Southwestern Electric Power Company

2013 Energy Efficiency Plan and Report

Substantive Rules § 25.181 and § 25.183

April 1, 2013

Project No. 41196

TABLE OF CONTENTS

INTRODUCTION

Southwestern Electric Power Company (SWEPCO or Company) presents this Energy Efficiency Plan and Report (EEPR) to comply with Substantive Rules 25.181 and 25.183 (EE Rule), implementing Public Utility Regulatory Act (PURA) § 39.905. As mandated by this section of PURA, the EE Rule requires that each investor owned electric utility achieve the following minimum goals through market-based standard offer programs (SOPs), targeted market transformation programs (MTPs) or other utility self-delivered programs:

> (e)(1) An electric utility shall administer a portfolio of energy efficiency programs to acquire, at a minimum, the following:
>
> (A) The utility shall acquire no less than a 25% reduction of the electric utility's annual growth in demand of residential and commercial customers for the 2012 program year.
>
> (B) Beginning with the 2013 program year, until the trigger described in subparagraph (C) of this paragraph is reached, the utility shall acquire a 30% reduction of its annual growth in demand of residential and commercial customers.
>
> (C) If the demand reduction goal to be acquired by a utility under subparagraph (B) of this paragraph is equivalent to at least four-tenths of 1% its summer weather-adjusted peak demand for the combined residential and commercial customers for the previous program year, the utility shall meet the energy efficiency goal described in subparagraph (D) of this paragraph for each subsequent program year.
>
> (D) Once the trigger described in subparagraph (C) of this paragraph is reached, the utility shall acquire four-tenths of 1% of its summer weather-adjusted peak demand for the combined residential and commercial customers for the previous program year.
>
> (E) Except as adjusted in accordance with subsection (w) of this section, a utility's demand reduction goal in any year shall not be lower than its goal for the prior year, unless the commission establishes a goal for a utility pursuant to paragraph (2) of this subsection.

The EE Rule includes specific requirements related to the implementation of SOPs and MTPs that control the manner in which electric utilities must administer their portfolio of energy efficiency programs in order to achieve their mandated annual demand reduction goals. SWEPCO's plan enables it to meet its statutory goals through implementation of energy efficiency programs in a manner that complies with PURA §39.905 and the EE Rule. This EEPR covers the periods of time as required in Substantive Rule 25.181. The following section describes the information that is contained in each of the subsequent sections and appendices.

EEPR ORGANIZATION

This EEPR consists of an Executive Summary, twelve sections, a list of acronyms, a glossary and five appendices.

Executive Summary

- Executive Summary summarizes SWEPCO's plans for achieving its goals and projected energy efficiency savings for program years 2013 and 2014 and highlights SWEPCO's achievements for Program Year 2012.

Energy Efficiency Plan

- Section I describes SWEPCO's program portfolio. It details how each program will be implemented, presents related informational and outreach activities, and provides an introduction to any programs not included in SWEPCO's previously submitted plan.
- Section II explains SWEPCO's targeted customer classes and describes the estimated size of each class and the method used in determining those class sizes.
- Section III presents SWEPCO's energy and demand goals and projected savings for the prescribed planning period detailed by program for each customer class.
- Section IV describes SWEPCO's proposed energy efficiency budgets for the prescribed planning period detailed by program for each customer class.

Energy Efficiency Report

- Section V documents SWEPCO's demand reduction goal for each of the previous five years (2008-2012) based on its weather-adjusted peak demand.
- Section VI compares SWEPCO's projected energy and demand savings to its reported and verified savings by program for calendar years 2011 and 2012.
- Section VII details SWEPCO's incentive and administration expenditures for each of the previous five years (2008-2012) detailed by program for each customer class.
- Section VIII compares SWEPCO's actual 2012 expenditures with its 2012 budget by program for each customer class. It identifies funds committed but not expended and funds remaining and not committed. It also explains any cost deviations of more than 10% from SWEPCO's overall program budget.
- Section IX describes the results from SWEPCO's MTPs.
- Section X documents SWEPCO's most recent Energy Efficiency Cost Recovery Factor (EECRF).
- Section XI documents SWEPCO's Underserved Counties.
- Section XII describes SWEPCO's Performance Bonus calculation for Program Year 2012.

Acronyms

- A list of abbreviations for common terms used within this document.

Glossary

- A list of definitions for common terms used within this document.

Appendices

- Appendix A – Reported and Verified Demand and Energy Reduction by County for each program.
- Appendix B – Program Templates for any new or modified programs and programs not included in SWEPCO's previous EEPR.
- Appendix C – SWEPCO's existing energy efficiency contracts and obligations.
- Appendix D - Data, explanations, or documents supporting other sections of the EEPR.
- Appendix E – Optional supporting documentation.

EXECUTIVE SUMMARY – ENERGY EFFICIENCY PLAN (PLAN)

SWEPCO plans to achieve savings of at least a 30% reduction in its annual growth in demand of residential and commercial customers by December 31, 2013. SWEPCO's Plan addresses achieving the corresponding calculated energy savings goal, which is derived from its demand savings goal each year using a 20% capacity factor [Substantive Rule 25.181(e)(4)]. The goals, budgets, and implementation procedures that are included in this Plan are consistent with the requirements of the EE Rule, using lessons learned from past experience and customer participation in the various historical energy efficiency programs. A summary of SWEPCO's projected annual goals and budgets is presented in Table 1.

Table 1: Summary of Goals, Projected Savings (at the Meter) [1] and Budgets

Calendar Year	Average Growth in Demand (MW)	Goal Metric: 30% Growth (MW)	Weather Adjusted Peak Demand (MW) previous year	Goal Metric: 0.4% Peak Demand (MW)	Demand Goal (MW)*	Energy Goal (MWh)	Projected Demand Reduction (MW)	Projected Energy Savings (MWh)	Projected Budget (000's)
2013	5.77	1.73	1,385	5.54	5.60	9,811	15.10	24,592	$5,200
2014	5.77	1.73	NAP	NAP	5.60	9,811	13.87	23,254	$4,024[2]

* Substantive Rule 25.181(e)(1)(E) –A utility's demand reduction goal in megawatts for any year shall not be less than the previous year's goal.

EXECUTIVE SUMMARY – ENERGY EFFICIENCY REPORT (REPORT)

This report demonstrates that in 2012 SWEPCO cost-effectively implemented SOPs and MTPs as provided for by PURA §39.905. SWEPCO exceeded its demand reduction goal to be achieved by December 31, 2012 by procuring 13,326 kW of peak demand savings at a total cost of $4,521,259. Programs in 2012 included the Commercial Solutions Pilot MTP, Commercial SOP, CoolSaver© A/C Tune-Up Pilot MTP, Hard-to-Reach SOP, Home$avers, LED Lighting MTP, Load Management SOP, On-Line Home Energy Checkup, Residential SOP, Schools Conserving Resources MTP, Small Business Direct Install Pilot MTP, SMART Source℠ Solar PV MTP, and the SWEPCO CARE$ Energy Efficiency for Not-for-Profit Agencies.

[1] Average Growth in Demand figures are from Table 4; Projected Savings from Table 5; Projected Budgets from Table 6. All kW/MW and kWh/MWh figures in this Table and throughout this EEPR are given "at the Meter."
[2] Projected Budget includes 2013-2014 EM&V costs.

ENERGY EFFICIENCY PLAN

I. 2013 PROGRAMS

A. 2013 Program Portfolio

SWEPCO has implemented a variety of programs in 2013 to enable the Company to meet its goals in a manner that complies with PURA § 39.905 and the EE Rule. These programs target broad market segments and specific market sub-segments with significant opportunities for cost-effective energy savings.

Table 2 below summarizes SWEPCO's programs and targeted customer class markets for Program Year 2013. The programs are described in further detail in Subsections B and C. SWEPCO maintains a web site containing all of the requirements for energy efficiency service provider (EESP) participation, forms required for project submission, links to the program manuals, and the currently available funding at www.AEPefficiency.com. This site is the primary method of communication to provide program updates and information to customers, potential EESPs and other interested parties.

Table 2: 2013 Energy Efficiency Program Portfolio

Program	Target Market	Application	Link to Program Manual
Commercial Solutions Market Transformation Program	Commercial	Retrofit/New Construction	http://www.eeprograms net/aep/
Commercial Standard Offer Program	Commercial	Retrofit/New Construction	http://www.aepefficiency.com/cisop/intro/index htm
CoolSaver© A/C Tune-Up Pilot Market Transformation Program	Residential	Retrofit	http://www.eeprograms net/aep/
Hard-to-Reach Standard Offer Program	Residential Income Qualified	Retrofit	http://www.aephtrsop.com/SWEPCO/index-SWEPCO.shtml
Home$avers	Low Income Residential	Retrofit	No website available
Load Management Standard Offer Program	Commercial	Retrofit	http://www.aepefficiency.com/loadmanagement/SWEPCO/index html
On-Line Home Energy Checkup	Residential	Education	https://www.swepco.com/save/calculate/Default.aspx
Residential Standard Offer Program	Residential	Retrofit	http://www.aepressop.com/SWEPCO/index-SWEPCO.shtml
Schools Conserving Resources Market Transformation Program	Commercial	Retrofit/New Construction	No website available
Small Business Direct Install Pilot Market Transformation Program	Commercial	Retrofit	http://www.aepefficiency.com/SWEPCO_Texas_flyer_011612.pdf
SMART Source℠ Solar PV Market Transformation Program	Residential/Non-Residential	Retrofit/New Construction	http://www.txreincentives.com/apv/
New Program for 2013			
ENERGY STAR® Appliance Rebate Pilot Program	Residential	Retrofit	http://www.eeprograms net/aep/

B. Existing Programs

Commercial Solutions Market Transformation Program (CS MTP)

Program Design

SWEPCO's CS MTP targets commercial customers (other than public schools) that do not have the in-house capability or expertise to: 1) identify, evaluate, and undertake energy efficiency improvements; 2) properly evaluate energy efficiency proposals from vendors; and/or 3) understand how to leverage their energy savings to finance projects. Incentives are paid to customers served by SWEPCO for eligible energy efficiency measures that are installed in new or retrofit applications that result in verifiable demand and energy savings.

Implementation Process

Under this program, SWEPCO is targeting a number of commercial customers meeting the program participation parameters. The CS MTP facilitates the identification of demand and energy savings opportunities, general operating characteristics, long-range energy efficiency planning, and overall measure and program acceptance by the targeted customer participants.

Outreach Activities

SWEPCO markets the availability of its program in the following manner:

- Contracts with a third-party implementer to conduct outreach and planning activities;
- Conducts workshops as necessary to explain elements of the program, such as responsibilities of the participants, project requirements, incentive information, and the application and reporting process;
- Utilizes working relationships between Customer Account Managers and customers to promote the program;
- Participates in regional outreach activities as may be necessary; and
- Participates in appropriate industry-related meetings to generate awareness and interest.

Commercial Standard Offer Program (CSOP)

Program Design

The CSOP targets commercial customers of all sizes. Variable incentives are paid to project sponsors for certain eligible measures installed in new or retrofit applications based upon verified demand and energy savings.

Implementation Process

Any eligible project sponsor may submit an application for a project that meets minimum requirements. The program information on SWEPCO's web site is updated frequently to reflect participating project sponsors and the remaining available incentive budget.

Outreach Activities

SWEPCO markets the availability of its program in the following manner:

- Utilizes mass electronic mail (e-mail) notifications to keep potential project sponsors interested and informed;
- Utilizes working relationships between Customer Account Managers and customers to promote the program;
- Maintains an internet web site with detailed project eligibility, end-use measures, incentives, procedures and application forms;
- Participates in appropriate industry-related meetings to generate awareness and interest;
- Participates in state-wide outreach activities as may be available; and
- Conducts workshops as necessary to explain elements such as responsibilities of the project sponsor, project requirements, incentive information, and the application and reporting process.

CoolSaver© A/C Tune-Up Market Transformation Program (CoolSaver© MTP)

Program Design

SWEPCO began implementing the CoolSaver© MTP in 2010 as a pilot program. In the Fall of 2012 SWEPCO issued a Request for Proposals (RFP) and selected an implementer to begin fully implementing the program in 2013. This program is designed to overcome market barriers that prevent residential customers from receiving high performance air conditioning (A/C) system tune-ups and selecting high efficiency A/C and heat pump units for replacement. The program works with local A/C contractor networks to offer key program components, including:

- Training and certifying A/C technicians on the tune-up and air flow correction services and protocols;
- Paying incentives to A/C contractors for the successful implementation of A/C tune-up and air flow correction services;
- Paying incentives to A/C contractors to offset the increased cost of high efficiency A/C and heat pump units; and
- Paying incentives to the customers in the form of coupons to be applied toward the completion of recommended work leading to the optimum unit efficiency.

For the 2013 program year, SWEPCO has added ENERGY STAR-rated A/C and heat pump unit replacements as additional measures to the program and offers marketing and training assistance for these new measures to the participating contractors.

Implementation Process

A third-party implementer is contracted to design, implement and market the CoolSaver© MTP as well as provide specialized training to the A/C technicians. Contractors that wish to participate enter into a contractor partnering agreement that specifies the program requirements. Contractors are trained on the A/C tune-up process and are provided marketing and training support on selling high efficiency unit

replacements to residential customers. Contractors are provided incentives and discounts on the cost of field equipment designed to diagnose and quantify energy savings opportunities. Energy savings are captured through the correction of A/C system inefficiencies identified during the tune-up activities and through deemed savings for A/C and heat pump replacements. Participating customers receive a coupon at the time of service for use toward A/C and heat pump efficiency services performed as a result of the program's tune-up analysis or an immediate discount on the cost of a new unit based on the new system's efficiency rating. At this time only residential customers of SWEPCO are eligible to participate in this program.

Outreach Activity

SWEPCO markets the CoolSaver© MTP in the following manner:

- Contracts with a third-party implementer to conduct outreach and planning activities;
- Targets A/C contractors who service residential customers served by SWEPCO;
- Targets residential customers served by SWEPCO;
- Conducts training workshops with contractor staff on the specific tune-up and air flow correction services promoted by the program, as well as the measurement and verification process to document savings;
- Conducts workshops as necessary to explain elements of the program, such as responsibilities of the contractors, project requirements, incentive information and the application and reporting process; and
- Participates in appropriate industry-related meetings to generate awareness and interest.

Hard-to-Reach Standard Offer Program (HTR SOP)

Program Design

The HTR SOP targets residential customers in existing homes with total annual household incomes at or below 200% of current federal poverty guidelines and who have properly completed a Public Utility Commission of Texas (PUCT)-approved income verification form, or who have been designated as HTR-eligible through another PUCT-approved verification methodology. Incentives are paid to project sponsors for eligible measures installed in retrofit applications that result in verifiable demand and energy savings. Program incentives are higher for work performed in historically underserved counties and for identified underserved measures to encourage activity. Project comprehensiveness is encouraged and customer education regarding energy conservation behavior is provided by materials distributed by project sponsors.

Implementation Process

Eligible project sponsors may submit an application for approval to participate in the program. The program information on SWEPCO's web site is updated frequently to reflect eligibility standards, participating project sponsors and available incentive budget.

Outreach Activities

SWEPCO markets the availability of its program in the following manner:

- Utilizes mass e-mail notifications to enroll and keep potential project sponsors interested and informed;
- Maintains an internet web site with detailed project eligibility, end-use measures, incentives, procedures and application forms;
- Educates internal employees about the program to help increase the customers' awareness of the programs;
- Participates in appropriate industry-related meetings to generate awareness and interest;
- Participates in state-wide outreach activities as may be available; and
- Conducts workshops as necessary to explain elements such as responsibilities of the project sponsor, project requirements, incentive information, and the application and reporting process, as necessary.

Home$avers (Low-Income Weatherization Program)

Program Design

The Home$avers program is designed to cost-effectively reduce the energy consumption and energy costs for SWEPCO's lowest-income customers. Program implementers provide eligible weatherization and energy efficiency measures for residential customers with total annual household incomes at or below 150% of current federal poverty guidelines.

Implementation Process

The program implementer signs agreements with not-for-profit (NFP) Agencies that will verify customer eligibility and conduct an energy use assessment of eligible customers' homes. The agencies install measures based on the savings-to-investment ratio (SIR), which evaluates cost-effectiveness.

Outreach Activities

The program implementer conducts outreach by targeting existing weatherization service providers and other NFP and governmental agencies in SWEPCO's service territory. These service providers identify potential Home$avers applicants from their client lists or conduct outreach into the surrounding community and to other low-income assistance agencies.

Load Management Standard Offer Program (LM SOP)

Program Design

The LM SOP targets commercial customers with a peak electric demand of 500 kW or more. Incentives are paid to project sponsors to reduce peak electric load on one-hour-ahead notice for load reduction periods of one to four hours duration. Incentive payments are based upon the verified, metered peak demand reduction as called for by SWEPCO.

Implementation Process

Eligible project sponsors may submit an application for a project meeting the minimum requirements as identified by SWEPCO. The program information on SWEPCO's web site is updated frequently to reflect remaining available budget amounts.

Outreach Activities

SWEPCO markets the LM SOP in the following manner:

- Utilizes mass e-mail notifications to enroll and keep potential project sponsors interested and informed;
- Utilizes working relationships between SWEPCO Customer Account Managers and customers to promote the program;
- Maintains an internet web site with detailed project eligibility, end-use measures, incentives, procedures and application forms;
- Participates in appropriate industry-related meetings to generate awareness and interest;
- Participates in state-wide outreach activities as may be available; and
- Conducts workshops as necessary to explain elements such as responsibilities of the project sponsor, project requirements, incentive information, and the application and reporting process.

On-Line Home Energy Checkup

Program Design

The On-Line Home Energy Checkup is designed to provide a web-based, do-it-yourself home energy audit that equips residential customers with valuable information to help them manage their energy use and cost. Internet access and a valid SWEPCO Texas account number are required. The tool provides functionality that produces a printer-friendly report that:

- Factors in weather and local electricity prices;
- Uses the customer's actual historic energy usage in savings calculations;
- Estimates monthly and annual energy usage and costs;
- Provides customized energy saving recommendations and potential savings for implemented measures; and
- Integrates and displays SWEPCO programs and incentives.

Included in the tool are energy calculators (appliance, lighting, heating/cooling systems), an extensive home energy library, Fundamentals of Electricity information, and Kids Korner Reference Libraries. At this time, it is not anticipated that SWEPCO will report savings associated with the use of this On-Line Home Energy Checkup tool.

Implementation Process

The tool is web-based with the entry point prominently located on SWEPCO's customer web site at https://www.swepco.com/save/calculate/Default.aspx. This tool is available to all SWEPCO Texas customers. The only requirement to gain access to the tool is for customers to log onto the web site using their SWEPCO account number.

Outreach Activities

SWEPCO markets the availability of its program in the following manner:

- Maintains internet web site with detailed information and instructions on the use of the tool;
- Provides informational bill messages in customers' bills describing the location, availability and functionality of the tool; and
- Educates internal employees on the availability of the tool to better respond to customer inquiries.

Residential Standard Offer Program (RSOP)

Program Design

The RSOP targets residential customers in existing single and multi-family homes that are over two years old. Incentives are paid to project sponsors for eligible measures installed in retrofit applications that result in verified demand and energy savings. Program incentives are higher for work performed in historically underserved counties to encourage activity in these areas. Higher incentives are also paid for measures that have been installed less frequently to encourage project comprehensiveness.

Implementation Process

Eligible project sponsors submit applications and are approved for participation in the program. The program information located on SWEPCO's web site is updated to reflect participating project sponsors. The program database is used to track progress of the program, allow project sponsors to view the available incentive amounts, and to verify a customer's eligibility to participate in the program.

Outreach Activities

SWEPCO markets the availability of its program in the following manner:

- Utilizes mass e-mail notifications to inform and update potential project sponsors such as EESPs and national and local companies that provide energy-related services;
- Educates internal employees about the program to help increase the customers' awareness of the programs;
- Maintains an internet web site with detailed project eligibility, end-use measures, incentives, procedures and application forms;
- Participates in appropriate industry-related meetings to generate awareness and interest;
- Sends information to customers concerned about utility bills;
- Participates in state-wide outreach activities as may be available; and
- Conducts workshops as necessary to explain elements such as responsibilities of the project sponsor, project requirements, incentive information, and the application and reporting process.

Schools Conserving Resources Market Transformation Program (SCORE MTP)

Program Design

The SCORE MTP provides energy efficiency and demand reduction solutions for public schools. This program is designed to help educate and assist these customers in lowering their energy use by integrating energy efficiency into their short- and long-term planning, budgeting and operational practices.

Incentives are paid to participating customers for eligible energy efficiency measures that are installed in new or retrofit applications that provide verifiable demand and energy savings.

Implementation process

SWEPCO offers participation to public school districts in its service territory. The program facilitates the identification of potential demand and energy savings opportunities, general electric energy operating characteristics, long-range energy efficiency planning, and overall measure and program acceptance by the targeted customer participants.

Outreach activities

SWEPCO markets the availability of its program in the following manner:

- Contracts with a third party to implement outreach and planning activities;
- Identifies customer participants;
- Utilizes working relationships between SWEPCO Customer Account Managers and customers to promote the program;
- Conducts workshops as necessary to explain elements of the program, such as responsibilities of the participants, project requirements, incentive information, and the application and reporting process;
- Participates in regional outreach activities as may be necessary; and
- Participates in appropriate industry-related meetings to generate awareness and interest.

Small Business Direct Install Pilot Market Transformation Program (SBDI-MTP)

Program Design

An SBDI MTP has been developed as a pilot program to offer energy efficiency services to small commercial customers with peak demands less than 50 kW. This customer group is the segment least served by SWEPCO's SOPs or MTPs.

Implementation Process

This program is designed to overcome barriers unique to small commercial customers that prevent them from participating in energy efficiency programs proven to be successful for larger business owners. These barriers include:

- Minimal technical knowledge among small business owners;
- Concerns about performance uncertainty and hidden costs;
- Owner/tenant challenges;
- Lack of capital, expertise, and staff; and
- Information or search costs.

To overcome these barriers, the program offers a "turnkey" approach in which marketing, energy education, site-specific energy analysis, financial incentives, equipment procurement, and installation can be provided. Installation work will be performed by local/area contractors, thus benefiting the local economy and educating local service industries on energy efficiency benefits and capabilities.

Outreach Activities

SWEPCO markets the availability of its program in the following manner:

- Maintains internet web site with detailed project eligibility, end-use measures, incentives, procedures and application forms;
- Educates internal employees about the program to help increase the customers' awareness of the programs; and
- Conducts workshops as necessary to explain elements such as responsibilities of the project sponsor, project requirements, incentive information, and the application and reporting process.

SMART Source[SM] Solar PV Market Transformation Program (Solar PV MTP)

Program Design

In September 2012, an RFP was issued and a third-party implementer was selected to administer the program as a fully implemented MTP. In addition to demand and energy savings achieved from the installations, the program aims to transform the solar PV market by increasing the number of qualified companies offering installation services and by decreasing the average installed cost of systems by creating greater market economies of scale.

Implementation Process

The program is designed to assist SWEPCO residential and non-residential customers seeking solar PV installations. The program primarily targets installers/companies in SWEPCO's service territory, but also promotes program awareness to solar PV manufacturers and SWEPCO customers. Solar PV installers complete a solar certification process to become eligible for participation in the program. These trained installers then submit project applications to be eligible to receive incentive amounts based on program guidelines.

Outreach Activities

SWEPCO markets the availability of its program in the following manner:

- Contracts with a third-party implementer to conduct outreach and planning activities;
- Makes available clear and concise material that describes the program incentive offer;
- Maintains an internet web site and program guidebook to be used as reference tools;
- Uses bill inserts and e-mail notifications;
- Conducts workshops and training for installers and local code enforcement officials to explain project requirements and incentive information; and
- Facilitates earned media opportunities, spotlighting successful projects and interesting stories when possible.

C. New Programs for 2013

ENERGY STAR® Appliance Rebate Pilot Program (Appliance Rebate Program)

Program Design

This Appliance Rebate Program targets residential customers who need to replace an existing window air conditioner, refrigerator, or washing machine. In order for appliances to qualify for program incentives they must be an approved ENERGY STAR product. The customer purchases the new appliance and remits a rebate form along with appropriate sales and model documentation. The Appliance Rebate Program is designed to increase the penetration of ENERGY STAR-qualified products in SWEPCO's service territory. The Appliance Rebate Program template is included in Appendix B.

Implementation Process

A third-party contractor will design, implement, and market the Appliance Rebate Program. This contractor will review the rebate requests, verify all information, make the payment to the customer, and track information for measurement and verification purposes.

Outreach Activities

The program implementer will target retailers who sell ENERGY STAR appliances. Participation agreements will be signed with interested parties, training will be offered to the sales staff, and marketing materials will be provided for their use. Marketing materials will consist of in-store materials designed to make the customer aware of the energy-saving value of the ENERGY STAR appliance, as well as the rebate forms. Targeted marketing to residential customers may be used to increase program participation.

D. Discontinued Programs

SWEPCO CARE$ Energy Efficiency for Not-for-Profit Agencies Program (SWEPCO CARE$)

SWEPCO CARE$ was developed to target commercial NFP agencies that provide services to low-income customers in the SWEPCO service territory. Incentives were paid to participating agencies for certain eligible energy efficiency improvements made to their administrative facilities that resulted in verified demand and energy savings. The goal was to reduce the agency's operating costs by making the administrative facility more energy efficient, resulting in greater resources being made available for client assistance.

The key challenge of the SWEPCO CARE$ program was meeting the current program cost-effectiveness requirement. SWEPCO determined that SWEPCO CARE$ could not achieve cost-effectiveness. As a result, SWEPCO discontinued this program for 2013.

LED Lighting Pilot MTP

SWEPCO began implementing the LED Lighting Pilot MTP in July 2010, by marketing to customers in the SWEPCO service territory that met the program eligibility parameters. The program provided non-cash value to SWEPCO customers such as technical education and project financial calculations, both of which were provided by the program implementer. The program implementer provided services, education, and support to assist customers with identifying LED lighting installation opportunities.

The program was discontinued at the end of program year 2011; however, there were two projects underway at the end of 2011 that were completed in 2012. These two projects were paid incentives and savings were reported in 2012. The savings associated with these two projects were 80,351 kWh.

E. Existing DSM Contracts or Obligations

SWEPCO has no existing DSM contracts or obligations.

II. CUSTOMER CLASSES

SWEPCO's energy efficiency programs target residential and commercial customer classes. SWEPCO's energy efficiency programs also target customer sub-classes, including Residential – Hard-To-Reach and Low-Income; and Commercial – Public Schools and NFP Agencies.

The annual projected savings targets are allocated among these customer classes and sub-classes by examining historical program results and by evaluating economic trends, in compliance with Substantive Rule 25.181(e)(3)(A).

Table 3 summarizes the number of active customers in each eligible customer class at SWEPCO in the month of December 2012. These numbers were used to determine goal and budget allocations for each customer class and program. It should be noted, however, that the actual distribution of the annual goal to be achieved and budget required to achieve the goal must remain flexible based upon the conditions of the marketplace, the potential interest a customer class may have in a specific program and the overriding objective of meeting SWEPCO's mandated demand reduction goal in total. SWEPCO offers a varied portfolio of SOPs and MTPs such that all eligible customer classes have access to energy efficiency alternatives.

Table 3: Summary of Customer Classes

Customer Class	Number of Customers
Commercial	30,009
Residential	147,374
Hard-to-Reach[3]	48,633*

*Hard-to-Reach customer count is a subset of the Residential total.

III. ENERGY EFFICIENCY GOALS AND PROJECTED SAVINGS

As prescribed by Substantive Rule 25.181, SWEPCO's annual demand reduction goal is specified as a percent of its historical, weather-normalized, five-year average growth in demand. SWEPCO's 2013 goal is calculated based upon the average annual growth in peak demand for the years 2008 through 2012, inclusive (the most recent historical load growth data available). SWEPCO's 2013 Program Year demand reduction goal to be achieved by December 31, 2013 is prescribed by the EE Rule to be at least 30% of this calculated annual growth in demand of residential and commercial customers. The corresponding annual energy savings goal is determined by applying a 20% capacity factor to the applicable demand reduction goal for Program Year 2013. A utility's demand reduction goal in megawatts for any year cannot be less than the previous year's goal.

Table 4 presents the actual historical annual growth in demand for the previous five years used to calculate SWEPCO's goals. Table 5 presents the projected demand reduction and energy savings, by program, for each customer class and for each of the years 2013 and 2014. Projected savings reflect the estimated demand and energy savings that SWEPCO's programs are expected to achieve with fully-developed program budgets for each of the years shown.

[3] According to the U.S. Census Bureau's 2009 Current Population Survey, 33% of Texas families fall below 200% of the poverty threshold. Applying that percentage to SWEPCO's residential customer base of 147,374, the number of HTR customers is estimated at 48,633.

Table 4: Annual Growth in Demand and Energy Consumption (at the Meter)

Calendar Year	Peak Demand (MW)				Energy Consumption (GWh)				Growth (MW)	Average[4] Growth (MW)
	Total System		Residential & Commercial		Total System		Residential & Commercial			
	Actual	Actual Weather Adjusted	Actual	Actual Weather Adjusted	Actual	Actual Weather Adjusted	Actual	Actual Weather Adjusted	Actual Weather Adjusted	Actual Weather Adjusted
2007	1,437	1,473	1,319	1,356	7,358	7,394	6,344	6,380	NA	NA
2008	1,446	1,484	1,300	1,339	7,393	7,480	6,415	6,503	-17	NA
2009	1,365	1,429	1,298	1,362	6,553	6,685	5,826	5,958	23	NA
2010	1,452	1,475	1,357	1,380	7,394	7,141	6,434	6,182	18	NA
2011	1,524	1,456	1,427	1,360	7,544	7,335	6,585	6,376	-20	NA
2012	1,554	1,515	1,425	1,385	7,521	7,457	5,527	5,462	25	NA
2013	NA	NA	NA	NA	NA	NA	NA	NA	NA	5.77
2014	NA	NA	NA	NA	NA	NA	NA	NA	NA	5.77

[4]Average historical growth in demand over the prior five years for residential and commercial customers adjusted for weather fluctuations.

Table 5: Projected Demand and Energy Savings by Program for Each Customer Class (at the Meter)

	2013	
Customer Class and Program	**Demand Goal (kW)**	**Energy Goal (kWh)**
Commercial	12,175	15,346,004
Commercial Solutions Pilot MTP	861	4,489,370
Commercial SOP	1,151	6,460,771
Load Management SOP	8,828	97,312
SCORE MTP	673	1,881,809
Small Business Direct Install Pilot MTP	550	2,200,742
SMART Source℠ Solar PV Pilot MTP	112	216,000
Residential	1,891	6,113,474
CoolSaver© A/C Tune-Up Pilot MTP	289	641,296
On-Line Home Energy Checkup	NAP	NAP
Residential SOP	1,496	5,132,884
ENERGY STAR® Appliance Rebate Program	61	252,894
SMART Source℠ Solar PV Pilot MTP	45	86,400
Hard-to-Reach Residential	1,031	3,132,301
Hard-to-Reach SOP	946	2,875,525
Home$avers	85	256,776
Total Annual Projected Savings	15,097	24,591,779

	2014	
Customer Class and Program	**Demand Goal (kW)**	**Energy Goal (kWh)**
Commercial	11,980	17,031,005
Commercial Solutions Pilot MTP	859	4,478,447
Commercial SOP	1,450	8,139,611
Load Management SOP	8,363	92,192
SCORE MTP	758	2,120,013
Small Business Direct Install Pilot MTP	550	2,200,742
Residential	1,142	3,963,384
On-Line Home Energy Checkup	NAP	NAP
Residential SOP	1,081	3,710,490
ENERGY STAR® Appliance Rebate Program	61	252,894
Hard-to-Reach Residential	743	2,259,211
Hard-to-Reach SOP	743	2,259,211
Total Annual Projected Savings	13,865	23,253,600

IV. PROGRAM BUDGETS

Table 6 presents total projected budget allocations required to meet SWEPCO's projected demand and energy savings to be achieved for the Program Years 2013 and 2014. The budget allocations are defined by the overall projected demand and energy savings, the avoided costs of capacity and energy specified in Substantive Rule 25.181, allocation of demand goals among customer classes, and the incentive levels by customer class. Table 6 budget allocations are detailed by customer class, program, and in the following budget categories: incentive payments, administration, research and development (R&D) and evaluation, measurement and verification (EM&V).

Table 6: Projected Annual Budget by Program for Each Customer Class

2013	Incentives	Admin & R&D	Total
Commercial			
Commercial Solutions MTP	$369,900	$41,100	$411,000
Commercial SOP	$479,632	$84,641	$564,273
Load Management SOP	$268,845	$14,150	$282,995
SCORE MTP	$355,500	$39,500	$395,000
Small Business Direct Install Pilot MTP	$470,250	$24,750	$495,000
SMART Source℠ Solar PV MTP	$180,000	$20,000	$200,000
Residential			
CoolSaver© A/C Tune-Up MTP	$220,408	$32,935	$253,343
On-Line Home Energy Checkup	$8,705	$1,301	$10,006
Residential SOP	$866,243	$129,439	$995,682
ENERGY STAR® Appliance Rebate Program	$141,045	$20,000	$161,045
SMART Source℠ Solar PV MTP	$90,000	$10,000	$100,000
Hard-to-Reach Residential			
Hard-to-Reach SOP	$715,772	$106,955	$822,727
Home$avers	$373,630	$26,370	$400,000
Research & Development			
R&D	$0	$108,955	$108,955
Sub Total	**$4,539,930**	**$660,096**	**$5,200,026**
Evaluation, Measurement & Verification			
EM&V	NAP	$0	$0
Total Budget	**$4,539,930**	**$660,096**	**$5,200,026**

Table 6: (Continued)

2014	Incentives	Admin & R&D	Total
Commercial			
Commercial Solutions MTP	$369,000	$41,000	$410,000
Commercial SOP	$604,265	$106,635	$710,900
Load Management SOP	$254,700	$28,300	$283,000
SCORE MTP	$400,500	$44,500	$445,000
Small Business Direct Install Pilot MTP	$338,307	$46,133	$384,440
Residential			
On-Line Home Energy Checkup	$8,705	$1,301	$10,006
Residential SOP	$626,195	$110,505	$736,700
ENERGY STAR® Appliance Rebate Program	$141,045	$20,000	$161,045
Hard-to-Reach Residential			
Hard-to-Reach SOP	$562,360	$99,240	$661,600
Research & Development			
R&D	n/a	$20,000	$20,000
Sub Total	**$3,305,077**	**$517,614**	**$3,822,691**
Evaluation, Measurement & Verification			
EM&V		$201,213	$201,213
Total Budget	**$3,305,077**	**$718,827**	**$4,023,904**

ENERGY EFFICIENCY REPORT

V. HISTORICAL DEMAND AND ENERGY SAVINGS GOALS FOR THE PREVIOUS FIVE YEARS

Table 7 contains SWEPCO's actual demand and energy goals and actual savings achieved for the previous five years (2008-2012) calculated in accordance with Substantive Rule 25.181.

Table 7: Historical Demand and Energy Goals (at the Meter)

Calendar Year	Actual Weather Adjusted Demand Goal (MW)	Actual Weather Adjusted Energy Goal (MWh)	Actual Demand Reduction (MW)	Actual Energy Savings (MWh)
2012[5]	5.60	9,811	13.33	19,078
2011[6]	5.60	9,811	15.03	22,582
2010[7]	5.60	9,811	14.75	18,478
2009[8]	5.60	9,811	9.56	17,880
2008[9]	5.60	NAP	6.26	14,875

[5] Actual weather-adjusted MW and MWh Goals as reported in SWEPCO's EEPR filed March 2012 under Project No. 40194.
[6] Actual weather-adjusted numbers from EEPR, Project No. 39105.
[7] Actual weather-adjusted numbers from EEPR, Project No. 37982.
[8] Actual weather-adjusted numbers from EEPR, Project No. 36689.
[9] Actual weather-adjusted numbers from EEPR, Project No. 35440.

VI. PROJECTED, REPORTED AND VERIFIED DEMAND AND ENERGY SAVINGS

Table 8: Projected versus Reported and Verified Savings for 2012 and 2011 (at the Meter)

2012	Projected Savings		Reported and Verified Savings	
Customer Class and Program	**kW**	**kWh**	**kW**	**kWh**
Commercial				
Commercial Solutions Pilot MTP	364	741,186	385	2,008,553
Commercial SOP	1,261	5,266,313	811	4,550,108
LED Lighting Pilot MTP	0	0	0	80,351
Load Management SOP	7,960	219,640	8,237	90,083
SCORE MTP	482	1,213,381	580	1,622,035
Small Business Direct Install Pilot MTP	367	1,467,161	242	1,063,147
SMART Source[SM] Solar PV Pilot MTP	N/A	N/A	N/A	N/A
SWEPCO Care$	13	36,828	17	55,246
Residential				
CoolSaver© A/C Tune-Up Pilot MTP	273	614,495	205	413,181
On-Line Home Energy Checkup	N/A	N/A	N/A	N/A
Residential SOP	1,556	5,203,741	1,520	5,217,855
SMART Source[SM] Solar PV Pilot MTP	64	123,424	57	109,434
Hard-to-Reach Residential				
Hard-to-Reach SOP	1,292	3,918,628	1,189	3,612,589
Home$avers	129	333,674	84	255,386
Total Annual Savings	13,761	19,138,471	13,326	19,077,968

2011	Projected Savings		Reported and Verified Savings	
Customer Class and Program	**kW**	**kWh**	**kW**	**kWh**
Commercial				
Commercial Solutions Pilot MTP	750	1,449,758	812	3,835,382
Commercial SOP	1,480	7,496,724	1,658	6,921,640
CoolSaver© A/C Tune-Up Pilot MTP	252	1,080,712	153	290,742
LED Lighting Pilot MTP	40	761,120	0	86,936
Load Management SOP	7,829	132,849	8,674	239,063
SCORE MTP	750	1,451,184	776	1,993,312
Small Business Direct Install Pilot MTP	102	407,545	15	60,175
SMART Source[SM] Solar PV Pilot MTP	54	104,136	62	154,794
SWEPCO Care$	9	29,553	10	27,646
Residential				
CoolSaver© AC Tune-Up Pilot MTP	272	815,273	68	153,172
On-Line Home Energy Checkup	N/A	N/A	N/A	N/A
Residential SOP	1,506	4,100,854	1,422	4,756,479
SMART Source[SM] Solar PV Pilot MTP	54	104,136	37	35,704
Hard-to-Reach Residential				
Hard-to-Reach SOP	1,070	3,589,183	1,218	3,694,079
Home$avers	174	497,712	129	333,148
Total Annual Savings	14,342	22,020,739	15,034	22,582,272

VII. HISTORICAL PROGRAM EXPENDITURES

This section documents SWEPCO's incentive and administration expenditures for the previous five years (2008-2012) detailed by program for each customer class.

Table 9: Historical Program Incentive and Administrative Expenditures for 2008 through 2012 (000's)[10]

	2012		2011		2010		2009		2008	
Commercial	Incent	Admin	Incent	Admin	Incent	Admin	Incent	Admin	Incent	Admin
Commercial Solutions Pilot MTP	165.5	27.2	458.7	45.1	270.2	25.6	255.9	16.4	75.0	2.8
Commercial SOP	337.8	56.0	635.1	101.7	345.1	54.0	466.3	47.8	558.7	48.5
CoolSaver© A/C Tune-Up Pilot MTP	NAP	NAP	132.6	11.0	20.0	1.8	NAP	NAP	NAP	NAP
LED Lighting Pilot MTP	13.2	1.0	33.9	5.8	21.4	6.9	NAP	NAP	NAP	NAP
Load Management SOP	250.9	32.0	267.0	35.0	290.9	32.7	169.5	21.1	85.4	7.5
SCORE MTP	306.4	39.0	278.7	30.2	336.1	27.1	201.3	19.7	124.1	10.3
Small Business Direct Install Pilot MTP	270.2	31.8	67.8	12.5	NAP	NAP	NAP	NAP	NAP	NAP
SMART Source℠ Solar PV Pilot MTP	NAP	NAP	204.3	14.3	141.8	9.3	0.0	0.0	NAP	NAP
SWEPCO Care$	88.1	12.1	67.6	6.9	98.7	11.6	84.9	7.1	90.0	9.2
Residential										
Appliance Recycling Pilot MTP	NAP	NAP	NAP	NAP	NAP	NAP	30.0	3.0	NAP	NAP
CoolSaver© A/C Tune-Up Pilot MTP	222.7	26.0	56.8	4.7	105.3	9.7	NAP	NAP	NAP	NAP
On-Line Home Energy Checkup	7.8	1.4	0.0	5.3	NAP	NAP	NAP	NAP	NAP	NAP
Residential SOP	880.6	123.5	808.9	110.5	888.8	98.1	419.3	48.8	358.5	47.1
SMART Source℠ Solar PV Pilot MTP	132.9	14.5	52.7	3.7	87.1	5.7	35.8	6.5	NAP	NAP
TX Statewide Energy Star Residential CFL MTP	NAP	NAP	NAP	NAP	2.7	0.0	29.4	11.0	37.1	8.7
Hard-to-Reach Residential										
Hard-to-Reach SOP	899.2	123.3	848.4	116.2	599.1	69.4	745.9	68.2	582.6	42.0
Home$avers	371.6	33.9	373.0	25.9	503.3	33.5	246.4	26.7	278.5	25.3
Research and Development (R&D)	0.0	52.7	0.0	74.3	0.0	185.5	7.3	136.9	27.1	27.9
Total Expenditures	3,946.9	574.4	4,285.6	603.0	3,710.5	570.9	2,692.0	413.2	2,217.0	229.3

[10] 2012 expenditures taken from Table 10 in the current EEPR, Project No. 41196: 2011 expenditures from EEPR, Project No. 40194; 2010 expenditures from EEPR, Project No. 39359; 2009 expenditures from EER, Project No. 38210; 2008 expenditures from EER, Project No. 36961

VIII. PROGRAM FUNDING FOR CALENDAR YEAR 2012

As shown in Table 10, the Total Projected Budget for 2012 was $4,565,026. Total Funds Expended for 2012 were $4,521,259. This is an overall total program expenditure decrease of only 1% from the amount budgeted. The SBDI MTP spent $45,425 or 13.08% less than budgeted for the 2012 Program Year. Contractor participation in the SBDI MTP was lower than expected, resulting in fewer project completions than anticipated. This situation is being addressed through increased contractor recruiting efforts. In 2012, the CSOP spent 26% less than the budgeted amount due to a lack of projects submitted throughout the program year. SCORE spent 27% more funds than budgeted due to a higher participation than forecasted, allowing SWEPCO to achieve 98 kW of additional savings.

Table 10: Program Funding for Calendar Year 2012 (Dollar amounts in 000's)

2012	Total Projected Budget	Number of Customers Participating	Actual funds Expended (Incentives)	Actual Funds Expended (Admin & R&D)	Total funds Expended	Funds Committed (Not Expended)	Funds Remaining
Commercial							
Commercial Solutions Pilot MTP	$211,000	26	$165,494	$27,194	$192,688		$18,312
Commercial SOP	$536,905	14	$337,789	$55,989	$393,778		$143,127
LED Lighting Pilot MTP	$0	2	$13,167	$1,004	$14,171		
Load Management SOP	$257,995	9	$250,863	$32,015	$282,879		
SCORE MTP	$270,000	21	$306,425	$39,018	$345,443		
Small Business Direct Install Pilot MTP	$347,368	38	$270,171	$31,772	$301,943		$45,425
SWEPCO Care$	$100,000	8	$88,110	$12,106	$100,215		
Commercial Total	**$1,723,268**	**118**	**$1,432,020**	**$199,098**	**$1,631,117**	**$0**	**$206,864**
Residential							
CoolSaver© A/C Tune-Up Pilot MTP	$253,343	778	$222,706	$26,011	$248,717		$4,626
On-Line Home Energy Checkup	$10,006	78	$7,796	$1,382	$9,178		$828
Residential SOP	$1,005,682	1,767	$880,583	$123,507	$1,004,090		$1,362
SMART Source℠ Solar PV Pilot MTP	$150,000	8	$132,923	$14,462	$147,384		$2,616
Residential Total	**$1,419,031**	**2,631**	**$1,244,008**	**$165,362**	**$1,409,369**	**$0**	**$9,432**
Hard-to-Reach Residential							
Hard-to-Reach SOP	$1,022,727	1,301	$899,241	$123,289	$1,022,530		$197
Home$avers	$400,000	106	$371,608	$33,943	$405,551		
Hard-to-Reach Residential Total	**$1,422,727**	**1,407**	**$1,270,849**	**$157,232**	**$1,428,081**	**$0**	**$197**
Research & Development							
Research & Development	$0	0	$0	$52,692	$52,692		
Total Expenditures	**$4,565,026**	**4,156**	**$3,946,877**	**$574,384**	**$4,521,259**	**$0**	**$216,493**

IX. MARKET TRANSFORMATION PROGRAM RESULTS

Commercial Solutions MTP (CS MTP)

SWEPCO contracted with a third-party program implementer to provide commercial facilities non-cash incentives such as technical assistance to identify energy efficiency opportunities, education in promoting best practices, and communication support services. Program participants received cash incentives for the installation of documented energy efficiency measures that reduced peak demand and energy consumption.

For 2012, SWEPCO projected to acquire 364 kW of demand savings from this program. SWEPCO's verified and reported results are 385 kW. This included participation by 26 customers in two different counties.

CoolSaver© Pilot MTP (CoolSaver© MTP)

In 2012 SWEPCO conducted a baseline study of the CoolSaver© program to determine the need for an expansion of the program. Based on the outcome of the baseline study, SWEPCO decided to continue the program. SWEPCO issued an RFP through a competitive solicitation process to select an implementer to fully implement an A/C Tune-Up program in 2013. SWEPCO awarded a contract to a third-party program implementer to provide services, education, and support to assist A/C contractors in selling and performing A/C tune-up services. In 2012, SWEPCO projected to acquire 273 kW demand savings from this program. SWEPCO verified and reported savings of 205 kW. This included participation by nine contractors at 633 different residential locations in 12 different counties. SWEPCO projects to acquire 289 kW demand savings from this program in 2013 with a total budget of $253,343.

SCORE MTP

The SCORE MTP provided non-cash incentives such as building energy analysis (benchmarking), energy master-planning seminars, technical assistance, communications support, and monetary incentives for the installation of documented energy efficiency measures that reduce peak demand and energy use.

In 2012, SWEPCO projected to acquire 482 kW in demand savings from this program. SWEPCO has verified reported savings of 580 kW. This included participation by 21 customers in six counties.

SMART Source[SM] Solar PV Pilot MTP (Solar PV Pilot MTP)

In 2012, SWEPCO projected to acquire 64 kW in demand savings from this program. SWEPCO has verified reported savings of 57 kW or 88% of the original goal. The program had eight residential customers in four counties participate in the program.

X. RESEARCH AND DEVELOPMENT

R&D activities and projects accounted for 1.16% of SWEPCO's 2012 program expenses. R&D activities are intended to help SWEPCO meet future energy efficiency goals by researching new technologies and program options as well as developing better and more efficient ways to administer current programs. The following is a summary of R&D efforts for 2012.

Electric Power Research Institute (EPRI) "Hyper-Efficient" Appliance R&D Project

In 2011, SWEPCO was selected by EPRI as a host site for the "Hyper-Efficient" Appliance project. A selected group of customers' existing appliances were monitored for 60 days to establish a baseline. After the 60-day period, new appliances were installed and monitored. The appliances were monitored until March, 2012, at which time EPRI processed the data and published the results later in 2012.

EPRI targeted several important "white goods"—refrigerators, clothes washers, and electric clothes dryers—for the energy-efficiency demonstration. Together, these appliances use about 15% of the residential electricity consumed in the U.S., according to the Energy Information Administration.

Key Findings

The amount of saved energy depended highly upon the brand of refrigerator, ranging from a low of -5% to a high of 45%.

Energy ratings for high-efficiency refrigerators and clothes washers, which are derived from standardized laboratory testing, may not reflect actual energy consumption. For example, of the three refrigerator models selected for use in the demonstration, two closely agreed with the published ENERGY STAR data, but one greatly exceeded the published value for energy consumption savings.

The demonstration results for washer/dryer pairs found there was not a significant difference in energy use between the standard and high efficiency models' laundry cycle. The results also show that the average time per laundry cycle for the high efficiency washer/dryer was five minutes longer than for the control/unit.

During an average wash cycle, the high efficiency washer decreased cold water use by 2.1 gallons and hot water use by 0.7 gallons, which resulted in an energy savings for hot water supplied to the washer of approximately 17%.

Since ENERGY STAR® clothes washers, dishwashers and refrigerators are qualifying measures in the RSOP and the HTR SOP, SWEPCO will not develop an independent program dedicated to hyper-efficient appliances.

LED Outdoor Parking Lot Lighting R&D Project

In an effort to raise awareness of high-performance LED products and to provide real-world experience and data on state-of-the-art solid-state lighting (SSL) product performance, SWEPCO partnered with a major retailer in 2010 to jointly sponsor a commercial LED Outdoor Lighting R&D project in Longview, Texas.

The primary objectives of the project were to understand the potential energy savings from the use of LED lighting; evaluate the reliability of LED lighting electronics and its ability to survive real-world electrical disturbances; and provide a forum to evaluate public acceptance of the technology.

The connected lighting load of the parking lot was reduced by 36 kW but since outdoor lighting is off-peak, minimal peak demand savings were realized. This reduction was attributed to replacing the existing 1000-watt metal halide fixtures in the major retailer's parking lot and entrance driveways with LED fixtures. A sample of the lighting circuits was sub-metered with the original metal halide fixtures and after the installation of the LED fixtures to determine energy consumption. Photometric evaluation was also prepared on a pre- and post-basis and at the approximate 700-hour and 6000-hour burn times to evaluate the quality of the LED lighting system. The reliability of the fixtures has been very good and except for a direct lightning strike on one of the fixtures, there have been no failures of the LED fixtures. It is also worth noting that customers have not seemed to notice the difference in the lighting source.

Since LED lighting is eligible for incentives in the Commercial Standard Offer, Commercial Solutions, and SCORE Programs, it was decided that SWEPCO will not develop an independent program dedicated to LED Lighting. SWEPCO split the R&D costs of the project 50/50 with the retailer. The only funds spent on this program during the 2012 program year were for final light level measurements.

Program Research and Development

Other R&D activities included:

- SWEPCO continues to refine and enhance data collection and management systems for current programs.
- Critical programming and design changes were made to begin tracking program expenses for the commercial customer classes by individual rate codes.
- SWEPCO Energy Efficiency Coordinators attended energy efficiency-related conferences to develop additional knowledge regarding program ideas and how to best implement SWEPCO's energy efficiency programs.

XI. CURRENT ENERGY EFFICIENCY COST RECOVERY FACTOR (EECRF)

In Docket No. 40357, SWEPCO requested an EECRF to recover $5,200,026, the cost of SWEPCO's energy efficiency program projected for 2013 to meet its energy efficiency objectives under PURA §39.905, and a performance bonus of $977,719. Also requested was a return to the customers of $324,214, representing SWEPCO's over-recovery of its actual energy efficiency program costs for 2011. SWEPCO's request was granted by the PUCT on July 13, 2012. The EECRF was made effective on December 30, 2012, the beginning of SWEPCO's January 2013 billing month, and is calculated to recover $5,853,531 in energy efficiency costs. The resulting energy efficiency factors are shown below in Table 11.

Table 11: 2013 EECRF

Customer Class	Customer EECRF Factors
Residential	0.001163 $/ kWh
General Service	0.000947 $/ kWh
Municipal Service	0.000040 $/kWh
Municipal Pumping	(0.000096 $/kWh)
Lighting & Power	0.000810 $/kWh
Industrial	(0.000461 $/ kWh)
Lighting	(0.000763) $/ kWh

2012 Collecting for Energy Efficiency

SWEPCO collected $4,679,875 through its 2012 EECRF. This total included $856,409, the amount approved as SWEPCO's performance bonus for exceeding its 2011 energy efficiency goal, and returned an over- recovery of $239,829 to customers. Therefore, SWEPCO collected $4,063,295 related to its 2012 energy efficiency programs.

Energy Efficiency Program Costs Expended

SWEPCO expended a total of $4,521,259 for its 2012 energy efficiency programs. The amount expended is $43,767 less than SWEPCO's 2012 projected budget of $4,565,026.

Under-Recovery of Energy Efficiency Costs

Pursuant to the final order in Docket No. 39359, SWEPCO was authorized to recover $5,181,606 through its 2012 EECRF. SWEPCO collected $4,063,295 of its program costs through its 2012 EECRF resulting in an under-recovery of $457,964, which will be applied to the 2014 EECRF.

SWEPCO's actual EECRF program costs were $4,521,259[11] and actual EECRF program revenues were $4,063,295. These associated 2012 costs and revenues result in an under-recovery of energy efficiency costs of $457,964. This is the amount SWEPCO will request to collect through its 2014 EECRF.

XII. UNDERSERVED COUNTIES

The underserved counties in the SWEPCO service territory per Substantive Rule 25.181 are Childress, Donley, Hopkins, and Rains. Underserved counties have been defined by SWEPCO as any county for which SWEPCO did not report demand or energy savings through any of its 2012 SOPs or MTPs.

XIII. PERFORMANCE BONUS

SWEPCO achieved a 13,326 kW reduction in peak demand from its energy efficiency programs offered in 2012. SWEPCO's demand reduction goal for 2012 was 5,600 kW. This achievement represents 238% of its 2012 demand reduction goal. SWEPCO also achieved energy savings at 19,077,968, which represents 194% of its 2012 energy goal of 9,811,200 kWh. These results qualify SWEPCO for a Performance Bonus. Per Substantive Rule 25.181(h), SWEPCO is eligible for a

[11] Includes a credit to reverse overpayment of a 2011 program cost.

Performance Bonus of $1,168,476, which it will request within its May 1, 2013 EECRF filing for recovery in 2014.

Table 12: Energy Efficiency Performance Bonus Calculation for 2012

	kW	kWh	From Table
2012 Goals	5,600	9,811,200	7
2012 Savings			
Reported/Verified Total (including HTR, measures with 10yr EUL, and measures with EULs < or > 10 years)	13,326	19,077,968	8
Reported/Verified Hard-to-Reach	1,273	3,867,975	8
2012 Program Costs[12]	$4,567,801		10
2012 Performance Bonus	$1,168,476		

Performance Bonus Calculation

237.96%	Percentage of Demand Reduction Goal Met (Reported kW/Goal kW)
194.45%	Percentage of Energy Reduction Goal Met (Reported kWh/Goal kWh)
TRUE.	Met Requirements for Performance Bonus?
$16,252,560	Total Avoided Cost (Reported kW * PV(Avoided Capacity Cost) + Reported kWh * PV(Avoided Energy Cost), except for measures with measure life other than 10 years for which PV(Avoided Capacity Cost) and PV(Avoided Energy Cost) are calculated using the specific measure lives)
$4,567,801	Total Program Costs
$11,684,759	Net Benefits (Total Avoided Cost - Total Expenses)

Bonus Calculation

$8,060,397	Calculated Bonus ((Achieved Demand Reduction/Demand Goal - 100%) / 2) * Net Benefits
$1,168,476	Maximum Bonus Allowed (10% of Net Benefits)
$1,168,476	Bonus (Minimum of Calculated Bonus and Bonus Limit)

[12] To reflect the true net benefits for Program Year 2012 it was necessary to use the 2012 program costs actually incurred, see footnote 11.

ACRONYMS

A/C	Air conditioning
AEE	Association of Energy Engineers
AESP	Association of Energy Services Professionals
CCET	Center for the Commercialization of Electric Technologies
CoolSaver© MTP	CoolSaver© AC Tune-Up Pilot Market Transformation Program
CS MTP	Commercial Solutions Pilot Market Transformation Program
CSOP	Commercial Standard Offer Program
DOE	Department of Energy
EE Rule	Energy Efficiency Rule, PUC Substantive Rules 25.181 and 25.183
EECRF	Energy Efficiency Cost Recovery Factor
EEP	Energy Efficiency Plan
EEPR	Energy Efficiency Plan and Report
EER	Energy Efficiency Report, which was filed as a separate document prior to April 2008
EESP	Energy efficiency service provider
EPRI	Electric Power Research Institute
HTR SOP	Hard-to-Reach Standard Offer Program
HTR	Hard-To-Reach
LED	Light-emitting diode
LED MTP	LED Lighting Pilot Market Transformation Program
LM SOP	Load Management Standard Offer Program
M&V	Measurement and Verification
MTP	Market Transformation Program
NAP	Not Applicable

ACRONYMS (Continued)

NFP	Not for Profit
PLAN	Energy Efficiency Plan, which was filed as a separate document prior to April 2008
PUCT	Public Utility Commission of Texas
PURA	Public Utility Regulatory Act
PV	Photovoltaic
R&D	Research and Development
REPORT	Energy Efficiency Report
RFP	Request for Proposals
RSOP	Residential Standard Offer Program
SBDI	Small Business Direct Install
SCORE MTP	Schools Conserving Resources Market Transformation Program
SOLAR PV PILOT MTP	SMART Source[SM] Solar PV Pilot Market Transformation Program
SWEPCO CARE$	SWEPCO CARE$ Energy Efficiency for Not-for-Profit Agencies Program
SWEPCO	Southwestern Electric Power Company

.

APPENDIX A:

REPORTED AND VERIFIED DEMAND AND ENERGY REDUCTION BY COUNTY

Appendix A: Reported and Verified Demand and Energy Reduction by County

Program		Bowie	Camp	Cass	Collingsworth	Franklin	Gregg	Hall	Harrison	Marion	Morris	Panola	Red River	Rusk	Shelby	Smith	Titus	Upshur	Van Zandt	Wheeler	Wood
Commercial Solutions	kW	264.75	0	0	0	0	112.39	0	0	0	0	0	0	0	0	0	7.96	0	0	0	0
	kWh	1,473,140	0	0	0	0	509,080	0	0	0	0	0	0	0	0	0	26,333	0	0	0	0
Commercial SOP	kW	451.28	0	0	0	0	341.59	0	17.74	0	0	0	0	0	0	0	0	0	0	0	0
	kWh	2,106,695	0	0	0	0	2,309,151	0	134,263	0	0	0	0	0	0	0	0	0	0	0	0
CoolSaver A/C Tune-Up	kW	1.95	0.69	7 26	0	0.828	112.815	0	1 936	0	2 206	0	0	1.863	0	0	5.656	3.3	0.62	0	65.56
	kWh	2977	1,422	20,504	0	1,530	216,318	0	3,507	0	5,464	0	0	3,402	0	0	12,904	4,796	1156	0	139,201
Hard-to-Reach SOP	kW	168.42	1.89	26.1	131.63	0	343.47	22.86	140.7	1.07	11.15	25.74	0	265.52	3 96	1.02	0	25.67	2.32	0	17.11
	kWh	353,900	3,470	52,872	386587	0	1,150,761	49790	428,507	7,766	31805	76,306	0	846,380	21,371	7,244	0	119,166	2,666	0	73,998
Home$avers	kW	34.76	0	7.7	0.42	0	1.84	0	21.16	0	4.59	0	1.14	0	0.48	0	11.56	0	0	0.4	0
	kWh	115,999	0	17,674	3,077	0	4,183	0	51,616	0	19,205	0	3,466	0	1,527	0	36,766	0	0	1,873	0
Outdoor LED	kW	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	kWh	80,351	0	0	0	0		0	0	0	0	0	0		0	0	0	0	0	0	0
Load Management	kW	2,226	213	0	0	0	4,122	0	521	0	0	0	0	1,155	0	0	0	0	0	0	0
	kWh	25,377	2,559	0	0	0	44,918	0	6,256	0	0	0	0	10,974	0	0	0	0	0	0	0
Residential SOP	kW	413.94	44.88	52 51	31.99	4.43	544.7	26 93	131.72	2.23	21 91	67.18	0	49.38	11 26	0	85.65	14.84	0.19	0	16.65
	kWh	829,357	304,668	207,712	72,981	24,154	1,895,819	56,026	443,853	4,645	105,879	293,533	0	195,423	37,811	0	561,008	77,234	1,075	0	106,677
SCORE	kW	11.7	0	0	0	0	361.32	0	83.11	0	0	47.4	0	0	12 2	0	64.4	0	0	0	0
	kWh	20,205	0	0	0	0	1,099,696	0	275,249	0	0	84,146	0	0	32,169	0	110,570	0	0	0	0
Small Business Direct Install	kW	118.25	0	15 93	0	0	66.02	0	14.03	0	14.14	11.05	0	0	0	0	0	0	2.48	0	0
	kWh	466,090	0	73,118	0	0	318,125	0	68,685	0	65,773	54,162	0	0	0	0	0	0	17,195	0	0
SMART Source	kW	3.82	0	0	0	0	36.48	0	6.63	0	0	0	0	9.84	0	0	0	0	0	0	0
	kWh	7,360	0	0	0	0	70,320	0	12,784	0	0	0	0	18,970	0	0	0	0	0	0	0
SWEPCO CARE$	kW	8.22	0	0	0	0	7.36	0	0	0	0	0	0	1.25	0	0	0	0	0	0	0
	kWh	20,831	0	0	0	0	30,602	0	0	0	0	0	0	3,813	0	0	0	0	0	0	0
Totals per County	kW	3,702.63	260.74	109 50	164.04	5 26	6,050.44	49.79	938.34	3.30	54.00	151 37	1.14	1,482.37	27 90	1.02	175.23	43.81	5.61	0.40	99.32
	kWh	5,502,282	312,119	371,880	462,645	25,684	7,648,973	105,816	1,424,719	12,411	228,126	508,147	3,466	1,078,961	92,878	7,244	747,581	201,196	22,092	1,873	319,876

APPENDIX B:

PROGRAM TEMPLATES

Southwestern Electric Power Company ENERGY STAR® Appliance Rebate Pilot Program

- **Program Overview**

Southwest Electric Power Company (SWEPCO) will implement an ENERGY STAR® Appliance Rebate Pilot Program (Appliance Rebate Program) in 2013 for its Texas residential customers. This program is designed to help educate customers on the energy efficiency value of ENERGY STAR® appliances and to provide incentives to customers for the purchase of ENERGY STAR® rated refrigerators, room air conditioners and clothes washers at participating retail store locations within the SWEPCO Texas service territory. Additional ENERGY STAR® appliances may be added during the year. The program will provide marketing materials and training to retail partners and their staff to promote in-store purchases of ENERGY STAR® rated appliances that qualify for incentives in the program. This program will also provide marketing to customers throughout the service territory to drive demand for ENERGY STAR® rated appliances at local retail stores. The program will complement an existing Appliance Rebate Program in SWEPCO's Arkansas service territory to enable retail stores on or near the state border to participate.

- **Target Audience**

The Appliance Rebate Program will target the approximately 147,374 residential customers that reside in SWEPCO's Texas service territory. This program will also identify retail stores that sell ENERGY STAR® rated refrigerators, room air conditioners and clothes washers in this portion of SWEPCO's territory.

- **Non-Utility Sponsors and Participants**

The Appliance Rebate Program will leverage any existing federal, state, and local initiatives and documentation targeting improved energy efficiency in residential markets. Potential participants and supporters of this program may include the Texas State Energy Conservation Office, the US Department of Energy, and the Environmental Protection Agency's ENERGY STAR® Program. As various organizations agree to participate, their specific roles and responsibilities will be defined.

- **Expected Energy and Demand Savings**

The estimated demand and energy savings to be achieved by the Appliance Rebate Program during 2013 is 61 kW of peak load reduction and 252,894 kWh of annual energy savings.

Demand and energy savings will be reported in SWEPCO's Energy Efficiency Report to be filed by April 1, 2014 for the 2013 program year. If the program is continued on a permanent basis the report will be filed annually thereafter.

- **Program Design and Operating Characteristics**

The Appliance Rebate Program will be designed to:

1) Evaluate the marketing methods implemented by the program to determine the most effective strategies;
2) Evaluate the training methodology for sales staff at participating retail stores;
3) Identify the category of retail stores that will market and offer the program's incentives;
4) Evaluate the feasibility of other potential measures that are not currently offered within the program; and
5) Identify the appropriate incentive amounts.

The program implementer will develop a plan to collect and analyze data from submitted rebate applications, verify customer eligibility, measure eligibility, pay incentives and report demand and energy savings, according to established deemed savings values. The program implementer will also provide ongoing quality assurance and quality control field activities to ensure the integrity of reported savings.

- **Program Research Plan**

The Appliance Rebate Program will gather a substantial amount of information during program implementation for the purposes of determining:

1) The opportunity for energy efficiency among residential appliance purchases;
2) The pace at which the program is able to influence energy efficiency investment actions by retail partners and customers;
3) The key determinants for purchase decisions by residential customers; and
4) The barriers to the purchase of ENERGY STAR® appliances.

The program will use in-field inspections of retail participants' in-store signage and training to provide analysis of the effects of the program's marketing. The program will also track the results of the various marketing campaigns used to promote the program directly to customers.

- **Proposed Annual Budget**

SWEPCO's proposed budget to fully fund the Appliance Rebate Program for 2013 is approximately $141,000.

- **Program Cash Incentive Basis**

The cash incentives will consist of incentives paid to SWEPCO's residential customers for the purchase of eligible ENERGY STAR® rated appliances and the successful submission of all required program documentation. The incentives include $75 for ENERGY STAR® rated refrigerators, $75 for ENERGY STAR® rated clothes washers, $25 for ENERGY STAR rated in-room air conditioners that are less than 8,000 btus, and $35 for ENERGY STAR® rated in-room air conditioners that are equal to or greater than 8,000 btus.

- **Program Timeline**

The Appliance Rebate Program will be implemented in program year 2013. Program design activities will take place during March and April of 2013 with the intent to have retail stores enrolled and trained and customers submitting rebate applications by late spring. The 2013 program will conclude on December 31, 2013. The program activities to be reported to the utility on a monthly basis will include: tracking the number of meetings, retail store visits and trainings, submitted applications by measure, and the demand and energy savings for each measure.

The annual program milestones include:

- Program Design: develop program strategies and design program marketing materials.
- Program Implementation: identify and conduct outreach to potential retail partners, deliver in-store training, provide in-store marketing materials, conduct marketing to customers, process rebate applications, perform measurement and verification activities and document the savings.
- Program Reporting: provide a final summary of program costs and energy savings to SWEPCO within 30 days of the program end date.

Depending on the review of the 2013 program results, the program may be expanded in 2014.

- **Impact on Other Program Budgets**

This Appliance Rebate Program will have no impact on the budgets of other energy efficiency programs in place for 2013.

- **Program Name**

The operating name of the Appliance Rebate Program will be the *ENERGY STAR® Appliance Rebate Pilot Program.*

APPENDIX C:

EXISTING CONTRACTS OR OBLIGATIONS

SWEPCO does not have any Existing Contracts or Obligations documentation to provide.

APPENDIX D:

BASELINE STUDIES

BASELINE STUDY
IN SUPPORT OF
SWEPCO'S
COOLSAVER
MARKET TRANSFORMATION PROGRAM

FINAL REPORT

Frontier Associates
1515 South Capital of Texas Highway, Suite 110
Austin, Texas 78746
512/372-8778

September 2012

TABLE OF CONTENTS

I. INTRODUCTION

As one of its programs to promote energy efficiency and achieve its annual energy efficiency goals, SWEPCO is currently implementing the CoolSaver Market Transformation program. To help establish baseline levels of tune-up practices and procedures, SWEPCO conducted a baseline study of HVAC dealers in the region. The results of this study fulfill the regulatory requirement in PUCT Substantive Rule 25.181 that requires a market transformation program to identify a baseline study that is appropriate in time and geographic region. This study will support program planning, marketing, evaluation and implementation activities.

The survey assessed the current service and tune-up practices among HVAC dealers, and collected data to compare these practices to the specifications and requirements of the Cool Saver Program. Specifically, the survey instrument collected data on the following:

- Refrigerant charging practices and procedures
- Instrumentation and other equipment used to perform tune-ups
- Air flow measurement practices and documentation
- Duct leakage measurement and documentation

A copy of the survey instrument is included as Appendix A.

II. SURVEY METHODOLOGY

II.A. Sampling Methodology

Previous surveys of HVAC dealers conducted on behalf of Oncor Electric Delivery and Texas A&M Energy Systems Lab have resulted in a sufficiently high response rate and yielded sufficient data to conclude that the mail survey approach could meet this project's baseline data collection objectives.

For a 90% confidence level and a precision of +/- 10%, the sample size for a population of 700 licensed HVAC dealers is calculated as follows:

$$n = \frac{Nz^2pq}{d^2(N-1)+z^2pq}$$

Where:

n = sample
p = response variable, (assumed to be 0.5)
N = Population
q = 1 - p
d = precision (10%)
z = Reliability factor (1.645 used for 90% confidence level)

Using this calculation, a sample size of 65 would achieve the desired level of confidence and precision.

To obtain the required number of responses, Frontier identified all licensed HVAC contractors within counties in the SWEPCO service area, plus the adjacent counties. The primary source for this data was the Texas Department of Licensing and Regulation (TDLR) database. Frontier then screened this data to exclude license holders that didn't appear to be associated with an HVAC company, and to exclude duplicate license holders associated with the same HVAC contractor. This process yielded a list of 426 dealers. Surveys were sent to each of the dealers in this population.

II.B. Survey Instrument

The survey consisted of a cover letter, a two-sided survey instrument, and business reply mail envelope. Each survey was individually addressed and sent via first-class mail. To encourage response, a $50 gift card to either Lowe's or Home Depot was offered to respondents who returned the surveys by September 7.

II.C. Survey Mailing and Response

Surveys were mailed the week of August 13th. A total of 83 usable responses were received, representing a 19.5% response rate. This response rate was about twice as high as previous HVAC dealer surveys conducted by Frontier. An identical survey conducted for AEP-TCC offered a $25 gift card as an incentive, and yielded a 13.7% response rate.

III. DATA VALIDATION AND ANALYSIS

Once the survey responses were received, they were logged in by Frontier staff. Data was screened and validated as part of the data entry process.

Weighted and un-weighted responses were tabulated for each question. Responses were weighted by the number of residential system tune-ups performed, commercial tune-ups performed, or total tune-ups performed. The survey response tables identify the specific weighting factor used for each question.

Survey responses are included as Appendix B.

APPENDIX A

Mail Survey Instrument

SOUTHWESTERN ELECTRIC POWER COMPANY
A unit of American Electric Power

Control # «CONTROL_»

<<First>> <<Last>>
<<Company>>
<< Address>>
<<City>> TX <<Zip>>

Dear <<First>><<Last>>:

SWEPCO is conducting a survey to learn more about air conditioner and heat pump tune-up practices being utilized by HVAC dealers in the SWEPCO service territory. As a local contractor, the information and input you provide to us on the attached survey will be of great benefit to us as we implement programs to encourage customers to get their systems tuned up properly.

The information you provide will not be shared with any other firm and will be included in a report in aggregate form only with no identifying information that would allow anyone to identify you or the product lines or services that you offer.

We would greatly appreciate your time to complete this short survey and returning it to us in the enclosed postage-paid envelope.

To thank you for answering each of the questions, and for returning the survey to us by September 7, we will send you a $50 gift card to your choice of Home Depot or Lowe's. Please mark your preference:

☐ Home Depot ☐ Lowe's

Name (if different from above): _____

Address: (if different from above): _____

Phone number: _____

If you have any questions or problems in answering this survey, please contact Lana Deville, SWEPCO Energy Efficiency Program Coordinator, at (318) 673-3514.

THANK YOU FOR YOUR ASSISTANCE.

P. O. Box 21106
Shreveport LA 71156

Air Conditioning Contractor Survey

1. Do you have a service agreement program?

   ☐ Yes ☐ No

   If yes, approximately what percentages of your residential and commercial customers are in your service agreement program?

   _____% Residential

   _____% Commercial

2. Approximately how many air conditioning system tune-ups did your company perform during the past year?

   _____ Residential systems

   _____ Commercial (RTU) systems

3. In the past year, what percentages of your new system installations were in the following efficiency ranges?

   _____% 13.0 – 13.9 SEER

   _____% 14.0 – 14.9 SEER

   _____% 15.0 – 15.9 SEER

   _____% 16 SEER or above

   (Percentages should sum to 100%)

4. Which of the following are included as part of your standard tune-up?

   A. Clean condenser:

   ☐ Always ☐ Sometimes ☐ Rarely

   B. Clean indoor coil:

   ☐ Always ☐ Sometimes ☐ Rarely

   C. Clean blower:

   ☐ Always ☐ Sometimes ☐ Rarely

   D. Comb bent or smashed condenser fins:

   ☐ Always ☐ Sometimes ☐ Rarely

   E. Lubricate motor and fan bearing:

   ☐ Always ☐ Sometimes ☐ Rarely

   F. Measure starting and running amps, line voltage and control voltage:

   ☐ Always ☐ Sometimes ☐ Rarely

   G. Test system for proper airflow:

   ☐ Always ☐ Sometimes ☐ Rarely

   H. Identify refrigerant metering device:

   ☐ Always ☐ Sometimes ☐ Rarely

   I. Measure and record system pressures and temperatures:

   ☐ Always ☐ Sometimes ☐ Rarely

   J. Adjust charge (if necessary) by superheat or subcooling:

   ☐ Always ☐ Sometimes ☐ Rarely

   K. Verify that system pressures and temperatures are within manufacturer's specifications

   ☐ Always ☐ Sometimes ☐ Rarely

5. What is the minimum ambient temperature that you require in order to perform a tune-up?

   _____ degrees

6. How long will you usually allow a system to operate before taking any measurements:

   _____ minutes

7. What percentage of time do you measure air flow across the coil when you tune up a system?

   _____% of residential systems

   _____% of commercial systems

8. What method(s) do you use to measure airflow?

- ☐ Temperature split method
- ☐ Rotating vane anemometer
- ☐ Total external static pressure
- ☐ Manometer
- ☐ Other (Specify):

9. What types of equipment do you normally use to perform tune-ups? (Please check all that apply)

- ☐ Analog refrigerant gauge
- ☐ Digital refrigerant gauges
- ☐ Sling psychrometer
- ☐ Charging calculator (e.g. Carrier or Trane)
- ☐ Computerized psychrometric software or diagnostic equipment
- ☐ Digital manometer
- ☐ Digital wet bulb / dry bulb / hygrometer
- ☐ Vane anemometer
- ☐ Mini-vane anemometer
- ☐ Amp meter / multimeter
- ☐ True RMS multimeter
- ☐ True RMS kW meter

10. How often do you calibrate instruments such as refrigerant gauges and temperature sensors?

_____ Monthly

_____ Annually

_____ Other (Specify):

11. How often do you inspect the condition of the duct work when you do a tune-up?

☐ Always ☐ Sometimes ☐ Rarely

12. Do you use a Duct Blaster™ or similar device?

☐ Yes ☐ No

13. If you answered "no," please skip to Question 14. If you answered "yes," approximately what percentage of residential tune-ups includes duct leakage diagnosis and repair services?

_____% of tune-ups

14. What charging techniques do you typically use, for example, superheat, subcooling, etc?

15. What is your level of awareness of SWEPCO's CoolSaver Program, which provides incentives to HVAC contractors and customers for tune-ups?

- ☐ Never heard of it
- ☐ Heard of it, but don't know much about it
- ☐ Have been contacted about the CoolSaver Program by a SWEPCO or CLEAResult representative

16. How interested would you be in participating in a program that provides incentives to dealers for performing AC and HP tune-ups?

- ☐ No, I'm not interested
- ☐ I'm somewhat interested
- ☐ Yes, I'm interested

APPENDIX B

Survey Responses

Question	*Q1. Do you have a service agreement program? (% of respondents answering "yes.")*	*Q1. What percentage of your residential customers are in your service agreement program?*		*Q1. What percentage of your commercial customers are in your service agreement program?*	
Weighting Factor	None	None	Res. Tune-Ups	None	Comm. Tune-Ups
All Respondents	60.2%	44.4%	32.3%	28.0%	26.0%

Question	*Q2. How many residential tune-ups did you perform during the past year?*	*Q2. How many commercial tune-ups did you perform during the past year?*	*Total Tune-Ups*
Weighting Factor	Unweighted	Unweighted	Unweighted
All Respondents	20,694	4,324	25,018

Question	*Q3. What percentages of your new system installations were in the following efficiency ranges?*				*Q4a. Clean condenser as part of tune-up?*		
Weighting Factor	Residential Tune-Ups				Total Tune-Ups		
All Respondents	13.0 - 13.9	14.0 - 14.9	15.0 - 15.9	16 SEER or	Always	Sometimes	Never
	59.4%	12.9%	17.3%	10.4%	80.9%	18.4%	0.7%

Question	*Q4b. Clean indoor coil as part of tune-up?*			*Q4c. Clean blower as part of tune-up?*		
Weighting Factor	Total Tune-Ups			Total Tune-Ups		
All Respondents	Always	Sometimes	Rarely	Always	Sometimes	Rarely
	10.0%	68.9%	21.2%	15.5%	73.9%	10.6%

Question	*Q4d. Comb bent or smashed condenser fins as part of tune-up?*			*Q4e. Lubricate motor and fan bearing as part of tune-up?*		
Weighting Factor	Total Tune-Ups			Total Tune-Ups		
All Respondents	Always	Sometimes	Rarely	Always	Sometimes	Rarely
	34.7%	30.3%	35.0%	78.1%	14.8%	7.1%

Question	*Q4f. Measure starting and running amps, line voltage and control voltage as part of tune-up?*			*Q4g. Test system for proper air flow as part of tune-up?*		
Weighting Factor	Total Tune-Ups			Total Tune-Ups		
All Respondents	Always	Sometimes	Rarely	Always	Sometimes	Rarely
	74.2%	24.4%	1.4%	51.1%	38.7%	10.1%

Question	*Q4h. Identify refrigerant metering device as part of tune-up?*			*Q4i. Measure and record system pressures and temperatures as part of tune-up?*		
Weighting Factor	Total Tune-Ups			Total Tune-Ups		
All Respondents	Always	Sometimes	Rarely	Always	Sometimes	Rarely
	73.1%	21.8%	5.1%	81.4%	18.6%	0.1%

Question	*Q4j. Adjust charge (if necessary) by superheat or subcooling as part of tune-up?*			*Q4k. Verify that system pressures and temperatures are within manufacturer's specifications as part of tune-up?*		
Weighting Factor	Total Tune-Ups			Total Tune-Ups		
All Respondents	Always	Sometimes	Rarely	Always	Sometimes	Rarely
	88.1%	11.8%	0.1%	86.6%	11.4%	1.9%

Question	*Q5. Minimum ambient temp that you require to perform a tune-up?*	*Q6. How long will you usually allow a system to operate before taking any measurements?*	*Q7. What percentage of time do you measure airflow across the coil when you tune up a system?*	
Weighting Factor	Residential Tune-Ups	Residential Tune-Ups	Res. Tune-Ups	Comm. Tune-
All Respondents	62	14	43.8%	30.4%

Question	*Q8. What method(s) do you use to measure airflow?*				
Weighting Factor	Total Tune-Ups				
All Respondents	Temp. split method	Rotating vane anemometer	Total external static press.	Manometer	Other
	73.8%	9.2%	11.3%	17.7%	9.7%

Question	*Q9. What types of equipment do you normally use to perform tune-ups?*										
Weighting Factor	Total Tune-Ups										
All Respondents	Analog refrig. Gauges	Digital refrig. Gauges	Sling psychrometer	Charging calculator	Computerized diagnostic equipment	Digital manometer	Digital Hygrometer	Vane anemometer	Mini-vane anemometer	Amp meter / multi meter	True RMS multimeter
	77.5%	28.3%	44.6%	50.1%	3.5%	9.8%	52.2%	3.8%	6.1%	87.0%	36.1%

Question	*Q10. How often do you calibrate instruments such as refrigerant gauges and temperature sensors?*			*Q11. How often do you inspect the condition of the duct work when you do a tune-up?*		
Weighting Factor	Total Tune-Ups			Total Tune-Ups		
All Respondents	Monthly	Annually	Other	Always	Sometimes	Rarely
	42.9%	33.2%	25.6%	32.3%	57.1%	10.6%

Question	*Q12. Do you use a Duct Blaster or similar device?*		*Q13. If you answered "yes" to Q12, what percentage of residential tune-ups includes duct leakage diagnosis and repair service?*
Weighting Factor	Total Tune-Ups		Residential Tune-Ups
All Respondents	Yes	No	8.8%
	2.1%	97.9%	

Question	*Q15. What is your level of awareness of the CoolSaver Program?*					
Weighting Factor	None			Total Tune-Ups		
All Respondents	Never heard of it	Heard of it, but don't know much about it	Have been contacted about the Program by AEP or CR representative	Never heard of it	Heard of it, but don't know much about it	Have been contacted about the Program by AEP or CR representative
	67.5%	25.3%	6.0%	60.8%	24.7%	14.5%

Question	*Q16. How interested would you be in participating in a program that provides incentives to dealers for performing AC and HP tune-ups?*					
Weighting Factor	None			Total Tune-Ups		
All Respondents	No, I'm not interested	I'm somewhat interested	Yes, I'm interested	No, I'm not interested	I'm somewhat interested	Yes, I'm interested
	12.0%	36.1%	50.6%	3.4%	51.2%	45.3%

Baseline Study – Solar PV Pilot Programs

For AEP-TCC, AEP-TNC, SWEPCO, and TNMP

Submitted by: Frontier Associates and Clean Energy Associates, May 2012

1. Summary of Solar PV Pilot Programs

Initiated by AEP-Texas Central Company (AEP-TCC), AEP-Texas North Company (AEP-TNC), SouthWestern Electric Power Company (SWEPCO), and Texas-New Mexico Power Company (together, "the Utilities") in mid-2009, the Solar PV Pilot Programs (Programs) were designed to help electricity customers meet a portion of their energy needs with solar (photovoltaic, or "PV") electric systems. The Programs offer financial incentives that help offset the initial cost of installing a solar energy system for residential and non-residential customers.[1]

In addition to achieving kW and kWh savings via installation of distributed solar generation systems, the Programs' goals were to:

- Gain experience in PV installations
- Increase the number of functional capability of local PV installers
- Gather data on costs and performance, and
- Decrease incentives over time

This Baseline Study report provides year-over-year program performance data on each of these metrics. It finds that:

- The Programs to date have resulted in 111 distributed PV installations, totaling more than 1.5 MWdc of PV generating capacity, and achieving peak demand savings of more than 1.3 MWac and energy savings of nearly 2.5 million kWh.
- Between 2008 and 2012, the number of companies offering PV installations throughout Texas increased from 12 to over 200. During the same period the number of NABCEP-certified PV installers in Texas increased from 12 to 154. Relatedly, the Utilities and installers gained experience with and made process improvements through hundreds of DRG interconnections, and local jurisdictions across Texas were exposed to and improved processes for permitting and inspecting solar PV systems per local code requirements.
- Installed costs are declining rapidly, both nationally and in Texas. Texas installed costs are lower than national averages.
- Offered incentive levels have decreased from $2.50/wdc in 2009 to $1.50-$1.75/wdc in 2012, a reduction of 30%-40% in 4 years.

We conclude that the market for distributed PV systems in the Utilities' service areas and in Texas as a whole has undergone significant transformation as a result of the Programs. However, the need for utility incentives remains justified. If current trends and programs continue along a predictable and recommended path, we expect these programs will be 2-5 times more cost-effective by 2016 than in 2009.

[1] Oncor and Entergy also began offering solar PV pilot programs in 2009, and El Paso Electric began offering a program in 2010. All of these programs shared a common design and were administered by Frontier Associates and Clean Energy Associates.

2. Key Findings

a. Program Results

Figures 1 and 2 below summarize the number and capacity of PV installations that have occurred annually through the Programs. The number of installations peaked in 2010 while the total capacity installed peaked in 2011, primarily due to the completion of a large government project in AEP-TCC's service area in 2011. 2012 figures are through May 2012.

Figure 1. Number of PV Installations

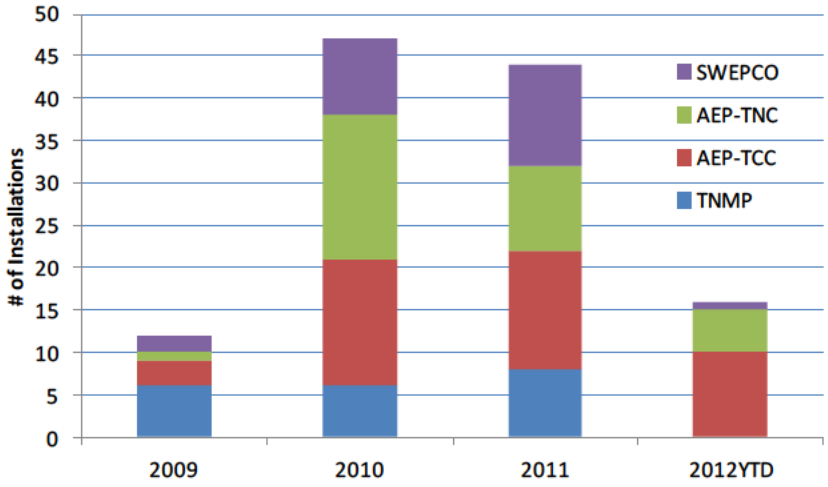


Figure 2. Capacity (MWdc) of PV Installations

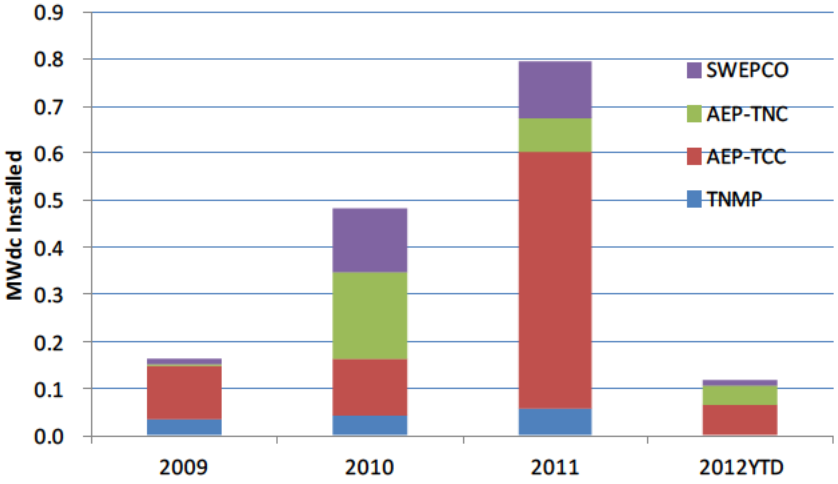
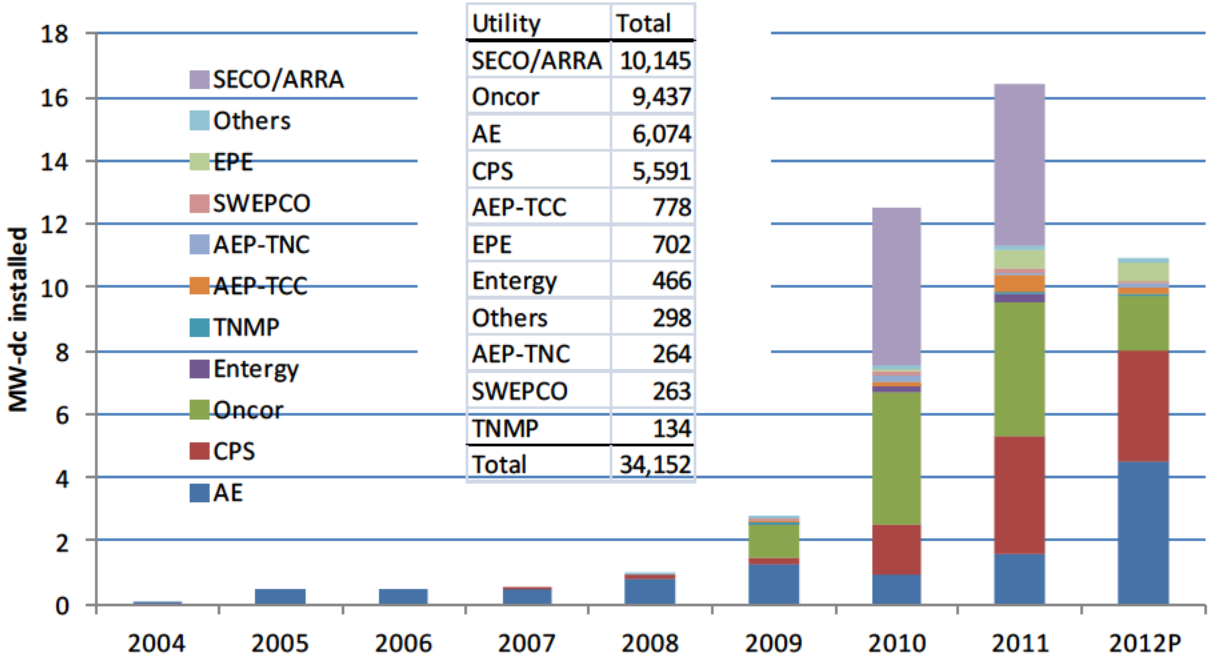


Figure 3 provides context for the AEP-TCC, AEP-TNC, SWEPCO and TNMP data above by showing the PV capacity installed annually through all Texas utility- and state-sponsored PV incentive programs from 2003-2012. Reconciliation of the data in Figure 3 with other published data sources[2] reveals that the vast majority[3] of PV installations in Texas occur through PV incentive programs, while only a tiny fraction of installations occur without assistance from these programs. While the Utilities had some experience with PV system interconnections prior to 2009, such requests were and remain infrequent and sporadic.

Figure 3. Annual Capacity Additions (MWdc) of PV Installations
(table shows cumulative total by program as of year-end 2011)



Utility	Total
SECO/ARRA	10,145
Oncor	9,437
AE	6,074
CPS	5,591
AEP-TCC	778
EPE	702
Entergy	466
Others	298
AEP-TNC	264
SWEPCO	263
TNMP	134
Total	34,152

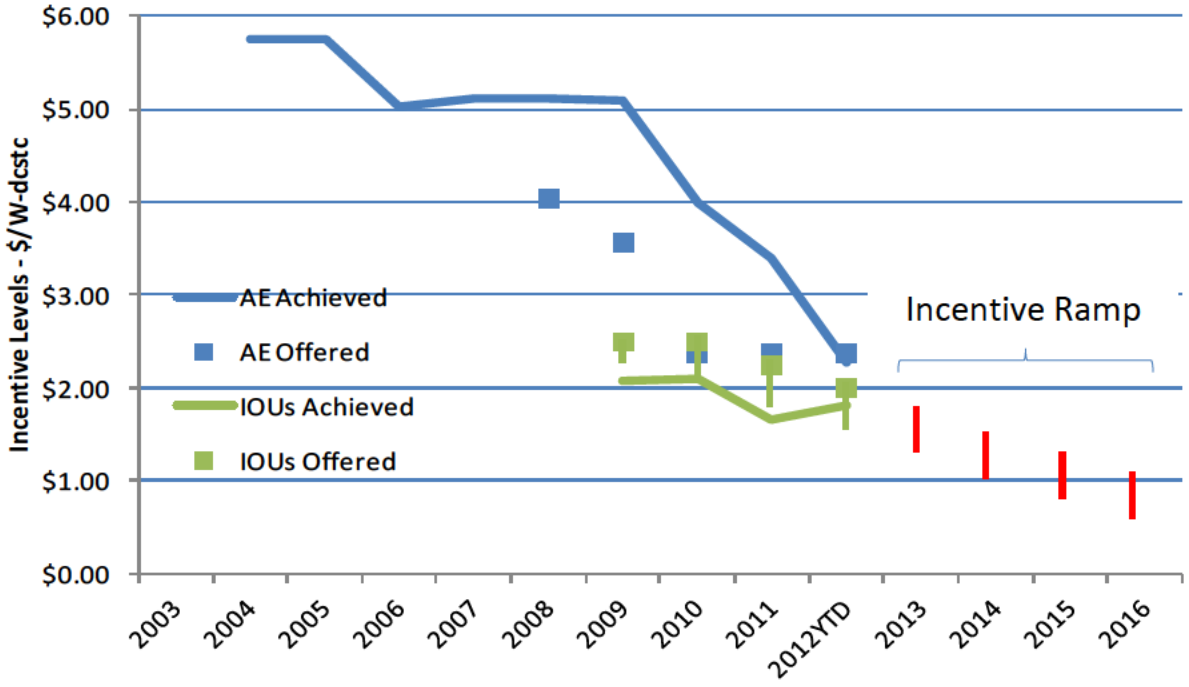
Note: All data from Clean Energy Associates. 2012 data is projected based on available budgets. Actual capacity installed is likely to be less than projected.

[2] Other data sources include NREL's Open PV Database and annual DRG interconnection reports filed by Utilities at the Public Utility Commission of Texas, as researched by Public Citizen in 2011.
[3] CEA estimates that 95% or more of PV installations have occurred through an incentive program.

Figure 4 compares the PV incentive levels offered and achieved annually by Texas investor-owned utility PV incentive programs against the benchmark program offered by Austin Energy. "Offered" incentive level refers to the range of published incentive levels in a given year, while "achieved" is calculated by dividing the total amount of incentives spent during a program year by the total capacity installed during that year. In the investor-owned utility programs, the achieved incentive level is typically less than the offered level because of program limits (some installations exceed published limits on the total incentive available to a project or customer) and because of the annual nature of the programs (projects and incentives are not carried forward at higher levels for completion in subsequent program years).

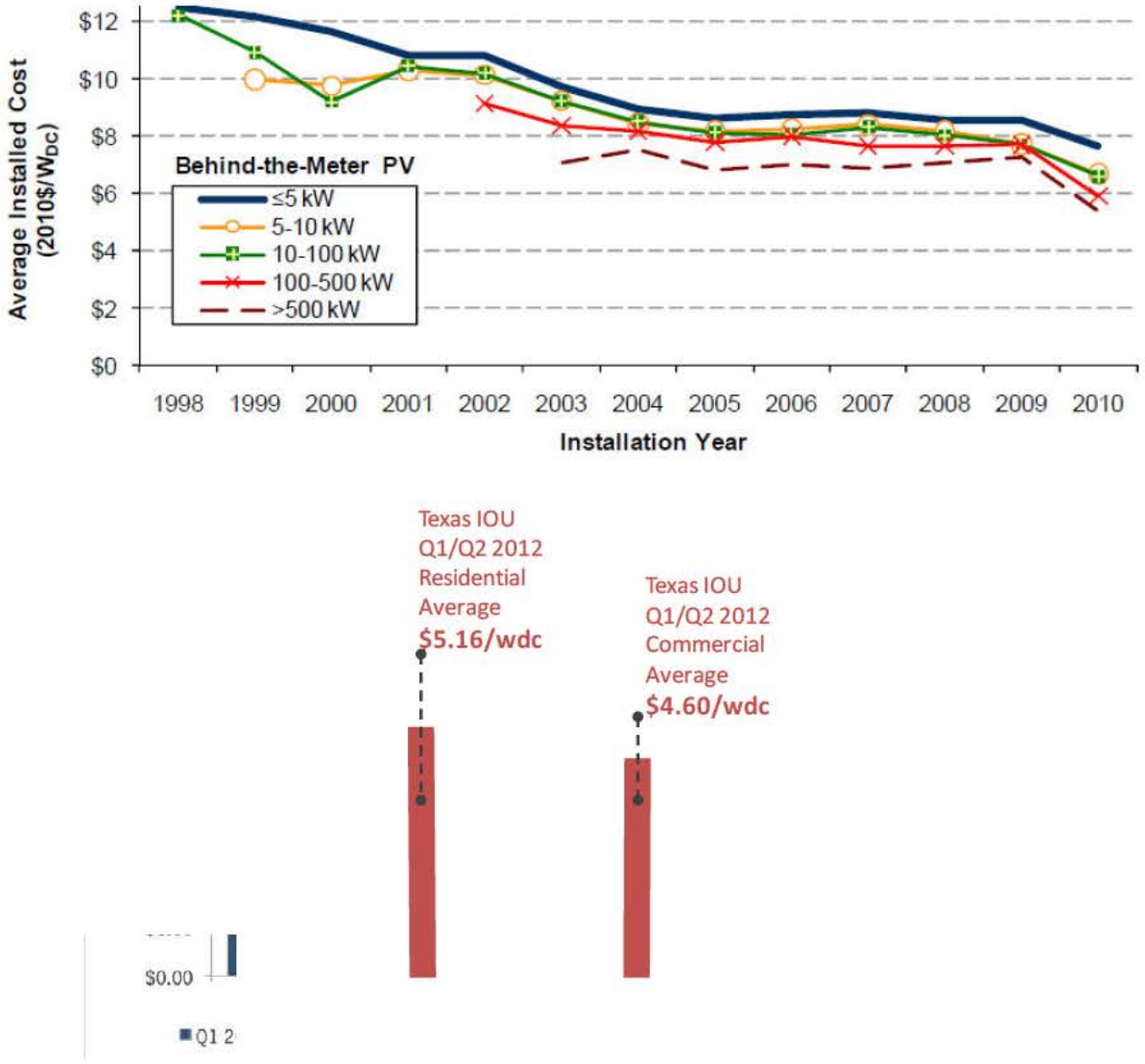
The figure also sets forth a sample forward-looking incentive ramp which projects a continued and predictably declining incentive structure through 2016.

Figure 4. Declining Incentive Levels



The rapidly declining incentive levels shown in Figure 4, above, are made possible by the rapidly declining costs of installed PV systems. Figure 5, below, presents installed costs within the current Texas PV programs in a national and historical context. The upper chart shows declining costs of installed PV systems in the US between 1998 and 2010. The lower chart provides an update, showing quarterly cost data for 2010 and 2011, as well as installed cost data from PV systems completed under the Texas investor-owned utility sponsored PV incentive programs in Q1 and Q2 2012. Installed costs of PV in Texas are less than reported national averages.

Figure 5. Declining Installed Costs



Note: Upper chart from Tracking the Sun IV: An Historical Summary of the Installed Cost of Photovoltaics in the United States from 1998 to 2010, Lawrence Berkeley National Laboratory, Galen Barbose, Naïm Darghouth, Ryan Wiser, Joachim Seel, September 2011. Lower chart from the U.S. Solar Market Insight Report, Q4 2011 & 2011 Year-In-Review, GTM Research, April 2012, with Texas overlays by Clean Energy Associates.

Table 1 on the next page summarizes annual Program budgets, spending, and project completions. It shows that the Programs to date have resulted in 111 distributed PV installations totaling more than 1.5 MWdc of PV generating capacity, and have achieved peak demand savings of more than 1.3 MWac and energy savings of nearly 2.5 million kWh.

Table 1. Solar PV Pilot Program Summary Statistics, 2009-2012

	TNMP	AEP-TCC			AEP-TNC			SWEPCO			Grand
Program Year 2009	**Total**	**Res.**	**Non-Res.**	**Total**	**Res.**	**Non-Res.**	**Total**	**Res.**	**Non-Res.**	**Total**	**Total**
A. Budget	**$90,000**	$84,450	$275,550	**$360,000**	$90,000	$90,000	**$180,000**			**$90,000**	**$720,000**
D. Paid	**$88,464**	$12,950	$180,000	**$192,950**	$12,960	$0	**$12,960**			**$27,600**	**$321,974**
# of completed projects	**6**	1	2	**3**	1	0	**1**			**2**	**12**
kW-dc Installed	**35.530**	5.180	105.300	**110.480**	5.180	0.000	**5.180**			**11.040**	**162.230**
kWh savings	**56,848**	8,288	168,480	**176,768**	8,288	0	**8,288**			**17,664**	**259,568**
kW-ac savings	**30.556**	4.455	90.558	**95.013**	4.455	0.000	**4.455**			**9.494**	**139.518**
$/watt incentive level offered	**$2.50**	$2.50	$2.50	**na**	$2.50	$2.50	**na**			**$2.50**	**na**
$/watt incentive achieved	**$2.49**	$2.50	$1.71	**$1.75**	$2.50	na	**$2.50**			**$2.50**	**$1.98**
Program Year 2010	**Total**	**Res.**	**Non-Res.**	**Total**	**Res.**	**Non-Res.**	**Total**	**Res.**	**Non-Res.**	**Total**	**Total**
A. Budget	**$108,000**	**$201,500**	**$325,550**	**$527,050**	**$167,040**	**$180,000**	**$347,040**			**$287,400**	**$1,269,490**
D. Paid	**$101,088**	$201,125	$95,550	**$296,675**	$166,313	$180,000	**$346,313**			**$207,475**	**$951,550**
# of completed projects	**6**	13	2	**15**	12	5	**17**			**9**	**47**
kW-dc Installed	**42.135**	83.042	38.430	**121.472**	67.085	117.775	**184.860**			**132.690**	**481.157**
kWh savings	**67,416**	132,867	61,488	**194,355**	107,336	188,440	**295,776**			**212,304**	**769,851**
kW-ac savings	**36.236**	71.416	33.050	**104.466**	57.693	101.287	**158.980**			**114.113**	**413.795**
$/watt incentive level offered	**$2.50**	$2.50	$2.50	**na**	$2.50	$2.50	**na**			**$2.50**	**na**
$/watt incentive achieved	**$2.40**	$2.42	$2.49	**$2.44**	$2.48	$1.53	**$1.87**			**$1.56**	**$1.98**
Program Year 2011	**Total**	**Res.**	**Non-Res.**	**Total**	**Res.**	**Non-Res.**	**Total**	**Res.**	**Non-Res.**	**Total**	**Total**
A. Budget	**$108,000**	$180,375	$410,000	**$590,375**	$96,049	$84,679	**$180,728**	$137,414	$185,806	**$323,219**	**$1,202,322**
D. Paid	**$107,540**	$162,420	$360,000	**$522,420**	$69,656	$80,279	**$149,935**	$47,960	$185,806	**$233,766**	**$827,855**
# of completed projects	**8**	10	4	**14**	6	4	**10**	4	8	**12**	**36**
kW-dc Installed	**56.210**	88.965	456.920	**545.885**	32.778	41.100	**73.878**	22.315	96.746	**119.061**	**795.034**
kWh savings	**89,936**	142,344	731,072	**873,416**	52,445	65,760	**118,205**	35,704	154,794	**190,498**	**1,272,054**
kW-ac savings	**48.341**	76.510	392.951	**469.461**	28.189	35.346	**63.535**	19.191	83.202	**102.392**	**683.729**
$/watt incentive level offered	**$2.00**	$2.00	$1.75	**na**	$2.25	$2.00	**na**	$2.00	$1.75	**na**	**na**
$/watt incentive achieved	**$1.91**	$1.83	$0.79	**$0.96**	$2.13	$1.95	**$2.03**	$2.15	$1.92	**$1.96**	**$1.04**
Program Year 2012	**Total (Res Only)**	**Res.**	**Non-Res.**	**Total**	**Res.**	**Non-Res.**	**Total**	**Res.**	**Non-Res.**	**Total**	**Total**
A. Budget	**$120,000**	$180,000	$180,000	**$360,000**	$90,000	$71,000	**$161,000**	$121,500		**$121,500**	**$762,500**
D. Paid	**$0**	$49,419	$53,370	**$102,789**	$72,990		**$72,990**	$17,500		**$17,500**	**$193,279**
# of completed projects	**0**	5	5	**10**	5		**5**	1		**1.00**	**16**
kW-dc Installed	**0.000**	27.365	35.580	**62.945**	43.560	0.000	**43.560**	10.000		**10.000**	**116.505**
kWh savings	**0**	43,784	56,928	**100,712**	69,696	0	**69,696**	16,000		**16,000**	**186,408**
kW-ac savings	**0.000**	23.534	30.599	**54.133**	37.462	0.000	**37.462**	8.600		**8.600**	**100.194**
$/watt incentive level offered	**$1.75**	$1.75	$1.50	**na**	$1.75	$1.50	**na**	$1.75		**$1.75**	**na**
$/watt incentive achieved	**na**	$1.81	$1.50	**$1.63**	$1.68	na	**$1.68**	$1.75		**$1.75**	**$1.66**

Notes:

2009 and 2012 data reflect partial years. The TNMP program opened in April 2009; the AEP-TCC, AEP-TNC, and SWEPCO programs opened in August 2009. Program year 2012 reflects program status as of May 25, 2012.

TNMP's program was open to residential and non-residential customers through 2011. In 2012 the program was limited to residential customers only.

In 2009-2010, SWEPCO's budget was designed as a single pool available to both residential and non-residential customers. In 2011, the program remained open to both residential and non-residential customers, but with separate budgets for each customer class. In 2012, the program was limited to residential customers only.

b. Changes Observed in the Residential and Non-Residential Markets

Three principal changes have been observed in the Texas market for distributed solar generation since the Programs' introduction in 2009: declining installed costs, increased quantity and quality of solar contractors, and the introduction of leasing models. Declining cost trends and trends in the number of installers (and certified installers) are documented above, and are not elaborated here.

The introduction of leasing models to the Texas solar market began in the Oncor program in 2010, when one registered service provider received thousands of calls from potential customers in response to favorable news coverage in the Dallas/Ft. Worth area. Rather than sell the solar energy system directly to the customer, this service provider offered to own and maintain the system while leasing the equipment to the customer. The leasing model was not new – it had been used in other states before – but it was new to Texas. The model leverages scale and available federal tax benefits to reduce overall costs, and exposes customers to a monthly cost profile that many found attractive or interesting in contrast to a large capital investment. The net result is that leasing, and other third party ownership models, potentially expands the market for PV systems to a broader set of customers.

Since 2010, the leasing model has gained traction principally in the DFW area, where sufficient concentrations of PV development opportunities exist. In 2011, the Texas Legislature passed SB 981, which further clarified and simplified regulatory interpretation of third party ownership models such as leasing, and in May 2012, the Public Utility Commission of Texas issued its final Order implementing SB 981. These actions are likely to increase the scope of leasing models in investor-owned utility areas throughout the state.

c. Opportunities and Barriers

Frontier and CEA have identified the following opportunities in the Texas market for solar PV systems:

- Distributed PV can be deployed quickly to help meet resource adequacy concerns in the short term (1-3 years).
- Progress made by the programs to date in lowering costs, reducing incentives, and increasing the number and experience level of PV installers can be continued by leverage volume and stability through several, coordinated multi-year incentive programs sponsored by utilities.
- Integration of PV systems with smart metering to enable time of use valuation of production can increase the value of PV energy for customers.
- Further development of third party ownership models, especially if connected to the utility bill, can expand the market for PV by making investment more affordable.

Barriers include the following:

- The installed cost of PV systems remains the largest barrier to wider adoption, particularly in the current context of historically low electricity prices.
- As equipment prices have come down, the relative impact of "soft costs", such as those associated with inconsistent local permitting processes, have become more important. These

costs are not likely to be reduced without coordinated efforts by authorities having jurisdiction, the state or utilities.

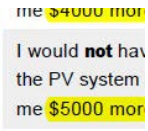
Solar energy produces public benefits – such as peak shaving, reduced water consumption – that are not always able to be monetized by the party making a decision to invest in solar. This lack of alignment continues to make justifying investments in PV more difficult.

3. Customer Attitudes

a. Incentives Influence Purchase Decisions

Figure 3 illustrated that the capacity of installed PV in Texas has increased from just a few MWdc at the end of 2008, prior to the administration of investor owned incentive programs in 2009, to over 34 MWdc by the end of 2011.[4] This is strong evidence that growth in the Texas PV market is highly correlated to the existence of utility incentives. Research conducted by Dr. Varun Rai and his team from the LBJ School of Public Affairs at the University of Texas at Austin takes this correlation one step further, demonstrating that incentive availability remains a strong factor contributing to customer decisions to purchase solar energy systems. His group conducted a survey in 2011 of participants in the utility sponsored incentive programs from 2009-2011, and found that although participants were willing to pay slightly more for their solar PV system (see Figure 5 below), the incentive played a major role in their investment decision.

Figure 5: Customer's Wilingness to Pay for Solar PV (All Utilites)



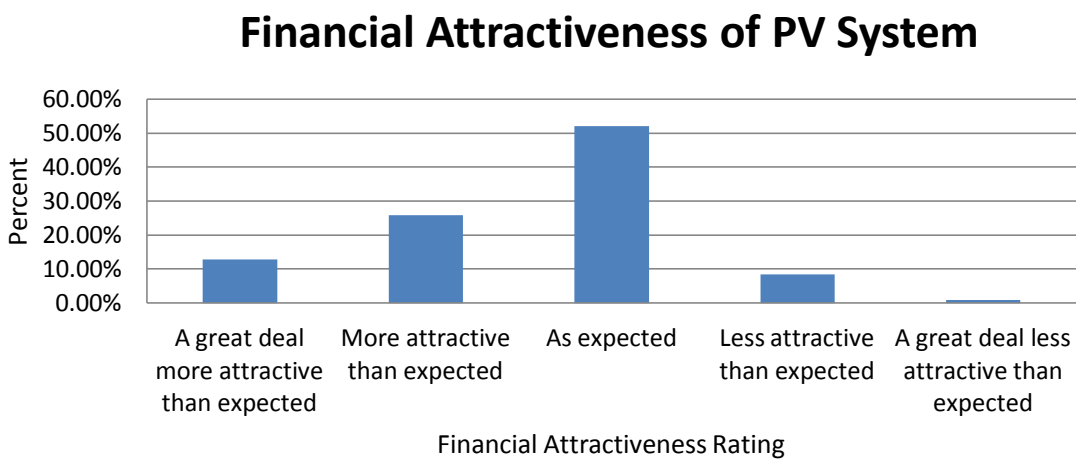
[4] Based on database of installations 2009-2012 from CEA and Frontier. Other data sources include NREL's Open PV Database and annual DRG interconnection reports filed by Utilities at the Public Utility Commission of Texas, as researched by Public Citizen in 2011.

b. Financial Analysis Drives Solar Investment Decisions

The LBJ School's research showed that 77% of customers who purchased solar rated their analysis of solar's financial investment value as either "very" or "extremely" important to their decision to install solar (see Figure 6, below), and that more than 85% felt the financial investment was as good as or better than they expected.

Figure 6: Importance on Decision to Install Solar PV (in percents)

	General interest	Financial investment	Environmental impact	Influence of neighbors	Influence of acquaintance
Not important at all	4.66%	3.83%	8.94%	79.49%	80.69%
Somewhat important	8.47%	5.11%	12.77%	9.83%	3.86%
Moderately important	15.25%	14.04%	17.87%	6.84%	8.15%
Very important	34.32%	32.34%	19.15%	3.42%	4.72%
Extremely important	37.29%	44.68%	41.28%	0.43%	2.58%
Total	**100.00%**	**100.00%**	**100.00%**	**100.00%**	**100.00%**



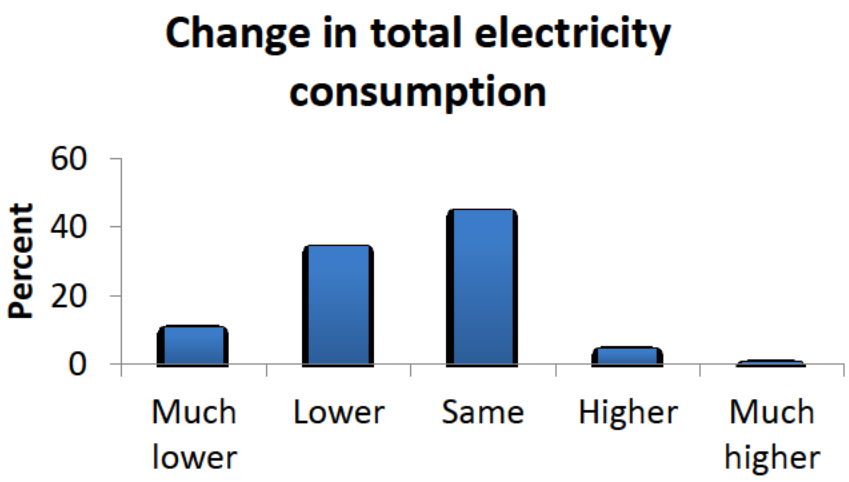
c. Secondary Effects on Electricity Consumption

There may be secondary effects on energy consumption that result from the installation of a PV system. The LBJ School's survey also found that participants in the incentive programs were more likely to report a change in the amount of electricity (PV and grid) they used, compared to their usage prior to the installation of their solar PV system (Figure 7). Customer responses included:

> "I am much, much, much, much, more aware of how much energy I use each month."
>
> "I try to "leverage" the array's input in relation to total electrical consumption so my array will provide 25% of all our power needs."
>
> "I am more apt to use power-consuming appliances (washer/drier, etc) when the sun is up, to take advantage of the cost offset."

These self-reported results are preliminary and are worthy of additional study and validation.

Figure 7: Change in Total Electricity Consumption

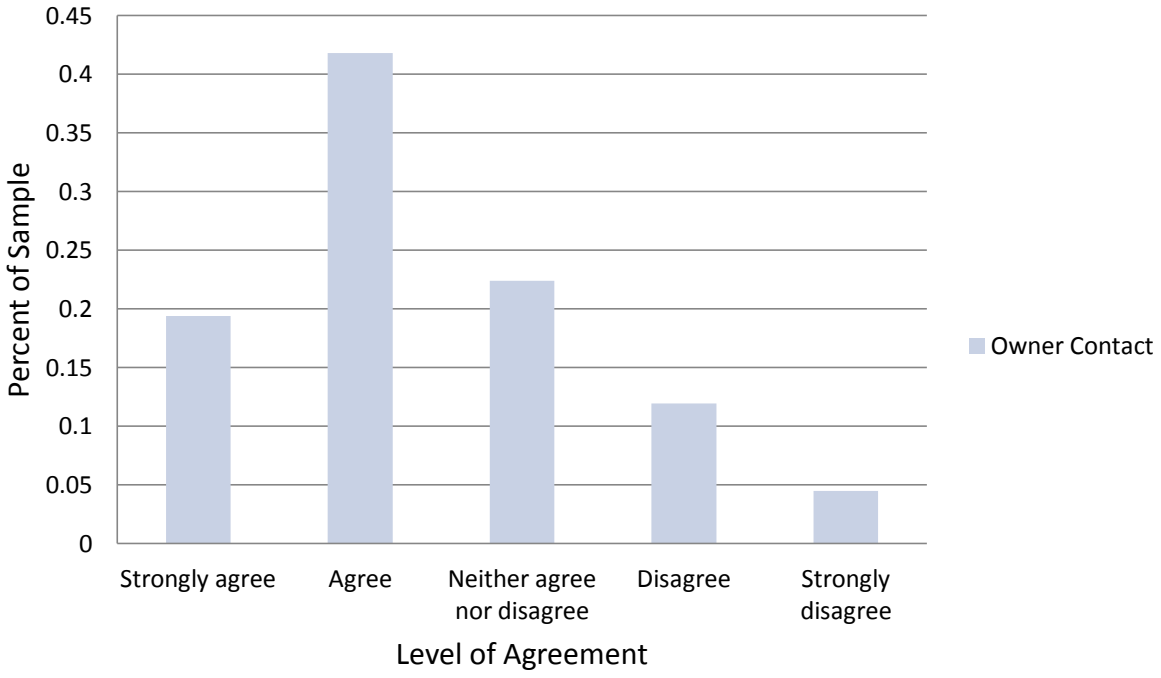


d. Information Network Development

Additionally, the solar PV incentive programs have created a large network of solar PV installers that were not present in Texas prior to the administration of the incentive programs. Between 2008 and 2012, the number of companies offering PV installations throughout Texas increased from approximately 20 to over 200. During the same period the number of NABCEP-certified PV installers in Texas has increased from 12 to 154. The incentive programs offered by the utilities have played the largest role in developing this network. Survey results show that customers rely on this network to influence their decisions to participate in the solar PV programs, both through access to information and help with financial analysis of solar PV for their home.

The survey also found that over 50% of respondents who participated in the solar PV programs were motivated to install solar on their home by other solar PV systems in their neighborhood. As the number of installations in neighborhoods in the utilities service areas increases, previous participants will likely influence additional projects.

Table 9: Existing PV Systems in Participants Neighborhoods Motivated Installation



4. Market Potential

Clean Energy Associates produced an estimate of the technical potential for rooftop solar generation in Austin Energy's service area in 2009. It utilized several data sources to estimate the total area available on rooftops of residential, commercial and industrial buildings. It then employed a stepwise approach to discount the available rooftop area due to shading, improper orientation, structural considerations, and other factors. Finally, the analysis estimated PV generation potential on the remaining rooftop spaces. The study concluded that if fully utilized, rooftop solar energy systems have the potential to produce between 16.1% and 27.6% of Austin Energy's 2008 annual electric energy generation, depending on the PV deployment scenario used. The study demonstrated that rooftops comprise potentially enormous energy generation potential, and that existing installations comprised only about one tenth of one percent of the total potential market.

Additionally, the LBJ School will be providing the results of their 2011 mail and online survey of participants in the utilities solar PV incentive programs. Dr. Rai's research will address the effect that information and perceptions of non-monetary costs of solar PV has on the adoption of solar. It also estimates consumer discount rates for the energy savings associated with installing solar and how this varies with income levels of the participants. This research will help develop further insight into customers' decision making processes in pursing solar PV projects.

5. Conclusions

The market for distributed PV systems in the Utilities' service areas and in Texas as a whole has undergone significant transformation as a result of the Programs.

However, the need for utility incentives remains justified. Despite the progress made over the past several years, without incentives PV installation costs remain too high, customer awareness of PV's long-term value remains too low, and some of the benefits provided by PV (zero emissions, zero water use, local job creation, on-peak or near-peak energy production) remain poorly aligned with customer interest in making the decision to invest in a PV system. Properly designed incentives, such as those provide by the Utilities since 2009, can help restore that alignment.

If current trends and programs continue along a predictable and recommended path, we expect these programs will be 2-5 times more cost-effective by 2016 than in 2009.

APPENDIX E:

OPTIONAL SUPPORTING DOCUMENTATION

SWEPCO provides the following Optional Supporting Documentation.

SWEPCO Centennial Day" event held at La. State Museum in Shreveport

Shreveport Customer Services & Marketing (CS&M) employees in front of the La. State Exhibit Museum in Shreveport; bottom of stairs to top: Jeff Crain, Ray Fenton, April Bailey, Barney Bates and Keith McFarland. Not pictured but part of the working group-Steve Brocato. ***Photos by Scott McCloud.***

SWEPCO received its own special day on Saturday, June 30, to celebrate the company's 100th anniversary during the "Remember in Shreveport and Bossier When" event at the Louisiana State Exhibit Museum in Shreveport. The company has display space in two cases marking the early days of Southwestern Gas and Electric with donated items from Corporate Communications and employees. The exhibit is free to the public and will run through July 28.

CS&M employees presented energy efficiency tips on lighting, insulation, filters and thermostat settings; and Corp. Comm. demonstrated safety around high voltage lines with the "Power Town" model on situations involving a TV antenna, metal pole, fence, kite, tree, substation, and a downed line on a school bus.

Louie the Lightning Bug poses with a four-foot wooden Reddy Kilowatt sign, donated by Greg Carter from Longview for the exhibit. Reddy was the company's mascot from the late 1920s until the mid-1980s, when Louie came on the scene as the "spokesbug" for SWEPCO.

There are over 120 exhibits in the museum on Louisiana history. A permanent SWEPCO display will remain after this special showing.

Posted by Scott R McCloud on July 2, 2012 02:13 PM

Save Energy

Lower Costs

Saving energy just got easy.

Do you want to lower your electricity costs? If you're a small business owner and a SWEPCO customer, you may qualify to participate in the **Small Business Direct Install** (SBDI) program.

Here's how SBDI works:

- Call to schedule a free energy assessment with an approved program contractor.
- Learn how much your business could save with lighting and refrigeration upgrades — including occupancy sensors, LED exit signs and anti-sweat heater controls.
- Discuss your energy-saving options with your contractor.
- Install energy-efficient equipment.
- Save money each month on your electricity bills.

Take advantage of SBDI incentives that cover as much as 100% of your qualifying project costs.

Ready to learn more?

Call to schedule your free facility assessment today.

(855) 829-9826
SWEPCOsbdi@kema.com

AEP SOUTHWESTERN ELECTRIC POWER COMPANY
A unit of American Electric Power

Saving energy just got easy for small business owners.

Do you want to lower your electricity costs? If you're a small business owner and a SWEPCO customer, you may qualify to participate in the **Small Business Direct Install** (SBDI) program.

Take advantage of incentives for installing energy-efficient lighting and refrigeration equipment to help you start saving costs today.

- Install lighting occupancy sensors to control energy use.
- Switch out exit signs to energy-efficient LED units.
- Add anti-sweat heater controls to coolers to manage temperatures that reduce energy and condensation.

Get as much as 100% of your project costs covered by incentives — paid directly to your program-approved contractor — and a quick payback on any out-of-pocket costs.

Call to schedule your free facility assessment today.

(855) 829-9826
SWEPCOsbdi@kema.com

AEP SOUTHWESTERN ELECTRIC POWER COMPANY
A unit of American Electric Power

Saving energy just got easy.

Do you want to lower your electricity costs? If you're a small business owner and a SWEPCO customer, you may qualify to participate in the **Small Business Direct Install** (SBDI) program.

Take advantage of incentives for installing energy-efficient lighting and refrigeration equipment to help you start saving costs today.

- Install lighting occupancy sensors to control energy use.
- Switch out exit signs to energy-efficient LED units.
- Add anti-sweat heater controls to coolers to manage temperatures that reduce energy and condensation.

Get as much as 100% of your project costs covered by incentives — paid directly to your program-approved contractor — and a quick payback on any out-of-pocket costs.

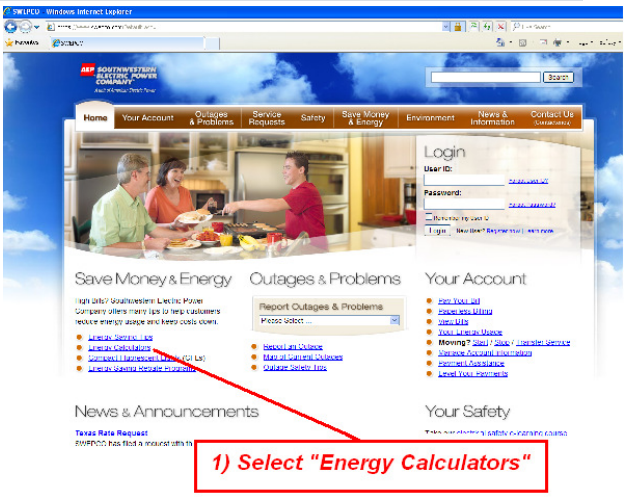
Call to schedule your free facility assessment today.

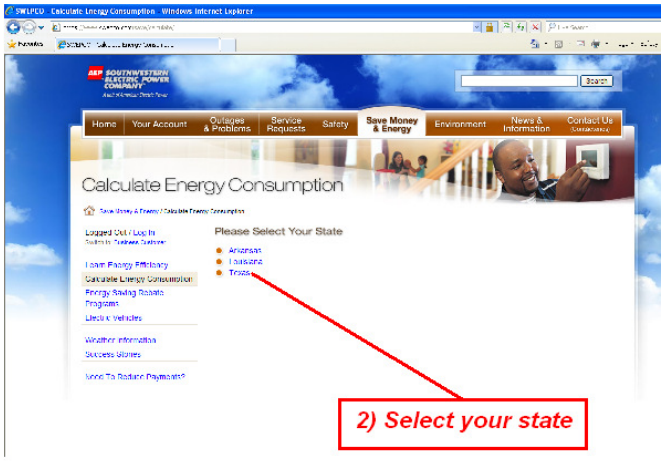
(855) 829-9826
SWEPCOsbdi@kema.com

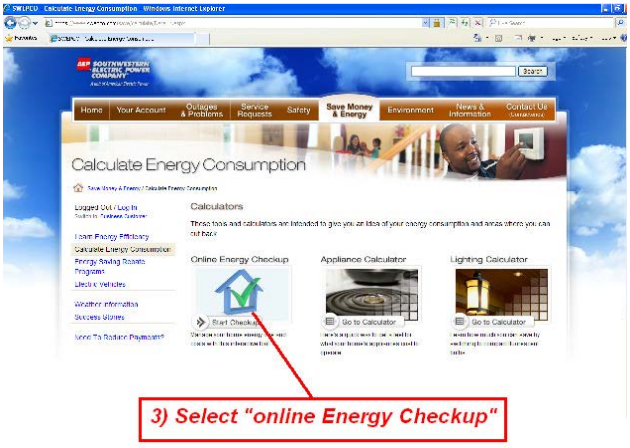
AEP SOUTHWESTERN ELECTRIC POWER COMPANY
A unit of American Electric Power

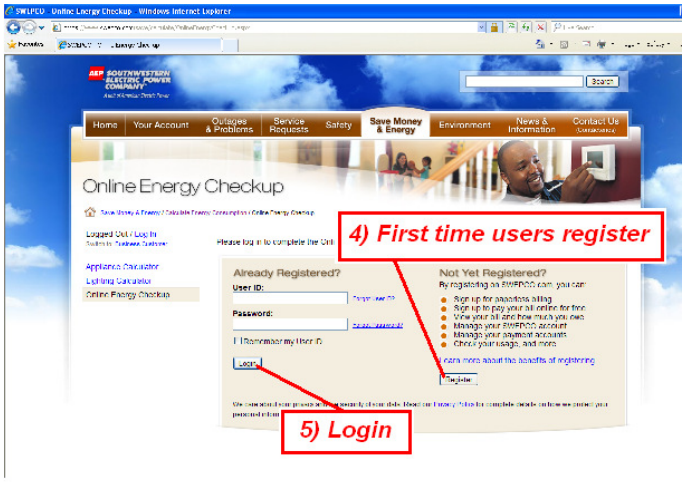
Program: On-Line Home Energy Checkup

SWEPCO has the Online Home Energy Checkup tool available to all of our Texas customers. The site is accessed from www.swepco.com.









AEP SWEPCO

Energy Efficiency Programs Bulletin

VOLUME 3, ISSUE 2 | SPRING 2012

AEP SOUTHWESTERN ELECTRIC POWER COMPANY
A unit of American Electric Power

R-22 Refrigerant Phaseout

The U.S. Environmental Protection Agency is phasing out R-22 refrigerant because it contains hydrochlorofluorocarbons (HCFCs).

How does this affect you? As a frame of reference, a 125-ton chiller contains at least 1,250 pounds of R-22. If it lost 25% of its refrigerant annually due to repair issues, it would cost about $6,000 at today's R-22 price ($425-$540 per 30-pound tank) to refill the refrigerant.

The cost of R-22 refrigerant is going up as the demand increases and supply decreases. If you have chillers in inventory that have maintenance issues, it's important to work with your program representatives to see what type of equipment would qualify for retrofits. Up-front costs to install new chillers could help avoid increasing maintenance costs in the future due to this product phaseout. By 2020, servicing of systems with R-22 will rely solely on recycled or stockpiled quantities, which will make R-22 harder to find and much more expensive to purchase.

Phaseout of R-22 and R-142b

HCFC-22 (also called R-22) and HCFC-142b are the next two HCFCs being phased out by the United States.

January 1, 2010
Ban on production and import of HCFC-22 and HCFC-142b except for continuing servicing needs of existing equipment.

January 1, 2015
Ban on sale and use of all HCFCs except for certain uses, including continuing servicing needs of refrigeration equipment.

January 1, 2020
Ban on remaining production and import of HCFC-22 and HCFC-142b.

After 2020, the servicing of systems with R-22 will rely on recycled or stockpiled quantities.

The SCORE℠ Program provides no-cost technical and financial assistance to help school districts, colleges and universities implement energy efficiency improvements. The Program helps partners minimize the impact of volatile energy costs, ease budget pressures, and improve infrastructure and learning environments for students.

Similar to SCORE, the no-cost Commercial Solutions Program provides technical and financial support to help businesses identify and implement energy efficiency upgrade projects.

For more information about the Programs, contact Program Manager Paul Pratt at pepratt@aep.com or (318) 673-3542.

The programs are sponsored by SWEPCO and administered by CLEAResult . You can reach CLEAResult at SWEPCO-Efficiency@CLEAResult.com or (888) 637-7937.

eeprograms.net/aep
twitter.com/swepconews | facebook.com/swepco

PARTNER SUCCESS

The following partners recently completed projects and were awarded incentives:

Holt Cat
$1,020

LeTourneau Technologies
$5,562

Mobberly Baptist Church
$3,751

O&D Manufacturing
$246

Penwood Apartments
$3,555

Red River Army Depot
$21,543

Center ISD
$1,830

Hallsville ISD
$345

Kilgore College
$7,455

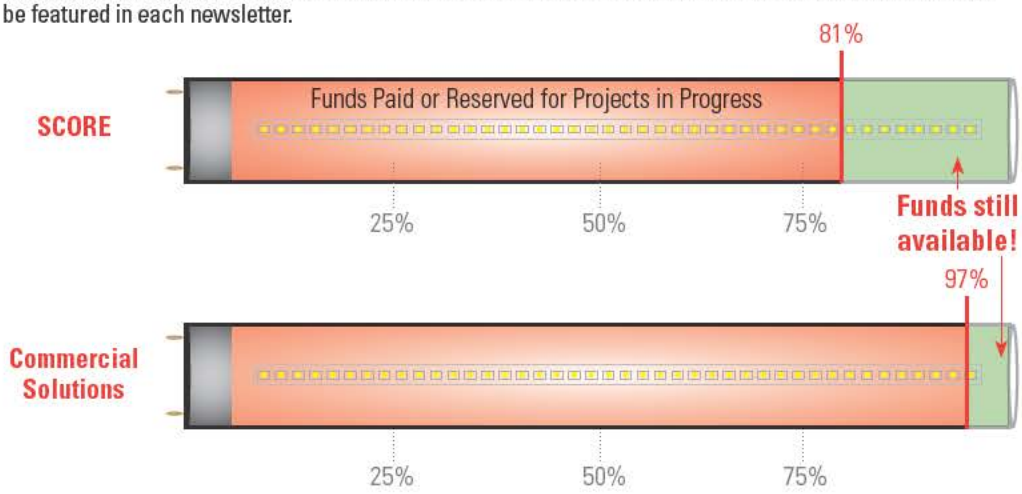
Longview ISD
$38,538

Malta ISD
$1,755

Congratulations, Partners!

Introducing the Project Status Bar

Do you find yourself wondering if it's too late to reserve program funds? Are you looking for a tool to help sell more projects to your Board of Directors? We're pleased to introduce the project status bar, which will be featured in each newsletter.



Please contact your account representative to identify additional opportunities to save energy and earn incentives in 2012.

Fast Facts: High Performance Interior Lighting

In February, program partners, contractors and SWEPCO staff attended a one-day seminar on the interior lighting changes made by the Public Utility Commission of Texas. In case you missed it, here are the key takeaways:

- Qualifying standards have changed for T8 bulbs & ballasts in the SWEPCO energy efficiency programs. See qualifying products list here: ***http://bit.ly/commercialLTG***
- High-bay fluorescent T8 light fixtures were also affected. Before you and/or your contractor start a project, notify SWEPCO to make sure ballast & bulbs are eligible for incentives.
- LED technology continues evolving & changing. In certain applications, LEDs are more cost effective. A good resource for reputable LED products can be found at: ***http://1.usa.gov/JMG1yr***

Get the Word Out

Your project is complete and you're saving energy. Receiving community recognition for your accomplishments is just as important as that warm, fuzzy feeling you get from seeing the savings stack up. Don't forget that your participation in a SWEPCO energy efficiency program provides you access to invaluable communications support. Here are some of the services we offer:

- Press Releases - announce an innovative project, check presentation or significant energy or cost savings
- Newsletter or web articles for your bulletin or e-news
- Social Media - Twitter & Facebook posts

Ready to get started? Contact your program representative for details.

Your Name Here @yourtwittername
We're accepting a check today for the $32K+ in @SWEPCOnews SCORE Program incentives we earned for energy efficiency this year.

Use Twitter or Facebook to tell your community about your energy efficiency achievements. It's free publicity and SWEPCO could repost the message to its followers.

MAR 8

SWEPCO Recognizes PT for Energy Efficiency

March 8, 2010 | | Leave a Comment

PINE TREE ISD RECEIVES SWEPCO INCENTIVE CHECK FOR ENERGY EFFICIENCY

LONGVIEW, TX – March 8, 2010 – For the third time since joining the AEP SWEPCO Schools Conserving Resources Program (SCORE^{SM}), Pine Tree ISD earned an incentive check for carrying out energy efficiency upgrades. The district will receive $23,169 for incorporating

AEP SWEPCO

Energy Efficiency Programs Bulletin

VOLUME 3, ISSUE 1 | WINTER 2012

AEP SOUTHWESTERN ELECTRIC POWER COMPANY
A unit of American Electric Power

Austin Bank Cashes In

By the numbers: 635,427 kWh | $21,150 incentive

New SWEPCO Commercial Solutions partner Austin Bank is quickly and efficiently making energy-saving improvements at branches throughout east Texas. In its first year, the bank retrofitted lights at three branches in Longview. Based on program staff recommendations, Austin Bank chose High Performance T-8 lights that will save nearly $41,000 on annual electricity costs.

Upgrading lighting systems with efficient light sources, fixtures, and controls can reduce energy use, improve the visual environment, and reduce demand on HVAC and electrical system needs*. The photos of the Greggton Branch to the right illustrate the difference new fixtures make.

Austin Bank's comprehensive approach to energy efficiency includes retrofitting lights at more branches this year, including banks in Marshall and Big Sandy, among others. Congratulations on your achievements, Austin Bank!

Source: http://www.energystar.gov/index.cfm?c=business.EPA_BUM_CH6_Lighting

Longview Greggton Branch

Liberty-Eylau ISD SCOREs

By the numbers: 49,511 kWh | $2,968 SCORE incentive | $39,960 SECO grant

Middle School Weight Room

Using a combination of financing efforts, including a grant from the State Energy Conservation Office and incentives from SWEPCO's SCORE and SMART Source℠ Solar PV Programs, Liberty-Eylau ISD (LEISD) retrofitted lights in multiple school gyms and installed solar panels. After the grant and incentives, these major improvements only cost the district $21.60!

"We're just hitting the tip of the iceberg when it comes to energy savings," said Director of Support Services Dave Wilcox.

Wilcox added that a "big part of SECO's grant process is to promote education and outreach efforts." After students at the middle and high schools learned about wasted energy at a recent blower door demonstration, a group of middle school students proposed an energy-saving competition between the schools. The competition is still in the planning phases, but Wilcox hopes that students are already using their knowledge of energy use while at school and at home.

The SCORE℠ Program provides no-cost technical and financial assistance to help school districts, colleges and universities implement energy efficiency improvements. The Program helps partners minimize the impact of volatile energy costs, ease budget pressures, and improve infrastructure and learning environments for students.

Similar to SCORE, the no-cost Commercial Solutions Program provides technical and financial support to help businesses identify and implement energy efficiency upgrade projects.

For more information about the Programs, contact Program Manager Paul Pratt at pepratt@aep.com or (318) 673-3542.

The programs are sponsored by SWEPCO and administered by CLEAResult . You can reach CLEAResult at SWEPCO-Efficiency@CLEAResult.com or (888) 637-7937.

eeprograms.net/aep
twitter.com/swepconews | facebook.com/swepco

PARTNER SUCCESS

The following partners recently completed projects and were awarded incentives:

Austin Bank
$21,270

City of Longview
$7,545

CHRISTUS St. Michael
$17,805

EyeMasters
$1,492

LeTourneau University
$6,015

MHC Kenworth
$453

Price Hardware
$532

Red River Army Depot
$1,105

Wadley Regional Medical Center
$367

Center ISD
$20,359

Liberty-Eylau ISD
$2,968

Pine Tree ISD
$165

Spring Hill ISD
$4,725

Texarkana ISD
$753

Congratulations, Partners!

Savings From Above

By the numbers: 286,912 kWh | $17,805 incentive

With the health and well-being of Texarkana residents in mind, new Commercial Solutions Program partner CHRISTUS St. Michael Health System is making some big changes. In 2011, the hospital replaced the 12-unit rooftop HVAC system for the Physicians Office Building (POB) with a variety of higher-efficiency units to fit the hospital's needs. This was the largest HVAC retrofit ever completed in the SWEPCO Commercial Solutions Program.

Based on the success of the project, the hospital is now exploring other HVAC retrofit opportunities.

CHRISTUS St. Michael used a variety of high efficiency units to improve performance & increase energy efficiency.

Texas Association of School Business Officials Convention

Feb. 29 - March 2, Houston, TX

Look for the SCORE booth (#419) at the upcoming Texas Association of School Business Officials (TASBO) Convention in Houston, February 27 - March 2. Our staff will be available to discuss program opportunities and requirements, as well as share recent success stories.

Please plan to join our Exhibitor Roundtable - **"Energy Benchmarking and Master Planning Yield Big Savings"** - for one of the four 15-minute discussions. (Feb. 29, 2:30 - 3:30 p.m.)

New 2012 T-8 Lighting Requirements = More Savings

By Kyle Hemmi, SCORE/Commercial Solutions Program Engineer

Due to new federal standards for linear fluorescents, standard T-8 electronic ballasts and lamps will no longer be eligible for utility incentives in retrofits starting in January. These new requirements, outlined to the right, are based on Consortium for Energy Efficiency (CEE) High Performance T-8 System (HPT8) standards. Detailed information and approved product listings can be found on the CEE website at http://www.cee1.org/com/com-lt/com-lt-specs.pdf.

CEE High Performance T-8 (HPT8) Lighting Systems

Lamp Requirements*		Ballast Requirements	
Wattage	≤ 32	Ballast Factor	Low / Normal / High
CRI	≥ 80	Frequency	20 to 33 kHz or ≥ 40 kHz
Initial Lumens	≥ 3100	Power Factor	≥ 0.90
Mean Lumens	≥ 2900	Harmonic Distortion	≤ 20%
Life (hrs)	≥ 24,000	Ballast Efficacy Factor	See website

* For 30W/32W Products. See website for CEE requirements for reduced 25W & 28W products.

HPT8 System Efficacy: ≥ 90 Mean Lumens per Watt (MLPW) for Instant Start Ballast (all wattages) or ≥ 88 MLPW for Programmed Rapid Start Ballasts

The HPT8 systems offer **more savings potential** than standard systems and make good technical and economic sense for program participants. In many cases, these systems can produce an **additional 25% savings** compared to standard electronic systems. And because the cost to install HPT8 systems is typically $3 - $5 per fixture, customers will usually experience a rapid payback. Other benefits include:

- longer lamp life
- better color rendering
- reduced maintenance and stocking costs

While the new requirements do not affect new construction projects, HPT8 systems make the best sense in those projects for the same reasons. Take into account that IECC 2009 (ASHRAE 90.1-2007) lighting power densities are now the applicable energy code in Texas and you'll quickly realize that HPT8 is the most logical solution for new construction, too.