA, and CenterPoint Energy utilize a common Implementing Contractor ("IC") to provide commercial and industrial programs. This has enabled the IC to offer energy savings services from both programs serving the customers.
- **Whole Home Residential Retrofits through the Home Energy Assistance Loan ("HEAL") Program** – EAI and CenterPoint Energy both utilize the HEAL program, which provides whole house energy savings that address both gas and electric energy savings.
- **Outreach to Trade Allies** – There have been several instances where utilities have either co-sponsored events for trade allies, or have co-promoted utility programs. For example, SWEPCO has conducted three joint program kick-off meetings with CenterPoint Energy and two joint program kick-off meetings with OG&E, AOG, and SGA. SWEPCO, EAI, CenterPoint Energy, SGA, and others have consistently provided time on the agenda for other utilities at events that they have sponsored. CenterPoint Energy has also reached out to municipal utilities and has promoted certain programs in partnership with North Little Rock Electric. This outreach is in addition to EEA funded events. These cooperative outreach efforts have allowed the utilities to expand their audiences, share costs,

and ensure that participating ICs know how to take advantage of all the programs available in their respective areas.

- **Shared Evaluators** – EAI and SWEPCO share a common EM&V Consultant and the gas utilities also share a single EM&V Consultant.
- **Arkansas Weatherization Program** – All of the utilities participate in AWP. This program delivers a “whole home” approach regardless of the type of fuel being saved.
- **Revision of Project Completion Forms to include Inter-Fuel Savings** – SWEPCO has modified its residential program Project Completion Form to capture gas savings achieved from their residential programs.

### **Challenges to Inter-Utility Coordination**

While much has taken place to coordinate across utilities, several barriers have been identified that must be addressed and managed before significant program modifications can be made. These barriers are discussed below.

1. **Customers Receiving more Incentives than the Cost of the Measure** – If both the gas and the electric utility offer an incentive for the same type of measure, then it is imperative that there exists a mechanism for ensuring that the customer is not reimbursed for more than the cost of the measure. For example, an EAI customer can be fully reimbursed for the cost of a home energy audit if the customer implements a number of energy efficiency measures under EAI's residential program. If CenterPoint Energy introduced a home energy audit incentive, then it is possible that a customer could receive an incentive from CenterPoint Energy for an audit that was provided for free through EAI's program. A mechanism and infrastructure must be established to share program data in real time to prevent overpayment of a measure that could be reimbursed from either utility. Currently, there is no such infrastructure in place from a technological perspective, and there are issues surrounding confidentiality and data reporting lags that would have to be addressed before this would be possible. At a minimum, this approach may increase, not reduce, administrative cost.
2. **Utility Implemented Programs versus Programs Implemented by ICs** – With the exception of shared outreach efforts to trade allies, all of the current examples of inter-utility coordination above are implemented by a third-party IC. The utilities discussed each utility's program offerings and the various delivery models in managing energy efficiency programs. For example, EAI leverages experienced ICs to deliver energy efficiency services. CenterPoint Energy and SWEPCO utilize in-house expertise to manage program costs for several programs and use IC's for others. . The varying approaches and philosophies

towards implementation models make it difficult to coordinate across jurisdictions.

3. **Avoided Cost and Resulting Cost effectiveness Analysis** – The differences in avoided costs and cost effectiveness drive the measures and the market delivery. Utilities with greater avoided cost may be able to incorporate more expensive energy efficiency delivery systems (e.g. audits, tiered customer incentives, direct install, etc.), while others may find that the more expensive delivery systems cannot be delivered cost effectively. Therefore, flexibility is required for each utility to ensure that cost effective programs are developed for customers to receive the most cost effective benefits of energy efficiency services.
4. **Disjointed Service Territories** – Disjointed service territories may cause confusion regardless of inter-utility coordination. The utilities learned that the customers served do not overlap well in many cases. While the utilities do not have a study to determine the full overlap of customers serviced, as an example, one can consider that EAI has 580,000 residential customers and CenterPoint Energy has approximately 400,000 residential customers. Many of CenterPoint Energy's gas customers are also served by municipalities. A quick summation of the population in cities with municipal electric service include North Little Rock, Conway, Benton, Osceola, Hope, West Memphis, and Jonesboro, which indicates that a large percentage of the customer base is not served by EAI. It is possible that the overlap between EAI and CenterPoint Energy could well be less than 150,000 residential customers. Other overlapping natural gas and electric utilities also have non-overlapping customers, which may increase the disjointedness of the market.

Joint programs are most effective where there is good correlation of customers in each utility's service territory. If a significant number of customers of the utility's service territory are not overlapping, then coordination of the programs introduce design and delivery issues such as the need for multiple programs for the market to address maximizing cost effectiveness of similar energy efficiency services for all customers. Multiple programs for the same services leads toward increasing installation contractor confusion, customer incentive/rebate confusion, and potential increases in administrative cost.

A single building envelope program may reduce local participating contractor confusion, but would result in some residential customers having more incentive funds available to install energy efficiency because they are funded by two utilities, and those with only one utility would not have as much incentive to complete as many energy efficiency measure installations.

5. **Contractual Issues for the 2012 and 2013 Program Year** – A review of other jurisdictions that offer joint programs<sup>1</sup> indicates that common third party ICs are the most common implementation option. This option allows both overlapping utilities to leverage the energy assessment expertise if the ICs have expertise available that can provide both electric and natural gas assessments. These jurisdictions also appear to be in more mature markets with a further developed contractor market. As noted in item two, not all utilities in the Arkansas jurisdiction have implemented using third party ICs, which makes it difficult to coordinate across jurisdictions. At a minimum, new contract negotiations would be required should this model be implemented. This process would need to avoid any utility being forced to enter into an agreement with an IC for the sole reason of coordination of energy efficiency services, which could result in disadvantages including not obtaining the price breaks that are offered through an openly competitive process and other operational shortcomings. Also, to start a new negotiation process could delay or serve as a distraction for contractors and utilities implementing existing programs through 2013 and may reduce the likelihood of utilities reaching Commission mandated targets.
6. **National Accounts Customers Coordination** – Similar challenges as previously discussed throughout this section would apply to this particular market segment as well.
7. **Program Adjustments In Response to EM&V Recommendations** – The utilities have also involved their Evaluation, Measurement and Verification (“EM&V”) consultants in the discussion to explore opportunities for cost effective coordination and provide input as to the timing of making adjustments to existing programs. The issues associated with making these adjustments are different for process recommendations as opposed to impact recommendations. There are a number of policy decisions regarding the appropriate timing for adaptation of recommendations that need to be decided with the utilities and the Commission.

The EM&V contractors are evaluating similar programs for the Arkansas Joint Utilities together and will make an effort to coordinate with the EM&V contractor for the Joint Gas Utilities where appropriate. This will allow programs to make adjustments to recommendations as consistently as possible.

### **Future Coordination Efforts Still Under Discussions**

Discussions are continuing to explore options to increase coordination even further. More work needs to occur prior to making any further recommendations for program changes. Ideas that have surfaced include:

- Additional coordination of residential benchmarking programs through coordinated marketing of residential direct mail and internet information.

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<sup>1</sup> Programs reviewed included NICOR Gas and ComEd, and Detroit, MI utilities.

- Reimbursing utilities that are offering energy efficiency services that provide inter-fuel savings. For example, SWEPCO began capturing the therms saved on projects completed through their residential programs in 2011. In February 2012, SWEPCO updated their project forms to include collecting the name of the gas utility for participating customers. Using this data, SWEPCO will be evaluating the potential for coordination of inter-fuel savings. EAI's Residential Solutions Program currently achieves both electric and natural gas savings as a result of the installation of measures such as insulation, reducing air infiltration, and duct sealing. While EAI has not kept detail records, EAI estimates that approximately 450,000 therms have been saved since the inception of the initial Quick Start Program in 2007. Careful program planning would need to be developed to make sure that the benefits of such coordination extend to the customer and both participating utilities. CenterPoint Energy is evaluating this approach for both SWEPCO's and EAI's residential programs.
- SWEPCO and SGA are currently in discussion with an IC to design and implement a jointly sponsored program in the residential market. This program would capitalize on SWEPCO's Home Performance with ENERGY STAR® Program, which is designed to encourage a whole-house approach when making improvements. Additionally, SGA's Commercial Food Service Program aligns with SWEPCO's targeted commercial program, which has targeted marketing efforts focused on food service. SWEPCO and SGA are evaluating opportunities for cross-promotion efforts.
- Redesigning current energy efficiency offerings to coordinate utilities' programs in a cost effective manner.
- Cross promotional marketing opportunities. To the extent that utilities are reaching out to the same customers and trade allies, it makes sense to continue coordination of those activities as a way to leverage resources.
- Inter-utility and inter-fuel energy efficiency services could be accomplished through direct install programs using bulk purchases. Theoretically, this could improve cost. However, the direct install measures that are currently being offered by most utilities are being done through nationwide ICs with significant purchasing power for these direct install measures and little, if any, additional benefit would be expected in inter-utility/inter-fuel direct install programs. In fact, the extra cost of administration may more than offset any cost reductions that may exist.

## **Recommendations and Conclusions**

This inter-utility and Inter-Fuel Program Coordination report demonstrates that the utilities are working together to coordinate energy efficiency offerings to our customers and are continuing to explore additional options that can be provided in a cost effective manner. Because the programs currently in place were approved in June of 2011, the

programs are still new in the market place and additional EM&V work is needed. The utilities recommend that the most appropriate time to make significant changes to the existing programs is during the design of portfolios for 2014 and beyond.

Should new options for coordination be identified that will improve cost effectiveness, market delivery, and can be readily incorporated into current program plans, the utilities propose to submit the associated program and budget changes to the Commission for consideration and approval.



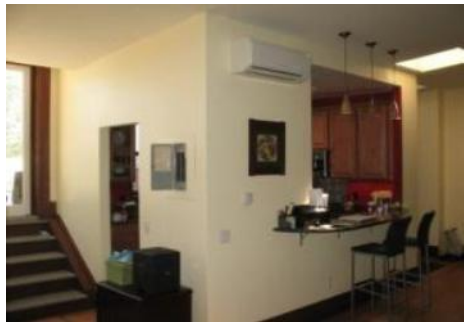
## 7.2 Appendix C: Ductless (Mini- Split) Heat Pump Pilot

### Regulatory Background

The Arkansas Public Service Commission (“APSC or Commission”) in Docket Number 07-085-TF, Order No. 39, approved the Entergy Arkansas, Inc. (“EAI”) comprehensive energy efficiency programs and ordered EAI to “report on the advisability of piloting or implementing no later than 2013 a ductless heat pump program which is aimed at customers with resistance heating, or accommodation of ductless heat pump measures within an existing program. Such comments should address, without limitation, the estimated cost-effectiveness of such a program” within the EAI 2011 annual report.<sup>1</sup>

### Technology Background

In order to provide the requested information to the Commission EAI has started with secondary research to help understand the appropriate applications of the technology and what other utility programs offer as a Ductless Heat Pump Program.



The ductless heat pump is like standard air-source heat pumps. Ductless, mini-split-system heat pumps (“mini splits”) have two main components, including an outdoor compressor/condenser, and an indoor air-handling unit. A conduit, which houses the power cable, refrigerant tubing, suction tubing, and a condensate drain, links the outdoor and indoor units.

However unlike typical HVAC systems the indoor air-handling unit is installed in the living space either mounted on the wall, in the ceiling and at times on the floor of a room or open space. This difference results in several advantages and disadvantages associated with the installation of mini splits in residential spaces and/or commercial businesses.

### Advantages

Mini splits make good retrofit add-ons to houses with non-ducted heating systems, such as hydronic (hot water heat), radiant panels, and space heaters (wood, kerosene, propane). They can also be a good choice for room additions, where extending or installing distribution ductwork is not feasible.

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<sup>1</sup> Docket No. 07-085-TF, Order No. 39 at 40.

A ductless system provides year round comfort and efficiency. Ductless systems come standard with air conditioning, offering an energy efficient cooling solution in addition to providing a retro-fit for non duct heating systems. Split-systems can also help to keep your home safer since there is only a small hole in the wall. Through-the-wall and window mounted room air-conditioners can provide an easy entrance for intruders.

The main advantages of mini splits are their small size and flexibility for zoning or heating and cooling individual rooms. Many models can have as many as four indoor air handling units (for four zones or rooms) connected to one outdoor unit. The number depends on how much heating or cooling is required for the building or each zone (which in turn is affected by how well the building is insulated). Because each of the zones will have its own thermostat, you only need to condition that place when someone is there. This will save energy and money.

Ductless mini-split systems are also often easier to install than other types of space conditioning systems. For example, the hook-up between the outdoor and indoor units generally requires only a three-inch hole through a wall for the conduit. Also, most manufacturers of this type of system can provide a variety of lengths of connecting conduits. If necessary, you can locate the outdoor unit as far away as 50 feet from the indoor evaporator. This makes it possible to cool rooms on the front side of a building house with the compressor in a more advantageous or inconspicuous place on the outside of the building.

Because mini splits have no ducts, they avoid the energy losses associated with ductwork of central forced air systems. Ductless systems operate using 25% to 50% less energy than electric resistance and forced air systems. Duct losses can account for more than 30% of energy consumption for space conditioning, especially if the ducts are in an unconditioned space such as an attic.

In comparison to other add-on systems, mini splits offer more flexibility in interior design options. The indoor air handlers can be suspended from a ceiling, mounted flush into a drop ceiling, or hung on a wall. Floor-standing models are also available. Most indoor units have profiles of about seven inches deep and usually come with sleek, high tech-looking jackets. Many also offer a remote control to make it easier to turn the system on and off when it's positioned high on a wall or suspended from a ceiling.

Three key factors account for the high efficiency of a ductless system:

1. Ductless systems allow the user to control each heating/cooling zone independently, eliminating the costly over-heating and cooling common to central air systems.
  2. While central air systems lose as much as 30% efficiency through air leaks and conduction in the ductwork, ductless systems distribute air directly to each zone, resulting in 25% greater efficiency.
- Ductless systems use inverter-driven, variable speed compressors that allow the system to maintain constant

indoor temperatures by running continuously at higher or lower speeds. Thus, the system can ramp-up or down without great losses in operating efficiency, avoiding the energy intensive on/off cycling common in electric resistance and forced air systems.

3. Modern ductless systems have ultra-high Seasonal Energy Efficiency Ratios between 16 and 22, and Heating Seasonal Performance Factors between 8.5 and 11.

### **Disadvantages**

The primary disadvantage of mini splits is their cost. Such systems cost about \$1,500–\$2,000 per ton (12,000 Btu per hour) of cooling capacity. This is about 30% more than central systems (not including ductwork) and may cost twice as much as window units of similar capacity.

The installer must also correctly size each indoor unit and judge the best location for its installation. Oversized or incorrectly located air-handlers often result in short-cycling, which wastes energy and does not provide proper temperature or humidity control. Too large a system is also more expensive to buy and operate.

Some people may not like the appearance of the indoor part of the system. While less obtrusive than a window room air conditioner, they seldom have the built-in look of a central system. There must also be a place to drain condensate water near the outdoor unit. If proper maintenance does not occur the small drain condensate pan will quickly over fill resulting to water damage to interior walls and floors.

Qualified installers and service people for mini splits may not be easy to find. In addition, most conventional heating and cooling contractors have large investments in tools and training for sheet metal duct systems. They need to use (and charge for) these to earn a return on their investment, so they may not recommend ductless systems except where a ducted system would be difficult for them to install.

The ductless system is not recommended to be installed to retrofit existing duct heating and cooling systems and several sources suggest keeping existing systems for extreme weather conditions.

### **Applications for Ductless Heat Pumps**

Ductless, mini-split-system heat pumps make good retrofit add-ons to houses with non-ducted heating systems, such as hydronic (hot water heat), radiant panels, and space heaters (wood, kerosene, propane). They can also be a good choice for room additions, where extending or installing distribution ductwork is not feasible

Ductless heat pumps are most appropriate for homes with open floor plans, because each indoor head can serve the entire zone not blocked by doorways.

Some typical applications for ductless pumps include:

**Replacing an existing zonal heating system** – Ductless heat pumps can replace existing electric baseboard/wall units, woodstoves. A cost effective electric heat conversion in a small house might consist of single system serving the main area of the house, leaving existing electric baseboards in bedrooms and bathrooms.

**Room additions** – Another application for ductless heat pumps is when a room is added to a house or an attic is converted to living space. Rather than extending the home's existing ductwork or pipes or adding electric resistance heaters, the ductless heat pump can provide efficient heating and cooling.

**New construction** –New homes can be designed or adapted to take advantage of the characteristics of ductless heat pumps. Typically one or more systems might be installed in various “zones” of the house to simplify installation and minimize refrigerant line length.

## **Manufacturers**

The ductless heat pump technology has been successfully installed for decades in Asia and Europe and as a result there are several manufactures. Those manufactures include Mitsubishi, Trane, Fujitsu, Samsung, and Sanyo.

## **Customer Incentive Ranges**

EAI believes these ranges would be consistent with EAI's Comprehensive Program planning. EAI anticipates that incentives identified from other programs will equal between 25% and 75% of unit incremental cost.

## **Typical Locations of Ductless Heat Pump Programs**

The most frequent areas where the ductless heat pump technology is part of utility energy efficiency programs are the Northwest (Oregon and Washington) and the northeast (New Jersey, New York, Maryland.)

## **EAI Stakeholder Activity**

EAI has involved several stakeholders to date in considering this potential pilot. Hale Powell, consultant for Audubon Arkansas, a division of National Audubon Society, Inc. (“Audubon”) has provided program information and a contact at Baltimore Gas and Electric (“BG&E”) who was the implementer of the BG&E ductless heat pump program. EAI has made contact with the implementer of the BG&E program and discussed the

successes and barriers. EAI has also held discussions with CLEAResult and ICF to explore pilot opportunities. Additional stakeholder efforts need to occur to seek input from Arkansas HVAC contractors / dealers to understand the technical qualifications and assess the local market availability of the technology. Additional market assessment also needs to occur to assist in the development of appropriate incentive levels to encourage the expansion of the technology for energy efficiency purposes.

### **Feasibility of Pilot**

EAI has worked with ICF and CLEAResult to prepare an assessment to develop a potential pilot. EAI has also included CADMUS, EAI's Evaluation, Measurement, and Verification ("EM&V") consultant, to prepare an estimate of the cost of an EM&V plan to consider the final cost effectiveness of the technology in EAI programs.

### **Target Market**

The target market was identified by the Commission generally as customers with electric resistance heating. This EAI reviewed the criteria for customer participation in several programs that included or exclusively promoted ductless heat pumps<sup>2</sup> and found common participation criteria that EAI will need to consider for any future pilot. These criteria include:

- Home's primary heat source must be electric zone heat such as baseboards, Cadet or King wall heaters, or hydronic baseboard heaters. (NOTE: homes with ducted electric or gas furnaces are not eligible.)
- Equipment must be certified by the Air-Conditioning, Heating and Refrigeration Institute ("AHRI") as a mini-split heat pump, use inverter technology and be a minimum of 1.0 ton in heating mode.
- Must use electric resistance heat as primary heating source which includes electric zonal (baseboard, cable, wall heater), electric hydronic or electric forced-air furnace.
- Must install at least one unit in the main living area of the home. Equipment only installed in a bedroom is not eligible.
- Cannot have an existing heat pump or natural gas service, even if only used for cooking.
- Manufactured homes do not qualify for this rebate.

With the data we have thus far this market represents between 2% and 8% of the residential customer base, or between 12,000 and 47,000 customers. EAI needs to further refine its estimate of market size and, more generally, develop a more complete understanding of the target market before completing the program plan.

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<sup>2</sup> These included programs administered by Baltimore Gas and Electric, Idaho Power, Connecticut Light & Power, and Bonneville Power Administration

## Market Barriers

Based on discussions with other program administrators, EAI identified the following barriers to ductless heat pump market growth:

- **Lack of customer awareness**
- **Lack of qualified installers** - As discussed earlier in the disadvantages qualified installers and service people for ductless systems may not be easy to find. In addition, most conventional heating and cooling contractors have large investments in tools and training for sheet metal duct systems. They need to use (and charge for) these to earn a return on their investment, so they may not recommend ductless systems except where a ducted system would be difficult for them to install. EAI will need to conduct additional research/stakeholder discussions with local HVAC dealers to clarify the barrier and how to address it.
- **Technology cost - ductless** systems can cost up to a third more than central systems.
- **Customer dissatisfaction with the technology's appearance** - Some people may not like the appearance of the indoor part of the system. While less obtrusive than a window room air conditioner, they seldom have the built-in look of a central system. There must also be a place to drain condensate water near the outdoor unit.

## Preliminary Measure Cost-Effectiveness

ICF developed measure savings estimates for ductless heat pumps for retrofit and replace-on-burnout applications for single- and multi-family residential building types characteristic of homes in EAI's territory. Savings were developed using DOE-2 based building simulation software. Equipment costs were acquired from manufacturers and labors costs from other jurisdictions. Prior to the final filing EAI will develop cost estimates more specific to EAI's territory.

These preliminary results show that for these particular measure applications mini-split heat pumps are not cost-effective. As shown in Table 1, this measure would be most cost-effective when single family customers choose to install it instead of a new central air unit. Note that for retrofit applications - where the measure replaces a functioning existing unit - baselines can vary considerably.

Table 2 provides more detail on these preliminary cost-effectiveness results.

**Table 1**  
**Ductless Heat Pump Savings, Costs, and Cost-Effectiveness Estimates**

Home Type /Measure Type	Average Measure TRC		
	Replace-on-burnout	Retrofit	All
MultiFamily Residence	0.30	0.27	0.28
Single Family Residence	0.72	0.49	0.60
All	0.51	0.38	0.44

**Table 2**  
**Preliminary Ductless Heat Pump Cost-Effectiveness Information**

Home Type	Measure Type	Efficient Measure Definition	Base Measure Definition	Unit Size (tons)	Installed Tons Per Home	Results Level	Measure Life	Incremental Equipment Cost	Incremental Labor Cost	Total Incremental Cost	Annual kWh Savings	Annual Coincident Peak Savings	Annual Gas Savings	Measure TRC
Single Family Residence	Retrofit	SEER 14.5 Mini-Split Heat Pump	SEER 10.3 CAC System	1	5	Per Home	15	\$7,200	\$2,000	\$9,200	4041	1.53	0.0	0.45
Single Family Residence	Retrofit	SEER 15 Mini-Split Heat Pump	SEER 10.3 CAC System	1	5	Per Home	15	\$7,200	\$2,000	\$9,200	4146	1.59	0.0	0.46
Single Family Residence	Retrofit	SEER 16 Mini-Split Heat Pump	SEER 10.3 CAC System	1	5	Per Home	15	\$7,200	\$2,000	\$9,200	4337	1.69	0.0	0.49
Single Family Residence	Retrofit	SEER 17 Mini-Split Heat Pump	SEER 10.3 CAC System	1	5	Per Home	15	\$7,200	\$2,000	\$9,200	4504	1.79	0.0	0.51
Single Family Residence	Retrofit	SEER 18 Mini-Split Heat Pump	SEER 10.3 CAC System	1	5	Per Home	15	\$7,200	\$2,000	\$9,200	4654	1.87	0.0	0.53
Single Family Residence	Replace-on-burnout	SEER 14.5 Mini-Split Heat Pump	SEER 13 CAC System	1	5	Per Home	15	\$4,140	-\$36	\$4,104	2847	0.84	0.0	0.62
Single Family Residence	Replace-on-burnout	SEER 15 Mini-Split Heat Pump	SEER 13 CAC System	1	5	Per Home	15	\$4,140	-\$36	\$4,104	2952	0.90	0.0	0.66
Single Family Residence	Replace-on-burnout	SEER 16 Mini-Split Heat Pump	SEER 13 CAC System	1	5	Per Home	15	\$4,140	-\$36	\$4,104	3143	1.01	0.0	0.72
Single Family Residence	Replace-on-burnout	SEER 17 Mini-Split Heat Pump	SEER 13 CAC System	1	5	Per Home	15	\$4,140	-\$36	\$4,104	3311	1.11	0.0	0.77
Single Family Residence	Replace-on-burnout	SEER 18 Mini-Split Heat Pump	SEER 13 CAC System	1	5	Per Home	15	\$4,140	-\$36	\$4,104	3460	1.19	0.0	0.82
MultiFamily Residence	Retrofit	SEER 14.5 Mini-Split Heat Pump	SEER 10.3 CAC System	1	3	Per Home	15	\$4,317	\$1,200	\$5,517	1031	0.56	0.0	0.24
MultiFamily Residence	Retrofit	SEER 15 Mini-Split Heat Pump	SEER 10.3 CAC System	1	3	Per Home	15	\$4,317	\$1,200	\$5,517	1087	0.59	0.0	0.25
MultiFamily Residence	Retrofit	SEER 16 Mini-Split Heat Pump	SEER 10.3 CAC System	1	3	Per Home	15	\$4,317	\$1,200	\$5,517	1190	0.64	0.0	0.27
MultiFamily Residence	Retrofit	SEER 17 Mini-Split Heat Pump	SEER 10.3 CAC System	1	3	Per Home	15	\$4,317	\$1,200	\$5,517	1280	0.68	0.0	0.29
MultiFamily Residence	Retrofit	SEER 18 Mini-Split Heat Pump	SEER 10.3 CAC System	1	3	Per Home	15	\$4,317	\$1,200	\$5,517	1360	0.72	0.0	0.31
MultiFamily Residence	Replace-on-burnout	SEER 14.5 Mini-Split Heat Pump	SEER 13 CAC System	1	3	Per Home	15	\$2,634	\$80	\$2,714	453	0.27	0.0	0.23
MultiFamily Residence	Replace-on-burnout	SEER 15 Mini-Split Heat Pump	SEER 13 CAC System	1	3	Per Home	15	\$2,634	\$80	\$2,714	510	0.30	0.0	0.25
MultiFamily Residence	Replace-on-burnout	SEER 16 Mini-Split Heat Pump	SEER 13 CAC System	1	3	Per Home	15	\$2,634	\$80	\$2,714	612	0.35	0.0	0.30
MultiFamily Residence	Replace-on-burnout	SEER 17 Mini-Split Heat Pump	SEER 13 CAC System	1	3	Per Home	15	\$2,634	\$80	\$2,714	702	0.40	0.0	0.34
MultiFamily Residence	Replace-on-burnout	SEER 18 Mini-Split Heat Pump	SEER 13 CAC System	1	3	Per Home	15	\$2,634	\$80	\$2,714	782	0.44	0.0	0.37

EAI needs to collect additional information specific to Arkansas before determining the feasibility of the program and completing the pilot program plan. This research will focus on the following:

- **Identification of the target market.** EAI only has a rough estimate of market size, and no means of identifying these customers. The ability to further define the target market will help determine the nature of the pilot program design. For example, if identification of which customers have electric resistance heating is available, then a targeted, direct mail marketing campaign could be more expensive.
- **Assessment of the contractor network,** including contractor awareness of ductless heat pumps and their ability and willingness to promote and install the technology.

## **EM&V**

EM&V costs are typically slightly higher for pilot efforts than for typical energy efficiency programs since the evaluation process largely includes similar level of effort as a typical evaluation, while a pilot program is almost by definition, a more limited program effort designed to better understand the market and market actors related to the energy efficient technology of interest. The costs for developing an evaluation plan to evaluate the pilot is approximately \$6,000. Costs to implement the plan will depend on the scope, but will be limited to 10-15% of the program costs. The EM&V contractor recommends that the pilot operate for at least two years before a final determination is made with regard to expansion of the program.

## **Budget to Develop Pilot**

The cost for implementing contractors to conduct additional marketing assessment is estimated to be approximately \$50,000, the EM&V cost is projected to be \$6,000 and estimated program planning preparation for submitting a finish pilot for approval is projected to cost \$4,000. Overall, EAI anticipates spending \$60,000 to provide a thorough assessment of future ductless heat pump pilot and/or program offerings.

EAI can use the 2012 planning and design budgets across the residential and small business programs to fund this effort. No additional funding is projected to be required to continue this effort.

## **Next Steps**

Market assessment – customer & trade allies

Conduct preliminary benefit-cost analysis

Develop program plan

Develop EM&V plan

EAI anticipates that additional information can be provided by the middle September 2012.



### 7.3 Appendix D: Sample Information Provided to Consumers to Promote EE

#### INDEX

Figure / Image / Reference Number	Sample Information	Retail Market / EE Program
Figure 1	Energy Efficiency Programs: Main Page	All Entergy EE Programs / All Markets
Figure 2	Non-Residential Energy Efficiency Website	C&I, Small Business, and Agricultural Markets and programs
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Figure 3-B	Small Business Website Bottom Section	Small Business
Figure 4	Small Business Fact Sheet	Small Business
Figure 5-A	CoolSaver Business Website Top	Small Business
Figure 5-B	CoolSaver Website: Bottom	Small Business
Figure 6	CoolSaver Business Fact Sheet	Small Business
Figure 7-A	Agricultural Irrigation Load Control Website Top Section	Agricultural Market / Irrigation Wells
Figure 7-B	Agricultural Irrigation Load Control Bottom Section	Agricultural Market / Irrigation Wells
Figure 8-A	C&I Custom Program Website Top Section	Large Commercial and Industrial Market / C&I Custom Projects
Figure 8-B	C&I Custom Program Website Bottom Section	Large Commercial and Industrial Market / C&I Custom Projects
Figure 9	C&I Trade Ally List	Large Commercial and Industrial Market / C&I Custom Projects
Figure 10-A	C&I Website Fact Sheet Page 1	Large Commercial and Industrial Market / C&I Custom Projects
Figure 10-B	C&I Website Fact Sheet Page 2	Large Commercial and Industrial Market / C&I Custom Projects
Figure 11-A	C&I Prescriptive Website Top Section	Large Commercial and Industrial Market / C&I Custom Projects
Figure 11-B	C&I Prescriptive Website Bottom Section	Large Commercial and Industrial Market / C&I Custom Projects
Figure 12-A	C&I Prescriptive Fact Sheet Page 1	Large Commercial and Industrial Market / C&I Custom Projects
Figure 12-B	C&I Prescriptive Fact Sheet Page 2	Large Commercial and Industrial Market / C&I Custom Projects
Figure 13-A	C&I Demand Response Website Top Section	Large Commercial and Industrial Market / C&I Custom Projects
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Presentation 1	Energy Efficiency Presentation Centerpoint Energy's Industrial Conference Little Rock, Arkansas December 8 2011	Municipalities / School Districts / Higher Education Large Commercial and Industrial Market / Small Business
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Figure 35	AILC Program Acceptance Letter	Agricultural Market / Irrigation Wells
Figure 36	AILC Program Opt Out Letter	Agricultural Market / Irrigation Wells
Presentation 2	Energy Efficiency- Entergy Arkansas Industrial Conference October 6 2011	Municipalities / School Districts / Higher Education Large Commercial and Industrial Market / Small Business
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Figure 40 A-F	CFL Retailer Transitional Plan	Residential Customers



Figure 1: Energy Efficiency Website Main Page

**Kansas, Inc.** | Residential Customers | Business Customers

Save Money | Our Community | Economic Development | About Us | Printable Page

My Business > Save Money on Your Bill > Energy Efficiency Programs

**on Your Bill**

Energy Check-Up

**Efficiency Programs**


Energy Library

STAR - Small Business

STAR - Commercial

Efficient of Energy - Best Practices

Efficient of Energy - Assessment Centers




**Commercial and Industrial Programs**

- Small Business Energy Solutions Program
- CoolSaver® Small Commercial Program
- Agricultural Irrigation Pump Load Control Service
- Large Commercial & Industrial Custom Program
- Large Commercial & Industrial Energy Prescriptive Program
- Large Commercial & Industrial Demand Response Program

**Cities, Counties and Schools**

- CitySmart Program



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Figure 2: C&I Website Main Page

- Business Main Page
- Save Money on Your Bill
  - Business Energy Check-Up
  - Energy Efficiency Programs
  - Commercial Energy Library
  - ENERGY STAR - Small Business
  - ENERGY STAR - Commercial
  - US Department of Energy - Industrial Best Practices
  - US Department of Energy - Industrial Assessment Centers

## Small Business Program

Cash incentives to help you save money on your energy bill and increase the comfort of your business.

Entergy Arkansas, Small Business Program can Provide the Support and Incentives You Need to Solve These Problems:

- High energy bills.
- Inefficient or poor interior / exterior lighting quality.
- Solar heat gain through your east and west windows.
- Uncomfortable rooms.
- Drafts.

**What are the Benefits?**

- Financial incentives.
- Reduced energy costs.
- Technical support.
- A network of trained contractors in your area - [Click here for a list of participating contractors.](#)

[See typical savings and incentives here.](#)

**Who is Eligible?**

Small Business customers (renters or owners) that:

- Are current Entergy Arkansas, Inc., customers.
- Have a peak demand of less than 100 kW.

**Eligible Measures:**

- Interior / exterior lighting retrofits.
- Interior / exterior lighting controls.
- Window film.
- Refrigeration.
- Kitchen and plumbing upgrades.
- Ceiling insulation (converted residences only).
- Duct sealing (converted residences only).
- Need info on HVAC systems? [Click Here.](#)

**Ready to Get Started?**

Contact the Energy Efficiency Solutions Center at (877) 212-2420 or Email Us.

[SmallBusinessEAI@CLEARresult.com](mailto:SmallBusinessEAI@CLEARresult.com)

Interested in becoming a participating contractor? Email us or call 501-265-0249 for more details.

### Typical Small Office Project

This example illustrates a possible scenario that might exist at a small office building. Simulated existing conditions and sample proposed retrofits are listed with a summary of energy and cost savings below. The data given below is not necessarily indicative of what you may see at your site, but can be reviewed to understand how the program will operate and the potential value of the "Small Business" program.

Existing Interior Lighting	Retrofit Interior Lighting
(32) 2'x4', 4 lamp T12 with magnetic ballasts	(32) 2'x4', 2-lamp T8 with reduced light output electronic ballasts
(16) 60 watt incandescent downlights	(16) 23 watt compact fluorescent downlights
(16) 2'x2', 2 lamp T12 with magnetic ballasts	(16) 2'x2', 2 lamp T8 with reduced light output electronic ballasts
Existing Exterior Lighting	Retrofit Exterior Lighting
(9) 150 watt incandescent fixtures	(9) 42 watt compact fluorescent fixtures
(1) 150 watt high pressure sodium wall pack	(1) 42 watt compact fluorescent wall pack

The total annual savings would be approximately 16,100 kWh. A typical job cost would be about \$3,500 and the estimated incentive would be \$2,600. The annual utility cost savings would be approximately \$1,280. If the business was to make these upgrades, the net cost to the customer would be \$900 with a simple payback around 9 months.

Figure 3-A: Small Business Web Page Top

## Typical Church Project

This example illustrates a possible scenario that might exist at a small church building. Simulated existing conditions and sample proposed retrofits are listed with a summary of energy and cost savings below. The data given below is not necessarily indicative of what you may see at your site, but can be reviewed to understand how the program will operate and the potential value of the "Small Business" program.

Existing Interior Lighting	Retrofit Interior Lighting
(49) 2'x4', 2 lamp T12 with magnetic ballasts	(49) 2'x4', 2 lamp T8 with reduced light output electronic ballasts
(26) 2'x4', 4 lamp T12 with magnetic ballasts	(26) 2'x4', 4 lamp T8 with reduced light output electronic ballasts
(16) 400 watt metal halide gym lights	(16) 2'x4', 6 lamp T8 with high light output electronic ballasts
(3) 8', 2 lamp T12 with magnetic ballasts	(3) 4', 4 lamp T8 with reduced light output electronic ballasts
(6) incandescent exit signs	(6) LED exit signs
(50) 60 watt incandescent downlights	(50) 13 watt compact fluorescent downlights
Existing Exterior Lighting	Retrofit Exterior Lighting
(25) 60 watt incandescent wall packs	(25) 13 watt compact fluorescent downlights

The total annual savings would be approximately 18,590 kWh. A typical job cost would be about \$6,600 and the estimated incentive would be \$3,900. The annual utility cost savings would be approximately \$1,480. If the business was to make these upgrades, the net cost to the customer would be \$2,700 with a simple payback around 21 months.

[Click here](#) to return to top of page.



Figure 3-B: Small Business Webpage Bottom

## 2011-2013 Small Business Program Eligible Measures

Measure Type	Measure Description
Lighting Retrofit	Lighting retrofit projects replace inefficient lighting systems with more efficient lighting systems. A variety of high efficiency fixtures, ballasts, and lamps produce equivalent light levels as previous technologies while consuming less energy. For instance, T12 fluorescent lamps and magnetic ballasts can be replaced with more efficient lighting systems such as T8 fluorescent lamps with electronic ballasts. Metal halides may be replaced with systems such as T5 fluorescent lamps with electronic ballasts or compact fluorescents. There are a variety of lamp and ballast combinations that are eligible for this Program depending on the current technology installed at a facility.
Lighting Controls	Automatic lighting controls save energy by turning off or dimming lights when they are not necessary. Many different varieties of sensors are available including passive infrared (PIR), dual-technology, integral occupancy sensors, photocells, which can be coupled with a variety of control strategies including day lighting controls, occupancy controls timer controls, and time clocks. For certain conditions, light reduction and automatic controls are mandatory for new construction and affected retrofit projects.
Exterior Lighting	Energy saving opportunities exist for all major exterior lighting applications including parking lots, streets and roadways, and other building mounted lighting. Energy saving opportunities applies to both improved lighting performance and enhanced control strategies. For example, retrofitting less efficient HID technologies with LED lighting and occupancy-based technology are good candidates for exterior applications.
Window Film	Specialized window film can help block solar heat gain in a facility and reduce cooling loads. For this Program, window film may be applied to the inside of glazing on the east and west windows of commercial buildings less than 15,000 gross square feet (any direction except 45 degrees of true north). Windows must not be shaded with existing awnings or shading devices, and window film must be installed in space conditioned by refrigerated air conditioning to qualify in the Program.
Refrigeration	There are a number of refrigeration measures that are eligible for upgrades or replacement in EAI Programs: <ul style="list-style-type: none"> <li>• Night covers on refrigeration cases</li> <li>• Evaporator fans</li> </ul>
Kitchen Upgrades	There are a number of kitchen measures that are eligible for upgrades or replacement in EAI Programs: <ul style="list-style-type: none"> <li>• Pre-rinse spray valves</li> <li>• Energy efficient dishwasher</li> <li>• High efficiency electric combination ovens</li> <li>• High efficiency fryers</li> <li>• ENERGY STAR® insulated holding cabinet</li> <li>• ENERGY STAR refrigerator</li> <li>• ENERGY STAR freezer</li> <li>• ENERGY STAR convection oven</li> <li>• ENERGY STAR steam cookers</li> </ul>
Ceiling Insulation (Converted Residences Only)	Existing businesses with insufficient levels of insulation have the opportunity to increase the insulation R-value to R-30. Insulation savings and incentive amounts are based on a per square foot of treated ceiling area.
Duct Sealing (Converted Residences Only)	Duct sealing will seal leaks that exist in supply and return ducts of existing homes. Duct pressurization or a blower door test is required before and after the measure installation. Only pre-approved sealing materials will be allowed by the Program.

Questions? Contact the Energy Efficiency Solutions Center at (877) 212-2420 or visit [www.energysarkansas.com/smallbusiness](http://www.energysarkansas.com/smallbusiness).



Figure 4: Small Business Fact Sheet





Entergy Arkansas, Inc.

Account Login | News Room | Careers | FAQ | Sitemap | Contact Us



Residential Customers

Business Customers

Search...

myAccount | Save Money | Our Community | Economic Development | About Us | Entergy.com

Arkansas Main Page > Business Main Page > Save Money on Your Bill > Energy Efficiency Programs

Printable Page

Business Main Page

Save Money on Your Bill

• Business Energy Check-Up

• Energy Efficiency Programs

• Commercial Energy Library

• ENERGY STAR - Small Business

• ENERGY STAR - Commercial

• US Department of Energy - Industrial Best Practices

• US Department of Energy - Industrial Assessment Centers

## CoolSaver® Small Commercial Program

The CoolSaver® Program for small commercial customers will help you improve the efficiency of your air conditioner or heat pump through a high-efficiency A/C tune-up. Additionally, small commercial customers can receive cash incentives in the form of instant savings coupons toward the replacement of A/C and heat pump systems with high efficiency Energy Star® units.

### What are the Benefits?

- Instant savings coupons toward the cost of an A/C tune-up or system replacement.
- A CoolSaver® tune-up performed with precision digital instruments will document the before-and-after condition of your HVAC system to verify the increase in your system's efficiency.
- Reduced cooling costs.
- Extending the life of your equipment.
- Better humidity control.

Entergy customers that participated in the CoolSaver Program in 2011 have averaged a 25% increase in the cooling capacity of their air conditioner or heat pump, and saved an average of \$64 a year per unit on their Entergy bill.

### Who is Eligible?

#### CoolSaver® A/C Tune-Up

- All Entergy Arkansas, Inc., small commercial customers with a peak demand of less than 100kW and a central air conditioner up to 25 tons.
- Systems at least one year old. Systems that have been incentivized through the CoolSaver® Program in the past five years are not eligible to receive incentives.

#### CoolSaver® HVAC Replacement

- Small commercial customers only.
- Replacement units up to 65,000 BTUs.

### How Does the Program Work?

#### CoolSaver® A/C Tune-Up (Small Commercial)

Your participating contractor will conduct an evaluation using precision digital tools to identify energy-saving improvements and determine if a high-performance tune-up is necessary. The contractor will thoroughly clean condenser coils and, if necessary, clean evaporator coils and blowers as well as adjust refrigerant charge to manufacturer's specification. Once the tune-up is complete your contractor will subtract the coupon amount from the total invoice.

Measure Type	Incentive Level	Measure Description
CoolSaver®	\$75 paid to contractor for completed tune-up.	Program-required test-in and test-out data is measured and collected by a qualified technician. Pending customer approval, typical improvement measures include: airflow correction, cleaning of indoor blower, evaporator coils, condenser coils, and correction of refrigerant charge using program-required tools and procedures.
High Performance A/C Tune Up	The customer may receive up to \$75 for services performed: <ul style="list-style-type: none"> <li>• \$25 toward the cost of cleaning the evaporator coil.</li> <li>• \$25 toward the cost of cleaning the blower motor.</li> <li>• \$25 toward the cost of adjusting the refrigerant charge to manufacturer specification.</li> </ul>	

To learn more, [click here](#) to download the Program Summary.

#### CoolSaver® HVAC Replacement (Small Commercial Only)

You can receive instant savings coupons for \$300 for replacing old air conditioner or heat pump units with new Energy Star® qualified units up to five tons (65,000 BTU). A \$300 bonus rebate is available to customers who choose to have their contractor commission the installation.

Figure 5-A: CoolSaver Business Website Top

Measure Type	Incentive Level	Measure Description
Central Air Conditioner Replacement (small commercial customers only)	<ul style="list-style-type: none"> <li>\$300 incentive for customer.</li> <li>Bonus \$300 incentive to the customer for contractor commissioning of the installation; Bonus \$75 to the contractor for the contractor commissioning of the installation.</li> </ul>	Replacement of a central air conditioning system (evaporator and condenser units) with an Energy Star® qualified unit. Commissioning bonus verifies that a quality installation with verification test was performed to increase the efficiency and performance of the unit.
Heat Pump Replacement (small commercial customers only)	<ul style="list-style-type: none"> <li>\$300 incentive for customer.</li> <li>Bonus \$300 incentive to the customer for contractor commissioning of the installation; Bonus \$75 to the contractor for the contractor commissioning of the installation.</li> </ul>	Replacement of a heat pump system (fan coil and condenser units) with an Energy Star® qualified unit. Commissioning bonus verifies that a quality installation with verification test was performed to increase the efficiency and performance of the unit.
High Performance A/C Tune-Up	<p>\$75 paid to contractor for completed tune-up.</p> <p>The customer may receive up to \$75 for services performed:</p> <ul style="list-style-type: none"> <li>\$25 toward the cost of cleaning the evaporator coil.</li> <li>\$25 toward the cost of cleaning the blower motor.</li> <li>\$25 toward the cost of adjusting the refrigerant charge to manufacturer specification.</li> </ul>	Program required test-in and test-out data is measured and collected by a qualified technician. Pending customer approval, typical measures include: airflow correction, cleaning of indoor blower, evaporator coils, condenser coils, and correction of refrigerant charge using program required tools and procedures.

**Ready to Get Started?**

Contact the Energy Efficiency Solutions Center at (877) 212-2420 or Email Us.  
[CoolSaverEAI@CLEAResult.com](mailto:CoolSaverEAI@CLEAResult.com)

Interested in becoming a participating contractor? [Click here](#) or call 501-265-0249 for more details.



Figure 5-B: CoolSaver Website Bottom



## FACT SHEET: 2011-2013 Small Commercial CoolSaver® Program

The Small Commercial CoolSaver Program is designed to overcome market barriers that prevent customers from receiving high performance A/C and Heat Pump System replacements or tune-ups. Energy savings are captured through identifying A/C and Heat Pump System inefficiencies during the tune-up and correcting these system inefficiencies. CoolSaver provides incentives, training on best practices, and discounts on high quality tools for contractors to conduct high performance system tune-ups as well as ensure replacement systems run at optimal efficiency.

### What are the Benefits?

- Instant savings coupons toward the cost of an A/C tune-up.
- A CoolSaver tune-up performed with precision digital instruments will document the before-and-after condition of your HVAC system to verify the increase in your system's efficiency.
- Reduced cooling costs.
- Extending the life of your equipment.
- Better humidity control.

### Who is Eligible?

All Entergy Arkansas, Inc., small commercial customers with a peak demand of less than 100kW and a central air conditioner up to 25 tons. (Systems that have been incentivized through the CoolSaver Program in the past five years are not eligible to receive these incentives.)

### How to Participate:

Please follow the steps below to participate:

1. Contact the Energy Efficiency Solutions Center at (877) 212-2420 or [coolsavereai@clearesult.com](mailto:coolsavereai@clearesult.com).
2. Your participating contractor will conduct an evaluation using precision digital tools to identify energy-saving improvement opportunities and determine if a high performance tune-up is necessary.
3. Contractor will thoroughly clean condenser coils and, if necessary, clean evaporator coils and blowers as well as adjust refrigerant charge to manufacturer's specification.
4. Once the tune-up is completed, your contractor will subtract the coupon amount from the total invoice.

### Program Incentives

CoolSaver Incentive Rates		
Measure type	Incentive Level	Measure Description
High Performance A/C Tune Up	<ul style="list-style-type: none"> <li>• \$75 paid to contractor for completed tune-up</li> <li><b><i>The customer may receive up to \$75 for services performed:</i></b> <ul style="list-style-type: none"> <li>• \$25 toward cost of cleaning evaporator coil</li> <li>• \$25 toward cost of cleaning blower</li> <li>• \$25 toward cost of adjusting refrigerant charge to manufacturer specification</li> </ul> </li> </ul>	Program-required Test-In and Test-out data is measured and collected by a Qualified Technician. Pending customer approval, typical improvement measures include: airflow correction, cleaning of indoor blower, evaporator coils, condenser coils, and correction of refrigerant charge using Program-required tools and procedures.

Questions? Contact the Energy Efficiency Solutions Center at (877) 212-2420 or visit [www.energyarkansas.com/coolsaversmallbusiness](http://www.energyarkansas.com/coolsaversmallbusiness).

Figure 6: CoolSaver Business Fact Sheet

## Agricultural Irrigation Pump Load Control Service

Just in time for summer - a way to reduce your electricity bills for irrigation.

The greatest demand for electricity occurs in the summer months when customers are using air conditioning to cool their homes and businesses. This peak demand coincides with the time farmers are pumping water into their fields. Reducing peak demand is important to both Entergy Arkansas, Inc. and our customers. Last year we introduced an arrangement that both eases the peak demand and helps the farmers. The Agricultural Irrigation Load Control Program reduced peak electrical load during hot summer weekday afternoons by partnering with agricultural water pumping customers to reduce the demand on the electrical system by allowing the company to periodically interrupt service. In exchange, participating farmers got a break on the price of their power.

"We had 22 wells in the program. The savings were tremendous. We're probably going to add more wells in 2011." Larry Brown, Brinkley

Participants will receive a credit of \$4.16 per kilowatt, with savings up to 30% off your monthly base bill before adjustments.

All you do is agree to allow us to interrupt electric service to the pump for three hours each day, Monday through Friday, between the hours of noon and 9:00 p.m., excluding holidays.

You may sign up for all your pumps or just one. The program will begin interruptions on the first week day in June of each year, and last through the end of August. The credits will appear on electric bills you receive associated with the interruption months.

Here's how it works:

At our expense, we will install a special meter that can be activated wirelessly and remotely. Each weekday during the program period, we will interrupt the power to the meter for three hours. In return for your participation, we will apply the credit to the bill for that service month and credit your bill for up to 30% of the base electricity charge bill before adjustments for that pump.

If you would like to participate in this program, please call or e-mail us as soon as possible: Program will close for enrollment before the interruption months to allow time for equipment installation.

PHONE: 1-800-324-4709  
EMAIL: [arcscfarmers@entergy.com](mailto:arcscfarmers@entergy.com)

### FREQUENTLY ASKED QUESTIONS:

**How will the credit be applied?**

The Agricultural Load Control Program provides a \$4.16 credit per kilowatt of electricity used for each pump. The total credit could be as much as 30 percent of the base bill amount before adjustments. In the past, accounts using this billing credit typically saved between 10-15 percent of their bill over three months.

**Why is Entergy Arkansas continuing this program?**

We are looking to find ways to save customers money and reduce the total "peak load," the amount of electricity required to serve all our customers during the weekday periods of summer afternoons. As seen in 2010, reducing peak load benefits all of our customers, and Entergy Arkansas is offering it to more farmers this year. This program is approved by the Arkansas Public Service Commission.

**Have participating farmers been satisfied with your program?**

Yes. We polled 75 farmers at the end of the 2010 season. More than 75 percent expressed complete satisfaction. More than 90 percent plan to stay on the program.

**What happens if I choose to terminate the program before the three months are over?**

You may end your participation in writing at any time, but if you do, your credits will end and all prior billings for which you received a credit will be recalculated and re-billed at your regular rate.

**What if something goes wrong with the meter or the switching controls?**

Installation and maintenance is Entergy Arkansas' responsibility. During business hours, call our Irrigation Desk at 1-800-324-4709. During nights, weekends and holidays, call 1-800 9OUTAGE (1-800-968-8243).

**Will my pumps come on automatically after a daily interruption?**

Many pumps will. The switch is a disconnect device and your pump will experience a total outage during daily interruptions. You will need to check with your pump service provider to determine if your motor control can be set to automatically turn the pump on when the disconnect device restores service.

**What if I learn my pumps cannot be turned off as frequently as described after I have joined the program?**

We understand sometimes the best intentions go awry when we least expect. This is why the Agricultural Load Control Program allows customers to terminate participation in writing anytime during the program period. The pump account will be re-billed for any credit that may be received during program and no other penalty fees will be assessed.

**Where can I see the terms of the program?**

[CLICK HERE](#) to see a copy of the tariff as filed with the Arkansas Public Service Commission.

**What do I do about getting my pumps turned back on for the irrigation season?**

You will still need to call the Irrigation Desk, as you have in the past, to have service turned on at the pump. Phone: 1-800-324-4709.

PHONE: 1-800-324-4709

EMAIL: [arcscfarmers@entergy.com](mailto:arcscfarmers@entergy.com)



Figure 7-B: Agricultural Irrigation Load Control Bottom

# Commercial and Industrial Custom Program

Cash incentives to help you save money on your energy bills and increase the comfort of your facilities.

Entergy Arkansas, Inc's Commercial and Industrial Custom Program can Provide the Support and Incentives You Need to Solve These Problems:

- High energy bills.
- Poor lighting.
- Limited control of lighting and HVAC.
- Inadequate HVAC / chiller performance.
- Solar heat gain from your facilities' windows.
- Air compressors with significant air leaks.
- Excessive or inefficient energy use in an industrial process.

What are the Benefits?

- Earn cash incentives for completing qualifying energy efficiency projects.
- Improve your cash flow with significant, long-term electricity savings.
- Improve your "green" public image.
- Develop a tailored energy savings plan for your building(s).
- Build energy efficiencies and savings into your work processes.
- Prioritize a wide range of energy conservation measures.

[See typical savings and incentives here.](#)

Who is Eligible?

Commercial and Industrial customers that:

- Are current Entergy Arkansas, customers.
- Have a peak demand greater than 100 kW.

Eligible Measures:

- Interior / exterior lighting retrofits.
- Interior / exterior lighting controls.
- HVAC / chiller replacement.
- HVAC controls.
- Window film.
- VFD motor drives.
- Data center upgrades.
- Commercial refrigeration.
- Commercial kitchen and plumbing upgrades.
- Compressed air.
- Industrial process improvements.

[Click here to view Trade Ally list](#)

[Click here to download the complete Program Manual.](#)

Ready to Get Started?

Contact the Energy Efficiency Solutions Center at  
(877) 212-2420 or Email Us.  
[LargeCommercialEAI@cleareresult.com](mailto:LargeCommercialEAI@cleareresult.com).

## Typical Industrial Facility Project

This example illustrates a possible scenario that might exist at a reasonably large industrial facility. Simulated existing conditions and sample proposed retrofits are listed with example calculations of energy savings, incentives, and simple payback. The data given below is not necessarily indicative of what you may see at your site, but can be reviewed to understand how the program will operate and the potential value of a "Custom" project at your facility.

---

Figure 8-A: C&I Custom Website Top Section

Existing Conditions	Proposed Retrofits	Annual Energy Savings (kWh)	Assumed Blended Electrical Rate (\$/kWh)	Annual Energy Savings (\$)	Energy Base Incentive Rate	Energy Bonus Incentive Rate	Total Incentive Amount (\$)	Est. Project Cost (\$)	Est. Simple Payback (Yrs.)
(3) 200 HP air compressors with inefficient throttling control, minimal air storage, and independent staging controls for each compressor based on system pressure	Replace the oldest compressor with a new 250 HP variable speed air compressor, add system air storage, and provide a system controller to stage/trim the air compressors based on system pressure	345,781	\$0.07	\$22,476	\$0.15	\$0.04	\$65,698	\$90,838	1.1
(3) 50 HP constant speed motors with on/off control that could be controlled at variable speed while maintaining process integrity	Provide (3) variable speed controllers for the motors and verify induction duty capability or place low-speed limitations according to motor manufacturer's specifications	112,500	\$0.07	\$7,313	\$0.15	\$0.04	\$21,375	\$30,780	1.3
(300) 400 watt metal halide fixtures	Replace metal halides with (300) 4-lamp T5HO fixtures and add occupancy controls in appropriate areas	278,154	\$0.07	\$18,080	\$0.07	\$0.04	\$30,597	\$68,525	2.2
(75) 2'x4', 4 lamp T8 with electronic ballasts with no occupancy controls	(75) 2'x4', 2 lamp T8 fixtures with premium efficiency ballasts and add occupancy controls in some areas	278,154	\$0.07	\$18,080	\$0.07	\$0.04	\$30,597	\$69,525	2.2
<b>TOTALS</b>		<b>755,713</b>		<b>\$45,121</b>			<b>\$119,751</b>	<b>\$196,936</b>	<b>1.57</b>

The total annual savings would be approximately 755,713 kWh, resulting in an estimated \$49,121 in annual utility savings. The estimated cost of this project (using the above simulation) is \$196,936, with an estimated incentive of \$119,791. If the facility was to make these upgrades, the net project cost to the customer (after incentive) would be \$77,145, yielding an approximate 1.6 year payback.

[Click here](#) to return to top of page.



Figure 8-B: C&I Custom Website Bottom Section

SS SOLUTIONS TRADE ALLY LIST

ADDRESS	CONTACT	PHONE	EMAIL	SERVICES					
				Light Controls and Retrofit	HVAC/Chiller Controls and Retrofit	LED and Motor Retrofit	Window Film Installation	East Coast Upgrades	Revised Program or Quarterly Upgrades
1421 E 30th St, Little Rock, AR 72202	Arce Whislerby	501-372-3720	<a href="mailto:arce.whislerby@unetl.com">arce.whislerby@unetl.com</a>	X					
3604 Nona St, North Little Rock, AR 72218	Andy Fowler	501-796-2745	<a href="mailto:afowler@compagnies.com">afowler@compagnies.com</a>			K			K
580 Freeman Rd, Fort Springs, AR 72435	Jenny Singleton	501-797-5137	<a href="mailto:jessywillbur78@yahoo.com">jessywillbur78@yahoo.com</a>	X	K				
615 Strong Hwy, El Dorado, AR 71720	Lucie Hopkins	870 852 8111	<a href="mailto:lhopkins@cedel.com">lhopkins@cedel.com</a>	X					
7675 E. Dale Lane, Scottsdale, AZ 85256	Tom Chamberlin	480-902-2220	<a href="mailto:tom@chamberlin.com">tom@chamberlin.com</a>	X					
PO Box 9118 Fayetteville, AZ 72104	Amanda Rice-Tson	479-605-1031	<a href="mailto:arice-tson@xerene.com">arice-tson@xerene.com</a>	X	K	K			K
8200 Industry Drive, Little Rock, AR 72221	Gary E. Ward	501-985-5332	<a href="mailto:gary@ekbusiness.com">gary@ekbusiness.com</a>		K				
119 Buena Vista Rd, Hick Springs, AZ 72913	James Gilliam	501-975-1341	<a href="mailto:jgilliam@electric.com">jgilliam@electric.com</a>	X		K	K	X	K
0412 Hwy 107, Greenwood, AZ 72237	Jimmy Kennedy	501-834-2655	<a href="mailto:jkenedy@kened.com">jkenedy@kened.com</a>			K		X	
914 Barber, Little Rock, AR 72202	John Clington	501-374-3030	<a href="mailto:jclington@evr-solutions.com">jclington@evr-solutions.com</a>	X					
1200 Barton Rd, Suite 322, Little Rock, AR 72205	Ber Gotha	501-311-5919	<a href="mailto:ber@unitedlight.com">ber@unitedlight.com</a>	X					
700 W. Research Center Blvd, Suite 1010, Fayetteville, AR 72703	Jerry McCormick	479-521-1177	<a href="mailto:jerry@yestech.com">jerry@yestech.com</a>	X					
11003 Regency Parkway, Conway, NC 27518	Melanie Hayes	501-932-7720	<a href="mailto:mhayes@sonoco.com">mhayes@sonoco.com</a>	X	K	K	K	X	K
1700 Fortner, Framers, MA 02923	Staci Taylor	501-932-7326	<a href="mailto:stacitaylor@narda.com">stacitaylor@narda.com</a>	X					
1025 E. 145th St., Little Rock, AR 72216	Lee Maloy's	501-390-5885	<a href="mailto:lmaloy@unetl.com">lmaloy@unetl.com</a>						K
3138 W.L. 22, Fowler, AR 72437	Warren Crabtree	870 852 6218	<a href="mailto:wcrabtree@sonoco.com">wcrabtree@sonoco.com</a>	X					
100 Gamble Rd, Little Rock, AR 72211	Matt Bell	501-221-6686	<a href="mailto:mattbell@unetl.com">mattbell@unetl.com</a>	X	K	K	K	X	K
303 N. Rose St, Suite 343, Kalamazoo, MI 49001	Bradley Hinkley	866-457-1711	<a href="mailto:brad@hinkley.com">brad@hinkley.com</a>	X					
188 Cedar St., Fort Springs, Arkansas Park, AR 72913	Stacy Taylor	512-427-6426	<a href="mailto:stacitaylor@unetl.com">stacitaylor@unetl.com</a>	X					

Figure 9: C&I Trade Ally List





## FACT SHEET: 2011-2013 Commercial & Industrial (C&I) Custom Program

The Commercial & Industrial (C&I) Custom Program is offered to commercial and industrial customers of Entergy Arkansas, Inc. The Program helps facility supervisors like you operate your buildings more efficiently by understanding the technical and financial benefits of investing in energy-efficiency upgrades and developing a plan to make energy-efficiency improvements. Program participants will receive technical and energy-related assistance to help you make decisions about cost-effective investments in your facility's energy-efficiency.

### The C&I Custom Program will help you:

- Improve the efficiency and performance of your facility.
- Achieve significant, long-term energy savings.
- Earn incentives to help offset the cost of energy-efficiency upgrades.

### Who is Eligible?

Commercial and Industrial customers with:

- A valid Entergy Arkansas account number.
- A connected load of 100 kW or greater.

### What are the Benefits?

- Financial incentives.
- Reduced energy costs.
- Access to participating Trade Ally network.
- Walk through energy assessments.

### How to Participate:

Please follow the steps below to participate:

1. Contact a participating contractor. A complete list can be found at [www.entergyarkansas.com/largecustom](http://www.entergyarkansas.com/largecustom) or by calling the Energy Efficiency Solutions Center at (877) 212-2420.
2. Your Program Representative and Participating Contractor will help identify efficiency upgrade projects specific to your needs during a walk-through energy assessment.
3. Submit Project Application form.
4. Participating Contractor will install energy-saving upgrades identified and agreed upon during the walk-through assessment.
5. Program Representative will complete post-installation inspection as required.
6. Work with Program Representative to finalize program documentation and apply for incentives.
7. Receive incentive check!

### Program Incentives

New construction and retrofit projects are eligible for tiered incentives, based on the number of measures installed.

C&I Custom Incentive Rates (per kWh)						
Measure Type*	1	2	3	4	5	6+
Prescriptive Measures	\$0.07	\$0.08	\$0.09	\$0.11	\$0.13	\$0.15
All Other Projects	\$0.15	\$0.16	\$0.17	\$0.19	\$0.21	\$0.23

*\*Note that no project will be provided incentives that exceed 75% of the sum of the incremental measure costs.*

Questions? Contact the Energy Efficiency Solutions Center at (877) 212-2420 or visit [www.entergyarkansas.com/largecustom](http://www.entergyarkansas.com/largecustom).

## 2011-2013 C&I Custom Program Eligible Measures

Measure Type	Measure Description
Improved Building Design (New Construction Only)	Incentives are given to buildings that are built above and beyond the required energy codes. These measures will be incentivized as a part of the individual measure type (lighting, lighting controls, HVAC, etc.) as listed below for the purposes of qualifying for tiered incentives, and are not separate measures from retrofits of similar technology. For instance, if a Participant is installing a lighting retrofit at one facility and is building a new facility with a qualifying lighting project, all of the lighting measures are considered one lighting measure for the purposes of calculating tiered incentives.
Lighting Retrofit	Lighting retrofit projects replace inefficient lighting systems with more efficient lighting systems. A variety of high efficiency fixtures, ballasts, and lamps produce equivalent light levels as previous technologies while consuming less energy. For instance, T12 fluorescent lamps and magnetic ballasts can be replaced with more efficient lighting systems such as T8 fluorescent lamps with electronic ballasts. Metal halides may be replaced with systems such as T5 fluorescent lamps with electronic ballasts or compact fluorescents. There are a variety of lamp and ballast combinations that are eligible for this Program depending on the current technology installed at a facility.
Lighting Controls	Automatic lighting controls save energy by turning off or dimming lights when they are not necessary. Many different varieties of sensors are available including passive infrared (PIR), dual-technology, integral occupancy sensors, photocells, which can be coupled with a variety of control strategies including day lighting controls, occupancy controls timer controls, and time clocks. For certain conditions, light reduction and automatic controls are mandatory for new construction and affected retrofit projects.
Exterior Lighting	Energy saving opportunities exist for all major exterior lighting applications including parking lots, streets and roadways, and other building mounted lighting. Energy saving opportunities applies to both improved lighting performance and enhanced control strategies. For example, retrofitting less efficient HID technologies with LED lighting and occupancy-based technology are good candidates for exterior applications.
Window Film	Specialized window film can help block solar heat gain in a facility and reduce cooling loads. For this Program, window film is only eligible for incentives when applied to the inside of glazing on the east and west windows of commercial buildings. Windows must not be shaded with existing awnings or shading devices, and window film must be installed in space conditioned by refrigerated air conditioning to qualify in the Program.
HVAC Replacement	For existing buildings and New Construction, inefficient (non-ENERGY STAR) heat pumps and air conditioning units are eligible to be replaced with ENERGY STAR qualified units. Eligible units for replacement include small split system and single package air conditioners and heat pumps.
Chiller Replacement	For existing buildings and New Construction, inefficient (non-ENERGY STAR) heat pumps and air conditioning units are eligible to be replaced with ENERGY STAR qualified units. Eligible units for replacement include small split system and single package air conditioners and heat pumps.
HVAC Controls	HVAC controls are eligible in the EAI Programs when no other controls previously exist or where existing controls can be modified or improved to provide measurable energy savings. Controls can be installed on building HVAC systems or central plant equipment to help control common operating parameters such as temperature, humidity, chilled water temperature, etc. for more effective use of the HVAC system.
VFD Motor Drives	A Variable Frequency Drive controls the rotational speed of an electric motor by controlling the frequency of the electrical power supplied to the motor. VFD's allow for soft starts and can be optimized to better match system loads, reducing stress and improving the motor life. VFD's work well when used with systems that have motors that can operate at lower speeds. The installation of VFD's that show measurable energy savings are eligible under the Program.
Data Center Upgrades	Data center upgrades that qualify for EAI Programs include VFD retrofits, cooling upgrades, hot/cold aisle containment, installation of PC Power Management software, and server virtualization. Any combination of these measures will greatly increase the energy efficiency of data centers or server rooms.
Refrigeration	There are a number of refrigeration measures that are eligible for upgrades or replacement in EAI Programs: <ul style="list-style-type: none"> <li>• Evaporator fans upgrades to EC Motors</li> <li>• Anti-sweat heater controls</li> <li>• Refrigerated door gaskets</li> </ul>
Kitchen and Plumbing Upgrades	There are a number of kitchen measures that are eligible for upgrades or replacement in EAI Programs: <ul style="list-style-type: none"> <li>• Low flow pre-rinse spray valves</li> <li>• Low flow faucet aerators</li> <li>• Low flow shower heads</li> <li>• Energy efficient dishwasher</li> <li>• High efficiency electric combination ovens</li> <li>• High efficiency fryers</li> <li>• ENERGY STAR® steam cookers</li> </ul>
Compressed Air	Compressed air retrofits are ideal when there are significant air leaks; compressors run at less than full capacity, compressors are run in modulation mode, discharge pressure is greater than 110 psig, or when compressed air is used for tasks that do not require high pressure. Installation of new air compressor equipment and controls is eligible under this Program provided that the savings can be measured and verified.
Industrial Process Improvements	Process improvements in commercial and industrial facilities can provide electrical energy savings as well as increased production. Installation of new, cost-effective process equipment and modifications to sequences and controls in existing processes are both eligible measures for review and acceptance under the Program.



Figure 10-B: C&I Fact Sheet Page 2

Business Main Page

Save Money on Your Bill

- Business Energy Check-Up
- **Energy Efficiency Programs**
- Commercial Energy Library
- ENERGY STAR - Small Business
- ENERGY STAR - Commercial
- US Department of Energy - Industrial Best Practices
- US Department of Energy - Industrial Assessment Centers

## Commercial and Industrial Prescriptive Program

Cash incentives to help you save money on your energy bills and increase the comfort of your facilities.

Entergy Arkansas, Inc's Commercial and Industrial Prescriptive Program can Provide the Support and Incentives You Need to Solve These Problems:

- High energy bills.
- Inefficient or poor interior / exterior lighting quality.
- Lack of lighting control.
- Inefficient or poor HVAC / chiller performance.

What are the Benefits?

- Achieve significant, long-term electricity savings.
- Earn incentives for completing qualifying energy efficiency projects.
- A local network of participating contractors - [click here](#).

Who is Eligible?

Commercial and Industrial facilities that are current Entergy Arkansas, Inc. customers.

Eligible Measures:

- Improved building design (new construction only).
- Interior / exterior lighting retrofits.
- Interior / exterior lighting controls.
- HVAC / chiller replacement.
- Commercial refrigeration.
- Commercial kitchen and plumbing upgrades.

See typical savings and incentives [here](#).

[Click here to view Trade Ally list](#)

[Click here to download the complete Program Manual](#).

**Ready to Get Started?**

Contact the Energy Efficiency Solutions Center at (877) 212-2420 or Email Us.

[LargeCommercialEAI@clearresult.com](mailto:LargeCommercialEAI@clearresult.com)

Interested in becoming a Trade Ally? [Email us](#) or call 501-265-0249 for more details.

**Typical Commercial Facility Project**

This example illustrates a possible scenario that might exist at a reasonably large office building. Simulated existing conditions and sample proposed retrofits are listed with example calculations of energy savings, incentives, and simple payback. The data given below is not necessarily indicative of what you may see at your site, but can be reviewed to understand how the program will operate and the potential value of a "Prescriptive" project at your facility.

Figure 11-A: C&I Prescriptive Website Top Section

**Typical Commercial Facility Project**

This example illustrates a possible scenario that might exist at a reasonably large office building. Simulated existing conditions and sample proposed retrofits are listed with example calculations of energy savings, incentives, and simple payback. The data given below is not necessarily indicative of what you may see at your site, but can be reviewed to understand how the program will operate and the potential value of a "Prescriptive" project at your facility.

Existing Conditions	Proposed Retrofits	Annual Energy Savings (kWh)	Assume Blended Electrical Rate (\$/kWh)	Annual Energy Savings (\$)	Energy Base Incentive Rate	Energy Bonus Incentive Rate	Total Incentive Amount (\$)	Est. Project Cost (\$)	Est. Simple Payback (Yrs)
(850) 2x4, 4 lamp T8 with electronic ballasts with no occupancy controls	(850) 2x4, 2 lamp T8 fixtures with premium efficiency ballasts and add occupancy controls in some areas	164,934	\$0.08	\$13,195	\$0.09	\$0.00	\$14,844	\$63,036	3.7
(40) 60 watt incandescent bulbs	(40) 16 watt compact fluorescent bulbs and add occupancy sensors in some areas	4,927	\$0.08	\$394	\$0.09	\$0.00	\$443	\$1,600	2.9
(1) 200 ton air-cooled chiller that is 28 years old and exhibits reliability problems	Instead of buying a new minimum efficiency chiller, replace the 200 ton air-cooled chiller with a high efficiency chiller (project cost is based only on the incremental cost from a standard efficiency chiller)	30,895	\$0.08	\$2,472	\$0.09	\$0.00	\$2,781	\$14,700	4.8
	<b>TOTALS</b>	<b>200,755</b>		<b>\$16,000</b>			<b>\$18,068</b>	<b>\$79,336</b>	<b>3.81</b>

The total annual savings would be approximately 200,755 kWh, resulting in an estimated \$16,060 in annual utility savings. The estimated cost of this project (using the above simulation) is \$79,336, with an estimated incentive of \$18,068. If the facility was to make these upgrades, the net project cost to the customer (after incentive) would be \$61,268, yielding an approximate 3.8 year payback.

[Click here](#) to return to top of page.



Figure 11-B: C&I Prescriptive Website Bottom Section



## FACT SHEET: 2011-2013 Commercial & Industrial (C&I) Prescriptive Program

The Commercial and Industrial (C&I) Prescriptive Program is offered to non-residential customers in the Entergy Arkansas, Inc. territory. The program helps customers like you operate buildings more efficiently by helping you understand the technical and financial benefits of investing in energy efficiency and developing a plan to make energy efficiency improvements. Participants receive direct cash incentives for completing qualifying energy efficiency projects.

### The C&I Prescriptive Program will help you:

- Operate your facility more efficiently.
- Achieve significant, long-term energy savings.
- Earn incentives to help offset the cost of energy efficiency upgrades.

### Who is Eligible?

Commercial and Industrial customers with a valid Entergy Arkansas account number.

### What are the Benefits?

- Financial incentives.
- Reduced energy costs.
- Energy savings calculations assistance.

### How to Participate:

Please follow the steps below to participate:

1. Contact a participating contractor. A complete list can be found at [www.entergyarkansas.com/largeprescriptive](http://www.entergyarkansas.com/largeprescriptive) or by calling the Energy Efficiency Solutions Center at (877) 212-2420.
2. Your Program Representative and Participating Contractor will help identify efficiency upgrade projects specific to your needs during a walk-through energy assessment.
3. Submit Project Application form.
4. Participating Contractor will install energy-saving upgrades identified and agreed upon during the walk-through assessment.
5. Program Representative will complete post-installation inspection as required.
6. Work with Program Representative to finalize program documentation and apply for incentives.
7. Receive incentive check!

### Program Incentives

The incentive rates for this Program have been set to maximize the inclusion of cost-effective measures where commercial "deemed savings" exist. The incentives for eligible measures are listed below. These rates are set at levels intended to persist through 2013; and, these incentives may be adjusted at any time during the program year.

C&I Prescriptive Incentive Rates (per kWh)	
New Construction (including lighting and HVAC equipment)	\$0.09
All Prescriptive Retrofit Measures	\$0.09
<i>*Note that no project will be provided incentives that exceed 75% of the sum of the incremental measure costs.</i>	

Figure 12-A: C&I Prescriptive Fact Sheet Page 1

## 2011-2013 CGI Prescriptive Program Eligible Measures

Measure Type	Measure Description
<b>Improved Building Design (New Construction Only)</b>	Incentives are given to buildings that are built above and beyond the required energy codes. These measures will be incentivized as a part of the individual measure type (lighting, lighting controls, HVAC, etc.) as listed below for the purposes of qualifying for tiered incentives, and are not separate measures from retrofits of similar technology. For instance, if a Participant is installing a lighting retrofit at one facility and is building a new facility with a qualifying lighting project, all of the lighting measures are considered one lighting measure for the purposes of calculating tiered incentives.
<b>Lighting Retrofit</b>	Lighting retrofit projects replace inefficient lighting systems with more efficient lighting systems. A variety of high efficiency fixtures, ballasts, and lamps produce equivalent light levels as previous technologies while consuming less energy. For instance, T12 fluorescent lamps and magnetic ballasts can be replaced with more efficient lighting systems such as T8 fluorescent lamps with electronic ballasts. Metal halides may be replaced with systems such as T5 fluorescent lamps with electronic ballasts or compact fluorescents. There are a variety of lamp and ballast combinations that are eligible for this Program depending on the current technology installed at a facility.
<b>Lighting Controls</b>	Automatic lighting controls save energy by turning off or dimming lights when they are not necessary. Many different varieties of sensors are available including passive infrared (PIR), dual-technology, integral occupancy sensors, photocells, which can be coupled with a variety of control strategies including day lighting controls, occupancy controls timer controls, and time clocks. For certain conditions, light reduction and automatic controls are mandatory for new construction and affected retrofit projects.
<b>HVAC Replacement</b>	For existing buildings and New Construction, inefficient (non-ENERGY STAR) heat pumps and air conditioning units are eligible to be replaced with ENERGY STAR qualified units. Eligible units for replacement include small split system and single package air conditioners and heat pumps.
<b>Chiller Replacement</b>	For existing buildings and New Construction, inefficient (non-ENERGY STAR) heat pumps and air conditioning units are eligible to be replaced with ENERGY STAR qualified units. Eligible units for replacement include small split system and single package air conditioners and heat pumps.
<b>Refrigeration</b>	There are a number of refrigeration measures that are eligible for upgrades or replacement in EAI Programs: <ul style="list-style-type: none"> <li>• Evaporator fans upgrades to EC Motors</li> <li>• Anti-sweat heater controls</li> <li>• Refrigerated door gaskets</li> </ul>
<b>Kitchen and Plumbing Upgrades</b>	There are a number of kitchen measures that are eligible for upgrades or replacement in EAI Programs: <ul style="list-style-type: none"> <li>• Low flow pre-rinse spray valves</li> <li>• Low flow faucet aerators</li> <li>• Low flow shower heads</li> <li>• Energy efficient dishwasher</li> <li>• High efficiency electric combination ovens</li> <li>• High efficiency fryers</li> <li>• ENERGY STAR® steam cookers</li> </ul>

Questions? Contact the Energy Efficiency Solutions Center at (877) 212-2420 or visit [www.energyarkansas.com/largeprescriptive](http://www.energyarkansas.com/largeprescriptive).



Figure 12-B: C&I Prescriptive Fact Sheet Page 2



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## Large Commercial & Industrial Demand Response Program

### Entergy Arkansas, Inc. Demand Response Program for Large Commercial and Industrial Customers

#### Overview

The Large Commercial & Large Industrial Demand Response Program consists of programs that encourage a change in energy use from normal consumption patterns in response to changes in the price of energy over time. The Arkansas Public Service Commission (APSC) has recognized Entergy Arkansas, Inc.'s Optional Interruptible Service Rider (OISR), Large General Service Time-of-Use Rate Schedule (GST) and Large Power Service Time-of-Use Rate Schedule (PST) as Demand Response tools to help you review current usage patterns and determine if you have opportunities to change consumption patterns.

Under OISR if you have 100 kW or more of load that you are willing to interrupt at times of high electric demand, you may benefit by contracting a portion of that load to be taken under OISR. Should you fail to interrupt for any reason when an interruption is requested a penalty charge will be assessed.

PST rates may be beneficial if you are a high-load-factor customer and can make changes in your processes to utilize more demand and energy during off-peak periods.

A detailed rate analysis is required to determine if these rate schedules may be beneficial to you. It is important that your Entergy Account Service Manager work with you and the Entergy Arkansas<sup>®</sup> Rate Design and Administration group to develop such an analysis.

#### Who qualifies?

The Optional Interruptible Service Rider (OISR) is available to you if you are willing to interrupt a minimum of 100 kW every month during on-peak hours. You must be willing to enter a contract for at least a one-year period but not longer than a five-year period. As a participant, you must have the appropriate metering and communications equipment installed prior to service being made available under this Rider.

The Time-of-Use rates, both the Large General Service Time-of-Use (GST) (if maximum demand is less than 1,000 kW) and Large Power Service Time-Of-Use (PST) (if maximum demand is 1,000 kW or greater) are available to you if you can and will change your operations to utilize demand and energy during off-peak periods. As a participant, you must remain on the Time-of-Use rate for a minimum period of twelve (12) months.

Figure 13-A: C&I Demand Response Website Top

The Time-of-Use rates, both the Large General Service Time-of-Use (GST) (if maximum demand is less than 1,000 kW) and Large Power Service Time-Of-Use (PST) (if maximum demand is 1,000 kW or greater) are available to you if you can and will change your operations to utilize demand and energy during off-peak periods. As a participant, you must remain on the Time-of-Use rate for a minimum period of twelve (12) months.

#### How does the program work?

Your Entergy Account Service Managers will share these rate options with you. If you have an interest in the Time-of-Use rate and/or the Optional Interruptible Service Rider and would like to see if you would benefit by these applications, the Account Service Manager will work with Rate Design and Administration to develop a rate analysis. If the analysis shows that your business may benefit from one of these, then the Account Service Manager will work with you to verify: (1) your understanding of the new rate and how it works, (2) that appropriate metering and communication equipment is installed or will be installed before service is rendered under this tariff, and (3) that appropriate contracts are signed by you and Entergy Arkansas, Inc.

#### Will I receive technical assistance?

Everyone who expresses an interest in this program and that qualifies for service under the OISR, GST or PST rate schedules will receive assistance from the Account Service Manager in understanding the tariffs. The Account Service Manager will receive internal assistance from the Rate Design and Administration group in performing the rate analysis.

#### What is the cost of the program?

Costs will be identified through the tariffs and rate analysis. Additionally, you may have to pay for the installation of non-standard metering and communications equipment.

#### How Can Customers Get More Information About The Rate Schedules?

[CLICK HERE](#) for information on OISR.

[CLICK HERE](#) for information on GST.

[CLICK HERE](#) for information on PST.



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Figure 13-B: C&I Demand Response Website Bottom



- Business Main Page
- Save Money on Your Bill
  - Business Energy Check-Up
  - **Energy Efficiency Programs**
  - Commercial Energy Library
  - ENERGY STAR - Small Business
  - ENERGY STAR - Commercial
  - US Department of Energy - Industrial Best Practices
  - US Department of Energy - Industrial Assessment Centers

## CitySmart<sup>SM</sup> Program

Cash incentives to help you save money on your energy bills and increase the comfort of your facilities.

Entergy Arkansas, Inc's CitySmart Program can Provide the Support and Incentives You Need to Solve These Problems:

- High energy bills
- Inefficient or poor interior / exterior lighting quality
- Lack of lighting or HVAC control
- Solar heat gain through your facilities' east and west windows
- High pumping and wastewater bills

### What are the Benefits?

- Understand the technical and financial benefits of investing in energy efficiency.
- Identify energy savings specific to your building(s).
- Prioritize a wide range of energy conservation measures.
- Achieve significant, long-term electricity savings.
- Earn incentives for completing qualifying energy efficiency projects.
- Publicize your energy efficiency achievements.

[See typical savings and incentives.](#)

### Who is Eligible?

Institutional and public entities that receive electric service from Entergy Arkansas, including:

- K-12 schools.
- Accredited higher education institutions.
- Local governments / municipalities.

### Eligible Measures

- Improved building design (new construction only).
- Interior / exterior lighting retrofits.
- Interior / exterior lighting controls.
- Window film.
- HVAC controls.
- VFD motor drives.
- Improved building design (new construction only).
- Commercial refrigeration.
- Commercial kitchen and plumbing upgrades.
- Waste water treatment plant fan / blower / pump retrofits.

[Click here to download the complete Program Manual.](#)

### Ready to Get Started?

Contact the Energy Efficiency Solutions Center at  
(877) 212-2420 or [Email Us](#).  
[CitySmartEAI@cleareresult.com](mailto:CitySmartEAI@cleareresult.com).

## Typical Elementary School Project

This example illustrates a possible scenario that might exist at an elementary school. Simulated existing conditions and sample proposed retrofits are listed with example calculations of energy savings, incentives, and simple payback. The data given below is not necessarily indicative of what you may see at your site, but can be reviewed to understand how the program will operate and the potential value of the "CitySmart" program.

Figure 14-A CitySmart Website Top

Existing Interior	Retrofit Interior	Annual Energy Savings (kWh)	Assumed Blended Electrical Rate (\$/kWh)	Annual Energy Savings (\$)	Entergy Base Incentive Rate	Entergy Bonus Incentive Rate	Total Incentive Amount (\$)	Est. Project Cost (\$)	Est. Simple Payback (Yrs)
(200) 2'x4', 4 lamp T8 with electronic ballasts W/O Occupancy Sensors	(200) 2'x4', 2-lamp T8 with reduced light output electronic ballasts WITH Occupancy Sensors	43,557	\$0.080	\$3,485	\$0.10	\$0.01	\$4,791	\$13,000	2.4
(100) 2'x4', 3 lamp T8 with electronic ballasts W/O Occupancy Sensors	(100) 2'x4', 2-lamp T8 with reduced light output electronic ballasts WITH Occupancy Sensors	14,501	\$0.080	\$1,160	\$0.10	\$0.01	\$1,595	\$6,500	4.2
(50) 60 watt incandescent bulbs	(50) 23 watt compact fluorescent bulbs	4,986	\$0.080	\$399	\$0.10	\$0.01	\$548	\$750	0.5
<b>TOTALS</b>		<b>63,044</b>		<b>\$5,044</b>			<b>\$6,935</b>	<b>\$20,250</b>	<b>2.64</b>

The total annual savings would be approximately 63,044 kWh, resulting in an estimated \$5,044 in annual utility savings. The estimated cost of this project (using the above simulation) is \$20,250, with an estimated incentive of \$6,935. If the facility was to make these upgrades, the net project cost to the customer (after incentive) would be \$13,315, yielding an approximate 2.6 year payback.

### Typical Wastewater Project

This example illustrates a possible scenario that might exist at a reasonably large wastewater facility. Simulated existing conditions and sample proposed retrofits are listed with example calculations of energy savings, incentives, and simple payback. The data given below is not necessarily indicative of what you may see at your site, but can be reviewed to understand how the program will operate and the potential value of the "CitySmart" program.

Existing Conditions	Proposed Retrofits	Annual Energy Savings (kWh)	Assumed Blended Electrical Rate (\$/kWh)	Annual Energy Savings (\$)	Entergy Base Incentive Rate	Entergy Bonus Incentive Rate	Total Incentive Amount (\$)	Est. Project Cost (\$)	Est. Simple Payback (Yrs)
(1) 300 HP Aeration blower with throttling controls	Provide (1) new 250 HP high efficiency aeration blower with VFD controls	735,929	\$0.065	\$47,835	\$0.10	\$0.04	\$103,030	\$475,834	7.8
Existing "coarse bubble" diffuser system	Replace existing with a "fine bubble" diffuser system	169,080	\$0.065	\$10,990	\$0.10	\$0.04	\$23,671	\$43,000	1.8
(25) 250 watt metal halide fixtures around the facility	(25) 4-lamp T8 fixtures to replace the metal halide fixtures and add occupancy controls	10,665	\$0.065	\$693	\$0.10	\$0.04	\$1,493	\$2,704	1.7
(40) 2'x4', 4 lamp T8 with electronic ballasts with no occupancy controls	(40) 2'x4', 2 lamp T8 fixtures with premium efficiency ballasts and add occupancy controls in some areas	8,011	\$0.065	\$521	\$0.10	\$0.04	\$1,122	\$3,090	3.8
<b>TOTALS</b>		<b>923,685</b>		<b>\$60,040</b>			<b>\$129,316</b>	<b>\$524,628</b>	<b>6.58</b>

The total annual savings would be approximately 923,685 kWh, resulting in an estimated \$60,040 in annual utility savings. The estimated cost of this project (using the above simulation) is \$524,628, with an estimated incentive of \$129,316. If the facility was to make these upgrades, the net project cost to the customer (after incentive) would be \$395,312, yielding an approximate 6.6 year payback.

Figure 14-B: CitySmart Website Bottom



## FACT SHEET: 2011-2013 CitySmart® Program

The CitySmart Program is offered to institutional and public entities, including governments, public schools and colleges, in the Entergy Arkansas, Inc. territory. The Program helps facility supervisors operate their buildings more efficiently by understanding the technical and financial benefits of investing in energy efficiency and developing a plan to make energy efficiency improvements. Program Participants receive technical and energy related assistance to help them make decisions about cost-effective investments in facility energy efficiency. The Program does not prescribe technologies or end-uses, but instead provides a framework, through which the Participant can receive incentives for implementing and installing a wide range of measures at their site(s).

### The CitySmart Program will help you:

- Identify energy savings specific to your building(s).
- Prioritize a wide range of energy conservation measures.
- Achieve significant, long-term electricity savings.
- Earn incentives for completing qualifying energy efficiency projects.

### Who is Eligible?

Institutional and public entities that receive electric service from Entergy Arkansas including:

- K-12 Schools.
- Accredited Higher Education.
- Local Governments.

### What are the Benefits?

- Financial Incentives.
- Reduced energy costs.
- Energy performance benchmarking and master planning.
- Technical assistance.
- Communications support.

### How to Participate:

Please follow the steps below to participate:

1. Contact the Energy Efficiency Solutions Center at (877) 212-2420.
2. Your Program Representative and Participating Contractor will help identify efficiency upgrade projects specific to your needs during a walk-through energy assessment.
3. Submit Project Application form.
4. Install energy-saving upgrades identified and agreed upon during the walk-through assessment.
5. Your Program Representative will complete post-installation inspection as required.
6. Apply for Incentives.
7. Receive incentive check and recognition for completed energy efficiency accomplishments!

### Program Incentives

New construction and retrofit projects are eligible for tiered incentives, based on the number of measures installed at one location.

CitySmart® Incentive Rates (per kWh)				
Measure Type*	1 measure	2 measures	3 measures	4+ measures
AI Measures	\$0.10	\$0.11	\$0.12	\$0.14
<i>*Note that no project will be provided incentives that exceed 75% of the sum of the incremental measure costs.</i>				

Figure 15-A: CitySmart Fact Sheet Page 1

## 2011-2013 CitySmart® Program Eligible Measures

Measure Type	Measure Description
Lighting Retrofit	Lighting retrofit projects replace inefficient lighting systems with more efficient lighting systems. A variety of high efficiency fixtures, ballasts, and lamps produce equivalent light levels as previous technologies while consuming less energy. For instance, T12 fluorescent lamps and magnetic ballasts can be replaced with more efficient lighting systems such as T8 fluorescent lamps with electronic ballasts. Metal halides may be replaced with systems such as T5 fluorescent lamps with electronic ballasts or compact fluorescents. There are a variety of lamp and ballast combinations that are eligible for this Program depending on the current technology installed at a facility.
Lighting Controls	Automatic lighting controls save energy by turning off or dimming lights when they are not necessary. Many different varieties of sensors are available including passive infrared (PIR), dual-technology, integral occupancy sensors, photocells, which can be coupled with a variety of control strategies including day lighting controls, occupancy controls timer controls, and time clocks. For certain conditions, light reduction and automatic controls are mandatory for new construction and affected retrofit projects.
Exterior Lighting	Energy saving opportunities exist for all major exterior lighting applications including parking lots, streets and roadways, and other building mounted lighting. Energy saving opportunities applies to both improved lighting performance and enhanced control strategies. For example, retrofitting less efficient HID technologies with LED lighting and occupancy-based technology are good candidates for exterior applications.
Window Film	Specialized window film can help block solar heat gain in a facility and reduce cooling loads. For this Program, window film is only eligible for incentives when applied to the inside of glazing on the east and west windows of commercial buildings. Windows must not be shaded with existing awnings or shading devices, and window film must be installed in space conditioned by refrigerated air conditioning to qualify in the Program.
HVAC Controls	HVAC controls are eligible in the EAI Programs when no other controls previously exist or where existing controls can be modified or improved to provide measurable energy savings. Controls can be installed on building HVAC systems or central plant equipment to help control common operating parameters such as temperature, humidity, chilled water temperature, etcetera for more effective use of the HVAC system.
VFD Motor Drives	A Variable Frequency Drive controls the rotational speed of an electric motor by controlling the frequency of the electrical power supplied to the motor. VFD's allow for soft starts and can be optimized to better match system loads, reducing stress and improving the motor life. VFD's work well when used with systems that have motors that can operate at lower speeds. The installation of VFD's that show measurable energy savings are eligible under the Program.
Improved Building Design (New Construction Only)	Incentives are given to buildings that are built above and beyond the required energy codes. These measures will be incentivized as a part of the individual measure type (lighting, lighting controls, HVAC, etc.) as listed below for the purposes of qualifying for tiered incentives, and are not separate measures from retrofits of similar technology. For instance, if a Participant is installing a lighting retrofit at one facility and is building a new facility with a qualifying lighting project, all of the lighting measures are considered one lighting measure for the purposes of calculating tiered incentives.
Refrigeration	There are a number of refrigeration measures that are eligible for upgrades or replacement in EAI Programs: <ul style="list-style-type: none"> <li>• Evaporator fans upgrades to EC Motors</li> <li>• Anti-sweat heater controls</li> <li>• Refrigerated door gaskets</li> </ul>
Kitchen and Plumbing Upgrades	There are a number of kitchen measures that are eligible for upgrades or replacement in EAI Programs: <ul style="list-style-type: none"> <li>• Low flow pre-rinse spray valves</li> <li>• Low flow faucet aerators</li> <li>• Low flow shower heads</li> <li>• Energy efficient dishwasher</li> <li>• High efficiency electric combination ovens</li> <li>• High efficiency fryers</li> <li>• ENERGY STAR® steam cookers</li> </ul>
Waste Water Treatment Plant (WWTP) Fans/Blower Retrofits	These measures are ideal for aeration blowers that are greater than 100 HP and have no VFD controls. The replacement must be a single-stage centrifugal aeration blower with automatic dissolved oxygen controls to be a cost-effective project.
Waste Water Treatment Plant (WWTP) Pump Retrofits	There are a variety of energy efficiency upgrades that can be implemented on pumps at WWTP's. Retrofits can be completed on pumps that are centrifugal pumps, do not have VFD or stop controls, total nameplate HP is greater than 100 HP, and operating hours greater than 3,000 hours/year. Retrofit options include the installation of VFD's, start/stop controls, throttle valves, and bypass controls.

Questions? Contact the Energy Efficiency Solutions Center at (877) 212-2420 or visit [www.entergyarkansas.com/citysmart](http://www.entergyarkansas.com/citysmart).



Figure 15-B: CitySmart Fact Sheet Page 2

The screenshot displays the Entergy Arkansas website interface. At the top left is the Entergy logo with the tagline "THE POWER OF PEOPLE" and "Entergy Arkansas, Inc." below it. To the right are navigation links for "Account Login", "News Room", "Careers", "FAQ", "Sitemap", and "Contact Us", along with a search bar. A secondary navigation bar includes "Residential Customers" and "Business Customers". Below this is a main menu with "myAccount", "Save Money", "Our Community", "Economic Development", "About Us", and "Entergy.com". A breadcrumb trail reads "Arkansas Main Page > Save Money > myResources" and a "Printable Page" link is visible.

The main content area features a dark blue header with "MAIN PAGE" and four large buttons: "myADVISOR", "myHOME", "myRESOURCES", and "myACCOUNT". The primary heading is "Save Money - Energy Saving Programs For Your Home".

On the left, a photo of a man in a dark blue shirt is shown with the text "Harry, Mechanic, Construction & Maintenance". To his right is a bulleted list of programs:

- Residential Appliances Program - For Your Home
- Home Energy Solutions Program
- Cool Saver Residential A/C Tune-Up Program
- Arkansas Weatherization Program for Severely Energy-Inefficient Homes

Below the list is a survey prompt: "Do You Find the Tools and Information Helpful? Take our survey." A horizontal banner below contains three promotional tiles: "Energy-Saving Calculators" (with an image of a house and money), "Energy Efficiency Programs" (with an image of a light bulb), and "myAccount" (with an image of a laptop and the text "Access your account..."). At the bottom of the page is a group photo of nine diverse employees.

Figure 16: Residential Programs Website


The screenshot shows the top section of the Entergy Arkansas website. At the top left is the Entergy logo with the tagline "THE POWER OF PEOPLE" and "Entergy Arkansas, Inc." below it. To the right are links for "Account Login", "News Room", "Careers", "FAQ", "Sitemap", and "Contact Us". Below these is a search bar. A navigation bar contains "Residential Customers" and "Business Customers". A secondary navigation bar includes "myAccount", "Save Money", "Our Community", "Economic Development", "About Us", and "Entergy.com". A breadcrumb trail reads "Arkansas Main Page > Save Money > myResources" and a "Printable Page" link is visible.


The main content area has a dark blue header with "MAIN PAGE" and four large buttons: "myADVISOR", "myHOME", "myRESOURCES", and "myACCOUNT". The "myRESOURCES" button is highlighted.


## Residential Appliances Program

### For Your Home

**Easier Than a Coupon**  
Entergy has made it easier and more convenient to switch to more energy efficient appliances and lighting. Starting in August, Entergy Arkansas, Inc., customers who purchase Energy Star® compact fluorescent light bulbs (CFLs), light fixtures, and room air conditioners at participating retail locations will receive instant savings at the cash register on these purchases. This replaces the coupon that has historically come twice a year in your bill in case.

**A Bright Idea**  
  
Switch the bulbs in your high-use light fixtures to more efficient CFLs and watch the savings add up. Each CFL installed can save more than \$40 in electricity costs over its lifetime because it uses about 75 percent less energy than standard incandescent bulbs and lasts up to 10 times longer. Look for in-store discounts on all types of Energy Star® CFLs at your local [participating retailer location](#).

**More Ways to Save**  
  
Did you know Energy Star® also rates light fixtures? Entergy Arkansas, Inc., now gives customers more opportunities to save on a variety of energy-saving devices, including fixtures. These beauties use a quarter of the energy of traditional light fixtures and use bulbs that last between 10,000 and 30,000 hours (that's between seven and 22 years). Look for in-store savings on a variety of Energy Star® fixtures at your local [participating retailer location](#).

**Beat the Heat and Save**  
  
Keep your home comfortable this summer and save money at the same time. Energy Star® air conditioners use about 10 percent less energy than conventional models, which could mean a savings of \$60 over the lifetime of the unit. Look for in-store discounts on Energy Star® qualified room air conditioners at your local [participating retailer](#).

[See typical savings and incentives here.](#)

\*Program may end at any time, without notice.

Check this space frequently; we'll be offering discounts on other energy-saving appliances throughout the year.

Entergy Arkansas, Inc., does not endorse any particular manufacturer, product, system, design, claim, or contractor in promoting this program.

Some restrictions apply. To learn more, [click here](#) to download the Program FAQs.

Questions? [Contact Us](#).

Contact the Energy Efficiency Solutions Center at (877) 212-2420 or [Email Us](#).  
[programadmin@clearresult.com](mailto:programadmin@clearresult.com)

Figure 17-A: Residential Appliances Website Upper Top Section

### Typical Single-Family Home Project

Below is an example of savings a residential customer could realize from installing various energy efficiency measures that are part of the Appliances program.

Existing Item being replaced	Measures Installed	Annual Energy Savings (kWh)	Assumed Electrical Rate (\$/kWh)	Annual Energy Savings (\$)	Total Incentive Amount (\$)	Est. Purchase Cost (\$)	Est. Simple Payback (Yrs)
(6) Standard 75w Incandescent Light bulbs	(6) Energy Star qualified 26w Compact Fluorescent Light bulbs	366	\$0.105	\$38	\$9	\$12	0.1
(3) Traditional 3-lamp fixtures and (3) Traditional 1-lamp fixtures, all with incandescent bulbs	(6) Compact Fluorescent Fixtures, (3) three-lamp, and (3) 1-lamp	447	\$0.105	\$47	\$75	\$180	2.2
(2) Traditional ceiling fans with light kits, with incandescent bulbs	(2) Energy Star qualified ceiling fans with light kits, CFLs used	284	\$0.105	\$30	\$50	\$136	2.9
(2) Traditional Room Air Conditioners	(2) Energy Star qualified Room Air conditioners	514	\$0.105	\$54	\$60	\$200	2.6
(2) Traditional surge protectors	(2) Advanced Power Strips, at entertainment center and workstation	174	\$0.105	\$18	\$20	\$60	2.2
(1) 10-20 yr. old refrigerator, non Energy Star (still working)	(1) Energy Star qualified Refrigerator	123	\$0.105	\$13	\$75	\$600	40.7
<b>TOTALS</b>		<b>1,908</b>		<b>\$200</b>	<b>\$289</b>	<b>\$1,188</b>	<b>4.49</b>

### Typical Single-Family Home Project

Below is an example of savings a residential customer could realize from installing various energy efficiency measures that are part of the Appliances program.

Existing Item being replaced	Measures Installed	Annual Energy Savings (kWh)	Assumed Electrical Rate (\$/kWh)	Annual Energy Savings (\$)	Total Incentive Amount (\$)	Est. Purchase Cost (\$)	Est. Simple Payback (Yrs)
(6) Standard 75w Incandescent Light bulbs	(6) Energy Star qualified 26w Compact Fluorescent Light bulbs	366	\$0.105	\$38	\$9	\$12	0.1
(3) Traditional 3-lamp fixtures and (3) Traditional 1-lamp fixtures, all with incandescent bulbs	(6) Compact Fluorescent Fixtures, (3) three-lamp, and (3) 1-lamp	447	\$0.105	\$47	\$75	\$180	2.2
(2) Traditional ceiling fans with light kits, with incandescent bulbs	(2) Energy Star qualified ceiling fans with light kits, CFLs used	284	\$0.105	\$30	\$50	\$136	2.9
(2) Traditional Room Air Conditioners	(2) Energy Star qualified Room Air conditioners	514	\$0.105	\$54	\$60	\$200	2.6
<b>TOTALS</b>		<b>1,611</b>		<b>\$169</b>	<b>\$194</b>	<b>\$528</b>	<b>1.97</b>

Figure 17-B Residential Appliance Website Lower Top Section

### Compact Fluorescent Lighting Discounts

Save up to \$6 instantly when you purchase Energy Star® qualified CFLs at the participating retail locations listed below. These retailers offer CFLs in many sizes and shapes as well as a variety of shades from warm, soft white light to bright, pleasant light. Receiving your discount is easy and automatic because the savings are included in your purchase price. Stock up on CFLs today and start saving.

Retailer	Address	City	State	Zip Code
Walmart Supercenter #318	109 W.P. Malone Dr.	Arkadelphia	AR	71923
Walmart #160	219 Highway 412	Ash Flat	AR	72513
Home Depot #1411	3000 E Harrison Street	Batesville	AR	72501
Walmart #119	3150 Harrison Street	Batesville	AR	72501
Home Depot #1405	17060 Interstate 30	Benton	AR	72015
Walmart Supercenter #85	17309 I-30	Benton	AR	72015
Walmart Supercenter #76	1000 West Trimble	Berryville	AR	72616
Lowe's #2534	3790 East Main St	Blytheville	AR	72315
Walmart #62	3700 East HWY 18	Blytheville	AR	72315
Lowe's #2471	2330 North Reynolds Road	Bryant	AR	72022
Walmart Supercenter #3230	400 Bryant Avenue	Bryant	AR	72022
Home Depot #1412	555 Going Road	Cabot	AR	72023
Walmart Supercenter #2587	304 South Rockwood	Cabot	AR	72023
Walmart #171	1270 State HWY 4 Bypass SW	Camden	AR	71701
Home Depot #1407	500 Elsinger Blvd	Conway	AR	72032
Lowe's #236	1325 Highway 64 West	Conway	AR	72032
Walmart Supercenter #5	1155 HWY 65 North	Conway	AR	72032
Walmart Supercenter #2575	3900 Dave Ward Drive	Conway	AR	72034
Walmart #235	1900 West Main	Corning	AR	72422
Walmart Supercenter #167	910 Unity Road	Crossett	AR	71635
Walmart Supercenter #296	1172 NO. HWY 7	Dardanelle	AR	72834
Home Depot #8537	507 West 19th Street	El Dorado	AR	71730
Walmart Supercenter #530	2730 Northwest Ave.	El Dorado	AR	71730
Walmart Supercenter #1147	168 Walmart Drive	Flippin	AR	72634
Walmart #339	1123 Highway 79 / 167 Bypass	Fordyce	AR	71742
Walmart Supercenter #91	205 Deadrick Road	Forrest City	AR	72335
Home Depot #1409	312 Hester Drive	Harrison	AR	72601
Walmart Supercenter #2	1417 HWY 62/65 N	Harrison	AR	72601
Walmart Supercenter #281	1500 HWY 258 North	Heber Springs	AR	72543
Lowe's #597	300 Cornerstone Blvd.	Hot Springs	AR	71913
Walmart Supercenter #52	1601 Albert Pike Blvd.	Hot Springs	AR	71913
Walmart Supercenter #261	4019 Central Ave.	Hot Springs	AR	71913
Sam's Club	1368 Higdon Ferry Road	Hot Springs	AR	71913
Walmart Supercenter #5433	3604 North Highway 7	Hot Springs Village	AR	71909
Lowe's #1766	2301 T. P. White Drive	Jacksonville	AR	72076
Walmart Supercenter #24	2000 John Harden Drive	Jacksonville	AR	72076
Home Depot #1404	12610 Chenal Pkwy	Little Rock	AR	72211
Walmart Supercenter #124	8801 Baseline Rd.	Little Rock	AR	72209
Walmart #126	2700 S Shackleford Rd.	Little Rock	AR	72211
Walmart Supercenter #5244	19301 Cantrell Rd.	Little Rock	AR	72223
Sam's Club	900 S. Bowman Rd.	Little Rock	AR	72211
Home Depot #8919	11 Mabelvale Plaza Lane	S Little Rock	AR	72209
Walmart Supercenter #169	1400 North Center	Lonoke	AR	72086
Walmart Supercenter #83	60 79-Bypass North	Magnolia	AR	71753
Walmart Supercenter #127	1910 Martin Luther King Blvd.	Mahvern	AR	72104
Walmart Neighborhood Market #5783	117 Audubon Dr.	Maumelle	AR	72113
Walmart #289	US 65 South	McGehee	AR	71654
Walmart Supercenter #348	427 HWY 425 North	Monticello	AR	71655
Walmart Supercenter #8	1621 North Business 9	Morrilton	AR	72110
Home Depot #1410	100 Pendella Drive	Mountain Home	AR	72653
Lowe's #2236	124 Charles Blackburn Drive	Mountain Home	AR	72653
Walmart Supercenter #11	65 Walmart Drive	Mountain Home	AR	72653
Walmart Supercenter #1114	409 Sylamore Ave.	Mountain View	AR	72560
Walmart #18	2500 Malcolm St./HWY 67 North	Newport	AR	72112
Walmart #74	1051 West Keiser Avenue	Osceola	AR	72370
Lowe's #1628	2906A East Harding Avenue	Pine Bluff	AR	71601
Walmart Supercenter #3331	5501 South Olive Street	Pine Bluff	AR	71603
Walmart Supercenter #71	1415 HWY 67 South	Pocahontas	AR	72455
Lowe's #235	3011 Parkway East	Russellville	AR	72802
Walmart Supercenter #58	2409 East Main Street	Russellville	AR	72802

Figure 17-C: Residential Appliance Website Mid-Section



Lowe's #235	3011 Parkway East	Russellville	AR	72802
Walmart Supercenter #58	2409 East Main Street	Russellville	AR	72802
Lowe's #1775	3701 East Race Avenue	Searcy	AR	72143
Walmart Supercenter #157	3509 East Race Avenue	Searcy	AR	72143
Walmart Supercenter #336	1308 South Rock Street	Sheridan	AR	72150
Walmart Neighborhood Market #2743	8801 HWY 107	Sherwood	AR	72120
Walmart Supercenter #7	9053 Hwy 107	Sherwood	AR	72120
Walmart Supercenter #102	406 E 22nd Street	Stuttgart	AR	72160
Walmart Supercenter #229	512 Industrial Drive	Trumann	AR	72472
Walmart #57	1600 West Main	Walnut Ridge	AR	72476
Walmart Supercenter #714	602 Sheila Street	West Helena	AR	72390
Walmart Supercenter #70	798 West Service Road	West Memphis	AR	72301
Walmart Supercenter #68	800 HWY 64 East	Wynne	AR	72396

\*Limit 18 bulbs per customer. Energy Arkansas, Inc., does not warrant or endorse any manufacturer. Program is subject to change or termination at any time.

[Click here](#) to return to top of page.

### Compact Fluorescent Fixture Discounts

Save up to \$25 instantly when you purchase select Energy Star® qualified light fixtures and ceiling fans with light kits at the participating retail locations listed below. Receiving your discount is easy and automatic because the savings are included in your purchase price. Make your next lighting purchase an Energy Star® fixture and start saving.

Retailer	Address	City	State	Zip Code
Home Depot #1411	3000 E Harrison Street	Batesville	AR	72501
Home Depot #1405	17060 Interstate 30	Benton	AR	72015
Lowe's #2534	3790 East Main Street	Blytheville	AR	72315
Lowe's #2471	2330 North Reynolds Road	Bryant	AR	72022
Home Depot #1412	555 Going Road	Cabot	AR	72023
Home Depot #1407	500 Elsinger Blvd	Conway	AR	72032
Lowe's #236	1325 Highway 64 West	Conway	AR	72032
Home Depot #1409	312 Hester Drive	Harrison	AR	72601
Lowe's #597	300 Cornerstone Blvd.	Hot Springs	AR	71913
Home Depot #8537	507 West 19th Street	El Dorado	AR	71730
Lowe's #1766	2301 T. P. White Drive	Jacksonville	AR	72076
Home Depot #1404	12610 Chenal Pkwy	Little Rock	AR	72211
Home Depot #8919	11 Mabelvale Plaza Lane	S Little Rock	AR	72209
Home Depot #1410	100 Pendella Drive	Mountain Home	AR	72653
Lowe's #2236	124 Charles Blackburn Drive	Mountain Home	AR	72653
Lowe's #1628	2906A East Harding Avenue	Pine Bluff	AR	71601
Lowe's #235	3011 Parkway East	Russellville	AR	72802
Home Depot #8537	507 West 19th Street	El Dorado	AR	71730
Lowe's #1766	2301 T. P. White Drive	Jacksonville	AR	72076
Home Depot #1404	12610 Chenal Pkwy	Little Rock	AR	72211
Home Depot #8919	11 Mabelvale Plaza Lane	S Little Rock	AR	72209
Home Depot #1410	100 Pendella Drive	Mountain Home	AR	72653
Lowe's #2236	124 Charles Blackburn Drive	Mountain Home	AR	72653
Lowe's #1628	2906A East Harding Avenue	Pine Bluff	AR	71601
Lowe's #235	3011 Parkway East	Russellville	AR	72802
Lowe's #1775	3701 East Race Avenue	Searcy	AR	72143

\*Limit one per customer. Energy Arkansas, Inc., does not warrant or endorse any manufacturer. Program is subject to change or termination at any time. [Click here](#) to return to top of page.

### Room Air Conditioner Discounts

Save up to \$35 instantly when you purchase select Energy Star® qualified room air conditioners at the participating retail locations listed below. Receiving your discount is easy and automatic because the savings are included in your purchase price.

Retailer	Address	City	State	Zip Code
Sears Hometown #3796	2919 W. Pine	Arkadelphia	AR	71923

Figure 17-D: Residential Appliance Website Upper Lower Section

Sears Hometown #3794	475 Hwy 62/412	Ash Flat	AR	72513
Home Depot #1411	3000 E Harrison Street	Batesville	AR	72501
Sears Hometown #3057	2395 Harrison St.	Batesville	AR	72501
Home Depot #1405	17060 Interstate 30	Benton	AR	72015
Sears Hometown #3587	1110 Ferguson	Benton	AR	72015
Sears Hometown #1934	322 Eureka Street	Berryville	AR	72616
Lowe's #2534	3790 East Main Street	Blytheville	AR	72315
Lowe's #2471	2330 North Reynolds Road	Bryant	AR	72022
Home Depot #1412	555 Going Road	Cabot	AR	72023
Sears Hometown #3087	150 Garden Oaks Dr.	Camden	AR	71701
Home Depot #1407	500 Elsinger Blvd	Conway	AR	72032
Lowe's #236	1325 Highway 64 West	Conway	AR	72032
Sears Hometown #3217	201 Skyline DR Ste 35	Conway	AR	72032
Sears Hometown #3597	301 Fairview Rd	Crossett	AR	71635
Home Depot #1409	312 Hester Drive	Harrison	AR	72601
Lowe's #597	300 Cornerstone Blvd.	Hot Springs	AR	71913
Home Depot #8537	507 West 19th Street	El Dorado	AR	71730
Sears Hometown #3107	2020 Northwest Ave	El Dorado	AR	71730
Sears Hometown #3117	828 N Washington ST	Forrest City	AR	72335
Sears Hometown #3127	1320 N Main ST	Harrison	AR	72601
Sears Hometown #3873	1010 Highway 25B	Heber Springs	AR	72543
Sears #2126	4501 Central Ave. Ste. 101	Hot Springs	AR	71913
Sears Hometown #7726	4905 Hwy 7 N	Hot Springs Village	AR	71909
Lowe's #1766	2301 T. P. White Drive	Jacksonville	AR	72076
Home Depot #1404	12610 Chenal Pkwy	Little Rock	AR	72211
Sears #1016	600 S University Ave	Little Rock	AR	72211
Home Depot #8919	11 Mabelvale Plaza Lane	S Little Rock	AR	72209
Sears Hometown #3797	1517C E Main St.	Magnolia	AR	71753
Sears Hometown #3906	1339 Hwy 270 W	Malvern	AR	72104
Sears Hometown #3007	749 Walmart Access Rd	Monticello	AR	71655
Home Depot #1410	100 Pendella Drive	Mountain Home	AR	72653
Lowe's #2236	124 Charles Blackburn Drive	Mountain Home	AR	72653
Sears Hometown #3147	1029 Hwy 62 E Ste. 1	Mountain Home	AR	72653
Sears Hometown #2736	107 Meadow View Dr.	Mountain View	AR	72560
Sears Hometown #1869	1422 Hwy 367 North	Newport	AR	72112
Sears Hometown #3709	2607 Hwy 67 South	Pocahontas	AR	72455
Lowe's #1628	2906A East Harding Avenue	Pine Bluff	AR	71601
Sears #2216	2901 Pines Mall DR	Pine Bluff	AR	71701
Lowe's #235	3011 Parkway East	Russellville	AR	72802
Sears Hometown #3167	920 S Arkansas Ave	Russellville	AR	72801
Lowe's #1112	3701 East Dale Avenue	Searcy	AR	72143
Sears Hometown #3187	2310 E. Race Ave	Searcy	AR	72143
Sears Hometown #3880	702 Hwy 64 E	Wynne	AR	72396
Sears Hometown #3926	1005 Highway #49 West	West Helena	AR	72390
Sears Hometown #3777	209 Shoppingway Blvd.	West Memphis	AR	72301

\*Limit one per customer. Energy Arkansas, Inc., does not warrant or endorse any manufacturer. Program is subject to change or termination at any time.

[Click here](#) to return to top of page.



**Energy-Saving Calculators**  
Control your bill. See energy costs for a single appliance or your entire house.



**Energy Efficiency Programs**  
Get tips on how you can make your home more energy efficient.



**myAccount**  
Access your account.



Figure 17-E: Residential Appliances Website Lower Bottom Section



## FACT SHEET: 2011-2013 Lighting & Appliances Program

The objective of the Lighting & Appliances program is to increase awareness and sales of efficient lighting and appliances to the Entergy Arkansas, Inc. residential population. The program will offer customers the opportunity to purchase, largely through retail locations, a variety of discounted products that are ENERGY STAR® qualified or better.

### What are the Benefits?

- Receive cash incentives in the form of instant savings at participating retailers.
- Achieve energy savings for a quick return on your investment.
- Decrease your energy bills each month.
- Improve indoor light and air quality.
- Reduce your carbon footprint.

### Who is Eligible?

Residential customers (renters or owners) who are current Entergy Arkansas customers.

### How to Participate:

Receive instant savings at the cash register of participating retailers with the purchase of select ENERGY STAR compact fluorescent light bulbs (CFLs), light fixtures, and room air conditioners. This replaces the coupon that has historically come twice a year in your bill in case. For a list of participating retailers, contact the Energy Efficiency Solutions Center at (877) 212-2420, or visit [www.entergyarkansas.com/homeappliances](http://www.entergyarkansas.com/homeappliances).

## Typical Single-Family Home Project:

The more ENERGY STAR compact fluorescent light bulbs (CFLs), light fixtures, and room air conditioners you install, the more you save. Below is an example of the incentives an Entergy customer could receive by participating in the program:

Existing Item Being Replaced	Measures Installed	Annual Energy Savings (kWh)	Annual Energy Savings	Total Incentive Amount	Est. Purchase Cost	Est. Simple Payback
(6) Standard 75w Incandescent Light bulbs	(6) Energy Star qualified 26w Compact Fluorescent Light bulbs	366 kWh	\$38	\$9	\$12	0.1 years
(3) Traditional 3-lamp fixtures and (3) Traditional 1-lamp fixtures, all with incandescent bulbs	(6) Compact Fluorescent Fixtures, (3) three-lamp, and (3) 1-lamp	447 kWh	\$47	\$75	\$180	2.2 years
(2) Traditional ceiling fans with light kits, with incandescent bulbs	(2) Energy Star qualified ceiling fans with light kits, CFLs used	284 kWh	\$30	\$50	\$136	2.9 years
(2) Traditional Room Air Conditioners	(2) Energy Star qualified ceiling fans with light kits, CFLs used	514 kWh	\$54	\$60	\$200	2.6 years
<b>TOTALS</b>		<b>1,611 kWh</b>	<b>\$169</b>	<b>\$194</b>	<b>\$528</b>	<b>1.97 years</b>

*Entergy Arkansas, Inc. does not warrant or endorse any manufacturer. Program is subject to limitation, change, and/or termination at any time. These incentives and savings amounts are based on a typical Arkansas home. Every home is different so incentive and savings amounts will vary based on pre-existing home conditions, customer behavior, and measures installed.*



Figure 18 Residential Appliance Fact Sheet

**Entergy**  
THE POWER OF PEOPLE®  
Entergy Arkansas, Inc.

Account Login | News Room | Careers | FAQ | Sitemap | Contact Us

Residential Customers | Business Customers

myAccount | Save Money | Our Community | Economic Development | About Us | Entergy.com

Arkansas Main Page > Save Money > myResources

Printable Page

MAIN PAGE | myADVISOR | myHOME | myRESOURCES | myACCOUNT

## Home Energy Solutions Program

Cash incentives to help you save money on your energy bills and increase the comfort of your home.

If You Experience Any of the Following in Your Home

- High energy bills.
- Uncomfortable rooms.
- Drafts.

Entergy Arkansas, Inc.'s Home Solutions Program can provide the support and incentives you need to solve these problems:

What are the Benefits?

- Receive cash incentives in the form of instant savings coupons.
- Achieve energy savings for a quick return on your investment.
- Decrease your energy bills each month
- Improve indoor air quality.
- Reduce your carbon footprint.

[See typical savings and incentives.](#)

Who is Eligible?

Residential customers (renters or owners) who:

- Are current Entergy Arkansas, Inc. customers.
- Live in a single-family home or a multi-family unit of four units or fewer.
- Live in a home that is at least one year old.

How Does the Program Work?

There are two options for receiving an evaluation of the efficiency of your home in the Home Energy Solutions Program:

1. The Tier One Survey is a walk-through inspection of your home by a participating home energy consultant. All homes are eligible for a minimum of \$75 and up to \$150 in incentives toward the cost of the Tier One Survey. Incentive coupons are not issued at this level.

How Does the Program Work?

There are two options for receiving an evaluation of the efficiency of your home in the Home Energy Solutions Program:

1. The Tier One Survey is a walk-through inspection of your home by a participating home energy consultant. All homes are eligible for a minimum of \$75 and up to \$150 in incentives toward the cost of the Tier One Survey. Incentive coupons are not issued at this level.
2. The Tier Two Assessment is a much more comprehensive, diagnostic evaluation of your home's energy usage. If your home is eligible based on your energy usage and the size of your home, the program offers a minimum of \$300 and up to \$500 in incentives toward the cost of the Tier Two Assessment. If energy saving opportunities exist, you will be issued incentive coupons, to be deducted from the participating contractor's invoice for doing the recommended work.

You can contact the Energy Efficiency Solutions Center at (877) 212-2420 to speak with a representative who will ask you questions about your home and help you determine which evaluation best for you. If you do not want an evaluation done, you can contact one of our participating contractors directly to see what incentives you may qualify for. For a list of participating contractors in your area, [click here](#).

Eligible Measures:

- Sealing leaks in your ductwork.
- Sealing leaks in your home.
- Adding ceiling or wall insulation.
- Replacing your air conditioner or heat pump with a high efficiency Energy Star® unit.

To learn more, [click here](#) to download the Program Summary.

Figure 19-A Home Energy Solutions Website Top Section

**Ready to Get Started?**

Contact the Energy Efficiency Solutions Center at  
(877) 212-2420 or Email Us.  
HomeEnergySolutionsEAI@CLEAResult.com

**Typical Single-Family Home Project:**

Some measures work best when combined with others, so you can receive bonus incentives for installing multiple measures. The more you do, the more you save, the more you get!

Below is an example of the incentives an Entergy customer could receive by participating in the program:

Measure	Incentive
Energy Assessment coupon	\$300.00
Air Sealing coupon	\$125.00
Ceiling insulation coupon	\$437.00
Bonus for bundling Air Sealing & Ceiling insulation	\$418.00
Duct Sealing coupon	\$762.45
AC Replacement coupon	\$312.50
Bonus for bundling new AC & Duct Sealing	\$312.50
AC Replacement commissioning rebate	\$312.50
Assessment Multi-measure bonus rebate	\$200.00
Bonus rebate for achieving 15%+ energy savings	\$476.99
<b>Total</b>	<b>\$3,656.94</b>

In addition to the incentives, this example customer could save \$550 on their Entergy bill and \$635 on their gas bill each year.

\*Incentive amounts based on 1900 sq. ft. house with central air conditioning and gas heating, R-4 ceiling insulation improved to R-38, Commissioned installation of a high efficiency 3.5 ton 16 SEER air conditioner, 90% reduction in duct leakage and a 35% reduction in house leakage.

Note: These incentives and savings amounts are based on a typical Arkansas home. Every home is different so incentive and savings amounts will vary based on pre-existing home conditions, customer behavior, and measures installed.

[Click here](#) to return to top of page.



**Energy-Saving Calculators**  
Control your bill. See energy costs for a single appliance or your entire house.



**Energy Efficiency Programs**  
Get tips on how you can make your home more energy efficient.



**myAccount**  
Access your account.





Figure19-B: Home Energy Solutions Website Bottom Section



## FACT SHEET: 2011-2013 Home Energy Solutions Program

Home Energy Solutions (HES) helps homeowners achieve significant, long-term electricity savings through the use of local home energy consultants and contractors. Participating Contractors will help residential customers analyze their home's energy use, identify energy efficiency improvement projects and install low-cost energy-saving measures. Residential customers will receive incentives for home energy assessments and rebates for eligible energy efficiency measures that are installed in their home.

### What are the Benefits?

- Receive cash incentives in the form of instant savings coupons.
- Achieve energy savings for a quick return on your investment.
- Decrease your energy bills each month.
- Improve indoor air quality.
- Reduce your carbon footprint.

### Who is Eligible?

Residential customers (renters or owners) who:

- Are current Entergy Arkansas, Inc. customers.
- Live in a single-family home or a multi-family unit of four units or fewer.
- Live in a home that is at least one year old.

### How to Participate:

Contact the Energy Efficiency Solutions Center at (877) 212-2420 to speak with a representative who will ask you questions about your home and help you determine which evaluation is best for you. If you do not want an evaluation done, you can contact one of our participating contractors directly to see what incentives you may qualify for. For a list of participating contractors in your area, visit [www.energy-arkansas.com/your\\_home](http://www.energy-arkansas.com/your_home).

There are two options for receiving an evaluation of the efficiency of your home in the Home Energy Solutions Program:

1. The **Tier One Survey** is a walk-through inspection of your home by a participating home energy consultant. All homes are eligible for a minimum of \$75 and up to \$150 in incentives toward the cost of the Tier One Survey. Incentive coupons are not issued at this level.
2. The **Tier Two Assessment** is a much more comprehensive, diagnostic evaluation of your home's energy usage. If your home is eligible based on your energy usage and the size of your home, the program offers a minimum of \$300 and up to \$500 in incentives toward the cost of the Tier Two Assessment. If energy saving opportunities exist, you will be issued incentive coupons to be deducted from the participating contractor's invoice for doing the recommended work.

### Eligible Measures:

- Duct and Air Sealing
- Ceiling and Wall Insulation
- A/C or Heat Pump Replacement

For a complete list of Contractor Installed Measures and Incentive amounts, please contact the Energy Efficiency Solutions Center or visit [www.energyarkansas.com/efficiency](http://www.energyarkansas.com/efficiency).

## Typical Single-Family Home Project:

Some measures work best when combined with others, so you can receive bonus incentives for installing multiple measures. The more you do, the more you save, the more you get! Below is an example of the incentives an Entergy customer could receive by participating in the program:

Measure	Incentive*
Energy Assessment Coupon	\$300.00
Air Sealing Coupon	\$125.00
Ceiling Insulation Coupon	\$437.00
Bonus Rebate: Bundling Air Sealing & Ceiling Insulation	\$418.00
Duct Sealing Coupon	\$762.45
A/C Replacement Coupon	\$312.50
Bonus Rebate: Multi-Measure Assessment	\$312.50
A/C Replacement Commissioning Rebate	\$200.00
Bonus Rebate: 15% Energy Saving Achieved	\$476.99
<b>TOTAL</b>	<b>\$3,656.94</b>

In addition to the incentives, this example customer could save \$550 on their Entergy bill and \$635 on their gas bill each year.

\*Incentive amounts based on 1900 sq. ft. house with central air conditioning and gas heating, R-4 ceiling insulation improved to R-38, Commissioned installation of a high efficiency 3.5 ton 16 SEER air conditioner, 90% reduction in duct leakage and a 35% reduction in house leakage.

Note: These incentives and savings amounts are based on a typical Arkansas home. Every home is different so incentive and savings amounts will vary based on pre-existing home conditions, customer behavior, and measures installed.



Figure 20-B Home Energy Solutions Fact Sheet Page 2

HOME ENERGY SOLUTIONS PROGRAM  
Sponsored by Entergy Arkansas Inc. and implemented by CLEAResult

**Partnering Contractors**

When the Program identifies customers that have qualifying energy efficiency improvement opportunities, the Home Energy Solutions Program will provide the customer with Entergy Arkansas sponsored incentive coupons and a list of Partnering Contractor's information. The Partnering Contractor is to respond to customers referred by the Program within 2 business days, and provide services in accordance with the Program's Best Practices Efficiency Standards. The following is a brief summary of these standards.

- Deliver promised services in a timely and responsible matter.
- Maintain any relevant licenses required by federal, state, county or municipal governments or any other agencies with jurisdiction over work performed in the Program.
- Maintain general liability insurance coverage.
- Provide the customer a written warranty of labor and materials for a minimum of one (1) year from the date the service is performed. Equipment installed shall carry manufacturer's warranty, including optional extended warranty coverage.
- Provide a customer complaint resolution process.
- Allow random field inspections, by the Program, of work that has been performed. The contractor, upon request from the Program, and at no additional cost to the customer, shall make reasonable repairs or corrections to work that the Contractor has performed to bring such work up to the Program's Best Practices Efficiency Standards.

HOME ENERGY CONSULTANTS							
Company	Contact Name	Contact Number	Service Radius (Miles)	Street Address	City (Sorted Alphabetically)	State	Zip
AGHcoEnergy	Allan Hurst	501-815-2770	50	PO Box 4004	Hot Springs	AR	71914
Viridian	Brian Corbitt	501-227-0648	50	100 Gamble Rd.	Little Rock	AR	72211
Innovation Energy of Arkansas	Daniel Johnson	501-412-1998		1615 Cumberland	Little Rock	AR	72206
Verve Solutions	Lolisa Crowe	501-492-6742		1310 Louisiana St.	Little Rock	AR	72202
ArkLaTex Home Inspections	Rodney Cherry	870-234-3037	75	111 Columbia Rd. 511	Magnolia	AR	71713
Science Home	Royce Lewis	501-258-8829		14 Pine Forest Dr.	Maumelle	AR	72113
PEI Inspections	Darryl McCauley	501-352-5017	100	PO Box 94934	North Little Rock	AR	72190
Nicholson's Heat and Air	John Nicholson	870-534-5476	75	417 Blake St.	Pine Bluff	AR	71601
DUCT SEALING & AIR CONDITIONING / HEAT PUMP REPLACEMENT							
Company	Contact Name	Contact Number	Service Radius (Miles)	Street Address	City (Sorted Alphabetically)	State	Zip
Beebe Heat and Air	Danny Poole	501-882-0500 866-882-0555	60	1010 Commerce Place	Beebe	AR	72012
Jones Heating and Air	Randy Jones Bryan O'Neal	800-778-8396	50	520 Edison Ave.	Benton	AR	72015
Mathis Heating & Cooling	Howard Hamilton	501-329-5874	25	PO Box 446	Conway	AR	72033
Code Camey and Assoc.	Gary McElligott	479-229-1302	100	15288 Hwy 22	Dardanelle	AR	72834
Conwards Heating and Cooling	Ken Allen	888-779-5005	35	414 S Main Street	Harrison	AR	72601
Airserv	Randy Elliott	501-767-2200		1005 E. Grant Ave	Hot Springs	AR	71901
Jay's Service Company	Mike Hubbard	501-835-9366 1-800-COOL AIR	45	403 King Place	Sherwood	AR	72076
Mohr Heating & Cooling	Joe & Bob Mohr	870-739-4441	70	1103 N. Falls Blvd	Wynne	AR	72396
AIR SEALING							
Beebe Heat and Air	Danny Poole	501-882-0500 866-882-0555	75	1010 Commerce Place	Beebe	AR	72012
Jones Heating and Air	Randy Jones Bryan O'Neal	800-778-8396	50	520 Edison Ave.	Benton	AR	72015
Code Camey and Assoc.	Gary McElligott	479-229-1302	100	15288 Hwy 22	Dardanelle	AR	72834
Custom Insulation & Supply	Tony Thomas	501-622-2519	100	112 Cloud Rest Ct.	Hot Springs	AR	71901
Crawford Builders	Bill Crawford	870-731-2091	75	113 E. Main	McRory	AR	72101
Energy Master Home	Ricky Finkbeiner	501-753-7300	20	5 Collins Industrial Place	North Little Rock	AR	72113
Comfort Air Conditioning	Burney DeMaïne	870-535-8270	30	3012 Midland Dr. South	Pine Bluff	AR	71603
Nicholson's Heat and Air	John Nicholson	870-534-5476	75	417 Blake St.	Pine Bluff	AR	71601
Jay's Service Company	Mike Hubbard	501-835-9366 1-800-COOL AIR	45	403 King Place	Sherwood	AR	72076

Figure 21-A List of HES Contractors Page 1



INSULATION							
Holloway Insulation	Johnny Holloway	870-246-1745	125	47 Bryant Rd	Arkadelphia	AR	71923
Taylor Insulation	Kelly Taylor	501-882-7417 501-940-2663	75	122 Andrews Lane	Beebe	AR	72012
Reeves Insulation, LLC	Marvin Reeves	870-307-2373	100	P.O. Box 4490	Batesville	AR	72503
PJ's Insulation	Patricia Rodden	870-932-6330	150	9254 Hwy. 49B North	Brookland	AR	72417
Whit Davis Lumber Co.	Don Millar	501-843-7009	75	340 Arena Rd.	Cabot	AR	72023
Code Camey and Assoc.	Gary McElligott	479-229-1302	100	15288 Hwy 22	Dardanelle	AR	72834
Judy's Insulation	Randy Judy	870-741-6712	50	504 E. Stephenson	Harrison	AR	72601
All Pro Wholesale, Inc	Tony Allen	501-520-0081	40	1560 East Grand Ave	Hot Springs	AR	71901
Custom Insulation & Supply	Tony Thomas	501-622-2519	100	112 Cloud Rest Ct.	Hot Springs	AR	71901
Southern Insulation	Brent & Jennifer Thomas	888-273-7606	150	1116 Sleepy Valley Rd.	Hot Springs	AR	71901
Superior Insulation	Danny & Chanta Sullivan	866-317-5905	150	174 Tiffany Lane	Hot Springs	AR	71901
Seeman Insulation	Keith Seeman	870-873-4406	80	3081 Highway 795	Humphrey	AR	72073
Bug Man	Becky Cranford	501-663-9464	50	2700 Booker	Little Rock	AR	72204
Harris Insulation	Jimmy Harris	501-412-3210	50	645 Frontage Rd.	Lonoke	AR	72086
Arctic Insulation Co.	Billy Callison	870-234-8270	45	1503 Marcella	Magnolia	AR	71753
Hardy Insulation	Rusty Hardy	501-337-9290	60	137 W. Front St.	Malvern	AR	72104
Mohr Heating & Cooling	Joe & Bob Mohr	870-739-4441	70	2232 Highway 77	Marion	AR	72364
Crawford Builders	Bill Crawford	870-731-2091	100	P.O. Box 461	McCrory	AR	72101
Judy's Insulation	Joe Iris	870-425-5253	50	60 Roberts Dr.	Mt. Home	AR	72653
Comfort Air Conditioning	Burney DeMaine	870-535-8270	30	3012 Midland Dr. South	Pine Bluff	AR	71603
Nicholson's Heat and Air	John Nicholson	870-534-5476	75	417 Blake St.	Pine Bluff	AR	71601
Scharf Insulation	Trey Scharf	870-814-9733	100	190 Homestead Dr	Rison	AR	71665
Bulldog Insulation	Cesar Alamilla	501-541-6072	100	103 Shady Grove Ln	Sherwood	AR	72120
Arkansas Insulators	Zetty Raney	870-628-3589	40	99 Auburn Lane	Star City	AR	71667
Tims Insulation	Danny Tims	870-483-0036	300	25616 Hwy 314 East	Trumann	AR	72472
Mohr Heating & Cooling	Joe & Bob Mohr	870-238-3372	70	1103 N Falls Blvd.	Wynne	AR	72396
CoolSaver A/C Tune-Up							
Company	Contact Name	Contact Number	Service Radius (Miles)	Street Address	City (Sorted Alphabetically)	State	Zip
Jones Heating and Air	Randy Jones Bryan O'Neal	800-778-8396	50	520 Edison Ave.	Benton	AR	72015
Wade's Heating, Cooling & Elec.	Chad Gates	870-834-4242	75	2850 Harrison	Batesville	AR	72501
Beebe Heat and Air	Danny Poole	501-882-0500 866-882-0555	60	1010 Commerce Place	Beebe	AR	72012
Stedfast Heat & Air	Michael Love	501-843-4860	50	365 Country Cove	Cabot	AR	72023
Mathis Heating & Cooling	Howard Hamilton	501-329-5874	30	PO Box 446	Conway	AR	72033
Cummings Heat and Air	Tony Cummings	870-630-0330	50	4860 N Washington	Forrest City	AR	72335
City Plumbing	Rick Bonte	501-623-3325	30	318 3rd St.	Hot Springs	AR	71913
Huchingson Heating & Air	Rogie Huchingson	501-623-2311	40	303 Third Street	Hot Springs	AR	71913
Chenal Heating & Air	Tony and Terry	501-821-6948	50	28624 Bandy Rd.	Little Rock	AR	72223
Innovative Air Solutions	Dallas Henry	501-773-9695	50	6600 Green Rd	Mablevale	AR	72103
South Arkansas Sales and Service	John Blake Pierce	870-234-5290	35	204 5th St	Magnolia	AR	71754
Crawford Builders	Bill Crawford	870-731-2091	75	113 E. Main	McRory	AR	72101
Jim Brown Company	Jim Brown Jr.	800-467-1775	100	P.O. Box 2218	Mountain Home	AR	72653
Miller Service Company	Laban Miller	870-424-7002	30	1102 CR 27	Mountain Home	AR	72653
Advantage Service Company	Jim Baldwin	501-758-2404	40	1791 Cypress	North Little Rock	AR	72114
Comfort Air Conditioning	Burney DeMaine	870-535-8270	50	3012 Midland Dr. South	Pine Bluff	AR	71603
Nicholson's Heat and Air	John Nicholson	870-534-5476	75	417 Blake St.	Pine Bluff	AR	71601
Yates Heating & AC, Inc.	Carl Yates	479-272-4012	100	PO Box 103	Plainview	AR	72857
AACO Heating & Air	Wilburn Addington	501-268-2303	60	500 S. Main	Searcy	AR	72143
Acme	Bobby Mashburn	870-673-1629	50	1834 N Henderson	Stuttgart	AR	72160
Mohr Air Conditioning	Bob Mohr	870-238-3372	50	1103 N. Falls Blvd	Wynne	AR	72396
CoolSaver A/C Tune-Up - Commercial Only							
Gibbs Service Company	Gary Ward	888-871-4422	50	8200 Industry Drive	North Little Rock	AR	72231

Please Note: The selection of a Participating Company to perform the work is the sole decision of the property owner or authorized lessee/occupant. Inclusion of a Participating Company to perform work does not represent an endorsement by Entergy Arkansas, Inc. or CLEAResult Consulting of any product, individual, or company. Work performed by Participating Companies is not guaranteed or subject to any warranty, either expressed or implied, by either Entergy Arkansas, Inc. or CLEAResult. Neither Entergy Arkansas, Inc. nor CLEAResult make any guarantee or any other representation as to the quality, cost, or provided effectiveness of the products provided or work performed by any Participating Company or by its employees, subcontractors or suppliers.

Updated 3/12/2012

Figure 21-B List of HES Contractors Page 2

## CoolSaver Residential Program

Is your air conditioner costing you money?

The CoolSaver Program for residential customers will help you improve the efficiency of your air conditioner or heat pump through a high-efficiency A/C (air conditioner) tune-up.

### What are the Benefits?

- Instant savings coupons toward the cost of an A/C tune-up.
- A CoolSaver tune-up performed with precision digital instruments will document the before-and-after condition of your HVAC system to verify the increase in your system's efficiency.
- Reduced cooling costs.
- Extending the life of your equipment.
- Better humidity control.

### Who is Eligible?

- All Entergy Arkansas, Inc., residential customers with a valid account number and whose systems are at least one year old. (Systems that have been incentivized through the CoolSaver Program in the past five years are not eligible to receive these incentives.)
- Want to know about incentives to replace your HVAC system? [Click here.](#)

### How Does the Program Work?

#### CoolSaver A/C Tune-Up

Your participating contractor will conduct an evaluation using precision digital tools to identify energy-saving improvement opportunities and determine if a high-performance tune-up is necessary. The contractor will thoroughly clean condenser coils and, if necessary, clean evaporator coils and blowers as well as adjust refrigerant charge to manufacturer's specification. Once the tune-up is completed, your contractor will subtract the coupon amount from the total invoice.

Measure Type	Incentive Level	Measure Description
	\$75 paid to contractor for completed tune-up.	
CoolSaver	The customer may receive up to \$75 for services performed:	Program-required test-in and test-out data is measured and collected by a qualified technician. Pending customer approval, typical improvement measures include: airflow correction, cleaning of indoor blower, evaporator coils, condenser coils, and correction of refrigerant charge using program-required tools and procedures.
High Performance	<ul style="list-style-type: none"> <li>• \$25 toward the cost of cleaning the evaporator coil.</li> </ul>	
A/C Tune Up	<ul style="list-style-type: none"> <li>• \$25 toward the cost of cleaning the blower motor.</li> <li>• \$25 toward the cost of adjusting the refrigerant charge to manufacturer specification.</li> </ul>	

Entergy customers that participated in the CoolSaver Program in 2011 have averaged a 25% increase in the cooling capacity of their air conditioner or heat pump, and saved an average of \$64 a year per unit on their Entergy bill.

For a list of participating contractors in your area, [click here.](#)

To learn more, [click here](#) to download the Program Summary.

### Home Energy Solutions (HVAC system replacement)

If your system is in need of replacement, please find the information on an HVAC system replacement incentive by visiting the Home Energy Solutions program page. [Click here.](#)

### Ready to Get Started?

Contact the Energy Efficiency Solutions Center at (877) 212-2420 or Email Us:

[CoolSaverEAI@CLEAResult.com](mailto:CoolSaverEAI@CLEAResult.com)



**Energy-Saving Calculators**  
Control your bill. See energy costs for a single appliance or your entire house.



**Energy Efficiency Programs**  
Get tips on how you can make your home more energy efficient.



**myAccount**  
Access your account.



Figure 22: CoolSaver Residential Website

CoolSaver AC Tune-Up Program  
Sponsored by Entergy Arkansas Inc. and implemented by CLEAResult

**Partnering Contractors**

The Program provides this list of currently Participating Contractor's information for customers to contact directly. They have met the requirements listed below. Note the "Service Radius in miles" column, as some contractors may appear to be located some distance from you, but may still serve your area. The Participating Contractor provide is to services in accordance with the Program's Best Practices Efficiency Standards. The following is a brief summary of these standards.

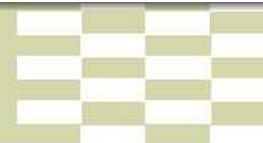
- Deliver promised services in a timely and responsible matter.
- Maintain any relevant licenses required by federal, state, county or municipal governments or any other agencies with jurisdiction over work performed in the Program.
- Maintain general liability insurance coverage.
- Provide the customer a written warranty of labor and materials for a minimum of one (1) year from the date the service is performed. Equipment installed shall carry manufacturer's warranty, including optional extended warranty coverage.
- Provide a customer complaint resolution process.
- Allow random field inspections, by the Program, of work that has been performed. The contractor, upon request from the Program, and at no additional cost to the customer, shall make reasonable repairs or corrections to work that the Contractor has performed to bring such work up to the Program's Best Practices Efficiency Standards.

CoolSaver A/C Tune-Up							
Company	Contact Name	Contact Number	Service Radius (Miles)	Street Address	City (Sorted Alphabetically)	State	Zip
Jones Heating and Air	Randy Jones Bryan O'Neal	800-778-8396	50	520 Edison Ave.	Benton	AR	72015
Wade's Heating, Cooling & Elec.	Chad Gates	870-834-4242	75	2850 Harrison	Batesville	AR	72501
Beebe Heat and Air	Danny Poole	501-882-0500 866-882-0555	60	1010 Commerce Place	Beebe	AR	72012
Stedfast Heat & Air	Michael Love	501-843-4860	50	365 Country Cove	Cabot	AR	72023
Mathis Heating & Cooling	Howard Hamilton	501-329-5874	30	PO Box 446	Conway	AR	72033
Cummings Heat and Air	Tony Cummings	870-630-0330	50	4860 N Washington	Forrest City	AR	72335
City Plumbing	Rick Bonte	501-623-3325	30	318 3rd St.	Hot Springs	AR	71913
Huchingson Heating & Air	Rogie Huchingson	501-623-2311	40	303 Third Street	Hot Springs	AR	71913
Chenal Heating & Air	Tony and Terry	501-821-6948	50	28624 Bandy Rd.	Little Rock	AR	72223
Innovative Air Solutions	Dallas Henry	501-773-9695	50	6600 Green Rd	Mablevale	AR	72103
Code Camey and Assoc.	Gary McElligott	479-229-1302	100	15288 Hwy 22	Dardanelle	AR	72834
South Arkansas Sales and Service	John Blake Pierce	870-234-5290	35	204 5th St	Magnolia	AR	71754
Crawford Builders	Bill Crawford	870-731-2091	75	113 E. Main	McRory	AR	72101
Jim Brown Company	Jim Brown Jr.	800-467-1775	100	P.O. Box 2218	Mountain Home	AR	72653
Miller Service Company	Laban Miller	870-424-7002	30	1102 CR 27	Mountain Home	AR	72653
Advantage Service Company	Jim Baldwin	501-758-2404	40	1791 Cypress	North Little Rock	AR	72114
Comfort Air Conditioning	Burney DeMaine	870-535-8270	50	3012 Midland Dr. South	Pine Bluff	AR	71603
Nicholson's Heat and Air	John Nicholson	870-534-5476	75	417 Blake St.	Pine Bluff	AR	71601
Advantage Service Company	Jim Baldwin	501-758-2404	40	1791 Cypress	North Little Rock	AR	72114
Comfort Air Conditioning	Burney DeMaine	870-535-8270	50	3012 Midland Dr. South	Pine Bluff	AR	71603
Nicholson's Heat and Air	John Nicholson	870-534-5476	75	417 Blake St.	Pine Bluff	AR	71601
Yates Heating & AC, Inc.	Carl Yates	479-272-4012	100	PO Box 103	Plainview	AR	72857
AACO Heating & Air	Wilburn Addington	501-268-2303	60	500 S. Main	Searcy	AR	72143
Acme	Bobby Mashburn	870-673-1629	50	1834 N Henderson	Stuttgart	AR	72160
Mohr Air Conditioning	Bob Mohr	870-238-3372	50	1103 N. Falls Blvd	Wynne	AR	72396
CoolSaver A/C Tune-Up - Commercial Only							
Gibbs Service Company	Gary Ward	888-871-4422	50	8200 Industry Drive	North Little Rock	AR	72231

Please Note: The selection of a Participating Company to perform the work is the sole decision of the property owner or authorized lessee/occupant. Inclusion of a Participating Company to perform work does not represent an endorsement by Entergy Arkansas, Inc. or CLEAResult Consulting of any product, individual, or company. Work performed by Participating Companies is not guaranteed or subject to any warranty, either expressed or implied, by either Entergy Arkansas, Inc. or CLEAResult. Neither Entergy Arkansas, Inc. nor CLEAResult make any guarantee or any other representation as to the quality, cost, or provided effectiveness of the products provided or work performed by any Participating Company or by its employees, subcontractors or suppliers.

Updated 2/24/2012

Figure 23: CoolSaver Residential Participating Contractors



## FACT SHEET: 2011-2013 Residential CoolSaver® Program

The Residential CoolSaver Program is designed to overcome market barriers that prevent customers from receiving high performance A/C and Heat Pump System replacements or tune-ups. Energy savings are captured through identifying A/C and Heat Pump System inefficiencies during the tune-up and correcting these. CoolSaver provides incentives, training on best practices, and discounts on high quality tools for contractors to conduct high performance system tune-ups as well as ensure replacement systems run at optimal efficiency.

### What are the Benefits?

- Instant savings coupons toward the cost of an A/C tune-up.
- A CoolSaver tune-up performed with precision digital instruments will document the before-and-after condition of your HVAC system to verify the increase in your system's efficiency.
- Reduced cooling costs.
- Extending the life of your equipment.
- Better humidity control.

### Who is Eligible?

All Entergy Arkansas, Inc., residential customers with a valid account number and whose systems are at least one year old. (Systems that have been incentivized through the CoolSaver Program in the past five years are not eligible to receive these incentives.)

### How to Participate:

Please follow the steps below to participate:

1. Contact the Energy Efficiency Solutions Center at (877) 212-2420 or [coolsavereai@clearesult.com](mailto:coolsavereai@clearesult.com).
2. Your participating contractor will conduct an evaluation using precision digital tools to identify energy-saving improvement opportunities and determine if a high performance tune-up is necessary.
3. Contractor will thoroughly clean condenser coils and, if necessary, clean evaporator coils and blowers as well as adjust refrigerant charge to manufacturer's specification.
4. Once the tune-up is completed, your contractor will subtract the coupon amount from the total invoice.

### Program Incentives

CoolSaver Incentive Rates		
Measure type	Incentive Level	Measure Description
High Performance A/C Tune Up	<ul style="list-style-type: none"> <li>• \$75 paid to contractor for completed tune-up</li> </ul> <p><i>The customer may receive up to \$75 for services performed:</i></p> <ul style="list-style-type: none"> <li>• \$25 toward cost of cleaning evaporator coil</li> <li>• \$25 toward cost of cleaning blower</li> <li>• \$25 toward cost of adjusting refrigerant charge to manufacturer specification</li> </ul>	Program-required Test-in and Test-out data is measured and collected by a Qualified Technician. Pending customer approval, typical improvement measures include: airflow correction, cleaning of indoor blower, evaporator coils, condenser coils, and correction of refrigerant charge using Program-required tools and procedures.

**Questions?** Contact the Energy Efficiency Solutions Center at (877) 212-2420

Figure 24: Residential CoolSaver Fact Sheet

**Earn cash for improving the energy efficiency of your small business!**

Entergy Arkansas, Inc., offers the Small Commercial and Industrial Energy Solutions Quick Start Program and the Residential & Small Commercial A/C Tune-up Quick Start Program. These programs provide cash rebates for customers who invest in qualifying energy efficiency improvements for their businesses, including:

- ▶ Motor replacement
- ▶ High-performance A/C tune-ups
- ▶ A/C system replacement
- ▶ Lighting upgrades

For more information, call the Energy Efficiency Solutions Center at 1-877-212-2420 or contact participating contractors. Program descriptions and a list of participating contractors can be found at [entergy-arkansas.com/energy\\_efficiency](http://entergy-arkansas.com/energy_efficiency).



THE POWER OF PEOPLE™  
[entergy-arkansas.com](http://entergy-arkansas.com)

Figure 25: Small Business Flyer

PRESS RELEASE

<FOR IMMEDIATE RELEASE>

Contact Information:

John Corley  
Facilities Director  
Henderson State University  
870-230-5179  
[corelv@hsu.edu](mailto:corelv@hsu.edu)

Paul Speers  
Account Service Manager  
Entergy Arkansas, Inc.  
501/620-5744  
[pspeers@entergy.com](mailto:pspeers@entergy.com)

**HENDERSON STATE UNIVERSITY REWARDED FOR ENERGY EFFICIENCY**

*Received Incentive from Entergy Arkansas Large Commercial and Industrial Solutions Program*

ARKADELPHIA, ARK. – (AUGUST 11, 2011) – Henderson State University (HSU) was awarded an incentive check of \$9,895 from Entergy Arkansas, Inc.'s Commercial and Industrial Solutions Program for upgrading the energy efficiency of the lighting and air conditioning systems in Foster Hall and the Reynolds Building.

The Large Commercial and Industrial Solutions Program helps schools and businesses save energy and money by providing no-cost facility improvement recommendations and financial incentives based on the total amount of energy the participant will save. HSU's high efficiency lighting and air conditioning equipment will save approximately 108,000 kilowatt-hours of electricity per year, equivalent to preventing the carbon dioxide emissions from nearly 8,300 gallons of gasoline, according to Environmental Protection Agency calculations.

"It's important for our university to set a positive example for our students and faculty, as well as the surrounding community, and reducing our energy use is a critical step," said Facilities Director John Corley. "While we're enjoying the energy savings, our students and faculty appreciate the increased comfort in the classrooms."

In addition to financial incentives and technical assistance, the program worked with the university to involve personnel from all departments in the decision-making process so everyone understood the financial benefits of investing in the project. "Involving everyone in the process brought a greater understanding of the long-term advantages of using the equipment and justified the expense as a true investment for the university," said Corley. "We look forward to a continued relationship with Entergy Arkansas as we identify ways to further reduce energy use at the university."

"Schools are an integral part of the communities Entergy Arkansas serves. This program is an organized effort to bring needed resources and energy efficiency to Arkansas," said Entergy Arkansas Customer Service Manager Paul Speers. "We look forward to continuing to work with schools like HSU to make these much-needed projects happen."



Figure26: Press Release C&I

<FOR IMMEDIATE RELEASE>

**Contact Information:**

Brian Goforth, Facilities Manager  
Arkansas Federal Credit Union  
501-533-2160  
bgoforth@afcu.org

**Contact Information:**

Barbara Merrick, Customer Service Manager  
Entergy Arkansas, Inc.  
501-396-4990  
[bmerrick@entergy.com](mailto:bmerrick@entergy.com)

**ARKANSAS FEDERAL CREDIT UNION REWARDED FOR ENERGY EFFICIENCY**  
*Received Incentive from Entergy Arkansas, Inc. Program*

**JACKSONVILLE, ARK (Dec. 30, 2011)** – Arkansas Federal Credit Union was awarded a \$5,349 incentive from the Entergy Arkansas, Inc. Commercial & Industrial (C&I) Solutions Program for increasing the energy efficiency of the lighting system at its headquarters.

The C&I Solutions Program helps commercial customers save energy and money by providing no-cost facility improvement recommendations and financial incentives based on the total amount of energy the new equipment will save. The high efficiency lighting system will save nearly 159,000 kilowatt-hours of electricity per year, equivalent to preventing the carbon dioxide emissions of more than 12,000 gallons of gasoline, according to U.S. Environmental Protection Agency calculations.

“The Entergy Arkansas Commercial Solutions Program was pivotal in completing this improvement,” said Facilities Manager Brian Goforth. “The improved lighting will not only save money from reduced energy use, but it will improve the working environment for our employees.”

As part of its participation in the program, the credit union will continue to evaluate additional efficiency opportunities. “We look forward to working with Entergy and the C&I Solutions Program to identify ways to further reduce energy use,” said Goforth. “Energy efficiency projects make sound financial sense, as the reduced energy use generally offsets the cost of the initial investment.”

“We identified a real need for an energy efficiency program that specifically targets our commercial customers, especially as budgets are spread thin,” said Entergy Arkansas Customer Service Manager Barbara Merrick. “This program is an organized effort to bring needed energy efficiency to Arkansas.”

###



Figure 27: Press Release EE Project

<FOR IMMEDIATE RELEASE>

**Contact Information:**  
Stan Grise, VP & CFO  
Munro & Company, Inc.  
501-262-6182  
sgrise@munroshoe.com

**Contact Information:**  
Paul Speers, Customer Service Manager  
Entergy Arkansas, Inc.  
501-620-5744  
[pspeers@entergy.com](mailto:pspeers@entergy.com)

**MUNRO & COMPANY, INC. REWARDED FOR ENERGY EFFICIENCY**  
*Received Incentive from Entergy Arkansas, Inc. Program*

**HOT SPRINGS, ARK (Dec. 30, 2011)** – Munro & Company, Inc., American designer of comfort-oriented shoes, was awarded a \$14,050 incentive from the Entergy Arkansas, Inc. Commercial & Industrial (C&I) Solutions Program for increasing the energy efficiency of the lighting systems in three of the company’s facilities, including a shoe factory.

The C&I Solutions Program helps commercial customers save energy and money by providing no-cost facility improvement recommendations and financial incentives based on the total amount of energy the new equipment will save. The high efficiency lighting systems will save nearly 352,000 kilowatt-hours of electricity per year, equivalent to preventing the carbon dioxide emissions of more than 27,000 gallons of gasoline, according to U.S. Environmental Protection Agency calculations.

“The Entergy Arkansas Commercial Solutions Program was pivotal in completing these improvements,” said CFO Stan Grise. “The improved lighting will not only save money from reduced energy use, but it will improve visibility in our factory, ultimately improving production.”


As part of its participation in the program, the shoe manufacturer will continue to evaluate additional efficiency opportunities. “We look forward to working with Entergy and the C&I Solutions Program to identify ways to further reduce energy use,” said Grise. “Energy efficiency projects make sound financial sense, as the reduced energy use generally offsets the cost of the initial investment.”

“We identified a real need for an energy efficiency program that specifically targets our commercial customers, especially as budgets are spread thin,” said Entergy Arkansas Customer Service Manager Paul Speers. “This program is an organized effort to bring needed energy efficiency to Arkansas.”



Figure 28: Press Release EE Project





**Enjoy instant savings.**

With the new **ENERGY STAR®** appliances program, Entergy Arkansas, Inc. is making saving money and being energy efficient easier than ever.

*Dena Washington  
Customer Service Supervisor*



Now enjoy **INSTANT SAVINGS** at the register on a variety of energy-efficient **ENERGY STAR®** products at participating retail locations—no coupons necessary!

For a list of eligible products and participating retail locations, visit [entergyarkansas.com/homeappliances](http://entergyarkansas.com/homeappliances) or call 877-212-2420.



**Entergy**  
THE POWER OF PEOPLE®

**You're just three steps away from savings.**

- 1. Visit [entergyarkansas.com/homeappliances](http://entergyarkansas.com/homeappliances)** for a list of participating retail locations and products.
- 2. Upgrade** to the eligible energy-efficient products of your choice and receive **instant savings** on your purchase, right at the register.
- 3. Enjoy** the savings that replacing inefficient appliances brings you.

For more money saving tips and tools, visit [entergyarkansas.com/savemoney](http://entergyarkansas.com/savemoney).



**Entergy**  
THE POWER OF PEOPLE®

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Figure 29: Entergy Bill Insert

 <h2>How efficient is your home?</h2> <p>Amy - Entergy Customer</p>	 <h2>How efficient is your air conditioner?</h2> <p>James - Entergy Customer</p>
	
<h3>Entergy Arkansas's Home Energy Solutions Program can help you save electricity and money today.</h3> <p>A professional home energy evaluation is the best way to start controlling your home energy use. Call us to find out how the home energy solutions program can help you:</p> <ul style="list-style-type: none"><li>• Identify and prioritize energy-efficiency improvement projects.</li><li>• Find solutions to your comfort problems.</li><li>• Reduce the cost of installing energy-saving improvements.</li></ul> <p>Call now and find out how to save on your home energy evaluation. Many instant discounts and rebates are available, and you can visit our website to see an example of available savings as well as learn about other ways to save electricity.</p> <p>Ready to start saving? Contact the Energy Efficiency Solutions Center at (877) 212-2420 or visit <a href="http://entergyarkansas.com/efficiency">entergyarkansas.com/efficiency</a>.</p>	<h3>Entergy Arkansas's CoolSaver® Air Conditioner and Heat Pump Tune-up Program can help you save now AND later.</h3> <p>Are you getting the most out of your air conditioner or heat pump?</p> <p>A CoolSaver air conditioner or heat pump tune-up ensures your system is running its best. The CoolSaver Program also provides instant-savings coupons to help offset the cost of your air conditioner or heat pump tune-up performed by one of our participating contractors. Extend the life of your air conditioner or heat pump. Contact the Energy Efficiency Solutions Center today at (877) 212-2420 or visit <a href="http://entergyarkansas.com/cool saver">entergyarkansas.com/cool saver</a>.</p>  <p>THE POWER OF PEOPLE®</p>  <p>A message from Entergy Arkansas, Inc. ©2012 Entergy Services, Inc. All Rights Reserved. • E-000000</p>

Figure 30: Home Energy Solutions Bill Insert

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Energy Efficiency Programs  
2011-2013

1

**Circa 1911**

<b>Cy Young Award</b>	<b>Cy Young</b>
<b>Milestone Reached</b>	<b>South Pole</b>
<b>In Retail</b>	<b>Woolworths opens 560<sup>th</sup> Store</b>
<b>In Manufacturing</b>	<b>Incandescent light Three Phase Motors</b>



2

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**Circa 2011**

<b>Cy Young Award</b>	<b>Justin Verlander</b>
<b>Milestone Reached</b>	<b>Mars Science Lab</b>
<b>In Retail</b>	<b>Wal-Mart opens 617<sup>th</sup> Store</b>
<b>In Manufacturing</b>	<b>Incandescent light Three Phase Motors</b>



3

**Entergy's Energy Efficiency Portfolio**

Residential	➔	9 programs
C & I	➔	3 programs
Agricultural	➔	2 programs
Small Business	➔	1 program
Institutional/public entities	➔	1 program

4

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C & I Prescriptive

C & I Custom

Small Business

CitySmart

3

**C & I Prescriptive**

4

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**C & I Prescriptive**

Open to any non-residential E&I customer  
Requires no Measurement & Evaluation Plan  
Projects with 10,000 KWH savings qualify for technical assistance

**\$0.09 Per KWH  
For all measures**

*\*Note that no project will be provided incentives that exceed 15% of the sum of the incremental measure.*

7

**C & I Prescriptive**

Lighting retrofit projects replace existing lighting systems with more efficient lighting systems.

**\$0.09 Per KWH  
Lighting Retrofit**

8

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**C & I Prescriptive**

Automatic lighting controls save energy by turning off or dimming lights at times when they are not necessary.

**\$0.09 Per KWH  
Lighting Controls**

3

**C & I Prescriptive**

For existing buildings and New Construction, inefficient (non ENERGY STAR) heat pumps and air conditioning units are eligible to be replaced with ENERGY STAR qualified units.

**\$0.09 Per KWH  
HVAC Replacement**

30

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**C & I Prescriptive**

Chillers are commonly used to provide cooling for a variety of building types and process loads. The most common applications are for larger cooling loads (e.g. 50 to 100 tons and greater).

**\$0.09 Per KWH  
Chiller Replacement**

11

**C & I Prescriptive**

Low Flow Pre-rinse spray valves, Faucet Aerators, Shower Heads  
Energy efficient dishwashers, electric combination ovens, fryers, steam cookers.

**\$0.09 Per KWH  
Kitchen and Plumbing  
Upgrades**

12



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**C & I Prescriptive**

Evaporator fan upgrades to EC motors, Anti-sweat heater controls, Refrigerated door gaskets

**\$0.09 Per KWH  
Refrigeration**

13

**C & I Prescriptive - Example**

An average size facility replaces 40 60 Watt light bulbs with CFLs and some high occupancy sensors for approximately \$1,600.

Annual Energy Savings (kWh)	Assumed Blended Electrical Rate (\$/kWh)	Deemed Annual Energy Savings (\$)	Energy Base Incentive Rate	Total Incentive Amount (\$)
4,927	\$.08	\$394	\$.09	\$443

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## C & I Custom

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## C & I Custom

- Any large commercial or industrial customer with a demand more than 100 kW
- Must be Measurable & Verifiable
- Tier Eligible Incentives = Measure > 10,000 kWh savings annually
- Co-Funding (25-50%) Feasibility Study assistance for projects of at least 250,000 kWh

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C & I Custom						
Incentive Rate (per kWh) Based on Number of Qualifying Measures Installed						
Measure Type <sup>a</sup>	1 (Base)	2 Tier	3 Tier	4 Tier	5 Tier	6+ Tier
Prescriptive Measures	\$0.07	\$0.08	\$0.09	\$0.11	\$0.13	\$0.16
All Other Projects	\$0.15	\$0.16	\$0.17	\$0.19	\$0.21	\$0.23

C & I Custom
<p>A Variable Frequency Drive controls the rotational speed of an electric motor by controlling the frequency of the electrical power supplied to the motor.</p>
<p><b>\$0.15 - \$0.23 Per KWH</b> VFD Motor Drives</p>

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C & I Custom

HVAC controls are eligible in the EAI Programs when no other controls previously exist or where existing controls can be modified or improved to provide measurable energy savings.

\$0.15 - \$0.23 Per KWH  
HVAC Controls

19

C & I Custom

Compressed air retrofits are ideal when there are significant air leaks; compressors run at less than full capacity, compressors are run in modulation mode, discharge pressure is greater than 110 psig, or when compressed air is used for tasks that do not require high pressure.

\$0.15 - \$0.23 Per KWH  
Compressed Air

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**C & I Custom - Example**

<b>Proposed Retrofits Cost = \$206,656 4 Measures (2 Prescriptive &amp; 2 Other)</b>	<b>Annual Energy Savings (kWh)</b>	<b>Assumed Blended Electrical Rate (\$/kWh)</b>	<b>Annual Energy Savings (\$)</b>	<b>Energy Dose Incentive Rate</b>	<b>Energy Dose Incentive Rate</b>	<b>Total Incentive Amount (\$)</b>
Upgrade air compressor to variable speed, add system air storage and controls	254,071	\$0.060	\$17,080	\$0.15	\$0.04	\$34,057
Provide (3) variable speed controllers for the motors	112,500	\$0.060	\$5,750	\$0.15	\$0.04	\$21,375
Replace old lights with (500) 4-lamp T5HO fixtures & occupancy controls	278,134	\$0.060	\$16,588	\$0.07	\$0.04	\$30,997
Upgrade (75) 2'x4', 2 lamp T8 fixtures with premium efficiency ballasts and controls	11,340	\$0.065	\$737	\$0.07	\$0.04	\$1,247
<b>TOTALS</b>	<b>686,665</b>		<b>\$41,237</b>			<b>\$107,507</b>

21

**Small Business**

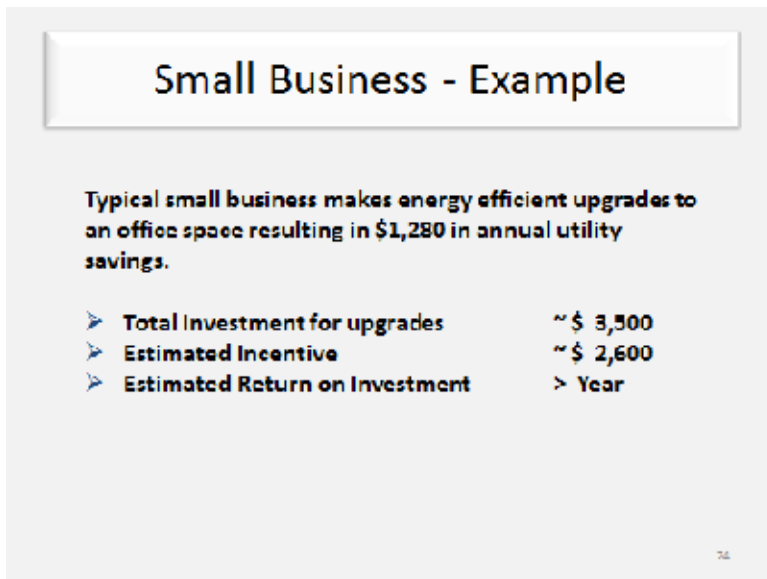
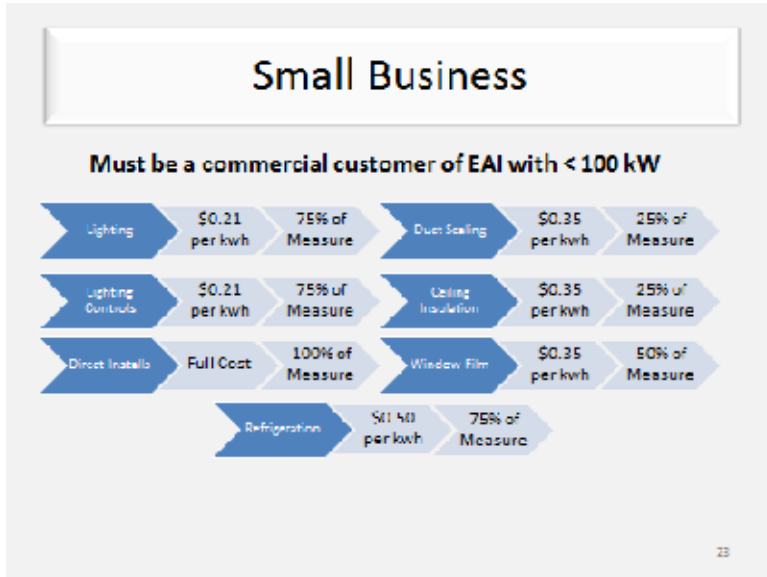
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**CoolSaver – Business**

Must be a commercial customer of EAI with < 100 kW

\$300.00 Towards AC Replacement	+	\$300.00 for the commissioning of the install	=	\$600.00
\$300.00 Towards Heat Pump Replacement	+	\$300.00 for the commissioning of the install	=	\$600.00

Replacement of a Central Air Conditioning system (evaporator and condenser units) or Heat Pump (fan coil and condenser units) with an ENERGY STAR qualified unit. Commissioning bonus verifies that a quality installation with verification test in was performed to verify the efficiency and performance of the unit.

23

**City Smart**

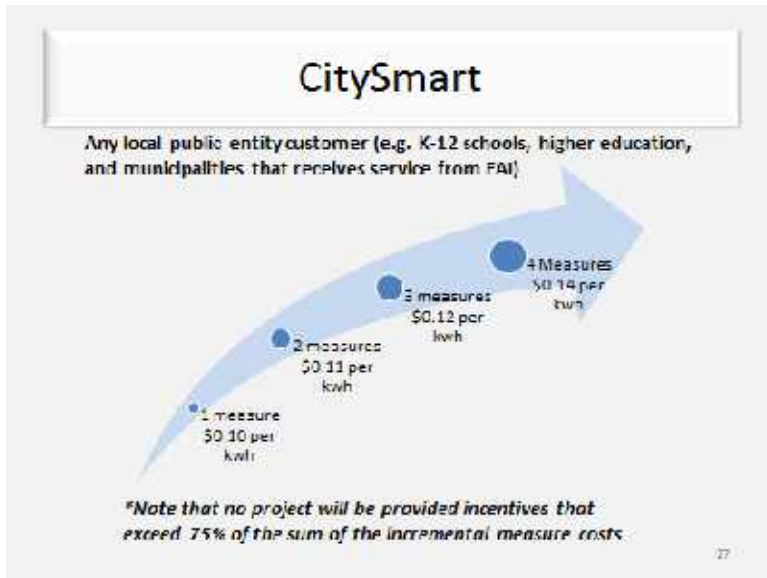
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**Irrigation Load Control**

The customer currently taking service under LAI rate schedule 14  
(Agricultural Water Pumping)

**\$4.16 Per KW**  
Not to exceed 30% of  
the base rate portion of  
the customer bill

30

The screenshot shows the Entergy website interface. At the top left is the Entergy logo with the tagline 'THE POWER OF TOGETHER'. Below the logo is the text 'Entergy arkansas, inc.'. The main navigation bar includes links for 'My Account Online', 'Our Community', 'Economic Development', 'Energy Education', 'About Us', and 'Entergy.com'. A central banner features a man pointing to the text 'PaperFREE Billing' and 'SAVE TIME AND MONEY!'. To the right of the banner is a 'SIGN IN' section with fields for 'User ID' and 'Password', and a 'Log In' button. Below the banner are several promotional tiles: 'Moving? Start or stop services. Click here >>> Energy Efficiency Program. Learn More >>>', and 'Click Here to Save Money on your bill with Energy Saving Tips and Tools. Start Today >>>'. A large red arrow points from the 'Energy Efficiency Program' tile towards the right. At the bottom of the page is a row of small icons representing various services and a row of small human figures.

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The screenshot shows the Energy Arkansas website header with the logo and navigation links. Below the header, the "Energy Efficiency Programs" section is visible, featuring a list of programs: "Residential Programs" and "Commercial and Industrial Programs". A large red arrow points from the "Commercial and Industrial Programs" text to the right. Below the list is a row of diverse human figures. At the bottom, there is a footer with copyright information for Energy Corporation.

This screenshot displays the "Commercial and Industrial Programs" section of the Energy Arkansas website. On the left, a sidebar lists various services like "My Business", "Save Money on Your Bill", and "Energy Efficiency Programs". The main content area features a gear icon labeled "ENERGY EFFICIENCY PROGRAMS" with a red arrow pointing to a list of programs including "CitySmart Program", "Level Commercial & Industrial Energy Solutions Program", "Appliance/Energy Saving Load Control Service", "Large Commercial & Industrial Standard Offer Program", "Large Commercial & Industrial Energy Solutions Program", and "Large Commercial & Industrial Demand Response Program". Below this, it lists "Cities, Counties and Schools" with a "CitySmart Program" bullet point. A large "City Smart" logo is prominently displayed at the bottom, above a row of diverse human figures.

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The screenshot shows the Entergy Arkansas website. At the top left is the Entergy logo with the tagline 'THE POWER OF PEOPLE!' and 'Entergy Arkansas, Inc.'. To the right are links for 'Account Login', 'New Rates', 'Careers', 'FAQ', 'Website', and 'Contact Us'. Below this is a navigation bar with 'Residential Customers' and 'Business Customers' tabs, and a search box. A secondary navigation bar includes 'My Account Online', 'Our Community', 'Economic Development', 'Energy Education', 'About Us', and 'Energy.com'. A third bar contains 'Home', 'Rate Page', 'My Services', 'Save Money on Your Bill', 'Energy Efficiency Programs', and 'Website Page'. The main content area features a sidebar on the left titled 'My Business' with 'Save Money on Your Bill' and 'Energy Efficiency Programs' sections. The 'Energy Efficiency Programs' section lists: 'Commercial Energy Library', 'ENERGY STAR - Small Business', 'ENERGY STAR - Commercial', 'US Department of Energy - Industrial Best Practices', and 'US Department of Energy - Industrial Assessment Centers'. The main content area has a heading 'Commercial and Industrial Programs' next to an 'ENERGY EFFICIENCY PROGRAMS' icon. Below this is a list of programs: 'CitySmart Program', 'Small Commercial & Industrial Energy Solutions Program', 'Agribusiness/Agribase Energy Cost Control Service', 'Large Commercial & Industrial Standard Offer Program', 'Large Commercial & Industrial Energy Solutions Program', and 'Large Commercial & Industrial Demand Response Program'. Underneath is the heading 'Cities, Counties and Schools' with a sub-item 'CitySmart Program'. The title 'City Smart' is displayed in large red letters above a row of diverse human figures.

This screenshot is identical to the one above, showing the Entergy Arkansas website. The main content area features a heading 'Commercial and Industrial Programs' next to an 'ENERGY EFFICIENCY PROGRAMS' icon. Below this is a list of programs: 'CitySmart Program', 'Small Commercial & Industrial Energy Solutions Program', 'Agribusiness/Agribase Energy Cost Control Service', 'Large Commercial & Industrial Standard Offer Program', 'Large Commercial & Industrial Energy Solutions Program', and 'Large Commercial & Industrial Demand Response Program'. Underneath is the heading 'Cities, Counties and Schools' with a sub-item 'CitySmart Program'. The title 'Small Commercial' is displayed in large red letters above a row of diverse human figures.

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The screenshot shows the Entergy Arkansas website. The top navigation bar includes 'Residential Customers' and 'Business Customers'. The main content area features a sidebar with 'My Business' options and a central section for 'Commercial and Industrial Programs'. A red arrow points from the 'ENERGY EFFICIENCY PROGRAM' icon to the 'Agricultural Pump' program. Below this, there is a section for 'Cities, Counties and Schools' and a large graphic of a diverse group of people.

**My Business**  
Save Money on Your Bill

- Business Energy Check-Up
- Energy Efficiency Programs**
- Commercial Energy Library
- ENERGY STAR - Small Business
- ENERGY STAR - Commercial
- US Department of Energy - Industrial Best Practices
- US Department of Energy - Industrial Assessment Services

**Commercial and Industrial Programs**

- DynSmart Program
- Small Commercial & Industrial Energy Solutions Program
- Agricultural Pumps & Range Load Control Service
- Large Commercial & Industrial Standby Offer Program
- Large Commercial & Industrial Energy Solutions Program
- Large Commercial & Industrial Demand Response Program

**Cities, Counties and Schools**

- DynSmart Program

# Agricultural Pump

This screenshot is similar to the one above, showing the Entergy Arkansas website. The 'Agricultural Pump' program is no longer visible. Instead, the 'Commercial & Industrial' program is highlighted. The rest of the page layout, including the sidebar and navigation, remains the same.

**My Business**  
Save Money on Your Bill

- Business Energy Check-Up
- Energy Efficiency Programs**
- Commercial Energy Library
- ENERGY STAR - Small Business
- ENERGY STAR - Commercial
- US Department of Energy - Industrial Best Practices
- US Department of Energy - Industrial Assessment Services

**Commercial and Industrial Programs**

- DynSmart Program
- Small Commercial & Industrial Energy Solutions Program
- Agricultural Pumps & Range Load Control Service
- Large Commercial & Industrial Standby Offer Program**
- Large Commercial & Industrial Energy Solutions Program
- Large Commercial & Industrial Demand Response Program

**Cities, Counties and Schools**

- DynSmart Program

# Commercial & Industrial

Energy Efficiency Presentation

Centerpoint Energy's Industrial Conference Embassy Suites Hotel

Little Rock, Arkansas

December 8 2011 - Presentation 1

**Contact Entergy**

**Business, Agricultural or C&I Programs**

**Gabe Munoz  
501-377-3659**

**Residential Programs**

**Jeremy Champlin  
501-377-5959**

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**Contact ClearResult**

**C&I Programs**

**Robert Davenport  
501-221-4015**

**City Smart**

**Small Business Program Manager**

**Walter Wills  
501-221-4008**

**Business Cooling Solutions**

**Joe Kuonen  
501-221-4002**

38

ADDRESSEE  
ADDRESS LINE  
CITY, STATE ZIP

**Announcing the 2011 Agricultural Irrigation Load Control Program**

Dear [NAME]

Last year, you participated in a program to help reduce the electricity cost of irrigation pumps during the summer billing months. Because of your involvement, the program was such a success that Entergy Arkansas, Inc. is enrolling farmers to sign up for it this year, and we would like to ask you to participate again.

*We had 22 wells in the program. The savings was tremendous. We're probably going to add more wells in 2011.  
Larry Brown, Brinkley*

The Agricultural Irrigation Load Control Program reduced peak electrical load during hot summer weekday afternoons by partnering with Agricultural Water Pumping Service customers to reduce the demand on the electrical system. As you know, the greatest demand for electricity occurs in the summer months when you are pumping water to fields while other customers are using air conditioning to cool their homes and businesses.

We want this program to benefit as many farmers as possible, and we urge you to sign up to lower your power bill in June, July and August. As in 2010, participating farms will receive a \$4.16 per kilowatt credit, and the savings will be limited to 30 percent of your monthly base bill before adjustments. In the past, this credit saved 10-15 percent off three months of total bills. All customers taking service under Agricultural Water Pumping Service are eligible to participate.

Enclosed with this letter is a list of the pumps, their location and your notification information from last year. Please review the enclosed information, update, initial and return to us in the postage-paid envelope. Please add pumps and locations as well as how you would like to be notified when the pumps are turned off. Also indicate in writing if there are listed pumps that are no longer under your control and should be removed from the program. We will send you more information, answer any questions you may have, and help you through the process.

Thank you for your consideration, and we look forward to your continued participation in the 2011 Agricultural Load Control Program. Please complete the enclosed form and return it to us in the postage-paid envelope, and we will inform you of program updates as they become available.

Sincerely,

Richard Smith

Figure 31: Direct Mail for AILC Program Existing Participants

## **Frequently Asked Questions:**

### **How will the credit be applied?**

The Agricultural Load Control Program will provide a \$4.16 credit per kilowatt of electricity used for each pump. The total credit could be as much as 30 percent of the base bill amount before adjustments. In the past, accounts using this billing credit saved between 10-15 percent of their bill over three months.

### **Why is Entergy Arkansas implementing this program?**

We are looking to find ways to save customers money and reduce the total "peak load," the amount of electricity required to serve all our customers during the weekday periods of summer afternoons. As seen in 2010, reducing peak load benefits all of our customers, and Entergy Arkansas is offering it to more farmers this year. This program is approved by the Arkansas Public Service Commission.

### **Have participating farmers been satisfied with your program?**

Yes. We polled 75 farmers at the end of the 2010 season. Over three-quarters expressed complete satisfaction. Over ninety percent plan to stay on the program.

### **What happens if I choose to terminate the program before the three months are over?**

You may end your participation in writing at any time, but if you do, your credits will end and all prior billings for which you received a credit will be recalculated and re-billed at your regular rate.

### **What if something goes wrong with the meter or the switching controls?**

Installation and maintenance is Entergy Arkansas' responsibility. We will give you a special 24-hour telephone number to call in case there is a problem.

### **Will my pumps come on automatically after a daily interruption?**

Many pumps will. The switch is a disconnect device and your pump will experience a total outage during daily interruptions. You will need to check with your pump service provider to determine if your motor control can be set to automatically turn the pump on when the disconnect device restores service.

### **What if I learn my pumps cannot be turned off as frequently as described after I have joined the program?**

We understand sometimes the best intentions go awry when we least expect it. This is why the Agricultural Load Control Program will allow a customer to terminate participation in writing anytime during the program period. The pump account will be re-billed for any credit that may have been received and no other penalty fees will be assessed.

### **Where can I see the terms of the agreement?**

You can view a preliminary draft of the terms online by going to <http://entergyarkansas.com/irrigation>. The terms will not be final until we receive approval from the Arkansas Public Service Commission. At your request, we will e-mail or mail you a copy of the terms if you will contact or e-mail us today. Phone: 1-800-324-4709; E-mail: [arcscfarmers@entergy.com](mailto:arcscfarmers@entergy.com).

### **What do I need to do today?**

Review the list of pumps that are included in this letter. Make any revisions to the list so we will know the pumps you want on the program and send the list back to us in the enclosed postage paid envelope.

### **What do I do about getting my pumps turned back on for the irrigation season?**

You will still need to call the Irrigation Desk, as you have in the past, to have service turned on at the pump. Phone: 1-800-324-4709.

Figure32: AILC Q&A Information Sheet

## Announcing the 2011 Agricultural Irrigation Load Control Program

Dear [NAME]

Last year, Entergy Arkansas, Inc. introduced a new program to help farmers reduce the electricity cost of irrigation pumps during the summer billing months. The Agricultural Irrigation Load Control Program reduced peak electrical load during hot summer weekday afternoons by partnering with Agricultural Water Pumping customers to reduce the demand on the electrical system. As you know, the greatest demand for electricity occurs in the summer months when farmers like you are pumping water to fields other customers are using air conditioning to cool their homes and businesses.

*We had 22 wells in the program. The savings was tremendous. We're probably going to add more wells in 2011.*

*Larry Brown, Brinkley*

The program was a success, and most of the farmers who participated in last year's program want to participate again in 2011. As a result, we are expanding the program to include new participants like you. We want the program to benefit as many farmers as possible, and we urge you to sign up to lower your power bill in June, July and August. Participating farms will receive a \$4.16 per kilowatt credit, and the savings will be limited to 30 percent of your monthly base bill before adjustments. In the past, this credit has saved 10-15 percent off three months of total bills. All of our customers taking service under the Agricultural Water Pumping Service are eligible to participate.

**Here is how the program works:** The company, at our expense, will install a special meter that can be activated using wireless and broadband signals. Each weekday during the program period, Entergy Arkansas will interrupt electric service to the pump for three hours each day, Monday through Friday, between the hours of noon and 9 p.m., excluding holidays. A \$4.16 per kilowatt credit will be applied to the bill for that service month. You may sign up one or all of your pumps, and the credits will occur over three months – June 1 through August 31 - as determined by your normal billing date.

To participate, you will need to be willing to allow Entergy Arkansas to:

- Install a load control device on your pump or pumps that will turn the power off and on to the pump or pumps;
- Turn off the pump for three hours per day, Monday through Friday anytime between the hours of noon and 9 p.m.; and
- Remotely turn pumps of up to 110 horsepower on and off by a two-way communication system designed for customers.
- If you would like, we can notify you by text or e-mail message when the well has been turned off and when your pump or pumps are not available again after the interruption.

There are no installation fees for customers to participate in the program; however, Entergy Arkansas and their representatives will need access to the meter pole, and the pole must be in good condition to install the new meter and load control device. You also must verify your willingness to participate by committing the pump(s) to remain on the program for at least one summer pumping season,

Enclosed with this letter is a list of eligible wells. If you are interested in taking advantage of the 2011 Agricultural Irrigation Load Control Program billing credits, indicate on the enclosed form the wells to include on the program, and return the form to us in the enclosed envelope. We will send you more information, answer any questions you may have, and help you through the process.

Thank you for your consideration. We look forward to your participation in the 2011 Agricultural Load Control Program. Please complete the enclosed form and return it to us in the postage-paid envelope, and we will inform you of program updates as they become available.

Sincerely,

Richard Smith

Figure33: Direct Mail AILC Eligible Accounts



**Make the program and add more wells this year.**

Unveiled participating farmers at the program. Over two-thirds said with the program, in spite of the need for the summer's high heat.

**High praise for the program:**

Turn on schedule notifications of the switching, enabling farmers to avoid pumping schedule.

the wells, that let farmers know if their maintenance.

**How to get more information and to in the program.**

**We had 22 wells in the program. The savings were tremendous. We're probably going to add more wells in 2011."**

- Leslie Brown, Drinkley

### Commonly Asked Questions

#### Am I eligible for this voluntary program?

All Entergy Arkansas customers receiving electric service with the Agriculture Water Pumping Service tariff are eligible.

#### How is my billing credit calculated?

The maximum demand measured at the meter of the account(s) will be multiplied by \$4.15 for each of the three months. The billing credit will not exceed 30 percent of the base rate portion of the bill. Additional riders that are part of the bill will not be included within the 30 percent discount cap.

#### Can I stop being enrolled after signing a contract?

Customers can be allowed to terminate participation in the Agricultural Load Control program with written notice any time during the contract period. We will rebill the pump account to indicate any credit that may have been received during the contract. No penalties will be assessed.

#### Why is Entergy Arkansas sponsoring this program?

Maximum irrigation loads and air conditioning loads coincide on hot summer afternoons and place the greatest demand on electricity resources that serve you. This program helps to reduce some of that demand.

#### How do I sign up for the program?

To sign up, contact the Entergy Arkansas Irrigation Desk at 800-324-4700 or e-mail us at [arckanians@entergy.com](mailto:arckanians@entergy.com). We will send you a sign-up package that will include the billing discount information and contracts for your signature along with instructions for returning the contract.



**Entergy Arkansas, Inc.**  
90, Box 531  
Ark. Customer Operator's Support  
Little Rock, AR 72203  
Telephone: 800-324-4700  
E-mail: [arckanians@entergy.com](mailto:arckanians@entergy.com)

A message from Entergy Arkansas, Inc.  
2011: Shrews Service, Inc. All Rights Reserved.

2-11



## Helping You Manage The Cost of Irrigation

Learn how a simple shift in irrigation systems energy reduce your summer elect



Chris Lindford, Operations Director



2-11

Figure 34-A AILC Brochure Front

## on Load Control credits

or electricity occurs at the time when later to their fields and customers are to cool their homes and businesses. By to reduce the demand on the electrical at Irrigation Load Control program reduces during hot summer weekday afternoons. By program, you can lower your bill by receiving

**“They gave us a time when the wells were going off and coming back on to let us work around that schedule. The savings were great.”**

- Larry Nash, Wheatley

er is available to all Energy Arkansas cc under the Agricultural Water Pumping

is expected to result in a substantial across the electrical system, helping to acquire other, more costly resources to ing the demand for electricity helps ensure retiring for everyone.

## What is expected of me to participate?

to participate in the new Agricultural Irrigation Load Control Program, you will need to allow Energy Arkansas to:

- Install a load control device on your pump(s) which will turn the power off and on to the pump.

- Allow us to turn off the pump for three hours per day, Monday through Friday, any time between 10 a.m. until 5 p.m., excluding holidays. Pumps of up to 110 horsepower will be remotely turned off and on by a two-way communication system designed for Energy Arkansas customers.

Note: Upon request, we will provide you with text or e-mail notifications when the well is turned off and when the pump is available again after the interruption.

## How much is the billing credit?

The billing credit is \$4.16 per kilowatt-hour per month of maximum demand used at each pump for the usage months of June, July and August.

In the past, the billing credits have averaged around 15 percent discount for the three billing months. Actual discount amounts will vary based upon the actual pump usage based upon the \$4.16 per kilowatt-hour per month billing credit.

## Are there any installation fees?

There are no installation fees. To participate, you Energy Arkansas and our contractors to access it. Also, the pole must be in sufficient condition to install the new meter and load control device.

## What if I learn my pumps cannot frequently as described after I have joined?

Customers can terminate participation in the Agricultural program at any time during the program. Energy Arkansas will credit the pump account to credit. No penalty fees will be assessed.

## How do I sign up?

To sign up, contact the Energy Arkansas Irrigation 800-324-4709 or e-mail us at [arcsfarmers@ea.com](mailto:arcsfarmers@ea.com). We will send you a sign-up package that include discount information and contracts for your sign instructions on how to return the contract.



Figure 34-B: AILC Brochure Back



Entergy Arkansas, Inc.  
Customer Operations Support  
P.O. Box 551  
Little Rock, AR 72203

BP Number: [REDACTED]

[REDACTED]  
[REDACTED] Highway 165 S  
Stuttgart, AR 72160-6469

Dear [REDACTED]:

Recently, you spoke with one of our callers about Entergy's Agricultural Irrigation Load Control (AILC) program. Thank you for agreeing to participate. Your participation will help reduce the electrical peak load required to serve all our customers during the weekday periods of summer afternoons.

Entergy will begin installing the new load control devices beginning the first of June through the end of July. As these devices are installed, we will begin interruptions until the end of August.

Here is what you can expect during installation:

- Contract electricians and line crews will install the devices.
- The crews will modify your meter to install the antenna and connect it to the load control box.
- From the load control box, we will connect the overhead conductors to the motor control center or, in some cases, directly to your motor control box.
- If your main disconnect switch is on the "Entergy" side of the meter, you will need to leave it closed at all times to prevent problems with reconnecting after an interruption.

Enclosed are documents that are important for your immediate review. First is the AILC Data Confirmation Form. It lists our understanding of the wells you want on the program and recaps other information. **It is extremely important that we assure all information is correct. Please review, initial and return to us in the enclosed self-addressed postage-paid envelope. If you do not return or revise this document, we will progress as if all information is correct and meet your desires.**

Your billing credit will begin after June 1 based upon the attached confirmation sheet. If you participated last year and have not provided written notice to discontinue this service, then YOUR 2010 wells will be included in the program for 2011.

One of the attachments describes the messages you will receive if you choose to be notified by text or email when the well has been turned off and when the pump is available again after the interruption. Please let us know on the Confirmation Sheet what your preference is for this notification.

Thank you so much for your participation in this program, which will save money and energy this summer. If you have questions or concerns, please contact us anytime at:

PHONE: 1-800-324-4709

E-MAIL: [arcscfarmers@entergy.com](mailto:arcscfarmers@entergy.com)

WEB Program Information : [www.entergyarkansas.com/irrigation](http://www.entergyarkansas.com/irrigation)

Sincerely,

Richard Smith  
Program Manager

Figure 35: AILC Acceptance Letter

DATE

ADDRESSEE  
ADDRESS LINE 1  
ADDRESS LINE 2  
CITY, STATE ZIP

BP Number:

Dear ADDRESSEE:

Recently, you requested to have your wells removed from Entergy Arkansas's Agricultural Irrigation Load Control Program. We have removed you from our participating farms for this year and want you to know how much we appreciate your participation.

Entergy Arkansas values your willingness to participate in the program, and we understand the reasons to leave it are as varied as the reasons to participate. To make this program the best experience it can be for you, we want to determine and address the problems that caused you to opt out. Your input will help us resolve the issues you had that we can change and make it the best it can be.

Enclosed is a short questionnaire inquiring of the problems you experienced. Would you complete this form and return it to me in the enclosed self-addressed, stamped envelope? Your answers are confidential and will only be used to find a solution for the problems you were having.

Your participation to date has helped Arkansans stay cool without overloading the electrical system. The technology in this program is always improving, and with your feedback, Entergy Arkansas hopes you will participate in it again in the future.

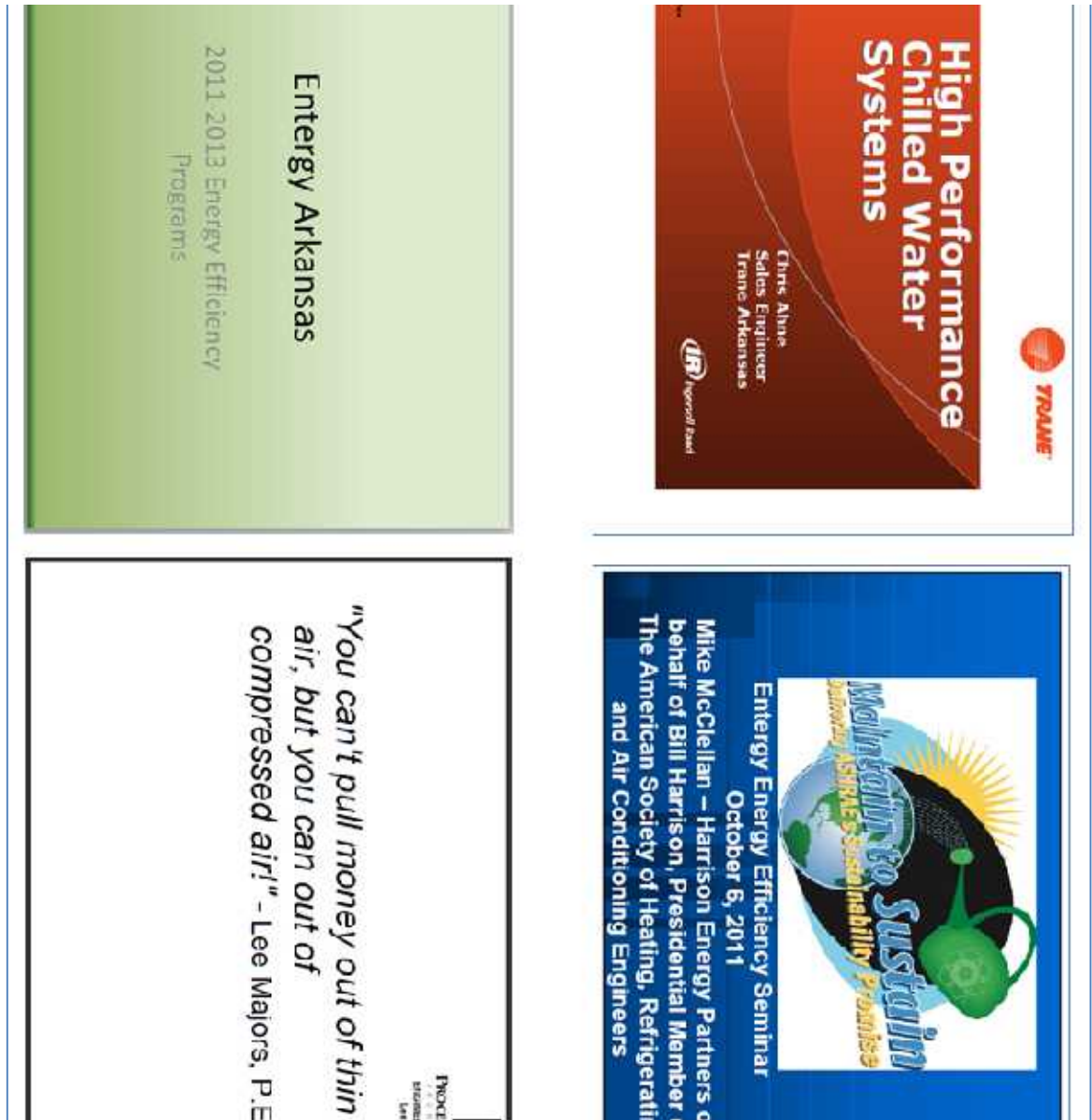
Sincerely,

Richard Smith  
Program Manager

Figure36: AILC Opt Out Letter

Energy Efficiency- Presentation 2

Energy Arkansas Industrial Conference October 6 2011



Energy Efficiency- Presentation 2

Energy Arkansas Industrial Conference October 6 2011

## Entergy Arkansas

### 2011-2013 Energy Efficiency Programs

### 2011-2013 Programs

- Entergy Arkansas' program portfolio approved on June 30, 2011.
- Anticipated roll out date for new programs – November, 2011
- Brief discussion on the types of programs coming very soon.

Energy Efficiency- Presentation 2

Entergy Arkansas Industrial Conference October 6 2011

## Residential Solutions

- Home Energy Solutions
- Energy Solutions for Multifamily
- Energy Solutions for Manufactured (Mobile) Homes
- ENERGY STAR™ New Homes
- Efficient Cooling Solutions
  - Residential and Small Business
- Residential Lighting and Appliances
- Residential Benchmarking Pilot
- Residential Direct Load Control
- Arkansas Weatherization Program
- Energy Efficiency Arkansas

## Business Solutions

- C&I Prescriptive Program
- C&I Custom Solutions Program
- CitySmart<sup>SM</sup> Program
- Small Business Program
- Agricultural Solutions Program
- Agricultural Irrigation Load Control

Energy Efficiency- Presentation 2

Entergy Arkansas Industrial Conference October 6 2011

## What differences will you notice?

- Larger incentives
- Larger variety of measures
- Focus on comprehensive savings
- Not just kW incentives anymore

## What will stay the same?

- Regardless of market sector, assistance is still available, and will be enhanced.
- Local support, and local participating contractors will still remain in place and be utilized
- Some measures will be easily calculated "deemed", and some will require more in depth measurement and verification (M&V)



## C&I Prescriptive Program

- Easily calculated measures "beamed" measures only.
- Simple paperwork process by customer
- Program will assist with documentation
- Contractor & Customer Friendly process
- Measures
  - Lighting
  - Lighting Controls
  - HVAC replacement
  - New Construction Chillers
  - More....
- Incentive Rates
  - Set rate, per measure
  - Don't miss the roll out in November.

## C&I Custom Program

- Multi-layered projects with multiple measures
- Complex, M&V projects.
- In depth assistance for this program.
  - M&V Support
  - Audit Support
  - Benchmarking support available
- Measure List
  - No dedicated measure list
  - Wide open to verifiable Energy efficiency Projects
- Incentive Rates
  - Tiered rates
    - Do more measures, receive more money! !
    - Starting rates based on type and quantity of measures instituted.

Energy Efficiency- Presentation 2

Energy Arkansas Industrial Conference October 6 2011

## CitySmart<sup>SM</sup> Program

- Very similar to previous program
- Benchmarking, Energy Master Planning available
- Technical assistance available for projects
- Higher Education added to CitySmart this year
- Measures
  - Lighting and Controls
  - HVAC and Controls
  - Envelope measures
  - Kitchen measures
  - Ventilation savings
  - Many more options
- Incentives
  - Tiered incentives similar to Custom Program
  - Starting rates dependent on type and quantity of measures installed

## Self Direct Option – Option Made Available this Fall.

- Customers who are large in their energy consumption are eligible to self direct energy efficiency measures
- These customers are required to submit a plan to APSC requesting an exemption to FF plan.
- Customers must exceed 1,000kW in demand at one site, or have 5 sites of 200kW or more.
- Customers must have invested and/or show that they will install energy efficiency in their facility.
- Documentation requirements and other information provided by APSC. Information can be found at the APSC web site <http://www.apscservices.info/ee.aspx>
- For full rule details go to Section 11 of rules found at [http://www.apscservices.info/Rules/energy\\_conservation\\_rules\\_05-004-R.pdf](http://www.apscservices.info/Rules/energy_conservation_rules_05-004-R.pdf)

Energy Efficiency- Presentation 2

Energy Arkansas Industrial Conference October 6 2011

## Incentives Available

- Incentive Rates are still being finalized
  - Contact 501-265-0249 after November 1, or visit [www.energysarkansas.com](http://www.energysarkansas.com) to find out more.
  - Incentives available
    - 2011 - \$8,849,898
    - 2012 - \$19,561,350
    - 2013 \$30,444,074

## How to find out more

- Visit [www.energysarkansas.com](http://www.energysarkansas.com)
- Call the energy efficiency solutions center hotline – 501.265.0249
- Contact information
  - Jeremy Townsend, Senior Program Manager
  - [jtownsend@clearresult.com](mailto:jtownsend@clearresult.com)
  - 501.221.4003



Entergy Arkansas, Inc.  
425 West Capitol Avenue  
Little Rock, AR 72201

Date: October 7, 2011  
For Release: IMMEDIATELY  
Contact: Julie Munsell  
501-377-3545  
jmunsel@entergy.com

**Media  
Advisory**

**Entergy Arkansas Teams Up with Lowe's on Special Energy Awareness  
Events**

LITTLE ROCK, Ark. – Entergy Arkansas, Inc. is teaming with select Central Arkansas Lowe's Home Improvement stores on October 8<sup>th</sup> to celebrate Energy Awareness Month and to help customers save energy.

Representatives from CLEARresult, one of Entergy Arkansas' partners in energy efficiency, will be on hand to provide information on residential and commercial energy solutions as well as to promote in-store discounts on energy saving light fixtures and bulbs. One free ENERGY STAR<sup>®</sup> compact fluorescent light bulb will be given away to the first 100 customers who stop by the Entergy AR event table and sign a pledge to change out a light bulb.

Here are the locations of each event, which take place from 10 a.m. to 3 p.m. (hours vary by store):

-more-

[Figure 37-A: Information Sheets Lowes Energy Days Event](#)

**My pledge**  
to a better bulb and a brighter future.

**I pledge** to replace a standard 60-75 watt incandescent bulb with this 15 watt CFL bulb I received from Entergy Arkansas, Inc. I will properly dispose of the standard incandescent bulb, even though it is still a working bulb. I will do so because I recognize that CFL bulbs are significantly more energy efficient than incandescent bulbs and are better for the environment by reducing greenhouse gas emissions. I pledge to do so before December 31, 2011.

Phone: \_\_\_\_\_  
Email: \_\_\_\_\_  
Signed: \_\_\_\_\_

I am open to a follow-up survey to confirm that I fulfilled this pledge.

**My pledge**  
to a better bulb and a brighter future.

**I pledge** to replace a standard 60-75 watt incandescent bulb with this 15 watt CFL bulb I received from Entergy Arkansas, Inc. I will properly dispose of the standard incandescent bulb, even though it is still a working bulb. I will do so because I recognize that CFL bulbs are significantly more energy efficient than incandescent bulbs and are better for the environment by reducing greenhouse gas emissions. I pledge to do so before December 31, 2011.

Phone: \_\_\_\_\_  
Email: \_\_\_\_\_  
Signed: \_\_\_\_\_

I am open to a follow-up survey to confirm that I fulfilled this pledge.

**My pledge**  
to a better bulb and a brighter future.

**I pledge** to replace a standard 60-75 watt incandescent bulb with this 15 watt CFL bulb I received from Entergy Arkansas, Inc. I will properly dispose of the standard incandescent bulb, even though it is still a working bulb. I will do so because I recognize that CFL bulbs are significantly more energy efficient than incandescent bulbs and are better for the environment by reducing greenhouse gas emissions. I pledge to do so before December 31, 2011.

Phone: \_\_\_\_\_  
Email: \_\_\_\_\_  
Signed: \_\_\_\_\_

I am open to a follow-up survey to confirm that I fulfilled this pledge.

**My pledge**  
to a better bulb and a brighter future.

**I pledge** to replace a standard 60-75 watt incandescent bulb with this 15 watt CFL bulb I received from Entergy Arkansas, Inc. I will properly dispose of the standard incandescent bulb, even though it is still a working bulb. I will do so because I recognize that CFL bulbs are significantly more energy efficient than incandescent bulbs and are better for the environment by reducing greenhouse gas emissions. I pledge to do so before December 31, 2011.

Phone: \_\_\_\_\_  
Email: \_\_\_\_\_  
Signed: \_\_\_\_\_

I am open to a follow-up survey to confirm that I fulfilled this pledge.

Figure 37-B: Information Sheets Lowes Energy Days Event

## Residential Energy Solutions Energy Efficiency Program

### How do I start?

To participate or for more information, call the **Residential Energy Solutions Center** at **1-877-212-2420** to speak with an energy efficiency representative. You can also visit [entergyarkansas.com/efficiency](http://entergyarkansas.com/efficiency) to learn more.

### Make a difference. We can help.

Making energy-efficient choices is important to the environment as well as your wallet.

So why wait on those improvements you've been "getting around to" for so long? Now you've got the support, resources, and incentives to make it happen today!


**Conserving energy shouldn't cost more than you save.**

At Entergy, we believe any way to save energy *and money* is a good idea. Enrolling in our **Residential Energy Solutions Energy Efficiency Program** is a great way to make your home more energy efficient, reduce your energy bill and receive cash for efficiency upgrades!

*DANA ESTES, MAJOR ACCOUNTS BILLING SPECIALIST*

A message from Entergy Arkansas, Inc. ©2011 Entergy Services, Inc. All Rights Reserved.

Figure 37-C: Information Sheets Lowes Energy Days Event



## What is it?

Like you, Entergy cares about energy efficiency, the environment and reducing our carbon footprint. Collectively, even the smallest improvements made by households like yours can have an enormous impact in our world.

The **Residential Energy Solutions Energy Efficiency Program** was designed to offer households personalized information on energy-saving measures. There's also an online tool to help you quickly calculate your home's potential energy savings.

By participating, households will not only realize monthly savings, but are also eligible to receive cash incentives to offset many types of upgrades. There's no cost or obligation to participate in the program.

### How does it work?

Customers can call the Residential Energy Solutions Center toll-free at **1-877-212-2420** and speak directly to any energy solutions representative. The representative will talk with you and ask some questions about your home's current energy system in order to provide you information and direction on the best energy-efficient solutions for your home. Or the customer can contact a contractor partner directly. The list is available at [entergyarkansas.com/efficiency](http://entergyarkansas.com/efficiency).

For customers who would like to take quick action by investing in energy efficiency improvements, an onsite walk-through energy assessment is also available. Additionally, we are happy to provide you with a list of contractor partners committed to promoting high efficiency standards and who can perform quality work in a required timeframe.

### Did you say incentives?

Yes! Customers are eligible to receive incentives for a number of energy efficiency improvements, including:

- Duct improvements
- HVAC Improvements
- Insulation
- Air sealing (home infiltration reduction)

### Other available programs include:

- + Residential and Small Commercial A/C Tune-Up Program
- + Small Commercial and Industrial Energy Solutions Program
- + Large Commercial and Industrial Energy Solutions Program
- + Large Commercial and Industrial Standard Offer Program





Figure 37-D: Information Sheets Lowes Energy Days Event

# It's Simple to Be Energy Wise.

Save Energy with Simple, Low-Cost Improvements. **Here is What You Need.**



You've heard that it's the simple things in life that mean the most. Well, it's also true in saving money and energy. Follow these tips to save money and energy that really add up over time.

*Thaddeus Thomas, Lineman*

## Install CFLs – Compact Fluorescent Light Bulbs – to save energy

- ENERGY STAR qualified CFL bulbs use about 75 percent less energy than standard incandescent bulbs and last up to 10 times longer.
- Save about \$30 or more in electricity costs over each bulb's lifetime.
- Produce about 75 percent less heat, so they're safer to operate and can cut energy costs associated with home cooling.
- Are available in different sizes and shapes to fit in almost any fixture, for indoors and outdoors.

### How to choose and where to use CFLs:

ENERGY STAR qualified CFLs provide the greatest savings in fixtures that are on for a substantial amount of time each day. At a minimum, ENERGY STAR recommends installing qualified CFLs in fixtures that are used at least 15 minutes at a time or several

### Light Output Equivalency

To determine which ENERGY STAR qualified light bulbs will provide the same amount of light as your current incandescent light bulbs, consult the following chart:

Incandescent Light Bulbs Watts	Minimum Light Output Lumens	Common Energy Star Qualified Light Bulbs Watts
40	450	9-13
60	800	13-15
75	1,100	18-25
100	1,600	25-30
150	2,600	30-52



hours per day. The best fixtures to use qualified CFLs are usually found in the following areas of your home:

- Family and living rooms
- Kitchen
- Dining room
- Bedrooms
- Outdoors

### How to choose the right light:

Matching the right CFL to the right kind of fixture ensures the bulb will perform properly and last a long time. To choose the ENERGY STAR qualified CFL with the right amount of light, find a qualified CFL that is labeled as equivalent to the incandescent bulb you are replacing. Light bulb manufacturers include this information right on the product packaging to make it easy for consumers to choose the equivalent bulb.

## Improve your home's energy efficiency with ENERGY STAR

ENERGY STAR is a joint program of the U.S. Environmental Protection Agency and the U.S. Department of Energy helping us all save money and protect the environment through energy efficient products and practices.



Results are already adding up. Americans, with the help of ENERGY STAR, saved enough energy in 2006 alone to avoid greenhouse gas emissions equivalent to those from 25 million cars—all while saving \$1.4 billion on their utility bills.

Energy efficient choices can save families about a third on their energy bill with similar savings of greenhouse gas emissions, without sacrificing features, style or comfort. ENERGY STAR helps you make the energy efficient choice.

- If you are looking for new household products, look for ones that have earned the ENERGY STAR. They meet strict energy efficiency guidelines set by the EPA and US Department of Energy.
- If looking for a new home, look for one that has earned the ENERGY STAR.



Figure37-E: Information Sheets Lowes Energy Days Event



With just a few tools, you can make significant changes to your home that will make it energy-efficient and safe. Here's a list of tools every home tool box should have.



Save energy with simple, low-cost improvements. Here are the tools you need.

**1. Installing a ceiling fan**

- Ceiling fan kit
- Screw drivers
- Pliers
- Gloves
- Safety glasses
- Downrods (if needed)

**2. Replacing a broken window pane (wood frame)**

- Replacement pane in proper size
- Glazing caulk
- Caulking gun
- Window points
- Masking tape
- Gloves
- Safety glasses
- Putty knife
- Clean rag

**3. Applying window film tint**

- Window film tinting kit
- Squeegee
- Utility knife
- Tape measure
- Window cleaner spray
- Water spray bottle

**4. Insulating windows/doors**

- Shrink-N-Seal film kit
- Scissors
- Hair dryer
- Tape measure

**5. Repairing large gaps on windows and foundations**

- Polyurethane expanding foam
- Gloves
- Safety glasses

**6. Replacing weather stripping on light-use doors and windows**

- Roll of foam-backed weather stripping tape
- Tape measure
- Utility knife
- Gloves

**7. Replacing weather stripping on heavy-use doors**

- Roll of spring flex metal weather stripping
- Small nails or brads
- Metal snips
- Hammer
- Tape measure
- Gloves
- Safety glasses

**8. Replacing weather stripping - alternative material**

- Roll of vinyl weather stripping
- Tape measure
- Utility knife
- Gloves

**9. Insulating your hot water heater**

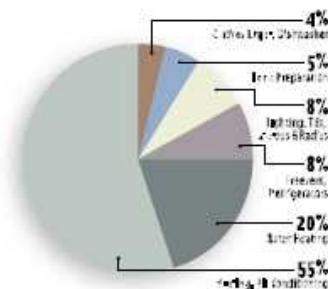
- Water heater blanket kit or insulating material
- Duct tape
- Scissors or utility knife (if needed)
- Gloves
- Safety glasses

**10. Winterizing a window unit air conditioner**

- A/C cover kit

**11. Insulating wall receptacles**

- Foam receptacle pad kit



**Where does my money go?**

Knowing where the big energy users are will help you become a better energy manager. As you can see, heating, air conditioning and water heating account for three quarters of your energy use.



**We care about how we serve you, and we are eager to lend a helping hand to you when you need it.**

If you would like more information about these programs, please call us today at 1-800-ENTERGY (1-800-368-3749). Or visit our website, [entergy.com](http://entergy.com).

A message from Entergy Systems, Inc. ©2010 Entergy Services, Inc. All Rights Reserved.

Figure 37-F: Information Sheets Lowes Energy Days Event

 **LEARN MORE AT** [energystar.gov](http://energystar.gov) **Bulb Purchasing Guide**

**My Fixture Has A ...**

<b>Dimmer</b>	Look for an ENERGY STAR® qualified bulb that is marked "Dimmable". <a href="#">Learn more</a>
<b>Three-way socket</b>	Look for an ENERGY STAR qualified bulb that is marked "3-Way". <a href="#">Learn more</a>
<b>Electronic control</b>	Check with the manufacturer of your photocell, motion sensor, or timer for compatibility with energy efficient lighting. <a href="#">Learn more</a>

**How Much Light Do I Want?**




To determine which ENERGY STAR qualified light bulbs will provide the same amount of light as your current incandescent light bulbs, consult the following chart but focus on lumens to make sure you get the right amount of light:  
[Learn more](#)

Incandescent Bulbs (watts)	Minimum Light Output (lumens)	ENERGY STAR Qualified Bulbs (watts)
40	450	9 to 13
60	800	13 to 15
75	1,100	18 to 25
100	1,600	23 to 30
150	2,600	30 to 52

Notes: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

**What Color Would Work Best For My Use?**

With ENERGY STAR light bulbs you have options for your white light. Light color is measured on the Kelvin scale (K). As you see below, lower numbers mean the light appears yellowish and higher numbers mean the light is whiter or bluer.  
[Learn more](#)

Warm White, Soft White	Cool White, Neutral White	Natural or Daylight (think blue sky at noon)
Standard color of incandescent bulbs.	Good for kitchens and work spaces.	Good for reading.
		
2700K 3000K	3500K 4100K	5000K 6500K

**How to Choose**  
the right ENERGY STAR® Qualified Bulb






























	Table/Floor Lamps	Pendant Fixtures	Ceiling Fixtures	Ceiling Fans	Wall Sconces	Recessed Cans	Track Lighting	Outdoor Covered	Outdoor Flood
									
									
									
									
									
									
									

Figure 37-G: Information Sheets Lowes Energy Days Event



## ENERGY STAR® Compact Fluorescent Light (CFL) Bulbs - FAQ

Entergy Arkansas, Inc. (EAI) is providing up to \$12 off the purchase of ENERGY STAR qualified packs of Compact Fluorescent Light bulbs at participating retailer locations (for a limited time).

### 1 - About the Program

#### Why buy ENERGY STAR?

To qualify for the ENERGY STAR label, CFLs must meet current ENERGY STAR standards, meaning they use about 75% less energy than traditional incandescent bulbs and last about 6 times longer. These bulbs will save their owners about \$40 in electricity costs over their lifetime, and produce about 75% less heat, so they're safer to operate and can help cut energy costs associated with home cooling. A list of qualifying bulbs can be found at: [www.energystar.gov](http://www.energystar.gov).

#### Who is Eligible for the Program?

EAI residential customers who shop at participating retailers qualify for the program.

#### When Will the Program Be Available?

The program started August 22, 2011, and will run until December 31, 2012, or until program funds are depleted.

#### How will I know when the program has ended?

Effective dates of the program, and other information, can be found on Entergy Arkansas' ENERGY STAR Appliances Program webpage at [www.entropy-arkansas.com/homeappliances](http://www.entropy-arkansas.com/homeappliances).

#### What if I purchased ENERGY STAR® light bulbs before the program began?

Because the program is designed as an instant savings promotion, any purchases made before the promotional period will not qualify for a rebate.

#### What if I purchased ENERGY STAR® qualified bulbs during the promotional period, but not at a participating retail location?

Only participating retailers have been set up to offer the discount. Therefore, any light bulbs not purchased at a participating retail location, regardless of efficiency, will not be discounted.

#### Where can I find a list of participating retailers?

A list of participating retailers can be found on Entergy Arkansas' ENERGY STAR Appliances Program webpage at [entropy-arkansas.com/homeappliances](http://entropy-arkansas.com/homeappliances).

#### Where Can I Get More Information about the program?

Visit Entergy Arkansas' ENERGY STAR Appliances Program

webpage at: [www.entropy-arkansas.com/homeappliances](http://www.entropy-arkansas.com/homeappliances) or call: 1-877-212-2420 to speak with an energy efficiency program representative.

### 2 - CFL Breakdown

#### Can I turn my Compact Fluorescent Light Bulbs (CFLs) on and off frequently? I've been told I have to turn it on and leave it on all day.

Turning a CFL on and off frequently can shorten its life. However, because of the vast diversity of products and different usages, it is difficult to determine exactly how much ENERGY STAR specifications require bulbs to endure rapid cycling for five minute intervals to ensure that the products can hold up to frequent switching.

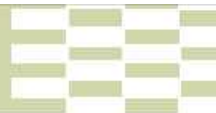
To take full advantage of the energy savings and long life of ENERGY STAR qualified CFLs, it is best to use them in light fixtures you use the most and are on for at least 15 minutes at a time. This is not to say you should leave your lights on all day if you use ENERGY STAR qualified CFLs. It is still a good habit to turn the lights off when you leave the room for an extended period of time.

You may also have heard that CFLs use a lot of energy when turning on and off. While there is a brief surge in energy use when a CFL is turned on, with today's starting technology, that surge usually lasts about a tenth of a second and consumes about as much energy as five seconds of normal operation. So, even when turned on and off frequently, a CFL uses less energy than its incandescent equivalent. But because turning a CFL on and off more frequently can shorten its life and CFLs are more expensive than incandescents, we recommend consumers use CFLs in applications where they are on for at least fifteen minutes.

#### Can I use a CFL that is not specifically designed to work in a dimmable light fixture, in a dimmable fixture as long as I don't use the dimmable feature?

In principle, if you NEVER dim the light, a CFL should work appropriately. However, because of the risk of users dimming the switch even accidentally, this is not something we recommend. Additionally, using a CFL on a dimming switch will likely void the product warranty even if the switch is never dimmed. If you wish to use a CFL on a dimmer, we recommend that you look for

Figure 37-H: Information Sheets Lowes Energy Days Event



## ENERGY STAR® Light Fixtures and Ceiling Fans - FAQ

Entergy Arkansas, Inc. (EAI) is providing up to \$15.00 off the purchase of ENERGY STAR qualified compact fluorescent light fixtures and \$25.00 off the purchase of ENERGY STAR® qualified ceiling fans at participating retailer locations (for a limited time).

### Why buy ENERGY STAR?

ENERGY STAR qualified fixtures:

- Use 1/4 the energy of traditional lighting.
- Save money on energy bills and bulb replacements with bulbs that last between 10,000 – 50,000 hours (about seven – 22 years of regular use).
- Distribute light more efficiently and evenly than standard fixtures.
- Come in hundreds of decorative styles including portable fixtures – such as table, desk and floor lamps – and hard-wired options such as front porch, dining room, kitchen ceiling and under-cabinet, hallway ceiling and wall, bathroom vanity fixtures, and more.

A list of qualified fixtures can be found at [www.energystar.gov](http://www.energystar.gov).

### ENERGY STAR Qualified Ceiling Fan / Light Combination Units:

- Are over 50% more efficient than conventional fan/light units, which can save you more than \$15 per year on utility bills.
- Use improved motors and blade designs.

A list of qualified ceiling fans can be found at [www.energystar.gov](http://www.energystar.gov).

### Who is Eligible for the Program?

EAI residential customers who shop at participating retailers qualify for the program.

### When Will the Program Be Available?

The program started August 22, 2011 and will run until December 31, 2012, or until program funds are depleted.

### How will I know when the program has ended?

Effective dates of the program, and other information, can be

found on Entergy Arkansas' Appliances Program webpage at [www.entropy-arkansas.com/homeappliances](http://www.entropy-arkansas.com/homeappliances).

### What if I purchased ENERGY STAR® light fixtures or ceiling fans before the program began?

Because the program is designed as an instant savings promotion, any purchases made before the promotional period will not qualify for a rebate.

### What if I purchased ENERGY STAR® qualified light fixtures or ceiling fans during the promotional period, but not at a participating retail location?

Only participating retailers have been set up to offer the discount. Therefore, any fixtures and ceiling fans not purchased at a participating retail location, regardless of efficiency, will not be discounted.

### Where can I find a list of participating retailers?

A list of participating retailers can be found on Entergy Arkansas' Appliances Program webpage at [www.entropy-arkansas.com/homeappliances](http://www.entropy-arkansas.com/homeappliances).

### Where Can I Get More Information about the program?

Visit Entergy Arkansas' ENERGY STAR® Appliances Program webpage at: [www.entropy-arkansas.com](http://www.entropy-arkansas.com) or call: 1-877-212-2420 to speak with an energy efficiency representative.

### SOURCES:

- ENERGY STAR  
[www.energystar.gov](http://www.energystar.gov)
- U.S. Environmental Protection Agency  
[www.epa.gov](http://www.epa.gov)



Figure 37-1 Information Sheets Lowes Energy Days Event

**Recycled Eco-Friendly Pen (ECOPEN)**

**IMPRINT AREA:  
1/2" h x 1-1/2" w**

**page 1 of 1**

CLIENT NAME : LEADERSPROMS.COM    DATE: 09-20-11    JOB # : 659890    PO # : 105480

PROOF APPROVED   
 PROOF APPROVED WITH CHANGES NOTED   
 PROOF NOT APPROVED   
 NEW PROOF NEEDED   
 OTHER\*

AUTHORIZED BY: \_\_\_\_\_

\*SPECIAL INSTRUCTIONS: \_\_\_\_\_


This order is on hold pending paper proof approval. Please return this proof ASAP to avoid delays. \* Please sign and check all appropriate boxes



**Imprint shown @ 100%**  
Dotted line to show imprint area



**Enlargement (200% of the actual size)**

<p><b>Note</b> from the factory</p>		<p><b>Silk Screened</b></p>	<p><b>proof # 1</b></p>
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Please read this proof thoroughly and check for any spelling errors. We will not be responsible for any errors that are approved on the proof. This proof does not represent exact product or imprint colors. To see exact colors you will need to order a pre production proof. Please contact your Customer Service rep if you would like to order a PPP. Thank you for your order and we look forward to serving you again. To print this page at 100% do not use the fit to page option when printing, it will cause the page to print slightly scaled down

Figure37-J: Information Sheets Lowes Energy Days Event



Figure 37-K: Photo of Lowes Event

### School Energy Audit

Name: \_\_\_\_\_ Grade: \_\_\_\_\_

Room or Office: \_\_\_\_\_ Date: \_\_\_\_\_

The Energy Audit will help you find out how efficiently your school is using energy and help you measure the impacts of your actions on saving energy.

1. When you came to the room were the lights on or off?



\_\_\_ ON      \_\_\_ OFF

Who turns off the lights in the room?

2. Is there a sign that reminds you to turn off the lights?



\_\_\_ YES      \_\_\_ NO

3. Were there people in the room?



\_\_\_ YES      \_\_\_ NO

4. Is it a sunny day or a cloudy day?



\_\_\_ SUNNY      \_\_\_ CLOUDY

5. How many of these different types of light bulbs are found in the room?



# \_\_\_\_\_



# \_\_\_\_\_



# \_\_\_\_\_

6. How many computers/printers/equipment are turned off at the end of the day? \_\_\_\_\_



Who turns them off? \_\_\_\_\_

Students should not turn off computers and equipment themselves. There may be reasons why they are left on or data that could be lost by switching them off.

7. How many phone chargers, tv's or other equipment are plugged in when not in use (called "phantom loads" – because the equipment uses energy even when turned off – things with red lights).



# \_\_\_\_\_

Figure38-A: School Energy Audit

8. How many mini-fridges are in the room? \_\_\_\_ Large fridges? \_\_\_\_



9. How many windows are in the room?



There are \_\_\_\_ windows in the room.

How many of the windows have cracks in them? \_\_\_\_\_

Do all the windows close all the way? \_\_\_\_ YES \_\_\_\_ NO How many windows don't close? \_\_\_\_

10. Is there a thermostat in the room? \_\_\_\_ YES \_\_\_\_ NO



If yes, at what temperature is it set?

Ask your teacher if it's possible to change the temperature of the thermostat.

11. Look for the heating vents in the room. Are they being blocked by anything?



\_\_ Yes \_\_ No

12. Is there a solar panel outside? If yes, what is it used for? Do you know if other solar panels will be installed(ask your teacher or principal)? \_\_\_\_ YES \_\_\_\_ NO



13. Please share ONE IDEA you have for how the school can save more electricity and/or make more electricity.

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Figure 38-B: School Energy Audit



School Waste Audit

Name: \_\_\_\_\_ Grade: \_\_\_\_\_

Room: \_\_\_\_\_ Date: \_\_\_\_\_

*The Waste Audit will help you find out how much waste your school is generating and help you measure the impacts of your actions on reducing waste, such as reducing the number of full garbage cans and increasing the number of full recycling bins!*

1. How many blue recycling bins are in the room?  
 How many bins are mostly empty? \_\_\_\_\_  
 How many bins are half-full? \_\_\_\_\_  
 How many bins are mostly full? \_\_\_\_\_



What is in the recycling bins?  
 \_\_\_\_\_ Paper \_\_\_\_\_ Cans \_\_\_\_\_ Bottles \_\_\_\_\_ Other

2. Is there anything in the Recycle bin that doesn't belong there? (Count how many you find)

\_\_\_ Food Scraps \_\_\_\_\_ Plastic Bags \_\_\_\_\_ Other things that don't belong \_\_\_\_\_

3. In the recycling bin is there a lot of paper that is only written on one side? \_\_\_Yes\_\_\_ No

4. Is there a place to keep paper that only has writing on one side to be reused? \_\_\_Yes\_\_\_ No

5. How many garbage cans are in the room?



How many cans are empty? \_\_\_\_\_  
 How many cans are half-full? \_\_\_\_\_  
 How many cans are mostly full? \_\_\_\_\_

6. Are there things in the garbage can that don't belong there? (Count how many you find)

\_\_\_ paper, cardboard \_\_\_\_\_ cans \_\_\_\_\_ plastic bottle \_\_\_\_\_ food scraps  
 \_\_\_ Other things that don't belong \_\_\_\_\_

7. How many green compost bins are in the room? \_\_\_\_\_  
 How many green bins are empty? \_\_\_\_\_  
 How many green bins are half-full? \_\_\_\_\_  
 How many green bins are mostly full? \_\_\_\_\_



8. Are there things in the compost bin that don't belong there? (Count how many you find):

\_\_\_ plastic bottles \_\_\_\_\_ juice boxes \_\_\_\_\_ cans \_\_\_\_\_ plastic bags and other packaging

Other things that don't belong \_\_\_\_\_

Figure 38-C: School Energy Audit

### School Water Audit

Name: \_\_\_\_\_ Grade: \_\_\_\_\_

Bathroom/Classroom : \_\_\_\_\_ Date: \_\_\_\_\_

#### CLASSROOMS:

1. How many faucets are in the room? \_\_\_\_\_ Do they turn off automatically? \_\_\_YES \_\_\_NO



How many of the faucets are leaky? \_\_\_\_\_

Are there signs reminding people to turn off the water? \_\_\_ Yes \_\_\_ No

#### BATHROOMS

Location of Bathroom \_\_\_\_\_

2. How many faucets are in the bathroom? \_\_\_\_\_ Do the faucets turn off automatically? \_\_\_YES \_\_\_NO

3. How many of the faucets are leaky? \_\_\_\_\_

4. Are there signs reminding students to turn off the water? \_\_\_ Yes \_\_\_ No

5. How many toilets leak or run? \_\_\_\_\_

6. How many urinals are in the bathroom? \_\_\_\_\_ Are they waterless? \_\_\_\_\_

**WATER FOUNTAINS** – Location (ex. Hallway, cafeteria, etc.): \_\_\_\_\_



7. How many water fountains are there? \_\_\_\_\_

8. How many water fountains are leaky? \_\_\_\_\_

9. How many of the water fountains don't work? \_\_\_\_\_

Figure38-D: School Energy Audit

**RE AT  
TGOV**

ENERGY STAR® is the Environmental Protection Agency's and U.S. Department of Energy's symbol of energy efficiency. It's the product of the nation's most advanced energy efficiency program. For more information, visit [www.energystar.gov](http://www.energystar.gov).

**energystar.gov**

LEARN MORE AT  
energystar.gov

ENERGY STAR® is the U.S. Department of Energy's and Environmental Protection Agency's symbol of energy efficiency.

**denial Light Fixtures  
ICE**

**STAR?**  
alleged symbol of energy efficiency  
of identifying products that save energy  
and reduce greenhouse gas emissions.



**STAR Qualified Light Fixtures?**

Light fixtures that use less energy and produce about 75% less heat  
than standard light fixtures.

They must temporarily meet light fixture or bulb fixture or bulb  
requirements and also save a year in electricity costs.

Qualified light fixtures reduce greenhouse gas emissions  
by 75%.

State and local LED lighting used to be replaced since every  
— comment for house search fixtures.

NA qualified light fixtures more expensive than standard fixtures?  
Yes, but they last longer. They also save energy and  
costs over the long run. They also save energy and  
costs over the long run. They also save energy and  
costs over the long run.

Can ENERGY STAR qualified fixture be same as using a CFL?  
No, they are different.

Are there any issues with a standard bulb or not the same as using an  
LED light fixture? Qualified light fixtures are designed for CFLs with a  
longer life span and more energy efficient and energy than  
CFLs.

Are mercury should be concerned about using them in my home?  
No, they are safe. Although they do contain a small amount of mercury,  
they are designed to be safe. They are designed to be safe.  
Because CFLs contain toxic material, they should  
be disposed of properly. They should be disposed of properly.

For more information on ENERGY STAR and Qualified Products:  
call 1-888-541-4675 or visit [www.energystar.gov](http://www.energystar.gov)

**Qualified Ceiling Fans  
AT A GLANCE**

**What is ENERGY STAR?**  
• It is a government-backed symbol of energy efficiency.  
• A program dedicated to identifying products that save  
energy without sacrificing quality or performance.

**Why Buy ENERGY STAR Qualified Ceiling Fans?**

- Save energy
- Qualified ceiling fans have up to 20% more efficiency than standard ceiling fans and reduced their electricity costs.
- Qualified ceiling fans with built-in fans save 20% more than other conventional fans. Light units and the light fixture produce about 20% more energy.

• Qualified ceiling fans with built-in fans can save more than \$15 per year in electricity costs. The savings for the fan alone are \$10 per year.

• CFLs included in qualified light fixtures are used to be replaced with  
on average—comment for hand-to-hand ceiling fans.

**Share These Tips With Your Customers**

- To maximize energy savings:  
– For year-round savings, adjust your thermostat during fan use.  
– In the summer, use the ceiling fan in the cooler, outside of the house to reduce the heat load on the air conditioner.  
– In the winter, reverse the fan and operate at low speed.  
– Turn the fan off 15 minutes before you go to bed.  
– Turn the fan off 15 minutes before you go to bed.  
– Turn the fan off 15 minutes before you go to bed.
- Remember that ceiling fans cool people, not rooms—the sun heats the room.

To LEARN MORE about ENERGY STAR and Qualified Products:  
Visit [www.energystar.gov](http://www.energystar.gov) or call 1-800-STAR-YES

Figure 39-A Retail Handouts

## Bulb Purchasing Guide

**What is the ENERGY STAR® qualified light bulb?**

Light bulbs that are ENERGY STAR qualified will save energy and money. They are designed to last longer and use less energy than standard incandescent light bulbs. Consider a few factors when purchasing light bulbs to make sure you get the right amount of light.

Incandescent Bulbs (watts)	Minimum Light Output (lumens)	ENERGY STAR Qualified Bulbs (watts)
40	450	9 to 13
60	800	14 to 16
75	1,100	19 to 26
100	1,600	23 to 30
150	2,600	30 to 42

**Notes:**

- For more information, visit [www.energystar.gov](http://www.energystar.gov).

**How Much Light Do I Need?**

To determine which ENERGY STAR qualified light bulb will provide the best amount of light for your current fluorescent light bulb, consider a few factors: amount of light, amount of light, and amount of light.

**How Much Light Do I Need?**

Light bulbs that are ENERGY STAR qualified will save energy and money. They are designed to last longer and use less energy than standard incandescent light bulbs. Consider a few factors when purchasing light bulbs to make sure you get the right amount of light.



THE POWER OF PEOPLE.

### ENERGY STAR® Compact Fluorescent Light (CFL) Bulbs - Frequently Asked Questions

Light bulbs that are ENERGY STAR qualified will save energy and money. They are designed to last longer and use less energy than standard incandescent light bulbs. Consider a few factors when purchasing light bulbs to make sure you get the right amount of light.

**What is the ENERGY STAR program?**

The ENERGY STAR program is a voluntary program that encourages consumers to purchase energy-efficient products. The program is managed by the U.S. Environmental Protection Agency (EPA) and the U.S. Department of Energy (DOE).

**How do I know if a product is ENERGY STAR qualified?**

Look for the ENERGY STAR logo on the product packaging. The logo is a stylized star with the words "ENERGY STAR" inside it. The logo is also available on the EPA's website at [www.energystar.gov](http://www.energystar.gov).

**What are the benefits of ENERGY STAR qualified products?**

ENERGY STAR qualified products are designed to be more energy-efficient than standard products. This means they will use less energy and last longer, which can save you money on your utility bills. Additionally, ENERGY STAR qualified products are often made with recycled materials and are designed to be more durable.

**How do I know if a product is ENERGY STAR qualified?**

Look for the ENERGY STAR logo on the product packaging. The logo is a stylized star with the words "ENERGY STAR" inside it. The logo is also available on the EPA's website at [www.energystar.gov](http://www.energystar.gov).

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**How do I know if a product is ENERGY STAR qualified?**

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Figure 39-B: Retail Handouts

# 2011 Priority Transitional Plan

Residential Appliance Program – CFLs, CFL Fixtures, Room A/Cs

## Entergy Arkansas, Inc.

**CLEAR**result



Figure 40-A: CFL Transitional Plan



will also perform:

• CLEA itself will set up specific billing sectors with C&U or other participating program participants to determine how CLEA itself will invoice C&U with a set price for Customers. C&U from individual program participants, mainly the amount paid down to some is very very low as the bulk of the price of C&U is to be shared.

• Where copies of bills will be now changed to systems with more opportunities to save the program now it's not just C&U's program. Review required for updates and special information.

**Continued to strengthen the program and service to participants in the Directly Transition and should not cause a**

• List of participating retailers – We will provide some utility website page promoting the program.

• Content for on-line program or more available in August spreadsheet, and a list of participating retailers for the next 12-18 months.

• Informationally – We will provide content and a simple program form, make customer aware of some.

• Will have a simple update list of feedback post on the utility's website their internal resources such as web, email, and social media.

• Will have C&U Energy Efficiency team to secure approval of program to be installed in the market.

Additional Program

Meeting throughout each aspect of the plan will ensure consistent guidelines. The sections below are introduced in order of delivery's schedule and CLEA itself deliverables will target dates.

**Timeline for implementation**

- July
  - 17 Priority Transition Retailers ready for increased response
  - 18 Drafting the end-user program for rollout in Fall. All retail under C&U (many copy) No delivery to utility
  - 19 State Assembly bill introduced. Retailer final POP approved
  - 20 Utility website page approved and ready for release
  - 27 Storage delivered to retailers and more
- August
  - 1-8 Program launches

APSC 2011 Priority Transition Plan - Schedule Assessment Report

Figure 40-C: CFL Transitional Plan

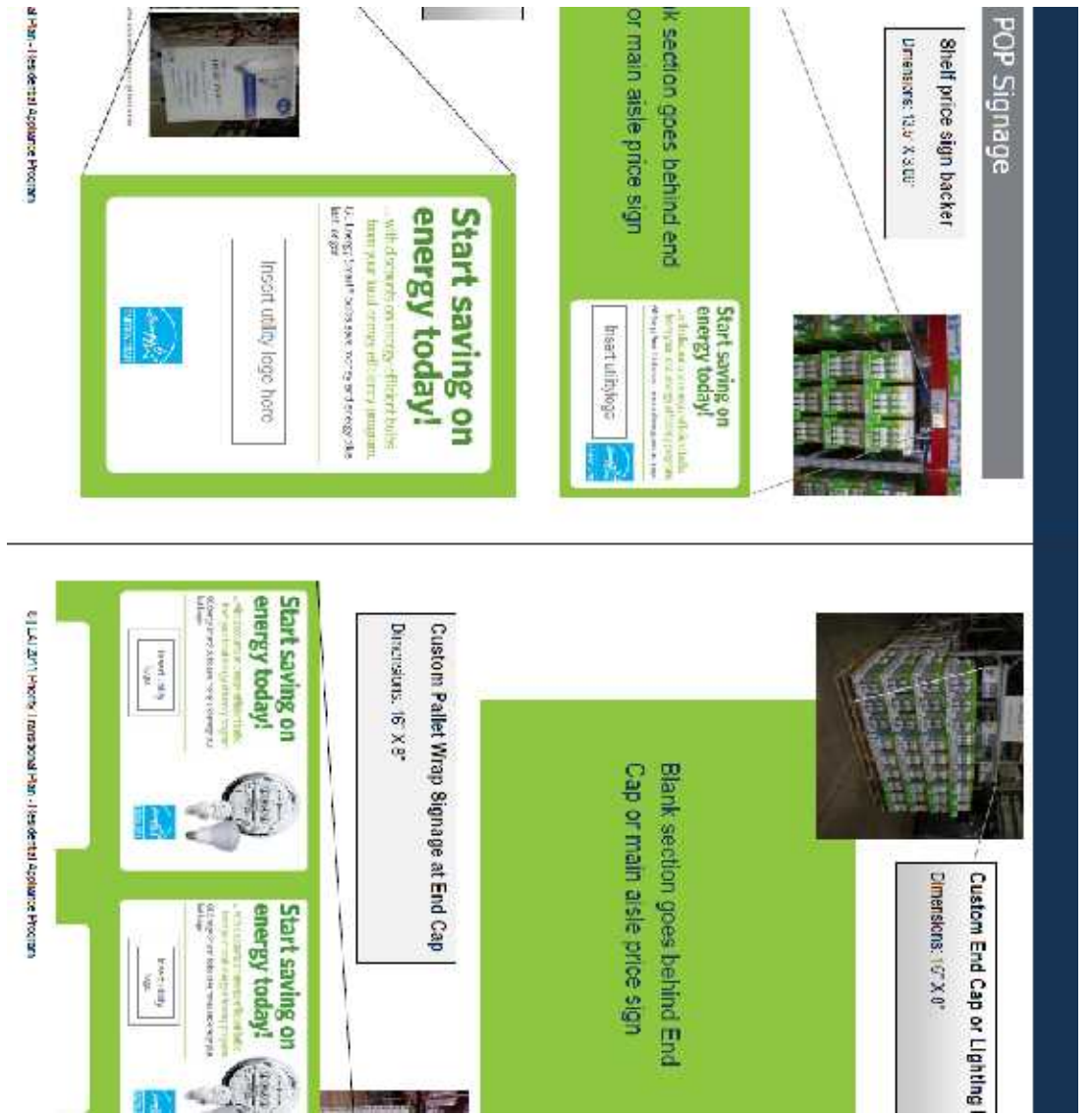


Figure 40-D: CFL Transitional Plan



in - Essential Appliance Program



in - Essential Appliance Program

Special pricing brought to you by: 

in - Essential Appliance Program



Figure 40-E: CFL Transitional Plan

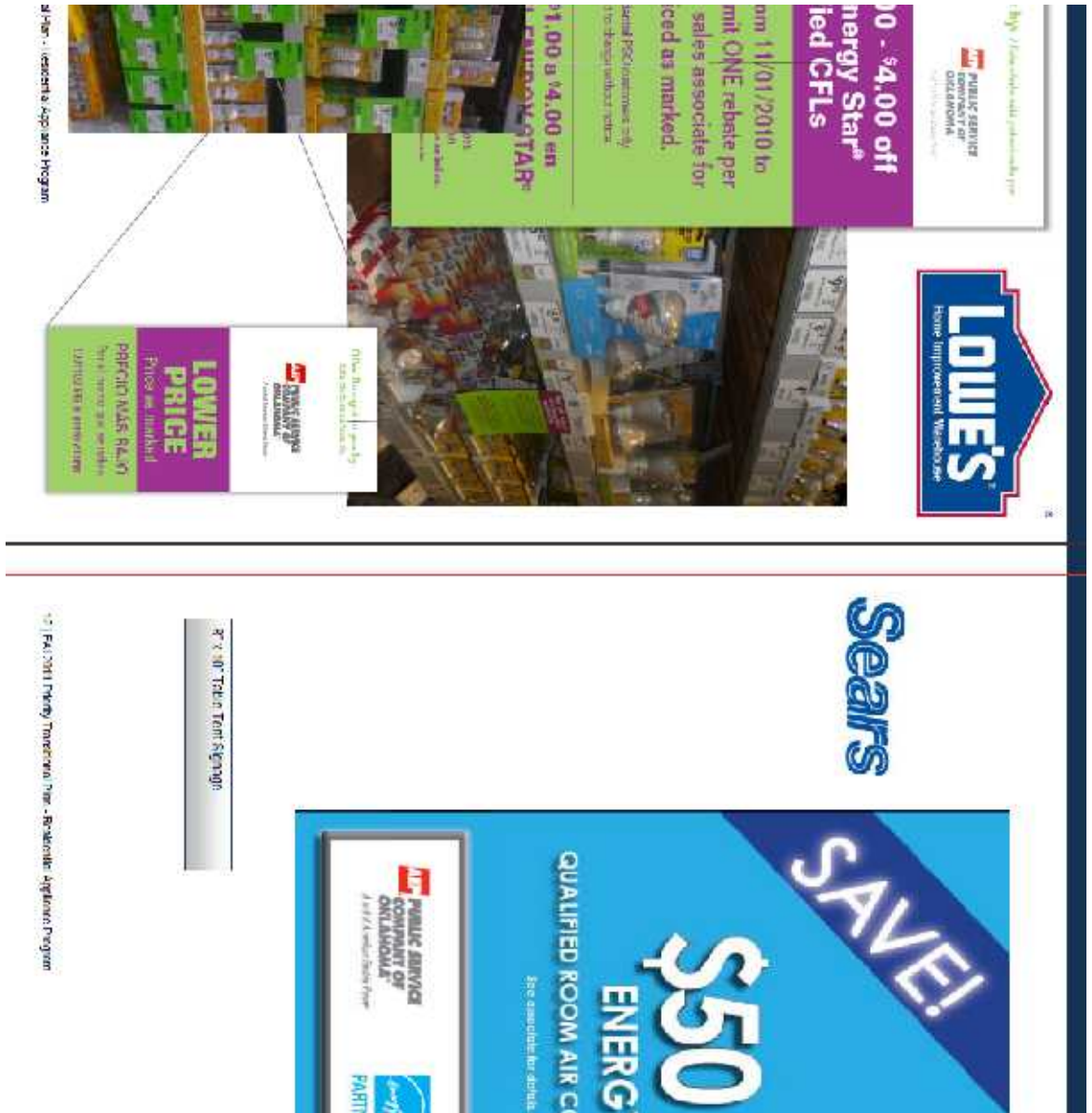


Figure 40-F: CFL Transitional Plan