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Tucson Electric Power  
88 East Broadway Blvd., P.O. Box 711,  
Tucson, AZ 85702

March 15, 2013

Arizona Corporation Commission  
DOCKETED

MAR 15 2013



Docket Control  
Arizona Corporation Commission  
1200 West Washington Street  
Phoenix, Arizona 85007

Re: Notice of Filing – Tucson Electric Power Company’s Annual Demand-Side Management  
Progress Report u  
Docket No. E- 00000u-13-0031

The Electric Energy Efficiency Standards set forth in the Arizona Administrative Code, Section R14-2-2409.A, require Tucson Electric Power Company (“TEP”) to submit an annual DSM progress report for each of its Commission-approved DSM programs by March 1<sup>st</sup>. Due to circumstances outside of its control, TEP did not receive its Measurement and Evaluation Reports (“MER”) from its outside consultant in time to adequately evaluate before the March 1<sup>st</sup> compliance date and informed Commission Staff that the report would be filed on or before March 15<sup>th</sup>. TEP hereby files its DSM Progress Report for 2012. The MERs listed in the Report are being filed directly with Commission Staff.

If you have any questions, please contact me at (520) 884-3680.

Sincerely,

Jessica Bryne  
Regulatory Services

cc: Barbara Keene, ACC  
Compliance Section, ACC

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ARIZONA CORPORATION COMMISSION  
REGULATORY SERVICES

# **Tucson Electric Power Company**

**Annual DSM Progress Report**

**January – December 2012**

# Tucson Electric Power Company

## DSM PROGRESS REPORT FOR THE PERIOD: January through December 2012

Tucson Electric Power Company (“TEP” or “Company”), in accordance with Arizona Corporation Commission (“Commission”) Decision No. 71819 (August 10, 2010), and Arizona Administrative Code R14-2-2409 (effective January 1, 2011), submits the following Demand-Side Management (“DSM”) progress report. This report includes the following information for all DSM programs that were in place during this reporting period, including programs for residential, non-residential, and low-income customers:

- An analysis of the Company’s progress toward meeting the annual energy efficiency standard;
- A list of Commission approved DSM programs and measures, organized by customer segment;
- A description of the findings from any research projects completed;
- A brief description of the programs;
- Program goals, objectives, and savings targets;
- Levels of customer participation in the programs;
- Costs incurred during the reporting period;
- Description of evaluation and monitoring activities and results;
- Savings realized in kW, kWh, and therms;
- Environmental benefits from the programs;
- Incremental and net benefits, in dollars, of the programs;
- Problems encountered and proposed solutions;
- Proposed program modifications; and
- Termination of programs or measures.

A summary detailing all DSM expenses by program is provided in Table 1; energy savings by program are provided in Table 2; cumulative energy savings as a comparison to the Electric Energy Efficiency Standards (“EEES” or “Standard”) are provided in Table 3; societal benefits by program and the performance incentive calculation are provided in Table 4; and lifetime environmental savings by program are provided in Table 5. Commission approved DSM programs and measures are attached in Appendix 2.

# Tucson Electric Power Company

## DSM PROGRESS REPORT FOR THE PERIOD:

January through December 2012

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# Tucson Electric Power Company

## DSM PROGRAM PROGRESS REPORT FOR THE PERIOD: January through December 2012

**Table 1**

### DSM PROGRAM EXPENSES: JANUARY - DECEMBER 2012

DSM Program	Rebates & Incentives	Training & Technical Assistance	Consumer Education	Program Implementation	Program Marketing	Planning & Admin	Measurement, Evaluation & Research	Program Total Cost
<b>Residential Programs</b>								
Low-income Weatherization	\$182,066	\$310	\$3,304	\$13,732	\$871	\$16,764	\$19,401	\$238,439
Residential New Construction	\$253,712	\$5,454	\$23,752	\$283,521	\$0	\$46,133	\$9,601	\$622,173
Shade Tree Program	\$121,585	\$198	\$0	\$11,197	\$4,692	\$10,731	\$2,949	\$151,352
ENERGY STAR® Lighting (CFL)	\$1,013,095	\$5,222	\$214	\$387,948	\$33,741	\$112,014	\$27,558	\$1,579,792
Existing Home Program	\$628,700	\$2,166	\$340	\$224,945	\$884	\$66,597	\$11,740	\$935,372
Res & Small Business Direct Load Control	\$23,652	\$485	\$0	\$311,213	\$0	\$27,305	\$8,238	\$370,892
<b>Total for Residential Programs</b>	<b>\$2,222,801</b>	<b>\$13,834</b>	<b>\$27,610</b>	<b>\$1,232,555</b>	<b>\$40,188</b>	<b>\$279,544</b>	<b>\$79,487</b>	<b>\$3,896,019</b>
<b>Support Programs</b>								
Consumer Education & Outreach	\$0	\$512	\$238,725	\$121,715	\$0	\$27,691	\$1,894	\$390,537
Home Energy Reports	\$0	\$530	\$10,000	\$118,823	\$0	\$9,952	\$1,058	\$140,362
<b>Total for Support Programs</b>	<b>\$0</b>	<b>\$1,041</b>	<b>\$248,725</b>	<b>\$240,537</b>	<b>\$0</b>	<b>\$37,643</b>	<b>\$2,952</b>	<b>\$530,899</b>
<b>Commercial Programs</b>								
Non-Residential Existing Facilities	\$702,608	\$5,082	\$226	\$261,649	\$969	\$77,234	\$41,505	\$1,089,273
Small Business	\$388,865	\$4,614	\$2,235	\$218,545	\$542	\$50,441	\$46,151	\$711,395
Efficient Commercial Building Design	\$42,748	\$468	\$65	\$50,703	\$0	\$7,367	\$2,549	\$103,899
C&I Demand Response - Direct Load Control	\$0	\$7,048	\$0	\$833,219	\$0	\$74,188	\$30,613	\$945,068
<b>Total for Commercial Programs</b>	<b>\$1,134,222</b>	<b>\$17,212</b>	<b>\$2,526</b>	<b>\$1,364,116</b>	<b>\$1,511</b>	<b>\$209,230</b>	<b>\$120,819</b>	<b>\$2,849,638</b>
<b>Portfolio Totals</b>	<b>\$3,357,022</b>	<b>\$32,087</b>	<b>\$278,862</b>	<b>\$2,837,209</b>	<b>\$41,699</b>	<b>\$526,417</b>	<b>\$203,259</b>	<b>\$7,276,554</b>

  

Program Costs	\$7,276,554
Program Development, Analysis, & Reporting Software	\$263,751
<b>TOTAL</b>	<b>\$7,540,306</b>

### Definitions

**Rebates & Incentives** – total amount spent on customer rebates, incentives, and payments made to agencies for installation of low-income weatherization (“LIW”) measures.

**Training and Technical Assistance** – total amount spent on energy efficiency training and technical assistance; for either utility employees or contractors.

**Consumer Education** – total dollars that are used to support general consumer education about energy efficiency improvements.

**Program Implementation** – program delivery costs associated with implementing programs, including implementation contractor (“IC”) labor and overhead costs, as well as other direct program delivery costs.

**Program Marketing** – includes all expenses related to marketing programs and increasing DSM consumer awareness (direct program marketing costs as opposed to general consumer education).

**Planning and Administration** – costs to plan, develop, and administer programs including management of program budgets, oversight of the request for proposal (“RFP”) process, oversight of ICs, program development, program coordination, and general overhead expenses.

**Measurement, Evaluation, and Research (“MER”)** – identification of current baseline efficiency levels and the market potential of DSM measures; process evaluations; verification of installed energy efficient measures; tracking of savings; and identification of additional energy efficiency research.

# Tucson Electric Power Company

DSM PROGRESS REPORT FOR THE PERIOD:  
January through December 2012

**Program Development, Analysis, and Reporting Software** – costs to research and develop new DSM program opportunities, provide analysis of new programs and measures, and develop a database to track and report participation, savings, and benefits. These costs are essential to comply with reporting and rules requirements.

**Performance Incentive** – share (%) of DSM net economic benefits, capped at either 10% of net benefits or 10% of expenditures, whichever is less. The performance incentive was approved in Commission Decision No. 70628 (December 1, 2008).

# Tucson Electric Power Company

## DSM PROGRESS REPORT FOR THE PERIOD: January through December 2012

**Table 2**

**DSM ENERGY SAVINGS: JANUARY – DECEMBER 2012<sup>1</sup>**

Program	Capacity Savings MW	Annual MWh Savings	Annual Therm Savings	Lifetime MWh Savings	Lifetime Therm Savings
Low-Income Weatherization	0.00	340	3,955	5,946	69,213
Residential New Construction	0.88	1,046	5,023	31,377	150,683
Shade Tree Program	0.00	647	0	19,420	0
ENERGY STAR® Lighting (CFL)	11.78	59,603	0	417,220	0
Existing Home Program	0.65	800	0	12,967	0
Consumer Education & Outreach	0.089	1,099	100,386	9,923	1,003,859
Home Energy Reports (Pilot)	1.23	10,746	0	10,746	0
Non-Residential Existing Facilities	1.96	10,399	0	144,347	0
Small Business	0.64	3,021	0	26,386	0
Efficient Commercial Building Design	0.50	1,572	0	23,578	0
C&I Direct Load Control	12.70	16,382	0	NA	NA
<b>Portfolio Totals</b>	<b>30.42</b>	<b>105,655</b>	<b>109,364</b>	<b>701,912</b>	<b>1,223,754</b>

**Table 3**

**CUMULATIVE DSM SAVINGS: JANUARY – DECEMBER 2012<sup>2</sup>**

Year	Retail Energy Sales (MWh)	Incremental Annual Energy Savings (MWh)	Cumulative Annual Energy Savings (MWh)	Cumulative Annual Savings as a % of previous year Retail Sales	Cumulative EE Standard
2010	9,291,788				
2011	9,332,107	139,539	139,539	1.50%	1.25%
2012		105,655	245,194	2.63%	3.00%

<sup>1</sup> Capacity savings for Commercial & Industrial Direct Load Control reflect the capacity available for reduction events. Annual MWh savings for Commercial & Industrial Direct Load Control reflect the credit available toward the Standard per A.A.C. R14-2-2404 (C).

<sup>2</sup> TEP was not able to meet the cumulative Standard for 2012 due to budget reductions beyond the Company's control. See the *Miscellaneous DSM Information* section for further information.

# Tucson Electric Power Company

## DSM PROGRESS REPORT FOR THE PERIOD: January through December 2012

**Table 4**

### DSM SOCIETAL BENEFITS & PERFORMANCE INCENTIVE: JANUARY – DECEMBER 2012

DSM Program	Program Cost	Societal Benefits	Societal Costs	Net Benefits
<b>Residential</b>				
Low-Income Weatherization	\$236,439	\$342,328	\$229,784	\$112,545
Residential New Construction	\$622,173	\$4,120,362	\$786,319	\$3,334,043
Shade Tree Program	\$151,352	\$898,510	\$538,865	\$359,644
ENERGY STAR® Lighting (CFL)	\$1,579,792	\$24,518,514	\$2,359,546	\$22,158,968
Existing Home Program	\$935,372	\$1,544,410	\$1,113,301	\$431,108
<b>Total for Residential</b>	<b>\$3,525,127</b>	<b>\$31,424,124</b>	<b>\$5,027,816</b>	<b>\$26,396,308</b>
<b>Non-Residential</b>				
Non-Residential Existing Facilities	\$1,089,273	\$9,713,308	\$2,515,875	\$7,197,432
Small Business	\$711,395	\$1,623,494	\$581,283	\$1,042,211
Efficient Commercial Building Design	\$103,899	\$1,789,980	\$1,458,570	\$331,409
<b>Total for Non-Residential</b>	<b>\$1,904,567</b>	<b>\$13,126,781</b>	<b>\$4,555,729</b>	<b>\$8,571,053</b>
<b>Support Programs</b>				
Consumer Education & Outreach	\$390,537	\$1,147,721	\$635,463	\$512,258
Home Energy Reports (Pilot)	\$140,362	\$310,951	\$140,362	\$170,588
<b>Total for Support Programs</b>	<b>\$530,899</b>	<b>\$1,458,672</b>	<b>\$775,825</b>	<b>\$682,847</b>
<b>Portfolio Totals</b>				
<b>Portfolio Totals</b>	<b>\$5,960,593</b>	<b>\$46,009,577</b>	<b>\$10,359,369</b>	<b>\$35,650,207</b>
Program Development, Analysis & Reporting Software	\$263,751	\$0	\$263,751	(\$263,751)
<b>TOTAL</b>	<b>\$6,224,345</b>	<b>\$46,009,577</b>	<b>\$10,623,121</b>	<b>\$35,386,456</b>
<b>Performance Incentive Calculation:</b>				
Total Spending / Total Net Benefits <sup>a</sup>	\$5,597,369			\$34,761,653
10% of Spending / Net Benefits	\$559,737			\$3,476,165
<b>Performance Incentive for 2012</b>	<b>\$559,737</b>			

*a. Total spending and net benefits does not include LIW, Education & Outreach, or Demand Response/Direct Load Control Programs per Commission Decision No. 70628 (December 1, 2008), which approved the TEP Performance incentive calculation. The Performance Incentive allowed is capped at 10% of net benefits or 10% of total spending, whichever is less.*



# Tucson Electric Power Company

DSM PROGRESS REPORT FOR THE PERIOD:  
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**Table 5**

**DSM LIFETIME ENVIRONMENTAL SAVINGS: JANUARY – DECEMBER 2012**

Program	Lifetime SO <sub>x</sub> Reduction (lbs)	Lifetime NO <sub>x</sub> Reduction (lbs)	Lifetime CO <sub>2</sub> Reduction (lbs)	Lifetime Water Reduction (gallons)
Low-Income Weatherization	12,803	15,448	12,202,331	2,735,199
Residential New Construction	67,562	81,518	61,859,818	14,433,604
Shade Tree Program	41,816	50,454	37,186,114	8,933,321
ENERGY STAR® Lighting (CFL)	898,359	1,083,939	798,897,935	191,921,418
Existing Home Program	27,920	33,688	24,829,285	5,964,806
Consumer Education & Outreach	21,367	25,781	30,846,623	4,564,684
Home Energy Reports (Pilot)	23,139	27,919	20,577,078	4,943,287
Non-Residential Existing Facilities	310,807	375,013	276,396,478	66,399,476
Small Business	56,815	68,552	50,524,777	12,137,704
Efficient Commercial Building Design	50,768	61,256	45,147,684	10,845,950
<b>Portfolio Totals</b>	<b>1,511,357</b>	<b>1,823,567</b>	<b>1,358,468,123</b>	<b>322,879,450</b>

# Tucson Electric Power Company

## DSM PROGRESS REPORT FOR THE PERIOD: January through December 2012

### **LOW-INCOME WEATHERIZATION PROGRAM**

#### **Description**

The TEP LIW Program is designed to improve the energy efficiency of homes for customers whose income falls within the defined federal poverty guidelines. Steps taken in the LIW Program will reduce gas and electric bills for eligible customers and improve their comfort and quality of life. Energy savings realized from the LIW Program will allow low-income customers to better utilize the limited income they receive for other necessary items such as rent, food, or medical expenses.

#### **Program Goals, Objectives, and Savings Targets**

The objectives of the Program are to:

- Increase the number of homes weatherized each year;
- Reduce average household utility bills by utilizing energy conservation measures in the Weatherization Assistance Program rules; and
- Improve the quality of life for the customers by providing them with a safe and healthy home.

The 2012 goal was to weatherize 163 homes.

#### **Levels of Participation**

A total of 113 households received weatherization assistance during this reporting period.

#### **Costs Incurred**

Costs incurred during this reporting period are listed below:

DSM Program	Rebates & Incentives <sup>a</sup>	Training & Technical Assistance	Consumer Education	Program Implementation	Program Marketing	Planning & Admin	Measurement, Evaluation & Research	Program Total Cost
Low Income Weatherization	\$182,056	\$310	\$3,304	\$13,732	\$871	\$16,764	\$19,401	\$236,439

*a. Includes \$7,727 for health and safety related repairs and \$15,164 for Weatherization Agencies administrative expenses.*

#### **Evaluation and Monitoring Activities and Results**

The Governor's Office of Energy Policy ("GOEP"), with billing data from TEP and other Arizona gas and electric utilities, is analyzing and tracking energy use in weatherized homes statewide. As its database grows, a more accurate analysis of the impact of weatherization activities will emerge. TEP will report energy savings from weatherization activities based upon the most recent GOEP report. The GOEP does not report any kW demand savings. Their most recent report is attached in **Appendix 1**.

The July 2012 GOEP report is summarized below:

#### **Utility Bill Analysis**

- To date, an analysis of 257 homes has been completed on homes utilizing Arizona Public Service Company ("APS"), TEP, UNS Gas, Inc., UNS Electric, Inc., and Southwest Gas Corporation utility data. This analysis is ongoing, and new data will be updated to these values on a quarterly basis.
- Savings to Investment Ratios ("SIR") are provided for total investment from all funding spent (diagnostics, energy measures, health and safety measures) and for energy related measures only (diagnostics and energy measures).

# Tucson Electric Power Company

## DSM PROGRESS REPORT FOR THE PERIOD:

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- Present value is based on 17.5 years measure life, discount rate of 3% and a utility cost escalation rate of 1%.
- The combined SIR of all jobs reviewed to date for funds spent on diagnostics, energy measures and health and safety measures was 1.21. Health and saving represented 16% of expenditures.
- The combined SIR of all jobs reviewed to date for funds spent on energy measures and diagnostics was 1.38.
- The average saving per home reviewed was 2,746 kWh and 35 therms of natural gas (gas therms average includes all electric homes).

### **kW, kWh, and Therm Savings**

The savings for this reporting period are listed below:

No. of Homes	kW savings	kWh savings	Therm savings
113	0	339,776	3,955

*Savings are adjusted for line losses of 9.5% for both demand and energy (excluding therms).*

### **Problems Encountered and Proposed Solutions**

During 2012 TEP, along with several other state utilities, experienced low participation and spending from the low income agencies. After meetings with the agencies, such as, the Arizona Community Action Association (“ACAA”), the GOEP determined that this was due to the agencies focus on spending their allotment of American Recovery and Reinvestment Act (“ARRA”) funding and consequently they did not utilize much utility funding. ARRA funds are now depleted and the state also expects to receive minimal Department of Energy (“DOE”) funding in 2013. This will force the agencies to greatly increase their funding requests towards the utilities and the federal Low-Income Home Energy Assistance Program (“LIHEAP”). As a result, participation and utility funding should increase in 2013.

### **Program Modifications**

There were no Program modifications during this reporting period.

### **Programs or Measures Terminated**

No measures were terminated during this reporting period. TEP does not plan to terminate this Program or any Program measures in 2013.

# Tucson Electric Power Company

## DSM PROGRESS REPORT FOR THE PERIOD:

January through December 2012

### RESIDENTIAL NEW CONSTRUCTION

#### Description

The Residential New Construction Program for TEP is marketed as the Energy Smart Homes (“ESH”) Program. It is a utility sponsored, energy efficient new home construction program based on a foundation of integrated building science. The Program emphasizes the whole-house approach to improving health, safety, comfort, durability, and energy efficiency. The Program closely aligns to the Energy Star Home standards. Components of the ESH Program include development of energy efficient construction standards, branding, builder training curriculum, and marketing collateral.

#### Program Goals, Objectives, and Savings Targets

The objectives of the Program are to:

- Reduce peak demand and overall energy consumption in new homes;
- Implement programs that include more aggressive energy efficiency standards that produce savings of at least 20 percent above baseline (HERS 70);
- Stimulate construction of new homes that are inspected and tested to assure energy performance;
- Stimulate the installation of high efficiency heating and cooling systems, envelope, lighting, and fixed appliances (Energy Star<sup>®</sup> products);
- Assist sales agents with promoting and selling of energy efficient homes;
- Train builder construction staff and sub-contractors in advanced building-science concepts to reach energy efficiency goals through improved design and installation practices; and
- Increase homebuyer awareness and understanding of the benefits they receive from living in energy efficient homes.

Goals for 2012:

<b>Tier Group by HERS</b>	<b>Target Goal: Number of Homes</b>
Tier I < 85 HERS	675
Tier II < 70 HERS	0
Tier III < 45 HERS	0

#### Levels of Participation

<b>Tier Group by HERS</b>	<b>Number of Homes Completed</b>
Tier I < 85 HERS	435
Tier II < 70 HERS	7
Tier III < 45 HERS	0

# Tucson Electric Power Company

## DSM PROGRESS REPORT FOR THE PERIOD: January through December 2012

### Costs Incurred

Costs incurred during this reporting period are listed below:

DSM Program	Rebates & Incentives	Training & Technical Assistance	Consumer Education	Program Implementation	Program Marketing	Planning & Admin	Measurement, Evaluation & Research	Program Total Cost
Residential New Construction	\$253,712	\$5,454	\$23,752	\$283,521	\$0	\$46,133	\$9,601	\$622,173

### Evaluation and Monitoring Activities and Results

Navigant Consulting performed an evaluation of this Program for 2012. The evaluation resulted in a realization rate of 118% for coincident demand savings, 123% for electrical energy savings, and 100% for therm savings. This report is attached in **Appendix 1**. 2012 savings have been updated as a result of the 2012 evaluation.

### kW, kWh, and Therm Savings

No. of Homes	kW savings	kWh savings	Therm savings
442	879	1,045,913	5,023

*Savings are adjusted for line losses of 9.5% for both demand and energy (excluding therms).*

### Problems Encountered and Proposed Solutions

TEP's 2011-2012 Energy Efficiency Implementation Plan ("2011-2012 EE Plan") was filed on January 31, 2011. Because the 2011-2012 EE Plan has not yet been approved by the Commission, the Program was suspended in March 2012 when the available incentive funds were exhausted. Applications for participation in the program submitted by March 2012 were honored.

### Program Modifications

Commission Decision No. 71638 (April 14, 2010) approved TEP's Pilot Zero-Net Energy Homes Program. The tiered incentive structure was to help promote increased levels of efficiency in new home construction. However, Commission Staff's Proposed Order for TEP's 2011-2012 EE Plan recommended discontinuing Tiers II and III as no longer being cost-effective. Because TEP's 2011-2012 EE Plan is still pending approval, TEP will re-evaluate the cost-effectiveness of Tiers II and III as part of its obligation to ensure cost-effectiveness requirements in the Standard.

Due to the lengthy history and success of TEP's Residential New Construction Program, the Company no longer offers a guarantee regarding comfort or heating and cooling costs. Therefore, the Company has changed the Program name from Guarantee Homes Program to Energy Smart Homes Program. Program homes are still required to be more efficient than code built homes.

### Programs or Measures Terminated

The Tier II and Tier III measure levels were discontinued during this reporting period and are no longer offered.

# Tucson Electric Power Company

## DSM PROGRESS REPORT FOR THE PERIOD: January through December 2012

### SHADE TREE PROGRAM

#### Description

The TEP Shade Tree Program has been in operation since December 1992. Desert-adapted trees are provided to individual residences, residential neighborhoods, low-income families, as well as to community areas, and schools through TEP's partnership with Tucson Clean and Beautiful ("TCB"). Residents are allowed two, 5-gallon trees per year (four trees are allotted to homes built before 1980), which must be planted on the south, west, or east side of the home. Residents complete an application provided by TCB either online or by mail which includes the type of tree requested and the location where it will be planted. The resident pays a nominal fee of \$8.00 per tree, and the tree will be delivered to their home by TCB.

#### Program Goals, Objectives, and Savings Targets

The objective of the Program is to promote energy conservation and the environmental benefits associated with planting low water use trees. Along with the energy savings trees provide to the homes, trees also provide habitat for wildlife, absorb air and water pollutants, and control storm water runoff and soil erosion, in addition to the aesthetic beauty they provide to neighborhoods and the community.

Program goals for 2012:

<b>No. Trees Planted</b>	4,000
<b>kWh savings</b>	708,000

#### Levels of Participation

For this reporting period, TCB delivered a total of 3,340 trees as follows:

- 3,251 five-gallon trees were distributed to approximately 1,503 residential customers;
- 50 fifteen gallon trees and 5 five-gallon trees to eight schools; and
- 4 five-gallon trees and 30 fifteen-gallon trees were delivered to seven community projects.

#### Costs Incurred

Costs incurred during this reporting period are listed below:

DSM Program	Rebates & Incentives	Training & Technical Assistance	Consumer Education	Program Implementation	Program Marketing	Planning & Admin	Measurement, Evaluation & Research	Program Total Cost
Shade Tree Program	\$121,585	\$198	\$0	\$11,197	\$4,692	\$10,731	\$2,949	\$151,352

#### Evaluation and Monitoring Activities and Results

Navigant Consulting performed an evaluation of this Program for 2012. The evaluation resulted in a realization rate of 100% for energy savings. This report is attached in **Appendix 1**. 2012 savings have been updated as a result of the 2012 evaluation.

#### kW, kWh, and Therm Savings

No. of Trees	kW savings	kWh savings	Therm savings
3,340	0	647,342	0

*Savings are adjusted for line losses of 9.5% for both demand and energy.*

# **Tucson Electric Power Company**

DSM PROGRESS REPORT FOR THE PERIOD:  
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## **Problems Encountered and Proposed Solutions**

No problems were encountered during this reporting period.

## **Program Modifications**

TCB's 2012 budget for the purchase and delivery of trees was reduced due to overall DSM portfolio budget reductions.

## **Programs or Measures Terminated**

No measures were terminated during this reporting period. TEP does not plan to terminate this Program or any Program measures in 2013.

# Tucson Electric Power Company

DSM PROGRESS REPORT FOR THE PERIOD:  
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## **ENERGY STAR® LIGHTING PROGRAM**

### **Description**

The TEP ENERGY STAR® Compact Fluorescent Lamp (“CFL”) Buy-down Program promotes the installation of energy efficient ENERGY STAR® approved lighting products by residential and small commercial customers in the TEP service territory. TEP provides funds to manufacturers of ENERGY STAR® approved CFL products to reduce the cost of CFLs. TEP then partners with local retailers to pass on these savings to the consumer.

### **Program Goals, Objectives, and Savings Targets**

The objectives of the program are to:

- Reduce peak demand and overall energy consumption in homes and small businesses;
- Increase the purchase of CFLs;
- Increase the availability of energy efficient lighting products in the marketplace; and
- Increase the awareness and knowledge of retailers and TEP customers on the benefits of energy efficient lighting products.

Sales, demand, and energy savings goals for 2012:

<b>Projected Lamp sales</b>	725,000
<b>Peak Demand Savings (kW)</b>	6,800
<b>Energy Savings (kWh)</b>	41,534,000

### **Levels of Participation**

A total of 1,057,325 CFLs were sold during this reporting period. CFL sales by wattage are listed in **Appendix 3**.

### **Costs Incurred**

Costs incurred for this Program during the reporting period are listed below:

DSM Program	Rebates & Incentives	Training & Technical Assistance	Consumer Education	Program Implementation	Program Marketing	Planning & Admin	Measurement, Evaluation & Research	Program Total Cost
ENERGY STAR® Lighting (CFL)	\$1,013,095	\$5,222	\$214	\$387,948	\$33,741	\$112,014	\$27,558	\$1,579,792

### **Evaluation and Monitoring Activities and Results**

Navigant Consulting performed an evaluation of this Program for 2012. The evaluation resulted in a realization rate of 104% for coincident demand savings and 101% for energy savings. This report is attached in **Appendix 1**. 2012 savings have been updated as a result of the 2012 evaluation.

### **kW, kWh, and Therm Savings**

No. of Lamps	kW savings	kWh savings	Therm savings
1,057,325	11,780	59,602,925	0

*Savings are adjusted for line losses of 9.5% for both demand and energy.*



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## **Problems Encountered and Proposed Solutions**

Information from the ENERGY STAR<sup>®</sup> Lighting Partners Conference in the fall of 2012 indicates that manufacturers and ENERGY STAR<sup>®</sup> are working to improve the longevity of bulbs and to provide more accurate estimates of lifespan for their products. TEP continues to use conservative lifespan estimates for CFLs.

The Energy Independence and Security Act (“EISA”) has instituted changes for incandescent bulbs to meet new efficiency standards. The changes have created some confusion among customers and retail employees. To help educate the public, TEP has been conducting training sessions for retail store employees; it also created a pamphlet to explain the phase out of incandescent bulbs mandated by the federal government.

## **Program Modifications**

There were no Program modifications during this reporting period.

## **Programs or Measures Terminated**

No measures were terminated during this reporting period. TEP does not plan to terminate this Program or any Program measures in 2013.

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## **EXISTING HOMES RETROFIT AND RESIDENTIAL ENERGY ASSESSMENT PROGRAM**

### **Description**

The TEP Existing Homes Retrofit Program is designed to encourage homeowners to increase the energy efficiency of their homes. The Program provides incentives for high-efficiency heating, ventilation and air conditioning (“HVAC”) equipment; along with home performance services such as sealing leaky duct work, installing insulation, air sealing, and other thermal envelope improvements in existing homes. The Program provides direct incentives to participating contractors with the requirement that the incentives be passed on to utility customers as a line item credit toward approved Program measures. To access incentives, TEP requires customers to utilize specific Program participating contractors who are required to be Building Performance Institute (“BPI”) certified and complete Program administrative training including field mentoring.

The Residential Energy Assessment Program (“REAP”) is an integral component of the Existing Homes Retrofit Program. The major components of the REAP include a home energy assessment (or “audit”); a general appliance assessment; installation of up to ten CFLs and one Advanced Power Strip per home. Education regarding behavioral changes, as well as other TEP efficiency programs, rate options, and contact information to assist with questions are provided during the assessment. The assessment will also provide the homeowner with information regarding possible energy savings by participating in the components of the Existing Homes Retrofit Program, as described above.

The Existing Home Retrofit Program was approved in Commission Decision No. 72028 (December 10, 2010), and the REAP was approved in Commission Decision No. 70263 (January 6, 2011). While contained in separate decisions, the programs are designed to complement each other and are administered and reported as a single program. This Program is marketed as the BrightSave Home Program.

### **Program Goals, Objectives, and Savings Targets**

The objectives of the Existing Homes Retrofit component of the Program are as follows:

- The proper sizing and quality installation of high efficiency HVAC equipment, sealing leaky ductwork, and installation of thermal envelope measures;
- Advance the building science skills of participating contractors leading to BPI certification; and
- Cultivate customer demand for and a contractor base to deliver comprehensive energy efficiency retrofits in alignment with the Home Performance with Energy Star model.

The objectives of the Energy Assessment component of the Program are as follows:

- Assess how much energy a home is using and what measures can be taken to improve efficiency;
- Install up to ten (10) CFL’s and one energy saving power strip; and
- Educate homeowners about applicable TEP rebates and simple behavioral modifications to increase energy efficiency.

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The 2012 program goals were:

Retrofit Measure	Goal
HVAC Replace on Burnout with Quality Install and Duct Sealing- Performance	600
HVAC Early Retirement with Quality Install and Duct Sealing- Performance	350
Duct Sealing- Performance	800
Air Sealing	150
Air Sealing and Attic Insulation	150
Solar Shade Screens/Window Film	500

Energy Assessment Measure	Goal
Audits	1,400
Direct install- CFL	14,000
Direct install- Power strip	1,400

#### Levels of Participation

Participation levels during this reporting period	
HVAC Replacements	310
Duct Sealing- Performance	105
Air Sealing	80
Solar Shade Screens/Window Film	90
Audits	159

Participation during this reporting period was heavily impacted by the suspension of the program in March of 2012 due to lack of funding.

#### Costs Incurred

Costs incurred for this Program during the reporting period are listed below:

DSM Program	Rebates & Incentives	Training & Technical Assistance	Consumer Education	Program Implementation	Program Marketing	Planning & Admin	Measurement, Evaluation & Research	Program Total Cost
Existing Home Program	\$628,700	\$2,166	\$340	\$224,945	\$884	\$66,597	\$11,740	\$935,372

Approximately 50% of program implementation costs were incurred providing program wind-down Quality Assurance review and incentive processing in the months following program suspension.

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## DSM PROGRESS REPORT FOR THE PERIOD: January through December 2012

### Evaluation and Monitoring Activities and Results

Navigant Consulting performed an evaluation of this Program for 2012. The evaluation resulted in a realization rate of 100% for both coincident demand and energy savings. This report is attached in **Appendix 1**. 2012 savings have been updated as a result of the 2012 evaluation.

### kW, kWh, and Therm Saving

Measure	Units	kW Savings	kWh Savings
Air Sealing	80	47	82,548
Duct Testing & Repair	105	80	71,694
Early Retirement	220	387	401,522
Replace on Burnout	90	89	87,839
Shade Screens	90	30	38,044
Energy Audits	159	15	118,339
<b>Totals</b>	<b>744</b>	<b>647</b>	<b>799,985</b>

*Savings are adjusted for line losses of 9.5% for both demand and energy.*

### Problems Encountered and Proposed Solutions

TEP's 2011-2012 EE Plan was filed on January 31, 2011. Because the 2011-2012 EE Plan has not yet been approved by the Commission, the Program was suspended in March 2012 when the available incentive funds were exhausted. Applications for participation in the program submitted by March 2012 were honored. Several contractors have expressed frustration with the lack of certainty regarding availability of incentive funds, and may be hesitant to re-engage when program funding becomes available.

### Program Modifications

Due to uncertainty regarding actual energy savings gained, the program discontinued measures on a prescriptive basis, requiring contractors to submit blower door/duct blaster performance test results on all air sealing, duct sealing, and HVAC measures. This ensures better accountability for the contractors and allows greater confidence in energy savings realized.

### Programs or Measures Terminated

The prescriptive measures for air sealing, duct sealing, and HVAC retrofits were eliminated. TEP plans to discontinue the audit component of this program in 2013 based on 2012 cost-effectiveness review.

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## DSM PROGRESS REPORT FOR THE PERIOD: January through December 2012

### **RESIDENTIAL AND SMALL BUSINESS DIRECT LOAD CONTROL PILOT PROGRAM**

#### **Description**

The TEP Residential and Small Business Direct Load Control (“DLC”) Pilot Program (“Pilot Program”) is designed to determine if TEP can better manage peak demand and mitigate system emergencies through direct load control of residential and small commercial central air-conditioners (“AC”). The pilot program tests the use of two-way communication that sends load control signals to equipment at the home or business and also provides interval consumption data back to TEP for all participants. Participants receive either: 1) a thermostat that can be programmed manually or reset remotely via the internet; or 2) a load control device placed on their outdoor air conditioning unit. In exchange, customers permit TEP to cycle AC units or raise thermostat temperature settings for a limited number of hours or events per year.

#### **Program Goals, Objectives, and Savings Targets**

The primary objective of this Program is to confirm the feasibility and effectiveness of the DLC of residential and small commercial air conditioners. Load impact results and customer feedback gained through the pilot program enables a better assessment of cost-effectiveness of DLC and inform Program enhancements for a possible broader rollout.

Specific objectives for the pilot include the following:

- Refine estimates of load impacts through DLC;
- Test the effectiveness of the new generation of load control technology; and
- Assess the customer experience with load control events and different technologies

The goal was to recruit 600 residential and 200 small commercial customers to participate in the pilot.

#### **Levels of Participation**

Residential recruitment continued early in 2012. Residential response rates were excellent with 782 residential participants recruited, and 740 still participating at the end of the reporting period. Small commercial recruitment was less than anticipated. Only eight active commercial customers were participating at the end of the reporting period.

#### **Costs Incurred**

Costs incurred during this reporting period are listed below:

DSM Program	Rebates & Incentives	Training & Technical Assistance	Consumer Education	Program Implementation	Program Marketing	Planning & Admin	Measurement, Evaluation & Research	Program Total Cost
Res. & Small Bus. Direct Load Control	\$23,652	\$485	\$0	\$311,213	\$0	\$27,305	\$8,238	\$370,892

#### **Evaluation and Monitoring Activities and Results**

A full evaluation of the program was completed by Tendril, the IC. TEP reviewed the Tendril report and concluded that the results were reasonable. The Pilot Program was successful in demonstrating the value of using two-way communication technology to lower peak demand for participating customers. The Tendril report is attached in **Appendix 1**.

Demand reduction averaged 2.25 kW per event participant with thermostats and 2.35 kW for participants with load control switches. Energy savings during the events averaged 3.56 kWh per participant. These

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reductions did not necessarily correspond to TEP's system peak hours. Some of the energy savings likely shifted to hours after the events ended but this was not quantified.

There were no cost savings for TEP due to the Pilot Program. Load control events were scheduled at various times with disparate groups of participants in order to collect statistically relevant data on average demand reduction and possible energy savings.

Cost savings for participants directly related to control events are extremely small due to the short event time periods. Cost savings due to other factors, such as greater participant awareness of overall energy use were not quantified in this Pilot Program.

Customer satisfaction was high with 89% of customers being very satisfied, satisfied, or neutral with their experience during the load control events.

Although the Pilot Program was successful, TEP has decided to not offer a mass market DLC program at this time. TEP does not need this technology to ensure safe and reliable service, and its contribution to the Standard is better met through TEP's Commercial and Industrial ("C&I") DLC program.

### **kW, kWh, and Therm Savings**

Total energy savings, if any, were not quantified for this program.

### **Problems Encountered and Proposed Solutions**

Small commercial participation in the program has been light. TEP believes this is due to a number of reasons, such as: a limited number of customers available for our email marketing campaign; a large number of stipulations and requirements needed to participate; and no economic reason for small commercial customer to participate. TEP would likely have to provide incentives for these customers to participate, similar to the delivery of TEP's C&I DLC program.

### **Findings from All Research Projects**

No research projects were undertaken during this reporting period.

### **Program Modifications**

No modifications were made to this program during the reporting period.

### **Programs or Measures Terminated**

No measures were terminated during this reporting period. TEP intends to discontinue the DLC events in 2013.

### **Update on Department of Energy Grant**

TEP is partnering with the State of Arizona and Tendril to research the energy savings potential available from customer interaction with a consumer web portal that relays customer energy usage in near real time, similar to the information available from the use of in-home energy displays, but with greater capacity for customer interaction. The home area network and meter reading technology used for the Pilot Program can be used for this research project and the existing Pilot Program participants will be recruited to participate. Using matching funds from the DOE, TEP is attempting to recruit 1,000 additional participants for this research. Results will be reported in TEP's 2013 DSM progress report. TEP's share of matching costs for hardware in 2012 was \$227,195.

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## **CONSUMER EDUCATION AND OUTREACH PROGRAM**

TEP currently offers educational programs for both residential and commercial customers. TEP also offers an Academic Education Program for use in scholastic settings.

## **RESIDENTIAL AND COMMERCIAL EDUCATION**

### **Description**

TEP's residential and commercial education program is designed to educate customers on energy use and assist them with energy savings suggestions. TEP markets existing customer and academic education programs using:

- Bill inserts and messages;
- Brochures;
- In-house advertising on tep.com;
- Tradeshows/Community events and premium giveaways; and
- Call Center training.

### **Program Goals, Objectives, and Savings Targets**

The Program is designed to educate commercial and residential customers on ways to save energy through conservation measures or utilizing time of use ("TOU") rates.

### **Levels of Participation**

#### Energy Advisor

For calendar year 2012 the Energy Advisor was inactive.

#### PowerShift™ TOU Customer Participation

262 on Rate 70NB

778 on Rate 70NC

588 on Rate 70ND

58 on Rate 201BN

20 on Rate 201CN

#### Other Residential TOU Customer Participation

2,304 on Rate 21 (frozen)

3,810 on Rate 70 (frozen)

446 on Rate 201B (frozen)

133 on Rate 201C (frozen)

### **Problems Encountered and Proposed Solutions**

No problems were encountered during this reporting period.

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## Program Modifications

TEP's primary tool for energy education has been the online Energy Advisor. The Energy Advisor was discontinued in 2012 and is being replaced with an updated online tool, which will provide better customer interaction. The new online home audit tool will be available in the 1<sup>st</sup> quarter of 2013.

An additional approach to outreach has been undertaken on a small scale. In collaboration with two local organizations, the Metropolitan Energy Commission ("MEC") and the Sonora Environmental Research Institute ("SERI"), TEP sponsored two eight-hour train-the-trainer sessions with volunteers and staff in 2011. These energy coaches conducted 34 conservation workshops including hands on training and sample kits containing energy efficiency items to be used at home in 2012. Four additional conservation workshops, specifically designed for seniors were also presented in 2012. Energy savings based on the kits provided to customers are reported in the All Education and Outreach Programs subsection below.

## ACADEMIC EDUCATION

### Description

TEP offers school education programs that cover a variety of topics related to energy, natural resource conservation, and environmental awareness. These programs are offered to students in kindergarten through 8<sup>th</sup> grade. TEP provides age-appropriate curriculum with accompanying teachers' guides about electricity, energy efficiency, conservation and renewable energy. TEP's Academic Education Program features four programs of note, including: the Insulation Station (for use in 4<sup>th</sup> grade); Energy Patrol (for use in any elementary school); Bright Students: The Conservation Generation, formerly called "Energy Conservation Bike/Solar Generation Presentations" (for use in middle school); and the Electri-City Exhibit (for use in kindergarten through 3<sup>rd</sup> grade).

The Insulation Station (a program for 4<sup>th</sup> graders) was approved by the Commission in March 1993. The Insulation Station is a hands-on learning kit containing ready-to-assemble model houses and the necessary supplies to conduct science and math activities on insulation and home energy efficiency. Materials provided are model home kits and student workbooks containing charts, graphs, activities, and a home energy audit. TEP requires 4<sup>th</sup> grade teachers to attend a training session prior to receiving materials.

The Energy Patrol is an AEO-sponsored program for elementary school teachers and students approved by the Commission in March 1993. Students monitor classrooms to ensure that lights, computers, and water faucets are turned off when rooms are vacant. The program is designed to help schools reduce energy costs and to teach students and their families how to conserve energy.

The Bright Students: The Conservation Generation Program: During TEP's energy conservation bike presentations, students use the Energy Bike to generate enough electricity to light a light bulb, run a fan or heat up a hair dryer. They compare the amount of energy needed to light incandescent, CFL, and LED light bulbs, and learn about solar energy. Students explore ways they can help conserve energy at home and at school.

These classroom presentations about Energy Conservation are 50-60 minutes in length and include a pre-visit lesson and post-visit activity; all are aligned with the Arizona Department of Education middle school science standards. A pledge card sent home for parental approval allows students to receive a kit of efficiency items they can use at home for practical experience with the curriculum presented at school.



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The *Electri-City Exhibit* at the Tucson Children’s Museum is designed to teach very young children (K-3) about saving energy, as well as electrical safety. TEP also underwrites tours for schools in low-income areas, provides age-appropriate materials to students, and trains docents to augment the presentation, which includes hands-on activities illustrating the energy saving lessons. The exhibit was upgraded with the aid of a TEP grant. In addition to a focus on energy conservation the exhibit includes information on renewable energy and electrical safety.

### Program Goals, Objectives, and Savings Targets

These programs are all designed to educate students and their families on ways to save energy and to provide hands-on experiences by encouraging students to test the energy saving options provided to them in their own home. The Bright Students program is the only one of these which has reportable savings.

### Levels of Participation

The table below includes participation for 2012. TEP offers teacher trainings and distributes classroom materials.

Program	Number of Schools	Number of Students
Insulation Station <sup>1</sup>	<b>17 schools/ 38 teachers trained</b>	1,138
Energy Patrol	<b>9 new schools</b>	5,600 est.
Energy Conservation/ Environmental classroom materials	<b>53 schools/ 59 teachers</b>	8,133
Energy Efficiency Exhibit (TEP’s Electri-City at the Children’s Museum Tucson) <sup>2</sup>	<b>33 schools 382 Adults</b>	1,418 <sup>3</sup>
Bright Students: The Conservation Generation	<b>36 schools 208 Presentations</b>	4,598 <sup>4</sup>
<b>TOTAL</b>	<b>148 schools</b>	<b>20,887</b>

1. Numbers refer to teachers trained and kits ordered for students.

2. Student numbers are those from “low-income” schools for whom TEP paid the entrance fee and bus transportation costs for guided tours of the Electri-City Exhibit. They do not reflect total Museum visitors to the site.

3. Children’s Museum Tucson tours during summer months are ordinarily small scout troops & summer programs (6-8 children) representing schools.

4. Represents the number of students who received take-home energy efficiency kits.

The Energy Conservation classroom presentation for middle schools that featured the Energy Bike continued to grow in popularity, and the addition of the home efficiency kit component maintained funding and a continued substantial level of presentations.

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TEP participated in 21 community presentations featuring information on energy conservation at the following community events:

- CEO Leadership Summit
- Multi-Chamber Expo
- Festival of Books
- Old Pueblo Grand Prix
- Green Fest
- MDA Walk
- Jefferson Park Garden Tour
- DMAFB Earth Day Event
- Soaring Heights Event
- Community Resource Fair
- Labor Day Picnic
- Safety & Wellness Fair
- United Way Event
- Housing Forum Conference
- Housing America Community Day 2012
- DMAFB Energy Action Month Event
- Family Festival in the Park
- Tucson Public Housing Fair

### Program Modifications

The Electri-City exhibit was redesigned to add new hands on interactive activities illustrating energy conservation and the teaching docents emphasize the benefits of energy conservation throughout their presentation. Children leave with a “How to Save Energy” coloring book to take home and share with their parents.

### **ALL EDUCATION & OUTREACH PROGRAMS**

### Costs Incurred

Costs incurred during this reporting period are listed below:

DSM Program	Rebates & Incentives	Training & Technical Assistance	Consumer Education	Program Implementation	Program Marketing	Planning & Admin	Measurement, Evaluation & Research	Program Total Cost
Consumer Education & Outreach	\$0	\$512	\$238,725	\$121,715	\$0	\$27,691	\$1,894	\$390,537

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## Evaluation and Monitoring Activities and Results

Evaluation and monitoring continued in 2012 for energy savings for TEP's current Education and Outreach Program. TEP has programs encompassing neighborhood outreach, direct education, installation of energy saving items, and programs that affect consumer behavior. These programs are designed to allow for measurement and evaluation of energy savings.

Navigant Consulting performed an evaluation of the take-home energy kits for 2012. The evaluation resulted in a realization rate of 104% for both coincident demand and electrical energy savings, but only 83% for therm savings. This report is attached in **Appendix 1**. 2012 savings have been updated as a result of the 2012 evaluation.

## kW, kWh, and Therm Savings

Savings attributable to the take-home efficiency kits are as follows:

No. of Kits	kW savings	kWh savings	Therm savings
5,411	88.6	1,099,468	100,386

## Programs or Measures Terminated

No measures were terminated during this reporting period. TEP does not plan to terminate this Program or any Program measures in 2013.

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### HOME ENERGY REPORTS PILOT PROGRAM

#### Description

The TEP Home Energy Reports Pilot Program utilizes reports designed to instigate behavioral changes in customers' energy consumption. The Program works by: 1) making customers aware of their energy consumption; 2) allowing them to compare that usage to similarly situated homes; and 3) providing tailored energy savings tips in each report. The concept is simple: once customers are able to compare their usage to similarly situated homes, sociological instincts take over and customers are induced to use less energy.

#### Program Goals, Objectives, and Savings Targets

The Program is designed to affect: 1) habitual behaviors like turning off the lights or adjusting the thermostat; 2) purchasing behaviors such as buying efficient light bulbs and appliances; and 3) the behavior of participating in utility DSM programs by preparing reports that compare a customer's energy use to that of neighbors.

The major objectives from this Program are to:

- Generate significant savings for DSM portfolio objectives;
- Educate and empower customers to take advantage of other DSM programs;
- Develop a positive utility image;
- Promote efficient building operations; and
- Lower energy bills for consumers.

The 2012 savings goal was 2.5% of the participant's energy usage.

#### Levels of Participation

Although actual participation varies slightly throughout the year due to attrition, on average 24,014 households participated in 2012.

#### Costs Incurred

Costs incurred during this reporting period are listed below:

DSM Program	Rebates & Incentives	Training & Technical Assistance	Consumer Education	Program Implementation	Program Marketing	Planning & Admin	Measurement, Evaluation & Research	Program Total Cost
Home Energy Reports	\$0	\$530	\$10,000	\$118,823	\$0	\$9,952	\$1,058	\$140,362

#### Evaluation and Monitoring Activities and Results

Navigant Consulting performed an evaluation of this Program for 2012. The evaluation resulted in a realization rate of 107% for both demand and energy savings. This report is attached in **Appendix 1**. 2012 savings have been updated as a result of the 2012 evaluation.

#### kW, kWh, and Therm Savings

No. of Participants	kW savings	kWh savings	Therm savings
24,014	1,227	10,746,277	0

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This represents a savings of 1.5% of participants' energy usage, which was less than the goal. However, the first year is considered a ramp-up phase and each quarter showed an increase. The maximum savings of 2.2% was achieved in the 4<sup>th</sup> quarter of 2012.

### **Problems Encountered and Proposed Solutions**

TEP's 2011-2012 EE Plan was filed on January 31, 2011. Because the 2011-2012 EE Plan has not yet been approved by the Commission, the Program was suspended in October 2012 when the available incentive funds were exhausted. Due to the limited funding no research was conducted on the effect of home energy reports on other DSM program participation.

### **Program Modifications**

There were no Program modifications during this reporting period.

### **Programs or Measures Terminated**

No measures were terminated during this reporting period. TEP does not plan to terminate this Program or any Program measures in 2013.

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### **NON-RESIDENTIAL EXISTING FACILITIES PROGRAM**

#### **Description**

The TEP Non-Residential Existing Facilities Program is a multi-faceted program that provides incentives to TEP’s large commercial customers for the installation of energy-efficiency measures including lighting equipment and controls, HVAC equipment, motors and motor drives, compressed air, and refrigeration. Incentives are offered for measures in each of these categories. The Program also provides customers with the opportunity to propose innovative energy efficiency solutions through custom energy efficiency measures.

#### **Program Goals, Objectives, and Savings Targets**

The primary goal of the Program is to encourage TEP’s large commercial customers to install energy efficiency measures in existing facilities. More specifically, the Program is designed to:

- Provide incentives to facility operators for the installation of high-efficiency lighting equipment and controls, HVAC equipment, premium efficiency motors and motor controls, energy efficient compressed air and leak-repair measures, and energy-efficient refrigeration system retrofits;
- Overcome market barriers including:
  - Lack of awareness and knowledge about the benefits and cost of energy efficiency improvements;
  - Performance uncertainty associated with energy efficiency projects; and
  - High first costs for energy efficiency measures.
- Assure that the participation process is clear, easy to understand and simple; and
- Increase the awareness and knowledge of facility operators, managers and decision-makers on the benefits of high-efficiency equipment and systems.

The savings goal for 2012 was 9,840 MWh.

#### **Levels of Participation**

There were 54 final applications for prescriptive measures and 34 final applications for custom measures during this reporting period. A total of \$702,608 in rebates was paid to 64 participants. There were 89 cancellations of final applications, most from the previous year, due to the available incentive funds being exhausted by March.

#### **Costs Incurred**

Costs incurred during this reporting period are listed below:

DSM Program	Rebates & Incentives	Training & Technical Assistance	Consumer Education	Program Implementation	Program Marketing	Planning & Admin	Measurement, Evaluation & Research	Program Total Cost
Non-Residential Existing Facilities	\$702,608	\$5,082	\$226	\$261,649	\$969	\$77,234	\$41,505	\$1,089,273

#### **Evaluation and Monitoring Activities and Results**

Navigant Consulting performed an evaluation of this Program for 2012. The evaluation resulted in a realization rate of 95% for coincident demand savings and 97% for energy savings. This report is attached in **Appendix 1**. 2012 savings have been updated as a result of the 2012 evaluation.

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## kW, kWh, and Therm Savings

Measure	No. Installed	kW savings	kWh savings	Incremental Cost
Chillers	7	775	1,350,146	\$142
HVAC	91	77	373,797	\$2,302
Refrigeration	458	30	1,003,282	\$36
Motors	46	1	3,062,653	\$523
Lighting	22,013	767	2,635,386	\$24
Custom	55	310	1,973,850	\$9,777
<b>Totals</b>	<b>22,670</b>	<b>1960</b>	<b>10,399,115</b>	

*Savings are adjusted for line losses of 9.5% for both demand and energy.*

## Problems Encountered and Proposed Solutions

TEP's 2011-2012 EE Plan was filed on January 31, 2011. Because the 2011-2012 EE Plan has not yet been approved by the Commission, the Program was suspended in March 2012 when the available incentive funds were exhausted. Applications for participation in the program submitted by March 2012 were honored, with the remaining applications being put on a waiting list until the program resumes.

## Program Modifications

No Program modifications were made during this reporting period. Additional energy measures and an increase in funding were requested as part of TEP's 2011-2012 EE Plan.

## Programs or Measures Terminated

No measures were terminated during this reporting period. TEP does not plan to terminate this Program or any Program measures in 2013.

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## **SMALL BUSINESS PROGRAM**

### **Description**

The TEP Small Business Program is designed to minimize some of the barriers related to the implementation of energy efficiency improvements in the small business market, such as the lack of capital, information search costs, transaction costs, performance uncertainty, and the so-called “hassle factor”. Small firms generally concentrate on their core businesses, and do not have the wherewithal to analyze energy use and improve efficiency.

The Program is an upstream market program providing incentives directly to contractors for the installation of selected high efficiency lighting, motors, HVAC, and refrigeration measures. The incentives are set at a higher level for this market in order to encourage contractors to market and deliver the Program, thus offsetting the need for TEP marketing and overhead expenses. In order to further reduce overhead expenses, the Program has employed internet-based measure analysis and customer proposal processing which has made the process easier for both contractors and customers.

The Program includes customer and trade ally education to help them with understanding the technologies being promoted, what incentives are offered, and how the Program functions.

### **Program Goals, Objectives, and Savings Targets**

The primary objective of the Program is to encourage TEP’s small business customers to install energy efficiency measures in existing facilities. More specifically, the Program is designed to:

- Encourage small business customers to install high-efficiency lighting equipment and controls, HVAC equipment, and energy-efficient refrigeration system retrofits in their facilities;
- Encourage contractors to promote the Program and provide turn-key installation services to small business customers;
- Overcome the unique market barriers of the small business market including:
  - First costs and lack of access to capital for energy efficiency improvements;
  - Lack of awareness and knowledge about the benefits and cost of energy efficiency improvements;
  - Hassle and transactions costs; and
  - Performance uncertainty associated with energy efficiency projects.
- Assure that the participation process is clear, easy to understand and simple; and
- Increase the awareness and knowledge of business owners, building owners and managers, and other decision-makers on the benefits of high-efficiency equipment and systems.

The savings goal for 2012 was 3,195 MWh.

### **Levels of Participation**

In total, 82 small businesses participated during this reporting period and \$388,865 in rebates was paid. Most of the participants had filed application the previous year, TEP received 36 applications during 2012 and there were at total 15 cancellations. Most of the cancelations were due to the available incentive funds being exhausted by March.



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### Costs Incurred

Costs incurred during the reporting period are listed below:

DSM Program	Rebates & Incentives	Training & Technical Assistance	Consumer Education	Program Implementation	Program Marketing	Planning & Admin	Measurement, Evaluation & Research	Program Total Cost
Small Business	\$388,865	\$4,614	\$2,235	\$218,545	\$542	\$50,441	\$46,151	\$711,395

### Evaluation and Monitoring Activities and Results

Navigant Consulting performed an evaluation of this Program for 2012. The evaluation resulted in a realization rate of 82% for coincident demand savings and 91% for energy savings. This report is attached in **Appendix 1**. 2012 savings have been updated as a result of the 2012 evaluation.

### kW, kWh, and Therm Savings

Measure	No. Installed	kW savings	kWh savings	Incremental Cost
HVAC	231	6	492,442	\$213
Refrigeration	44	2	18,465	\$81
Motors	4	0	127,080	\$735
Lighting	9,037	635	2,382,751	\$18
<b>Totals</b>	<b>9,316</b>	<b>643</b>	<b>3,020,737</b>	

*Savings are adjusted for line losses of 9.5% for both demand and energy.*

### Problems Encountered and Proposed Solutions

TEP's 2011-2012 EE Plan was filed on January 31, 2011. Because the 2011-2012 EE Plan has not yet been approved by the Commission, the Program was suspended in March 2012 when the available incentive funds were exhausted. Applications for participation in the program submitted by March 2012 were honored, with the remaining applications being put on a waiting list until the program resumes.

### Program Modifications

No Program modifications were made during this reporting period. Additional energy measures and an increase in budget were requested as part of TEP's 2011-2012 EE Plan, which is pending Commission approval.

### Programs or Measures Terminated

No measures were terminated during this reporting period. TEP does not plan to terminate this Program or any Program measures in 2013.

# Tucson Electric Power Company

## DSM PROGRESS REPORT FOR THE PERIOD: January through December 2012

### **EFFICIENT COMMERCIAL BUILDING DESIGN PROGRAM**

#### **Description**

The Efficient Commercial Building Design Program is geared toward the building owner/developer and is designed to encourage improved building energy efficiency in new commercial construction compared to standard building practices.

The Program is a performance-based program that includes design assistance for the design team, performance-based incentives for the building owner and developer, and energy design information resources. Design assistance involves efforts to integrate energy efficiency into a customer's design process as early as possible. The Program provides incentives to offset the additional design cost of alternative, energy-efficient designs.

In addition to the design incentives and performance-based incentives for the building owner/developer, this Program provides technical support services to the design community. The Program provides consumer education and promotional pieces designed to assist building owners/developers in understanding various energy efficiency options and encourage them to explore energy efficiency options.

#### **Program Goals, Objectives, and Savings Targets**

The primary goal of the Program is to encourage energy-efficient new building design for new, non-residential projects in TEP's service area. More specifically, the Program is designed to:

- Provide incentives to building owners/developers to design and build more energy-efficient buildings;
- Provide assistance to design teams to offset the additional cost and time of investigating more energy-efficient design;
- Overcome certain market barriers;
- Assure that the participation process is clear and easy to understand and does not unduly burden the design and construction time schedule or budget process;
- Increase the awareness and knowledge of building owners/developers, architects, engineers, and decision-makers on the benefits of high efficiency buildings design; and
- Encourage building owners/developers and the design community to consider energy efficiency options as early in the design process as possible.

The savings goal for 2012 was 1,392 MWh.

#### **Levels of Participation**

There were five participants during 2012, with four buildings completed. Two participants received design assistance. Of the four buildings completed, three also received design assistance (two this year). One of the completed buildings was the new UNS Energy headquarters building in Tucson, Arizona. This participant received design assistance in 2011 but waived the incentive payment.

# Tucson Electric Power Company

## DSM PROGRESS REPORT FOR THE PERIOD: January through December 2012

### Costs Incurred

Costs incurred during the reporting period are listed below:

DSM Program	Rebates & Incentives	Training & Technical Assistance	Consumer Education	Program Implementation	Program Marketing	Planning & Admin	Measurement, Evaluation & Research	Program Total Cost
Efficient Commercial Building Design	\$ 42,748	\$ 468	\$ 65	\$ 50,703	\$ -	\$ 7,367	\$ 2,549	\$ 103,899

### Evaluation and Monitoring Activities and Results

Navigant Consulting performed an evaluation of this Program for 2012. The evaluation resulted in a realization rate of 93% for coincident demand savings and 100% for energy savings. This report is attached in **Appendix 1**. 2012 savings have been updated as a result of the 2012 evaluation.

### kW, kWh, and Therm Savings

Measure	Participants	kW savings	kWh savings
Design Assistance	3	NA	NA
Building Performance	4	502	1,571,877
<b>Totals*</b>	<b>5</b>	<b>502</b>	<b>1,571,877</b>

*Savings are adjusted for line losses of 9.5% for both demand and energy.*

*\*Two participants received both design assistance and building performance incentives in 2012.*

Three of the participants completing buildings also received design assistance, either in 2012 or earlier.

### Problems Encountered and Proposed Solutions

TEP's 2011-2012 EE Plan was filed on January 31, 2011. Because the 2011-2012 EE Plan has not yet been approved by the Commission, the Program was suspended in March 2012 when the available incentive funds were exhausted. Applications for participation in the program submitted by March 2012 were honored, with the remaining applications being put on a waiting list until the program resumes.

Several government jurisdictions are updating the energy codes for new non-residential buildings in TEP's service territory. TEP will study the effect on cost-effectiveness and possible participation as a result in 2013.

### Program Modifications

No Program modifications were made during this reporting period.

### Programs or Measures Terminated

No measures were terminated during this reporting period. TEP does not plan to terminate this Program or any Program measures in 2013.

### KEMA Expenses

Commission Decision Nos. 71820 (August 10, 2010) and 71836 (August 10, 2010) require TEP to report how much is paid to the IC (KEMA), by program and in total. KEMA Expenses are listed below:

# Tucson Electric Power Company

DSM PROGRESS REPORT FOR THE PERIOD:  
January through December 2012

KEMA Expenses for 2012		
Program	Expenses	% of Total Program Expenses
Non-Residential Existing Facilities	\$256,953	24%
Small Business	\$183,148	26%
Efficient Commercial Building Design	\$40,882	39%
<b>Total</b>	<b>\$480,983</b>	<b>25%</b>

# Tucson Electric Power Company

## DSM PROGRESS REPORT FOR THE PERIOD: January through December 2012

### COMMERCIAL AND INDUSTRIAL DIRECT LOAD CONTROL PROGRAM

#### Description

The TEP C&I DLC Program is designed to manage peak demand and mitigate system emergencies through a C&I load curtailment program. The Program is delivered on a turn-key basis by a third-party IC, who negotiates load reduction agreements with multiple customers and “aggregates” those customers to provide TEP a confirmed and guaranteed load reduction capacity available upon request. The Program will provide up to 40 MW of summer peak demand reduction, available for up to 80 hours per year, with a typical load control event lasting 3-4 hours.

#### Program Goals, Objectives, and Savings Targets

The primary goal of the Program is to provide up to 40 MW of summer peak demand reduction, available for up to 80 hours per year, in order to mitigate system emergencies.

#### Levels of Participation

48 participants were enrolled as of December 31, 2012, with a total commitment of 14,165 kW of load reduction under contract. Seven load control events were initiated during this reporting period. The kW reduction per event as reported by the IC is:

Date of Event	Duration of Event	MW Reduction
2/13/2012	1 hour	13.46
4/8/2012	2 hours	7.44
5/21/2012	4 hours	13.59
6/11/2012	2 hours	12.40
6/19/2012	4 hours	8.16
8/8/2012	4 hours	11.6
8/10/2012	4 hours	7.9

It is important to note that event participation on April 8, 2012 was voluntary for the entire time period. Events that occurred June 11, June 19, and August 8, 2012 contained partial voluntary time periods.

#### Costs Incurred

Costs incurred during this reporting period are listed below:

DSM Program	Rebates & Incentives	Training & Technical Assistance	Consumer Education	Program Implementation	Program Marketing	Planning & Admin	Measurement, Evaluation & Research	Program Total Cost
C&I Demand Response - Direct Load Control	\$0	\$7,048	\$0	\$833,219	\$0	\$74,188	\$30,613	\$945,068

Program implementation expenses include participant incentives, however, the specific incentives provided to participants is confidential.

#### Evaluation and Monitoring Activities and Results

Navigant Consulting performed an evaluation of this Program for 2011 and 2012. This evaluation consists of settlement verification of the program for 2011 and 2012 along with providing best estimates of the load impacts for the 2012 events. The report is attached in **Appendix 1**.

There is no shifting of energy from peak hours whenever an event is called. The data does not indicate any “snapback” of energy for the participants.

# Tucson Electric Power Company

## DSM PROGRESS REPORT FOR THE PERIOD:

January through December 2012

There is no customer interfacing hardware installed as part of this Program. However, 14 current transformers and other metering equipment were installed at a total cost of \$10,875; \$6,817 for equipment and \$4,058 for labor.

TEP is not able to estimate cost savings for participants due to the events from the available data. The participants are paid incentives, but that information is confidential.

There have been no customer complaints regarding interruptions or other issues; however, one customer has decided to only participate in the summer, not all year, starting in 2013.

### **kW, kWh, and Therm Savings**

The Standard allows a credit for demand response and load management programs per A.A.C. R14-2-2404 (C). Peak reduction capability may be converted to an annual energy savings equivalent based on an assumed 50% load factor. The credit shall not exceed 10% of the annual standard. The following table shows the allowable credit for this Program based on the available capacity reduction and the 10% cap.

<b>Participants</b>	<b>Maximum MW reduction</b>	<b>MWh savings credit</b>
48	12.7	16,382

### **Problems Encountered and Proposed Solutions**

The IC was instructed in March 2012 to cap their customer summer capacity nomination at 15 MW because TEP's 2011-2012 EE Plan had not yet been approved by the Commission. A customer contact list for pending customers has been maintained with the intention of resuming the full capacity of the program once an EE Plan is approved.

### **Program Modifications**

There have been no Program modifications during this reporting period.

### **Programs or Measures Terminated**

No measures were terminated during this reporting period. TEP does not plan to terminate this Program or any Program measures in 2013.

# Tucson Electric Power Company

## DSM PROGRESS REPORT FOR THE PERIOD: January through December 2012

### **MISCELLANEOUS DSM INFORMATION**

The TEP 2011-2012 EE Plan was filed on January 31, 2011, in accordance with Section R14-2-2405 of the Standard. The 2011-2012 EE Plan asked for continuance of TEP's existing DSM programs and the approval of new proposed DSM programs, to be implemented either in 2011 or 2012. The 2011-2012 EE Plan was not approved by the end of 2011 and thus a new budget was not approved; therefore TEP had to reduce the 2012 program budgets across the portfolio (with the exception of LIW) so that it could recover its historic costs as authorized under the existing DSM Surcharge. All Program savings goals were also reduced when the budgets were reduced, which has hindered TEP's ability to meet the Standard for 2012.

TEP continues to implement a comprehensive tracking and reporting software solution for its Programs, with full implementation scheduled for mid-year 2013.

Commission Decision No. 71787 (July 12, 2010) requires TEP to include in its DSM reports information concerning DSM personnel including:

- number of DSM employees at the beginning of the reporting period;
- number of DSM employees added during the reporting period; and
- number of DSM employees at the end of the reporting period.

TEP's Demand Side Resources Group, which has responsibility for TEP's DSM Programs, had 13 full-time employees at the beginning of this reporting period. One employee retired, so there were 12 full-time employees at the end of this reporting period.

# Tucson Electric Power Company

DSM PROGRESS REPORT FOR THE PERIOD:  
January through December 2012

## APPENDIX 1 – MEASUREMENT, EVALUATION, AND RESEARCH REPORTS

- GOEP Training, Monitoring, and Evaluation Report – July 2012
- Navigant Consulting - TEP PY2012 Year-end Measurement, Evaluation, and Research Report<sup>3</sup>
- Tendril End-of-Pilot Report to Tucson Electric Power Company<sup>4</sup>
- Addendum to Tendril End-of-Pilot Report to Tucson Electric Power Company<sup>4</sup>

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<sup>3</sup> Decision No. 72254 (April 7, 2011) required TEP to file a measurement and evaluation report on the results of the Residential Bill Pilot Program, with proposals regarding continuation, termination, redesign or expansion either within 90 days of the evaluation for Phase 1 or by December 31, 2012. Since the Program did not commence until October 2011, the evaluation of Phase 1 was not complete by December 31, 2012. TEP has since completed analysis on the Program and the results are contained in this report in Section 2.3.5 on Page 15. This report is being provided directly to Commission Staff.

<sup>4</sup> These reports are being provided directly to Commission Staff.



# Tucson Electric Power Company

DSM PROGRESS REPORT FOR THE PERIOD:  
January through December 2012

## APPENDIX 2 – COMMISSION APPROVED DSM PROGRAMS AND MEASURES FOR 2012

DSM Program	Approved Measures
<b>Residential Programs</b>	
Low-Income Weatherization	Whole House Low Income Weatherization
Residential New Construction	Tier 1
	Tier 2
	Tier 3
Shade Tree Program	Shade Tree
ENERGY STAR® Lighting (CFL)	Integral CFL
Efficient Home Cooling	SEER 14 or greater AC or Heat Pump Retrofits
Existing Home Program	Air Sealing
	Air Sealing & Attic Insulation
	Duct Sealing (Performance)
	Duct Sealing (Prescriptive)
	Early Retirement HVAC with QI and Duct Sealing (Performance)
	Early Retirement HVAC with QI and Duct Sealing (Prescriptive)
	ROB HVAC with QI and Duct Sealing (Performance)
	ROB HVAC with QI and Duct Sealing (Prescriptive)
	Shade Screens
	Screw in CFL - Direct Install from Audit
	Advanced Power Strips - Direct Install from Audit
	Behavioral changes resulting from Energy Assessments
	Residential & Small Comm. Direct Load Control
<b>Commercial Programs</b>	
Non-Residential Existing Facilities	Custom Measures
	14 SEER Packaged and Split AC's
	14 SEER Packaged and Split HP's
	15 SEER Packaged and Split AC's
	15 SEER Packaged and Split HP's
	16 SEER Packaged and Split AC's
	16 SEER Packaged and Split HP's
	17 SEER Packaged and Split AC's
	17 SEER Packaged and Split HP's
	18 SEER Packaged and Split AC's
	18 SEER Packaged and Split HP's
	Air Cooled Chillers < 150 tons

## Tucson Electric Power Company

DSM PROGRESS REPORT FOR THE PERIOD:  
January through December 2012

	Air Cooled Chillers > 150 tons
	EER Rated Packaged AC (> 20tons , 10.9 EER)
	EER Rated Packaged AC (11.5 - 20 tons , 11.24 EER)
	EER Rated Packaged AC (5.4 - 11.25 tons , 11.36 EER)
	EER Rated Packaged HP (> 20 tons , 11.11 EER)
	EER Rated Packaged HP (11.25 - 20 tons , 11.02 EER)
	EER Rated Packaged HP (5.4 - 11.25 tons , 11.31 EER)
	Programmable Thermostats
	Variable Speed Screw Compressor
	Water Cooled Chillers < 200 tons
	Water Cooled Chillers > 400 tons
	Water Cooled Chillers 201 - 400 tons
	Daylighting controls
	Delamping
	Energy efficient exit signs
	HIDs to T8/T5
	Integral Screw In CFL
	Occupancy sensors
	Screw in cold cathode CFL
	Standard T8 Lighting
	Energy efficient ODP motors
	Energy Efficient TEFC Motors
	Variable Speed Drives
	Anti-sweat heater controls
	High Efficiency Evaporator Fan Motors
	High Efficiency Ice Makers
	High Efficiency Reach-in Refrigerators and Freezers
	Strip Curtains and Night Covers
Small Business	Programmable Thermostats
	14 SEER Packaged and Split AC's
	14 SEER Packaged and Split HP's
	15 SEER Packaged and Split AC's
	15 SEER Packaged and Split HP's
	16 SEER Packaged and Split AC's
	16 SEER Packaged and Split HP's
	Daylighting controls
	Delamping
	Energy efficient exit signs
	Hard Wire CFL

## Tucson Electric Power Company

DSM PROGRESS REPORT FOR THE PERIOD:  
January through December 2012

	HIDs to T8/T5
	Integral Screw In CFL
	Occupancy sensors
	Screw in cold cathode CFL
	Standard T8 Lighting
	Variable Speed Drives
	Anti sweat heater controls
	Strip Curtains and Night Covers
Efficient Commercial Building Design	New Commercial Construction
	Design Assistance
C & I Demand Response	Demand Response/Direct Load Control
<b>Support Programs</b>	
Home Energy Reports	Home Energy Reports

# Tucson Electric Power Company

DSM PROGRESS REPORT FOR THE PERIOD:  
January through December 2012

## APPENDIX 3 – CFL SALES AND WATTAGE INFORMATION

Units	Watts	Watts Replaced	Watts Saved	Hours/Day	Meas Life	Unit kWh Annual	kWh Annual @Meter	kWh Annual @ Generator
1	7.0	40	33	2.90	7	34	34	37
31,376	9.0	40	31	2.90	7	32	991,981	1,086,219
18,665	10.0	40	30	2.90	7	31	571,075	625,328
10,485	11.0	40	29	2.90	7	30	310,106	339,566
1,660	11.0	45	34	2.90	7	35	57,561	63,030
1,570	12.0	60	48	2.90	7	49	76,857	84,159
431,415	13.0	60	47	2.90	7	48	20,679,369	22,643,910
185,589	14.0	60	46	2.90	7	47	8,706,714	9,533,851
11,795	14.0	65	51	2.90	7	52	613,497	671,779
3,495	15.0	60	45	2.90	7	46	160,400	175,638
67,872	15.0	65	50	2.90	7	51	3,461,026	3,789,823
49	16.0	65	49	2.90	7	50	2,449	2,681
68,664	18.0	75	57	2.90	7	58	3,991,610	4,370,813
28,604	19.0	75	56	2.90	7	57	1,633,650	1,788,847
24,999	20.0	75	55	2.90	7	56	1,402,263	1,535,478
2	21.4	80.5	59.1	2.90	7	96	192	210
128,828	23.0	90	67	2.90	7	68	8,802,971	9,639,253
2,243	24.7	115	90.3	2.90	7	92	206,567	226,191
35,518	26.0	90	64	2.90	7	65	2,318,316	2,538,556
29	27.0	90	63	2.90	7	64	1,863	2,040
3,591	30.0	125	95	2.90	7	97	347,923	380,976
10	40.0	150	110	2.90	7	112	1,122	1,228
795	42.0	150	108	2.90	7	110	87,566	95,885
70	55.0	200	145	2.90	7	97	6,782	7,426
<b>1,057,325</b>							<b>54,431,895</b>	<b>59,602,925</b>

# Appendix 1

**ARIZONA GOVERNOR'S OFFICE of ENERGY POLICY  
TRAINING, MONITORING AND EVALUATION REPORT  
FISCAL YEAR 2012 ANNUAL REPORT  
July 2012  
Tucson Electric Power Company**

**Re: Governor's Office of Energy Policy Contract M030-08**

**Training and Monitoring for Weatherization**

***Southwest Building Science Training Center***

The Southwest Building Science Training Center (Training Center), operated by the Foundation for Senior Living Home Improvement (FSL) and funded through the OEP and local utilities, provides Arizona low-income weatherization technicians with the knowledge and skills needed to successfully perform diagnostics and repairs on Arizona's housing stock.

The Training Center has completed an expansion of the training center by developing a multistory training lab that will be used to provide real world hands on training to the new green workforce. Funding was committed utilizing American Recovery and Reinvestment Act of 2009 (ARRA) funds for the construction of an expanded diagnostic lab. The training center is also developing new curriculum that will better prepare the workforce. The curriculum will provide certifications for Installers, Crew Leaders and Auditors.

Training center courses

<http://www.fsl.org/services/HomeEnergy/hecourses.html>

The Center, in partnership with the Building Performance Institute, Inc. (BPI), provides nationally recognized building science certifications to Arizona's weatherization agencies. All agencies have BPI Certified staff members or contractors that are BPI certified.

Details on BPI

<http://www.bpi.org/>

The Training Center continues to provide a WAP boot camp. The Boot Camp is a five day training that covers the basics of building science, pressure diagnostics, health and safety and residential energy auditing.

The Training Center also provides a Lead Renovator Repair and Painting certification class. On April 22<sup>nd</sup> 2010 the new EPA Regulations went into effect regarding lead safe work practices. All contractors working on houses Pre-1978 are now required to be registered with the EPA as a lead renovator firm. Any contractors performing work on houses must now have at least one person on their crew that is "Lead Renovator" certified. This certification requires an 8 hour training which involves both a Power Point slide presentation and a "Hands On" section to teach lead safe practices when working on a home with a potential for Lead based paint. Certification requires the participant to pass both a written and field skills test.

The Training Center also has implemented an OSHA 30 hour and 10 hour certification course.

The OSHA 30 Hour Construction Industry Outreach Training course is a comprehensive safety program designed for anyone involved in the construction industry. Specifically devised for safety directors, foremen, and field supervisors; the program provides complete information on OSHA compliance issues. OSHA recommends Outreach Training Programs as an orientation to occupational safety and health for workers covered by OSHA 29 CFR 1926

The OSHA 10 Hour Construction Industry Outreach Training Program is intended to provide an entry level construction worker's general awareness on recognizing and preventing hazards on a construction site. OSHA recommends Outreach Training Program courses as an orientation to occupational safety and health for workers covered by OSHA 29 CFR 1926.

The Training Center was also awarded a grant from the Department of Energy to expand the curriculum and tailor it towards the Auditor, Inspector and Crew Members of the technicians in the field. This is a two year grant that will help deliver the skilled workers that will be needed to conduct energy retrofits on existing housing.

### ***Peer-to-Peer Fiscal and Technical Procedures***

The Arizona WAP has formed peer-to-peer working groups that allow the fiscal and technical staff from the agencies and the OEP to meet and discuss issues that arise in the program. Agencies are able to share solutions to common problems and other information. These peer-to-peer meetings occur every two months and have been a great arena to discuss any changes or improvement to the program.

### ***Agency Personnel Performance Reviews***

A review and monitoring process to evaluate the competency of agency personnel performing the various requirements of the weatherization program was developed for the statewide weatherization assistance program. Based on this process, additional one-on-one training and technical assistance is provided on an as-needed basis.

### ***Inspections***

The Arizona WAP has implemented a monitoring program that focuses on determining areas that need improvement and utilizes the monitoring process to implement needed changes. The areas covered include: auditing, diagnostics, testing and measures completed and program operations. This process begins with the review of 100% of the technical reports for auditing, diagnostics, testing and work completed each month. These reports can highlight instances where opportunities were missed or program requirements were not followed. When there are concerns with some element of the report, a site visit is conducted to address the concerns. At the job site, the diagnostic, testing and work are reviewed to determine if any improvements can be made. A minimum of 20% of the job sites will be visited with visits taking place approximately twice a month. Based on the site visit results, follow-up training and technical assistance is provided to the local agency. For agencies where the technical reports do not show concerns, the site visit consists of monitoring a number of randomly selected homes and reviewing the diagnostics, testing and work completed. These efforts, combined with the training and competence programs, have a goal of ensuring that the program is providing the clients with a high return on Southwest's investment, while maintaining or improving the customers' health and safety.

## **Utility Bill Analysis**

To date, an analysis of 257 homes has been completed on homes utilizing APS, TEP, Unisource Gas and Electric, SRP, and Southwest Gas utility data. This analysis is ongoing, new data will be updated to these values on a quarterly basis.

Provided are Savings to Investment Ratios (SIR) for total investment from all funding spent (diagnostics, energy measures and health and safety measures) and for energy related measure only (diagnostics and energy measures).

### ***Assumptions***

Present value is based on 17.5 years measure life, discount rate of 3% and utility cost escalation rate of 3%.

### ***Results Summary***

The combined SIR of all jobs reviewed to date for funds spent on diagnostics, energy measures and health and safety measures was 1.21. Health and saving represented 16% of expenditures.

The combined SIR of all jobs reviewed to date for funds spent on energy measures and diagnostics was 1.38

The average saving per home reviewed was 2746 kWh and 35 therms of natural gas (gas therms average includes all electric homes).



# Appendix 1

**ARIZONA GOVERNOR'S OFFICE of ENERGY POLICY  
TRAINING, MONITORING AND EVALUATION REPORT  
FISCAL YEAR 2012 ANNUAL REPORT  
July 2012  
Tucson Electric Power Company**

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The Arizona WAP has implemented a monitoring program that focuses on determining areas that need improvement and utilizes the monitoring process to implement needed changes. The areas covered include: auditing, diagnostics, testing and measures completed and program operations. This process begins with the review of 100% of the technical reports for auditing, diagnostics, testing and work completed each month. These reports can highlight instances where opportunities were missed or program requirements were not followed. When there are concerns with some element of the report, a site visit is conducted to address the concerns. At the job site, the diagnostic, testing and work are reviewed to determine if any improvements can be made. A minimum of 20% of the job sites will be visited with visits taking place approximately twice a month. Based on the site visit results, follow-up training and technical assistance is provided to the local agency. For agencies where the technical reports do not show concerns, the site visit consists of monitoring a number of randomly selected homes and reviewing the diagnostics, testing and work completed. These efforts, combined with the training and competence programs, have a goal of ensuring that the program is providing the clients with a high return on Southwest's investment, while maintaining or improving the customers' health and safety.

## **Utility Bill Analysis**

To date, an analysis of 257 homes has been completed on homes utilizing APS, TEP, Unisource Gas and Electric, SRP, and Southwest Gas utility data. This analysis is ongoing, new data will be updated to these values on a quarterly basis.

Provided are Savings to Investment Ratios (SIR) for total investment from all funding spent (diagnostics, energy measures and health and safety measures) and for energy related measure only (diagnostics and energy measures).

### ***Assumptions***

Present value is based on 17.5 years measure life, discount rate of 3% and utility cost escalation rate of 3%.

### ***Results Summary***

The combined SIR of all jobs reviewed to date for funds spent on diagnostics, energy measures and health and safety measures was 1.21. Health and saving represented 16% of expenditures.

The combined SIR of all jobs reviewed to date for funds spent on energy measures and diagnostics was 1.38

The average saving per home reviewed was 2746 kWh and 35 therms of natural gas (gas therms average includes all electric homes).