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

March 1, 2016

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 ("DSM") Progress Report, Docket No. E-00000U-16-0069

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 1st. TEP hereby files its DSM Progress Report for 2015. The Measurement, Evaluation and Research Report listed in Appendix 1 of the DSM Progress Report contains confidential information and is being provided directly to Commission Staff.

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

Sincerely,

Melissa Morales
Regulatory Services

cc: Barbara Keene, Utilities Division, ACC
Compliance Section, ACC

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Definitions

The Arizona Administrative Code ("AAC")

Arizona Department of Housing ("ADOH")

Arizona Public Service ("APS")

Commercial and Industrial ("C&I")

The Arizona Corporation Commission ("Commission")

Consumer Education – program to provide general consumer education about energy-efficiency improvements.

The United States Department of Energy ("DOE")

Demand-Side Management ("DSM")

Energy Efficiency ("EE")

The United States Environmental Protection Agency ("EPA")

Governor's Office of Energy Policy ("GOEP")

Heating, Ventilation and Air Conditioning ("HVAC")

Implementation Contractor ("IC") – A contractor hired to implement a program.

Low Income Home Energy Assistance Program ("LIHEAP")

Measurement, Evaluation, and Research ("MER") – The process of identifying current baseline efficiency levels and the market potential of DSM measures; performing process and program evaluations including the verification of installed energy efficient measures and reported savings; and identifying additional energy efficiency research opportunities.

Navigant Consulting, Inc. ("NCI")

Program Implementation – The implementation of programs including administration, fiscal management of costs for labor, overhead, implementation contractors, or other direct program delivery.

Program Marketing – The marketing of programs and increasing DSM consumer awareness (direct program marketing as opposed to general consumer education).

Planning and Administration – Planning, developing, and administering programs including management of program budgets, oversight of the RFP process, oversight of ICs, program development, program coordination, customer participation, and general overhead expenses.

Program Development, Analysis, and Reporting – Research and development of new DSM program opportunities, analysis of existing and proposed programs and measures, and the tracking and reporting of participation, savings, and benefits. Associated costs are essential to comply with the ACC reporting and rules requirements.

Rebates & Incentives – Payments made to customers or contractors as rebates or incentives.

The Residential Energy Services Network ("RESNET")

Request for Proposal ("RFP") – the process through which proposals are solicited from contractors or vendors.

the **Standard** – the Electric Energy Efficiency Standards as defined in the State of Arizona Administrative Code Article 24.

Training and Technical Assistance – Energy-efficiency training and technical assistance for utility employees, contractors, or building officials.

Tucson Electric Power Company ("TEP" or **"Company")**

UNS Electric, Inc. ("UNSE")

UNS Gas, Inc. ("UNSG")

2015 DSM PROGRESS REPORT

1. An analysis of the Company's progress toward meeting the annual energy efficiency standard

1.1 Progress Towards the Standard

In accordance with the Commission's Decision No. 71819 (August 10, 2010) and Arizona Administrative Code Section R14-2-2409 (effective January 1, 2011), TEP submits this annual DSM progress report for calendar year 2015. This report includes information for all of TEP's residential, non-residential, and low-income customer programs that were in place during this reporting period.

In the Commission's Decision No. 74885 (December 31, 2014), the Commission approved TEP's 2014 EE Plan for use in 2015. Decision No. 74885 approved continuation of TEP's existing DSM programs for Program Year 2015 and provided new programs and measures. New measures included measures that were demonstrated to be cost-effective by Staff analysis and measures that had been previously demonstrated to be cost-effect by Staff analysis and have been previously approved for use by APS and/or UNSE. TEP's 2016 EE Plan was submitted on June 1, 2015 & heard by the Commission on February 2, 2016. The Commission's Decision No. 75450 (February 11, 2016) on TEP's 2016 EE Plan approved new programs and measures that will facilitate TEP's progress to meet the Standard in 2016. TEP will either request an extension from the Commission to use the current EE plan for 2017 with societal cost and benefits based on actual program data or will file a new EE Plan for 2017 by June 1, 2016.

For the calendar year 2015, the Commission granted TEP a waiver for meeting the Standard in AAC Section R14-2-2404(B) due to market conditions and economic challenges. Notwithstanding, TEP was able to meet the cumulative Standard for 2015. TEP's DSM savings, expenditures, societal benefits, incentives, and environmental savings are summarized in Table 1 through Table 5 as noted below.

Table 1	Cumulative Energy Savings As Compared to The Standard
Table 2	DSM Energy Savings By Program
Table 3	DSM Expenses By Program
Table 4	Societal Benefits and Performance Incentive for 2015
Table 5	Lifetime Environmental Savings By Program

TEP's cumulative energy savings as a comparison to the Standard are reported in Table 1 below. In 2015 TEP's cumulative annual savings as a percent of previous year retail sales was 9.535 percent while the savings target in the Standard for 2015 was 9.5 percent.

TABLE 1 – 2015 CUMULATIVE DSM SAVINGS

Year	Retail Energy Sales (MWh)	Incremental Annual Energy Savings (MWh)	Cumulative Annual Energy Savings (MWh)	Cumulative Annual Savings as a Percent of previous year Retail Sales	Cumulative EE Standard
2010	9,291,788				
2011	9,332,107	139,539	139,539	1.502%	1.25%
2012	9,264,818	105,655	245,194	2.627%	3.00%
2013	9,278,918	177,425	422,619	4.562%	5.00%
2014	8,520,347	221,215	643,834	6.939%	7.25%
2015	8,431,556	168,600	812,435	9.535%	9.50%

Freeport-McMoran Inc's DSM Surcharge Exemption

Per Decision No. 74885 Freeport-McMoran Inc's ("FMI") Sierrita Mine location has been exempted from the DSM surcharge contingent upon FMI providing TEP with "an annual count of the number and horsepower of high efficient motors installed at the Sierrita Mine and data on any energy efficiency measures/projects which are installed at the Sierrita Mine, sufficient to enable the calculation of energy savings." During this reporting period, FMI reported installing high-efficiency motors, variable speed drives and LED lighting. FMI reported a total of 11 high efficiency motors installed in 2015 with a total horsepower rating of 55. Based upon the information provided by FMI, TEP estimates that FMI will save approximately 1,939 MWh annually for these measures installed in 2015.

Freeport-McMoran Inc's 2015 Estimated Energy Savings

Measures	Annual kWh Savings
Motors	880
Lighting	33,985
VFD	1,904,058
Total:	**1,938,923 kWh**

Annual and Lifetime Savings

The DSM portfolio annual and lifetime energy savings are reported in Table 2. Savings are separated into the following categories:

- Capacity Savings (MW)
- Annual MWh Savings
- Annual Therm Savings
- Lifetime MWh Savings
- Lifetime Therm Savings

TEP is including energy savings toward the Standard for changes in energy efficient building codes per AAC R14-2-2404 (E). Energy savings from the Energy Codes and Standards program are reported in Table 2 below.

TABLE 2 - DSM ENERGY SAVINGS BY PROGRAM

Program	Capacity Savings MW	Annual MWh Savings	Annual Therm Savings[b]	Lifetime MWh Savings	Lifetime Therm Savings[b]
Residential Programs					
Low-Income Weatherization	0.10	472	3,570	6,335	63,088
Residential New Construction	1.03	1,361	63,749	39,553	1,912,469
Shade Tree Program	0.19	450	0	17,980	0
Efficient Products	7.06	74,563	0	543,901	0
Existing Homes Retrofit and Audit Direct Install	3.72	4,621	19,262	85,751	372,723
Multi-Family	0.06	706	0	4,823	0
Appliance Recycling	0.25	1,827	0	14,619	0
Non-Residential Programs					
C&I Comprehensive Program	5.80	31,259	0	443,382	0
Small Business Direct Install	1.03	9,902	0	133,085	0
Commercial New Construction Program	1.09	2,069	0	62,067	0
Bid For Efficiency (Pilot)	0.06	550	0	5,370	0
Retro-Commissioning	0.13	272	0	2,718	0
CHP Program (Pilot)	0	0	0	0	0
Behavioral Sector					
Behavioral Comprehensive	0.66	7,159	74,731	53,610	672,580
Support Sector					
Consumer Education and Outreach	NA	NA	NA	NA	NA
Energy Codes and Standards	3.96	19,182	0	19,182	0
Utility Improvement Sector					
Conservation Volt Reduction	0	539	0	539	0
Generation Improvement and Facilities Upgrade	0	0	0	0	0
C&I Direct Load Control Program[a]	18.48	13,671	0	13,671	0
Portfolio Totals	**43.61**	**168,600**	**157,742**	**1,446,585**	**2,957,771**

[a]Capacity savings for Commercial & Industrial Direct Load Control reflect the maximum 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). TEP is also including an energy savings credit toward the Standard for changes in energy efficient building codes per A.A.C. R14-2-2404 (E).

[b]Annual Therm Savings and Lifetime Therm Savings for Low-Income Weatherization are not included in the Portfolio Totals

1.2 DSM Annual Expenses

The annualized expenses for each program are reported in Table 3. Expenses are separated into the following categories:

- Rebates and Incentives
- Training and Technical Assistance
- Consumer Education
- Program Implementation
- Program Marketing
- Planning and Administration
- Measurement, Evaluation, and Research

TABLE 3 - DSM EXPENSES BY PROGRAM

DSM Program	Rebates and Incentives	Training and Technical Assistance	Consumer Education	Program Implementation	Program Marketing	Planning and Admin	Measurement, Evaluation, and Research	Program Total Cost
Residential Programs								
Low-Income Weatherization	$269,243	$1,840	$129	0	$8,817	$201	$979	$281,208
Residential New Construction	$371,600	$6,756	$2,195	$44,558	$21,082	$24	$21,747	$467,963
Shade Tree Program	$233,521	$97	0	($31)	$7,870	$568	$1,407	$243,431
Efficient Products	$2,351,344	$6,613	$1,255	$813,857	$115,512	$3,310	$28,882	$3,320,773
ENERGY STAR® Lighting (CFL)	0	0	0	$806	$2,400	$80	0	$3,286
Existing Homes Retrofit and Audit Direct Install	$1,832,004	$745	$1,456	$1,067,681	$78,953	0	$16,281	$2,997,121
Multi-Family	$83,245	$325	0	$3,417	$2,843	$8,241	$1,637	$99,708
Appliance Recycling	$55,440	0	0	$112,606	$71,451	$1,520	$1,120	$242,137
Home Energy Reports	0	0	0	0	0	0	$355	$355
Total for Residential Programs	$5,196,397	$16,375	$5,035	$2,042,894	$308,929	$13,944	$72,408	$7,655,981
Non-Residential Programs								
C&I Comprehensive Program	$1,857,797	$12,328	$5,969	$977,840	$85,440	0	$60,770	$3,000,145
Small Business Direct Install	$1,097,175	$11,265	$6,663	$658,976	$71,506	$10,281	$11,425	$1,867,290
Commercial New Construction Program	$204,955	$656	$289	$94,068	$14,818	$33	$16,180	$330,998
Bid For Efficiency (Pilot)	$121,094	$386	$177	$14,400	$2,458	$51	$1,404	$139,970
Retro-Commissioning	$17,377	$357	$77	$18,930	$2,258	$53	$585	$39,636
CHP Program (Pilot)	0	0	0	0	0	0	0	0
Total for Non-Residential Programs	$3,298,397	$24,992	$13,175	$1,764,214	$176,479	$10,418	$90,364	$5,378,039
Behavioral Sector								
Behavioral Comprehensive	$439,109	$5,355	0	$169,972	$46,550	$2,965	$1,400	$665,351
Total for Behavioral Sector	$439,109	$5,355	0	$169,972	$46,550	$2,965	$1,400	$665,351
Support Sector								
Consumer Education & Outreach Program	0	$771	$66,730	$59,107	$298,407	$937	$40	$425,992
Energy Codes and Standards	0	0	0	0	0	0	0	0
Total for Support Sector	0	$771	$66,730	$59,107	$298,407	$937	$40	$425,992
Utility Improvement Sector								
Conservation Volt Reduction	0	0	0	0	0	0	0	0
Generation Improvement and Facilities Upgrade	0	0	0	0	0	0	0	0
C&I Direct Load Control Program	0	$9,670	$1,150	$423,551	$12,810	$383	$3,208	$450,771
Total for Utility Improvement Sector	0	$9,670	$1,150	$423,551	$12,810	$383	$3,208	$450,771
Portfolio Totals	**$8,933,903**	**$57,163**	**$86,090**	**$4,459,738**	**$843,176**	**$28,645**	**$167,420**	**$14,576,134**
							Program Costs	**$14,576,134**
							Program Development, Analysis, & Reporting	**$895,994**
							TOTAL	**$15,472,128**

1.3 Societal Benefits and Performance Incentives

The portfolio societal benefit calculation and performance incentive calculation are reported in Table 4. TEP's portfolio Societal Cost Test ratio for 2015 is 3.16 and includes all program costs and labor.

Per Commission Decision No. 73912 (June 27, 2013) TEP's performance incentive is calculated at 8 percent of DSM net economic benefits, capped at $0.0125 per kWh, whichever is less. TEP's 2015 performance incentive for calendar year 2015 caps at $0.0125 per kWh and is $2,107,490.

TABLE 4 - DSM ENERGY SAVINGS BY PROGRAM

DSM Program	Societal Benefit	Societal Costs	Net Benefit
Residential			
Low-Income Weatherization[a]	$306,256	$237,946	$68,310
Residential New Construction	$4,134,261	$914,968	$3,219,294
Shade Tree Program	$1,003,529	$299,357	$704,173
Efficient Products	$23,165,401	$5,460,396	$17,705,005
Existing Homes Retrofit and Audit Direct Install	$9,482,214	$3,162,450	$6,319,764
Multi-Family	$289,056	$56,450	$232,606
Appliance Recycling	$670,529	$186,697	$483,832
Home Energy Reports	0	$355	($355)
Total for Residential	$39,051,247	$10,080,672	$28,732,629
Non-Residential			
C&I Comprehensive Program	$21,684,834	$8,781,965	$12,902,869
Small Business Direct Install	$5,662,305	$2,465,253	$3,197,052
Commercial New Construction Program	$3,298,187	$668,332	$2,629,855
Bid For Efficiency	$244,088	$142,082	$102,006
Retro-Commissioning	$168,070	$78,632.14	$$89,438
CHP Program (Pilot)	0	0	0
Total for Non-Residential	$31,057,483	$12,136,265	$18,729,775
Behavioral Sector			
Behavioral Comprehensive	$3,162,765	$599,623.26	$2,563,142
Total for Behavioral	$3,162,765	$599,623.26	$2,563,142
Support Programs			
Consumer Education & Outreach	NA	NA	NA
Energy Codes and Standards	NA	NA	NA
Total for Support	NA	NA	NA
Utility Improvement Sector			
Conservation Volt Reduction	$41,030	0	$41,030
C&I Direct Load Control Program	NA	NA	NA
Generation Improvement and Facilities Upgrade	0	0	0
Total for Utility Improvement	$41,030	0	$41,030
Portfolio Totals	$73,312,526	$22,816,560	$50,066,575
Program Development, Analysis & Reporting	NA	NA	NA
TOTAL	**$73,312,526**	**$22,816,560**	**$50,066,575**
Performance Incentive Calculation:			
Total kWh Savings	168,600,393		
Total Net Benefits	$50,066,575		
8% Net Benefits	$4,005,326		
Total kWh savings * $0.0125	$2,107,505		
Performance Incentive for 2015	**$2,107,505**		

[a]Annual Therm Savings and Lifetime Therm Savings for Low-Income Weatherization are not included in the Portfolio Totals

1.4 Lifetime Environmental Savings

The annualized expenses for each program are reported in Table 5. Savings are separated into the following categories:

- sulphur oxides,
- nitrogen oxides,
- carbon dioxide,
- and water consumption.

TABLE 5 - LIFETIME ENVIRONMENTAL SAVINGS BY PROGRAM

Program	Lifetime SOX Reduction (lbs)	Lifetime NOX Reduction (lbs)	Lifetime CO2 Reduction (lbs)	Lifetime Water Reduction (gallons)
Residential Programs				
Low-Income Weatherization	13,641	16,459	12,130,466	2,914,135
Residential New Construction	85,166	102,759	75,736,884	18,194,477
Shade Tree Program	38,610	46,587	34,335,759	8,248,573
Efficient Products	1,171,127	1,413,054	1,041,466,633	250,194,354
Existing Homes Retrofit and Audit Direct Install	184,638	222,780	164,196,211	39,445,301
Multi-Family	10,384	12,529	9,234,601	2,218,453
Appliance Recycling	31,478	37,981	27,993,190	6,724,880
Non-Residential Programs				
C&I Comprehensive Program	954,689	1,151,905	848,991,538	203,955,540
Small Business Direct Install	286,559	345,756	254,833,195	61,219,270
Commercial New Construction Program	133,642	161,249	118,845,655	28,550,614
Bid For Efficiency (Pilot)	11,562	13,950	10,281,943	2,470,059
Retro-Commissioning	5,853	7,062	5,204,827	1,250,370
CHP Program (Pilot)	NA	NA	NA	NA
Behavioral Sector				
Behavioral Comprehensive	115,432	139,278	102,652,405	24,660,466
Support Sector				
Consumer Education and Outreach	NA	NA	NA	NA
Energy Codes and Standards	41,303	49,835	36,729,885	8,823,720
Utility Improvement Sector				
Conservation Volt Reduction	1,160	1,399	1,031,298	247,751
Generation Improvement and Facilities Upgrade	NA	NA	NA	NA
C&I Direct Load Control Program	NA	NA	NA	NA
Portfolio Totals	**3,085,350**	**3,722,710**	**2,743,757,568**	**659,140,323**

2. A list of current Commission-approved DSM programs and DSM measures, organized by customer segment

The Company currently has 19 Commission approved DSM programs as listed below.

Commission Approved DSM Programs	
Residential Programs	
4.1	Low-Income Weatherization
4.2	Residential New Construction
4.3	Shade Tree
4.4	Efficient Products
4.5	Existing Homes Retrofit and Audit Direct Install
4.6	Multi-Family Homes
4.7	Appliance Recycling
Non-Residential Programs	
4.8	Commercial & Industrial ("C&I") Comprehensive Program
4.9	Small Business Direct Install and Schools Facilities
4.10	Commercial New Construction Program
4.11	Bid for Efficiency (Pilot)
4.12	Retro-Commissioning
4.13	Combined Heat & Power ("CHP") Pilot Program
Behavioral Sector	
4.14	Behavioral Comprehensive
Support Sector	
4.15	Consumer Education and Outreach
4.16	Energy Codes and Standards Program
Utility Improvement Sector	
4.17	Conservation Voltage Reduction
4.18	Generation Improvement and Facilities Upgrade
4.19	Commercial and Industrial Direct Load Control Program

A list of Commission approved DSM programs and measures is attached in **Appendix 1.**

3. A description of the findings from any research projects completed during the previous year

TEP's DSM and Customer Solutions staff reviews various EE technologies on an ongoing basis during

- program administration,
- solicitation for bids for services,
- when conducting research on measures for inclusion in future DSM implementation plans,
- when attending conferences, and
- exchanging best practices with peer utilities.

Research projects completed in 2015 and associated findings include:

- Residential Smart Thermostats: With the Commission's approval of the smart thermostat measure in TEP's 2016 EE plan (Decision No. 75450, February 11, 2016) TEP can bring three years of

research into the RFP process and secure a mature smart thermostat technology. With the growth in popularity of the Internet of Things ("IoT"), connected home smart thermostats, and other connected appliances, residences can be programmed to achieve energy savings without compromising comfort or functionality. Other advantages of connected smart thermostats include two-way behavioral EE communication, demand response capability, and customer facing energy analytics.

- Home*Energy*Calculator ("HEC"): Research from the smart thermostat measure carried into TEP's HEC - an online tool that is free for customers to use. Based on user inputs about their home construction, appliances, and habits HEC provides estimated energy usage, seasonal factors affecting energy usage, cost saving recommendations, and tutorials to help customers understand their energy usage and bills. https://www.tep.com/efficiency/tools/ezhome/

- Mobile Application Solution: In addition to implementing HEC in 2015 a first generation mobile application solution was developed to allow customers to review current and historical energy usage, billing amounts, energy efficiency tips, and outage notifications. The mobile application research led TEP to a better understanding of our customers desire for an easy to use application, a method of customer driven technological engagement, and a more detailed understanding of the technology and customer needs that resulted in an updated RFP for the next generation application.

4. Information on the DSM programs

Non-Residential Programs

4.1 Low-Income Weatherization Program ("LIW")

a. 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. The steps taken in the LIW Program will reduce 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 their limited income for other items such as rent, food, or medical expenses.

b. Program Goals, Objectives, and Savings Targets

The objectives of the Program are to:

- Increase the number of homes weatherized each year;
- Reduce participating low income customer's average household utility bills by utilizing energy conservation measures as defined in the Weatherization Assistance Program Rules; and
- Improve the quality of life for customers by providing them with a safer and healthier home.

The 2015 goal was to weatherize 180 homes.

c. Levels of Participation

A total of 102 households received weatherization assistance during this reporting period.

d. Costs Incurred

Costs incurred during this reporting period are listed below:

DSM Program	Rebates & Incentives [a]	Training & Technical Assistance	Consumer Education	Program Implementation	Program Marketing	Planning & Admin	Measurement, Evaluation & Research	Program Total Cost
Low Income Weatherization	$269,243	$1,840	$129	0	$8,817	$201	$979	$281,208

[a] *Includes $38,583.83 for health and safety related repairs and $19,279.91 for Weatherization Agencies' administrative expenses.*

e. Evaluation and Monitoring Activities and Results

The Arizona Department of Housing, 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 fiscal year ADOH report. The ADOH does not report any kW demand savings. Their most recent report is attached in **Appendix 1**.

The January 2016 ADOH report for 2015 is summarized below:

- The report includes jobs completed across Arizona on homes utilizing TEP, UNSG, UNSE, 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).
- Present value is based on 17.5 years measure life, discount rate of 3 percent and a utility cost escalation rate of 3 percent.
- The combined SIR of all jobs reviewed to date for funds (LIHEAP, DOE, utility funding) spent on diagnostics, energy measures and health and safety measures was 0.99.
- The combined SIR of all jobs reviewed to date for funds spent on energy measures and diagnostics was 1.26.
- The average savings per home reviewed was 2,229 kWh and 35 therms of natural gas (gas therms average includes all electric homes).

f. kW, kWh, and Therm Savings

The savings for this reporting period are listed below:

No. of Homes	kW savings	kWh savings	Therm savings
102	104.98	472,467	3,570

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

g. Environmental Benefits realized

Realized environmental benefits are reflected in Table 5 above.

h. Incremental benefits and net benefit

Incremental benefits and net benefits are reflected in Table 4 above.

i. Performance-incentive calculations for the previous year

Performance-incentive calculations are reflected in Table 4 above.

j. Problems Encountered and Proposed Solutions

TEP, along with other major utilities in Arizona, continues to experience low participation from some low income agencies. Several meetings held in 2015 with all of the state's Weatherization agencies, Arizona Community Action Association ("ACAA") and the ADOH have included discussions on this issue. Some agencies are having difficulty adjusting to the loss of ARRA funding, requiring them to operate on reduced budgets and less staff. The ADOH continues to advise the agencies on best practices to maximize funds.

k. Program Modifications

TEP conducted a pilot with Tucson Urban League in 2015 and will continue the pilot in 2016. The weatherization pilot was offered at no cost to customers who qualified as Low Income, based on 200 percent of the federal income guidelines. TEP and Tucson Urban League identified a prescriptive weatherization model that was applied to each home. This pilot will allow TEP to reach more houses within our territory at a lower cost. The pilot will not affect the current Weatherization program's funding. The goal for the 2015 pilot was 50 homes. Due to a later launch, a total of 21 homes were weatherized from August to December of 2015. The goal for the 2016 pilot is 35 homes.

TEP also included outreach CFL bulbs and outreach LED bulbs in 2015. Through a new partnership with the Community Food Bank, TEP was able to distribute 4,000 CFL bulbs and 3,000 LED bulbs directly to Low Income customers. In addition, TEP included weatherization information with the complimentary bulbs. The bulbs were expensed through the LIW Program, thus allowing TEP to record additional savings for the bulbs within the LIW Program.

l. 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 2016.

4.2 Residential New Construction

a. Description

The Residential New Construction Program for TEP is marketed as the Energy Smart Homes ("ESH") Program. The ESH Program emphasizes the whole-house approach to improving health, safety, comfort, durability, and energy efficiency. The Program promotes homes that meet the Environmental Protection Agency ("EPA")/Department Of Energy ("DOE") Energy Star® Home performance requirements. To encourage participation, the Program provides incentives to homebuilders for each qualifying home. On-site inspections and field testing of a random sample of homes is required to ensure that homes meet the Energy Star® Home performance requirements; these will be conducted by third-party Residential Energy Services Network ("RESNET") certified energy raters selected by each builder. Components of the ESH Program include development of branding, builder training curriculum, and marketing material.

b. Program Goals, Objectives, and Savings Targets

The objectives of the Program are to:

- Reduce peak demand and overall energy consumption in new homes;
- Stimulate construction of new homes that are inspected and tested to assure energy performance;
- Stimulate energy efficiency standards that are higher than EPA/DOE, Energy Star® performance standards;
- Stimulate the installation of high efficiency heating and cooling systems, envelope, lighting, and fixed appliances (Energy Star® products);
- Cultivate customer demand for, and a contractor base to deliver, comprehensive energy efficiency installations in alignment with the "Home Performance with Energy Star Program." http://www.energystar.gov/index.cfm?fuseaction=hpwes_profiles.showsplash
- Work with local builders to construct energy-efficient homes;
- Transform the market by improving construction practices in the TEP service territory;
- 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 energy-efficient building practices and the benefits of purchasing an energy-efficient home.

Program goals for 2015:

No. of Homes Completed:	800
Energy Savings (MWh):	1,544

c. Levels of Participation

In 2015, 725 homes were completed.

d. 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	$371,600	$6,756	$2,195	$44,558	$21,082	$24	$21,747	$467,963

e. Evaluation and Monitoring Activities and Results

NCI performed quarterly reconciliations for the program to verify coincident demand and energy savings. The NCI MER report is attached in **Appendix 3**.

f. kW, kWh, and Therm Savings

No. of Homes	kW savings	kWh savings	Therm savings
725	1,030.00	1,361,440	63,749

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

g. Environmental Benefits realized
Realized environmental benefits are reflected in Table 5 above.

h. Incremental benefits and net benefits
Incremental benefits and net benefits are reflected in Table 4 above.

i. Performance-incentive calculations for the previous year
Performance-incentive calculations are reflected in Table 4 above.

j. Problems Encountered and Proposed Solutions
There were no problems encountered during this reporting period.

k. Program Modifications
There were no program design changes during this reporting period.

l. 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 2016.

4.3 Shade Tree Program

a. 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 three, 5-gallon trees per year, 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.

b. 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 usage trees. Along with the energy savings trees provide to the homes, trees also provide habitat for wildlife, absorb air and water pollutants, control storm water runoff and soil erosion, and provide an aesthetic beauty to neighborhoods and the community.

Program goals for 2015:

No. Trees Planted	6,000

c. Levels of Participation

For this reporting period, TCB exceeded our original Program goal of 6,000 and delivered a total of 7,028 trees as follows:

- 6,830 five-gallon trees were distributed to approximately 2,817 residential customers;
- 82 five-gallon trees and 34 fifteen-gallon trees were delivered to 13 schools.
- 15 five-gallon trees and 60 fifteen-gallon trees were delivered to ten community projects.

d. 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	$233,521	$97	$0	($31)	$7,870	$568	$1,407	$243,431

e. Evaluation and Monitoring Activities and Results

NCI performed quarterly reconciliations for the program to verify coincident demand and energy savings. The NCI MER report is attached in **Appendix 3.**

f. kW, kWh, and Therm Savings

No. of Trees	kW savings	kWh savings	Therm savings
7,028	187.39	449,507	0

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

g. Environmental Benefits realized

Realized environmental benefits are reflected in Table 5 above.

h. Incremental benefits and net benefits

Incremental benefits and net benefits are reflected in Table 4 above.

i. Performance-incentive calculations for the previous year

Performance-incentive calculations are reflected in Table 4 above.

j. Problems Encountered and Proposed Solutions

There were no problems encountered during this reporting period.

k. Program Modifications

There were no Program modifications during this reporting period. The shade tree program for 2016 is currently being modified to administer the program in-house with utilizing a provider for tree procurement and delivery methods. This new model will decrease our cost per tree which will allow us to increase cost effectiveness and reach more customers.

l. Programs or Measures Terminated

There were no Program modifications during this reporting period.

4.4 Efficient Products

a. Description

The Efficient Products program promotes the purchase of energy efficient retail products through in-store buy-down promotions and the promotion of EE products in general. This program has been in existence since 2008, and was most recently approved by the Commission in Decision No. 74885.

The TEP Efficient Products program includes the Compact Fluorescent Lamp ("CFL") Buy-down Program, Residential LEDs, and variable speed pool pumps. The Efficient Products program promotes the installation of energy efficient products by residential customers in the TEP service territory. TEP provides funds to manufacturers of ENERGY STAR® approved CFL products to reduce the cost of CFLs and partners with local retailers to pass these savings on to the consumer. Pool pump incentives are paid to an installing contractor with the customer receiving a lower installed cost instead of a direct rebate.

b. Program Goals, Objectives, and Savings Targets

The program offers customers opportunities to reduce their energy consumption by purchasing energy efficient retail products, and furthers the transformation of the market through retail partnerships, training retail staff, and increased retail stocking and selection of efficient products.

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.

Program goals for 2015:

CFL sales	1,648,155
Variable Speed Pool Pumps	500
Residential LED Light	183,390

c. Levels of Participation

A total of 1,782,395 new CFLs were sold during this reporting period. An "in storage adder" has also been included in the 2015 total to account for bulbs coming out of storage and being introduced in 2013, 2014, and 2015. Further detail is provided in "Program Modifications" section below.

CFL sales	1,782,395
Variable Speed Pool Pumps	531
Residential LED Light	210,998

d. 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
Efficient Products	$2,351,344	$6,613	$1,255	$813,857	$115,512	$3,310	$28,882	$3,320,773
Energy Star Lighting (CFL)	0	0	0	$806	$2,400	$80	0	$3,286
Total	$2,351,344	$6,613	$1,255	$814,663	$117,912	$3,390	$28,882	$3,324,059

e. Evaluation and Monitoring Activities and Results

NCI performed quarterly reconciliations for the program to verify coincident demand and energy savings. The NCI MER report is attached in **Appendix 3.**

"Many CFL bulbs are sold in multipacks with 3 to 10 bulbs per pack. Some of these bulbs are installed immediately while some are placed into storage and the associated claimed savings realized in subsequent program years. Savings for bulbs placed in storage are accounted for in subsequent years via the In-Storage Rate (ISR). From 2010 to 2014 the ISR was 10 percent. A union of a 2014 field lighting logger study and a general population survey found that the actual ISR is 18 percent. The 18 percent ISR is used for the program starting in 2015.

Prior to the 2014 program year the savings from the installation of in-storage bulbs were not claimed. In order to claim these delayed savings NCI employed the methodology presented in the Department of Energy's Uniform Methods Protocols ("UMP"). The UMP's methodology was developed in 2012 and is updated regularly.

- For 2015, 2016, and 2017, summary in-storage values are added up from the old and new methodologies.
- Claimed savings used for the calculations are at the meter and are submitted to the Commission each year. Savings totals are also after the ISR reduction."[1]

f. kW, kWh, and Therm Savings -

Measure	No. Installed	kW Savings	kWh Savings
Lighting	1,782,395	7051.79	73,794,564
Pool Pumps	531	4.44	768,042
Totals	**1,782,926**	**7,056.23**	**74,562,606**

Lighting kW savings has been adjusted to include 647 kW and kWh savings has been adjusted to include 7,433,822 kWh for the 2015 In Storage Adder. Savings are adjusted for line losses of 9.5 percent for both demand and energy savings (excluding therms).

g. Environmental Benefits realized

Realized environmental benefits are reflected in Table 5 above.

h. Incremental benefits and net benefits

Incremental benefits and net benefits are reflected in Table 4 above.

[1] Appendix 3 – Navigant Consulting, Inc. Measurement, Evaluation, and Research Report

i. Performance-incentive calculations for the previous year
Performance-incentive calculations are reflected in Table 4 above.

j. Problems Encountered and Proposed Solutions
There were no problems encountered during this reporting period.

k. Program Modifications
The Energy Star Lighting Program was incorporated into the Efficient Products Program in accordance with the ACC Decision No. 744885. LED's, 2X incandescent and Variable Speed Pool Pumps were also added in 2015.

l. 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 2016.

4.5 Existing Homes Retrofit and Residential Energy Assessment Program

a. 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 HVAC equipment; as well as 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 complete Program administrative training including field mentoring.

The Existing Home Retrofit Program was approved in Commission Decision No. 72028 (December 10, 2010) and is marketed as the "Efficient Home Program."

b. Program Goals, Objectives, and Savings Targets
The objectives of the Existing Homes Retrofit component of the Program are as follows:

- To properly size and provide quality installation of high efficiency HVAC equipment, seal leaky ductwork, and install thermal envelope measures;
- 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 10 CFL's; and
- Educate homeowners about applicable TEP rebates and simple behavioral modifications to increase energy efficiency.

The 2015 program goals were:

Retrofit Measure	Goal
Duct Test & Repair	382
HVAC Early Replacement	450
HVAC Quality Install	900

c. Levels of Participation

Participation levels during this reporting period	2015 Actual
Duct Test & Repair	813
HVAC Early Replacement	631
HVAC Quality Install	1261

Note: *In addition to the 813 Duct Test & Repair shown above, 1,892 equipment replacement projects also included prescriptive duct sealing.*

d. 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 Homes Retrofit and Audit Direct Install	$1,832,004	$745	$1,456	$1,067,681	$78,953	$0	$16,281	$2,997,121

e. Evaluation and Monitoring Activities and Results

NCI performed quarterly reconciliations for the program to verify coincident demand and energy savings. The NCI MER report is attached in **Appendix 3.**

f. kW, kWh, and Therm Saving

Measure	Units	kW Savings	kWh Savings	Therms
Duct Test & Repair	800	1097.81	1,290,615	13,005
ER QI	430	665.24	829,958	2,426
ER QI Downsized	216	338.24	420,118	-
HVAC QI	1,055	1306.01	1,675,955	3,830
HVAC QI Downsized	262	315.6	403,878	-
Totals	**2,763**	**3,722.9**	**4,620,524**	**19,262**

Note: *In addition to the 813 Duct Test & Repair shown above, 1,892 equipment replacement projects also included prescriptive duct sealing. Savings are adjusted for line losses of 9.5 percent for both demand and energy savings (excluding therms).*

g. Environmental Benefits realized

Realized environmental benefits are reflected in Table 5 above.

h. Incremental benefits and net benefits
Incremental benefits and net benefits are reflected in Table 4 above.

i. Performance-incentive calculations for the previous year
Performance-incentive calculations are reflected in Table 4 above.

j. Problems Encountered and Proposed Solutions
There were no problems encountered during this reporting period.

k. Program Modifications
There were no program modifications during this reporting period.

l. 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 2016.

4.6 Multi-Family Homes

a. Description
The Multi-Family program is an existing program approved by the Commission in Decision No. 74885. The program targets multi-family properties with 5 dwelling units or more to install efficient lighting (CFLs or LEDs) and low-flow water devices. Additionally, multi-family facility managers are encouraged to partake in the C&I Facilities program, which promotes measure installation for the common areas. TEP is requesting approval to add Advanced Tune-up, Western Cooling Controls (WCC) and Duct Testing and Repair as HVAC tune-up components in 2016.

b. Program Goals, Objectives, and Savings Targets
The EE potential in the multi-family housing market remains largely underutilized and represents a significant potential to increase the Company's program portfolio. Because of various market barriers, such as split incentives, capital constraints, and lack of awareness, EE improvements typically fall far below on a multi-family housing unit's priority list. Through the direct installation and renovation/rehabilitation implementation framework, this program fills the gap and provides substantial energy savings.

The objectives of the program are to:

- Reduce peak demand and overall energy consumption in the multi-family housing market;
- Promote EE retrofits for both dwelling units and common areas; and
- Increase overall awareness about the importance and benefits of EE improvements to the landlord and property ownership community.

c. Levels of Participation
The newly approved program launched in March 2016. TEP received 47 applications for direct installs, totaling 3,564 individual units. Of those, 12 complexes totaling 1,497 units were all-electric and eligible for all measures. Measures installed and inspected in 2015 were 17,609 CFLs, 127 kitchen faucet aerators, 1,046 bathroom faucet aerators and 438 Low-Flow showerheads.

d. Costs Incurred
Costs incurred are reported in 2015 and shown in the table below:

DSM Program	Rebates & Incentives	Training & Technical Assistance	Consumer Education	Program Implementation	Program Marketing	Planning & Admin	Measurement, Evaluation & Research	Program Total Cost
Multi-Family	$83,245	$325	$0	$3,417	$2,843	$8,241	$1,637	$99,708

e. Evaluation and Monitoring Activities and Results

NCI performed quarterly reconciliations for the program to verify coincident demand and energy savings. The NCI MER report is attached in **Appendix 3.**

f. kW, kWh, and Therm Savings

Measure	Units	kW Savings	kWh Savings
Bathroom Faucet Aerator	1,046	3.28	47,937
Kitchen Faucet Aerator	127	0.61	8,902
Multi-Family CFL	17,614	54.31	558,120
Showerhead	438	6.19	90,561
Totals	**19,225**	**64.39**	**705,520**

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

g. Environmental Benefits realized

Realized environmental benefits are reflected in Table 5 above.

h. Incremental benefits and net benefits

Incremental benefits and net benefits are reflected in Table 4 above.

i. Performance-incentive calculations for the previous year

Performance-incentive calculations are reflected in Table 4 above.

j. Problems Encountered and Proposed Solutions

No problems were encountered during this reporting period.

k. Program Modifications

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

l. 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 2016.

4.7 Appliance Recycling

a. Description

The Appliance Recycling Program is designed to remove and recycle inefficient refrigerators and freezers. As national studies indicate that approximately 20 percent of customers have at least one secondary inefficient refrigerator or freezer in their home there is a significant potential for energy savings for this Program. This Program permanently removes inefficient appliances that may otherwise remain in service either at the customer's home or be donated

or re-sold. In addition to providing the customer with an incentive the Program removes the usual barriers of taking these appliances offline by eliminating the cost and/or inconvenience associated with disposing of the appliance.

b. Program Goals, Objectives, and Savings Targets

The objectives of the Program are to:

- Remove old and inefficient refrigerators and freezers from customer's homes;
- Permanently remove the inefficient refrigerators and freezers from the grid, and
- Recycle the refrigerators and freezers in an environmentally responsible way.
- The 2015 goal was to remove and recycle 2,000 refrigerators or freezers.

c. Levels of Participation

A total of 1,312 units, 1,090 Refrigerators and 222 freezers, were recycled during this reporting period.

d. Costs Incurred

These costs are reported in 2015 and shown in the table below:

DSM Program	Rebates & Incentives	Training & Technical Assistance	Consumer Education	Program Implementation	Program Marketing	Planning & Admin	Measurement, Evaluation & Research	Program Total Cost
Appliance Recycling	$55,440	$0	$0	$112,606	$71,451	$1,520	$1,120	$242,137

e. Evaluation and Monitoring Activities and Results

NCI performed quarterly reconciliations for the program to verify coincident demand and energy savings. The NCI MER report is attached in **Appendix 3.**

f. kW, kWh, and Therm Savings

No. of Appliances	kW savings	kWh savings	Therm savings
1,312	246.21	1,827,413	0

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

g. Environmental Benefits realized

Realized environmental benefits are reflected in Table 5 above.

h. Incremental benefits and net benefits

Incremental benefits and net benefits are reflected in Table 4 above.

i. Performance-incentive calculations for the previous year

Performance-incentive calculations are reflected in Table 4 above.

j. Problems Encountered and Proposed Solutions

TEP did not achieve its participation goal in 2015 due to contributing factors of the new program launch in April and the unforeseen ceasing of operations by implementation contractor, JACO Environmental, Inc. in November. The Program was promoted in local newspapers, on radio, in one bill stuffer, Google AdWords, digital banners, internet radio Pandora, local retailers and the TEP website.

Due the unforeseen ceasing of operations by the implementation contractor, JACO Environmental, Inc. on November 20th, 2015, the Appliance Recycling Program was temporarily suspended. TEP personnel fulfilled the remaining pickups and incentives that were scheduled for the remainder of the year. An increased incentive was issued by TEP to its customers who were affected by this situation to cover the insufficient funds and NSF fees incurred from the invalid checks that JACO Environmental, Inc. issued for program participation. TEP will send out an RFP in 2016 for new implementation contractor to resume program.

k. Program Modifications

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

l. 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 2016.

Non-Residential Programs

4.8 Commercial & Industrial ("C&I") Comprehensive Program

a. Description

The TEP C&I Comprehensive 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.

b. 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, such as:
- 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.
- Create a clear, easy to understand and simple participation process; and
- Increase the awareness and knowledge of facility operators, managers and decision-makers on the benefits of high-efficiency equipment and systems.

Savings goal for 2015:

Energy Savings (MWh)	30,000

c. Levels of Participation

There were 316 participants in the program during this reporting period.

d. 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 Comprehensive Program	$1,857,797	$12,328	$5,969	$977,840	$85,440	$0	$60,770	$3,000,145

e. Evaluation and Monitoring Activities and Results

NCI performed quarterly reconciliations for the program to verify coincident demand and energy savings. The NCI MER report is attached in **Appendix 3**.

f. kW, kWh, and Therm Savings

Measure	No. Installed	kW savings	kWh savings
HVAC	297	1224.77	2,809,945
Refrigeration	509	39.08	212,658
Motors	129	1632.08	10,543,244
Lighting	23,189	372.07	3,311,361
Custom	607	2528.25	14,381,898
Totals	**24,731**	**5,796.25**	**31,259,106**

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

g. Environmental Benefits realized

Realized environmental benefits are reflected in Table 5 above.

h. Incremental benefits and net benefits

Incremental benefits and net benefits are reflected in Table 4 above.

i. Performance-incentive calculations for the previous year

Performance-incentive calculations are reflected in Table 4 above.

j. Problems Encountered and Proposed Solutions

No problems were encountered during this reporting period.

k. Program Modifications

No Program modifications were made during this reporting period.

l. Programs or Measures Terminated

TEP does not plan to terminate this Program in 2016. In accordance with Decision No. 74885 the following measures were terminated in 2015:

- High Efficiency Ice Makers
- Standard T8 Lighting
- Variable Speed Screw Compressors
- LED Street Parking Lights
- Night Covers
- T8 to T8 Lighting

4.9 Small Business Direct Install Program

a. Description

The TEP Small Business Direct Install Program is designed to minimize barriers related to the implementation of energy efficiency improvements in the small business market, such as lack of capital, information search costs, transaction costs, performance uncertainty, and the so-called "hassle factor". The purpose of the program is to assist small firms, whose main focus is generally their core businesses, with analyzing their energy use to 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.

b. 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 goals for 2015:

Energy Savings (MWh)	8,300

c. Levels of Participation
There were 152 participants in the program during this reporting period.

d. 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 Direct Install	$1,097,175	$11,265	$6,663	$658,976	$71,506	$10,281	$11,425	$1,867,290

e. Evaluation and Monitoring Activities and Results
NCI performed quarterly reconciliations for the program to verify coincident demand and energy savings. The NCI MER report is attached in **Appendix 3.**

f. kW, kWh, and Therm Savings

Measure	No. Installed	kW savings	kWh savings
HVAC	2	1.0004	2,061
Refrigeration	0	0	0
Motors	6	2.36	15,256
Lighting	24,141	598.89	5,642,854
Custom	589	425.3	4,241,430
Totals	**24,738**	**1,027.55**	**9,901,601**

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

g. Environmental Benefits realized
Realized environmental benefits are reflected in Table 5 above.

h. Incremental benefits and net benefits
Incremental benefits and net benefits are reflected in Table 4 above.

i. Performance-incentive calculations for the previous year
Performance-incentive calculations are reflected in Table 4 above.

j. Problems Encountered and Proposed Solutions
No problems were encountered during this reporting period.

k. Program Modifications
No Program modifications were made during this reporting period

l. Programs or Measures Terminated
TEP does not plan to terminate this Program in 2015. In accordance with Decision No. 74885 the following measures were terminated in 2015:

- Screw-in Cold Cathode CFLs
- Standard T8 Lighting
- Night Covers
- T8 to T8 Lighting

4.10 Commercial New Construction Program

a. Description
The Commercial New Construction Program is geared towards the building owner/developer and is designed to promote improved building energy efficiency in new commercial construction, compared to standard building practices.

The Program is a performance-based program that includes performance-based incentives for the building owner and developer, and energy design information resources.

In addition to the 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.

b. Program Goals, Objectives, and Savings Targets
The primary goal of the Program is to encourage energy efficient new building design for new commercial 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;
- Overcome market barriers;
- Create a clear and easy to understand participation process that 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 2015:

Energy Savings (MWh)	2,800

c. Levels of Participation

There were 21 participants in the program during this reporting period.

d. 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
Commercial New Construction Program	$204,955	$656	$289	$94,068	$14,818	$33	$16,180	$330,998

e. Evaluation and Monitoring Activities and Results

NCI performed quarterly reconciliations for the program to verify coincident demand and energy savings. The NCI MER report is attached in **Appendix 3.**

f. kW, kWh, and Therm Savings

Measure	Participants	kW savings	kWh savings
Building Performance	21	1,004	2,068,885
Totals	**21**	**1,004**	**2,068,885**

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

g. Environmental Benefits realized

Realized environmental benefits are reflected in Table 5 above.

h. Incremental benefits and net benefits

Incremental benefits and net benefits are reflected in Table 4 above.

i. Performance-incentive calculations for the previous year

Performance-incentive calculations are reflected in Table 4 above.

j. Problems Encountered and Proposed Solutions

No problems were encountered during this reporting period.

k. Program Modifications

No Program modifications were made during this reporting period.

l. 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 2015. TEP eliminated the Design Assistance incentive for new applications in 2015, per Commission Decision No. 74885.

4.11 Bid for Efficiency ("BFE") Pilot

a. Description

The BFE program is an existing program approved by the Commission in Decision No. 74885. The program is designed to take an innovative approach to EE by using elements of competition and the potential for high rewards to enhance customer interest. BFE involves a pool of funds that are bid on through unique proposals, including costs, savings and incentives, which are unique to that project. TEP selects winning applicants based on specified criteria. BFE participants and project sponsors include commercial customers, Energy Service Companies or other aggregators who organize proposals that involve multiple sites. Results are verified through MER activity.

b. Program Goals, Objectives, and Savings Targets

BFE encourages customers and project sponsors to think creatively and to develop projects designed to optimize system energy use as a whole, rather than considering the energy usage of each individual piece of equipment. The program fosters customer-driven project activity (e.g., customers select appropriate measures and professionals to implement measures), and encourages the implementation of comprehensive, multi-measure projects.

The savings goal for 2015:

Energy Savings (MWh)	1,000

c. Levels of Participation

There were 54 participants in the program during this reporting period.

d. Costs Incurred

These costs are reported in 2015 and shown in the table below:

DSM Program	Rebates & Incentives	Training & Technical Assistance	Consumer Education	Program Implementation	Program Marketing	Planning & Admin	Measurement, Evaluation & Research	Program Total Cost
Bid For Efficiency (Pilot)	$121,094	$386	$177	$14,400	$2,458	$51	$1,404	$139,970

e. Evaluation and Monitoring Activities and Results

NCI performed quarterly reconciliations for the program to verify coincident demand and energy savings. The NCI MER report is attached in **Appendix 3**.

f. kW, kWh, and Therm Savings

Measure	No. Installed	kW savings	kWh savings
HVAC	0	0	0
Refrigeration	0	0	0
Motors	0	0	0
Lighting	58	56	549,518
Custom	0	0	0
Totals	**58**	**56**	**549,518**

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

g. Environmental Benefits realized
Realized environmental benefits are reflected in Table 5 above.

h. Incremental benefits and net benefits
Incremental benefits and net benefits are reflected in Table 4 above.

i. Performance-incentive calculations for the previous year
Performance-incentive calculations are reflected in Table 4 above.

j. Problems Encountered and Proposed Solutions
In order to introduce the Program TEP invited non-profit agencies to submit bids for energy saving projects. Several cost-effective projects were selected for participation, but overall savings did not meet the goal. TEP will use the lessons learned during this first year to increase the overall cost-effectiveness of the Program.

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

l. Programs or Measures Terminated
No measures were terminated during this reporting period. TEP does not plan to terminate this Program in 2016.

4.12 Retro-Commissioning (Pilot)

a. Description
The Retro-commissioning ("RCx") program is an existing program approved by the Commission in Decision No.74885. The program uses a systematic approach to identify building equipment and processes that are not achieving optimal efficiency in existing facilities. Eligible program applicants receive subsidized screening energy audits. Participants also receive training to ensure proper operating and maintenance practices over time.

b. Program Goals, Objectives, and Savings Targets
The RCx program seeks to generate significant energy savings by retrofitting existing C&I facilities. The program delivers customer benefits by lowering energy bills and improving building performance and occupant comfort while reducing maintenance calls. The program develops an RCx contractor pool, and enables TEP to build relationships with C&I customers, thus leading to other areas of participation in TEP's portfolio of EE programs. RCx programs in other utility service territories have delivered average energy savings in the range of 5 percent to 15 percent per facility, and measures implemented as a result of the program's activity typically pay for themselves in less than two years.

The savings goal for 2015:

Energy Savings (MWh)	400

c. Levels of Participation
There was 1 participant in the program during this reporting period.

d. Costs Incurred
These costs are reported in 2015 and shown in the table below:

DSM Program	Rebates & Incentives	Training & Technical Assistance	Consumer Education	Program Implementation	Program Marketing	Planning & Admin	Measurement, Evaluation & Research	Program Total Cost
Retro-Commissioning	$17,377	$357	$77	$18,930	$2,258	$53	$585	$39,636

e. Evaluation and Monitoring Activities and Results

NCI performed quarterly reconciliations for the program to verify coincident demand and energy savings. The NCI MER report is attached in **Appendix 3.**

f. kW, kWh, and Therm Savings

Measure	No. Installed	kW savings	kWh savings
Chillers	0	0	0
HVAC	1	132	271,820
Refrigeration	0	0	0
Motors	0	0	0
Lighting	0	0	0
Custom	0	0	0
Totals	**1**	**132**	**271,820**

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

g. Environmental Benefits realized

Realized environmental benefits are reflected in Table 5 above.

h. Incremental benefits and net benefits

Incremental benefits and net benefits are reflected in Table 4 above.

i. Performance-incentive calculations for the previous year

Performance-incentive calculations are reflected in Table 4 above.

j. Problems Encountered and Proposed Solutions

The number of existing RCx contractors is small. TEP is recruiting these contractors to encourage their participation.

k. Program Modifications

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

l. Programs or Measures Terminated

No measures were terminated during this reporting period. TEP does not plan to terminate this Program in 2016.

4.13 Combined Heat & Power ("CHP") Pilot Program

a. Description

The CHP Program is an existing program approved by the Commission in Decision No. 74885. CHP, also defined as "cogeneration", means a system that generates electricity and useful thermal energy in a single integrated system.

b. Program Goals, Objectives, and Savings Targets
CHP is an affordable, clean and reliable source of generation and should be considered a key component to a cost effective EE plan. The market potential for CHP is limited because only certain commercial customers have a need for thermal energy. TEP will assist customers interested in CHP with engineering and interconnection services. Qualifying CHP customers save on utility bills by not having to utilize a Partial Requirement Service rate.

c. Levels of Participation
There were no new CHP installations during this reporting period.

d. Costs Incurred
There were no costs reported during this reporting period.

e. Evaluation and Monitoring Activities and Results
There were no savings during this reporting period to evaluate.

f. kW, kWh, and Therm Savings
There was no increase in incremental energy savings in existing CHP systems and no new participation in 2015.

g. Environmental Benefits realized
Realized environmental benefits are reflected in Table 5 above.

h. Incremental benefits and net benefits
Incremental benefits and net benefits are reflected in Table 4 above.

i. Performance-incentive calculations for the previous year
Performance-incentive calculations are reflected in Table 4 above.

j. Problems Encountered and Proposed Solutions
No problems were encountered during this reporting period.

k. Program Modifications
No modifications were made to this program during this reporting period.

l. Programs or Measures Terminated
No measures were terminated during this reporting period. TEP does not plan to terminate this Program in 2015

Behavioral Sector

4.14 Behavioral Comprehensive

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

The Behavioral Comprehensive Program consists of four subprograms. The focus of the Programs are to educate current and future energy users on how changes in behavior, including purchasing decisions, can improve energy efficiency and help lower energy bills for the

consumer. The subprograms include low-cost measures, such as CFLs, faucet aerators, LED nightlights and refrigerator thermometers, in addition to educational components.

The four subprograms consist of:

- Direct Canvassing
  The direct canvassing initiative is designed to reach homeowners and provide them with program collateral in relation to TEP's DSM program offerings. In addition, homeowners receive 2 CFLs to direct install in their homes.

- K-12 Education
  The education program is a three part energy education program for middle school students that include a pre-visit lesson, an on-site classroom presentation, and a post visit activity; all aligned with the Arizona Department of Education middle school science standards. Students are instructed on how to save energy in their homes and are provided with a take home energy efficiency kit which includes items such as CFLs, LED nightlights, and refrigerator thermometers. The kit allows the students to gain practical experience, by installing the items with their parents, which correlates with the curriculum presented at school.

- Community Education
  The community education program is designed to engage with community groups and work with public entities to offer energy efficiency workshops. Customers who attend the workshop are educated on the benefits of energy efficiency emphasizing on behavioral changes that lead to energy savings. Participants are provided with an energy savings kit with a wide variety of sample of materials such as weather-stripping, low flow showerheads, caulk, and CFLs to direct install in their homes.

- CFL Community Outreach
  The CFL Community Outreach provides complimentary CFLs through the participation of community events and through collaborations with community organizations. The program complements the presence of TEP at community events and its overall education and outreach efforts and energy efficiency messaging.

b. Program Goals, Objectives, and Savings Targets

The Program objectives are to influence energy related behaviors including the following:

- Habitual behaviors
  - Adjust thermostat setting
  - Turn off unnecessary lights

- Small purchasing and maintenance behaviors
  - Purchase and install faucet aerators and low flow shower heads
  - Purchase and install compact fluorescent light bulbs & LED bulbs
  - HVAC maintenance

- Larger purchasing decisions
  - Purchase an ENERGY STAR® appliance
  - Purchase higher energy efficient heating and cooling equipment

The savings goal for 2015 was 7,558 MWh

c. Levels of Participation

- 5,000 kits were distributed through direct canvassing.
- The K-12 Education Program conducted 244 classroom presentations and distributed 6,766 Energy Saving Kits.
- 59 Home Energizer Workshops (HEW) were conducted and 1,347 Energy Saving Kits were distributed.
- 210,096 CFLs were distributed to TEP customers throughout a variety events within the service territory. Methods of delivery included Home Shows, community events, service organizations, and fairs.

d. Costs Incurred

ALL EDUCATION & OUTREACH PROGRAMS

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
Behavioral Comprehensive	$439,109	$5,355	$0	$169,972	$46,550	$2,965	$1,400	$665,351

e. Evaluation and Monitoring Activities and Results

NCI performed quarterly reconciliations for the program to verify coincident demand and energy savings. The NCI MER report is attached in **Appendix 3.**

f. kW, kWh, and Therm Savings

ALL EDUCATION & OUTREACH PROGRAMS

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

Measure	No. Installed	kW Savings	kWh Savings
Lighting	210,096	502.55	5,164,963
Academic Education	6,766	112.57	1,457,974
Community Education	1,347	22.41	290,259
Direct Canvassing	5,000	23.92	245,838
Totals	**223,209**	**661.45**	**7,159,035**

Savings are adjusted for line losses of 9.5 percent for both demand and energy savings (excluding therms). 74,731 total therm savings were verified for this program.

g. Environmental Benefits realized

Realized environmental benefits are reflected in Table 5 above.

h. Incremental benefits and net benefits

Incremental benefits and net benefits are reflected in Table 4 above.

i. Performance-incentive calculations for the previous year

Performance-incentive calculations are reflected in Table 4 above.

j. Problems Encountered and Proposed Solutions

No problems were encountered during this reporting period.

k. Program Modifications

DIRECT CANVASSING

In 2015 a couple approaches were taken to distribute the direct canvassing bags to customers. Although we did keep the door to door approach that was initially designed for this sub-program, we also distributed direct canvassing bags through events geared towards homeowners to help reach our goal. Going forward, we plan to continue to diversify the methods in which the direct canvassing bags are dispersed.

l. 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 2016.

Support Sector

4.15 Consumer Education and Outreach Program

a. Description

The Consumer Education and Outreach Program is responsible for the marketing of the TEP portfolio as a whole, as well as general consumer education. The focuses of activities are as follows:

- Develop brochures and communications materials that showcase all available EE programs;
- Develop and maintain communication material related to general energy savings information;
- Provide labor and materials to staff trade shows and community events;
- Develop and maintain web content to educate consumers on energy use and TOU rate choices; and
- Cross communication of EE Programs and general energy savings information.

ACADEMIC SUPPORT THROUGH CONSUMER EDUCATION & OUTREACH

The ***Insulation Station*** (a program for 4th 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 4th grade teachers to attend a training session prior to receiving materials. Completing the exercises included will satisfy the current state standards for math and science.

The ***Energy Patrol*** is a GOEP-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 ***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 physical exhibit is continually upgraded and improved as TEP funding allows. In addition to a focus on energy conservation the exhibit includes information on renewable energy and electrical safety. The addition of a seasoned teacher as the Education Director at the Children's Museum has greatly enhanced the curriculum for tours, with pre- and post-information for follow-up. Further, TEP has provided new energy efficiency booklets for children to take home and share with their parents.

b. Program Goals, Objectives, and Savings Targets

The Program is designed to educate commercial and residential customers on ways to save energy through conservation measures, energy-efficiency measures, academic education, or utilizing Time-of-Use ("TOU") rates.

c. Levels of Participation

PowerShift™ TOU Customer Participation
8011 on Rate 80
607 on Rate 201B

ACADEMIC EDUCATION THROUGH CONSUMER EDUCATION & OUTREACH

The table below includes participation for 2015. TEP offers teacher trainings and distributes classroom materials.

Program	Number of Schools	Number of Students
Insulation Station[1]	22 schools/ 24 teachers trained	603
Energy Patrol	2 schools	155 est.
Energy Conservation/ Environmental classroom materials	136 schools/ 815 teachers	59,516
Energy Efficiency Exhibit (TEP's Electri-City at the Children's Museum Tucson)[2]	11 schools 229 Adults	750[3]
TOTAL	**160 schools**	**61,024**

1. *Numbers refer to teachers trained and kits ordered for students. IS numbers low due to confusion about/resistance to AZ's Common Core requirements. The more flexible schools with innovative teachers love the program and claim their students benefit from participation; while others find it challenging.*
2. *Student numbers are those from "low-income" Title 1 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 and are ordinarily small scout troops and summer programs (6-8 children) representing schools.*

COMMUNITY EVENTS

TEP participated in 70 community events featuring information on energy conservation. Listed below are examples of events attended:

- Tucson Festival of Books
- 21st Annual Earth Day Festival
- Pima Council on Aging "Ages 'N Stages"
- Metropolitan Pima Alliance "Sahuarita State of the City"
- SAHBA Home Show
- Downtown Second Saturdays
- Tucson Meet Yourself
- Sahuarita Pecan Festival
- Reid Park Zoo Tucson Family Festival
- JCC Wellness Festival
- Edible Shade Tree Event
- 4th Avenue Winter Street Fair

d. 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 Program	$0	$771	$66,730	$59,107	$298,407	$937	$40	$425,992

e. Evaluation and Monitoring Activities and Results

ALL EDUCATION & OUTREACH PROGRAMS

There were no claimed savings during this reporting period to evaluate and there is no third-party evaluation for this program.

f. kW, kWh, and Therm Savings

ALL EDUCATION & OUTREACH PROGRAMS

There are no claimed savings attributable to the take-home efficiency kits.

g. Environmental Benefits realized

There are no realized environmental benefits for this program.

h. Incremental benefits and net benefits

There are no Incremental benefits and net benefits for this program.

i. Performance-incentive calculations for the previous year

There are no performance-incentive calculations for this program.

j. Problems Encountered and Proposed Solutions

No problems were encountered during this reporting period.

k. Program Modifications

No program modifications were made during this reporting period.

l. 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 2016.

4.16 Energy Codes and Standards Enhancement Program

a. Description

The Energy Codes and Standards Enhancement Program is an existing program approved by the Commission in Decision No. 74885. The Program maximizes energy savings through promoting adherence to local building energy codes, the adoption of current nationally or internationally recognized building codes, and through enhanced energy efficient appliance standards. The program uses a variety of methods to i) improve levels of compliance with existing building energy codes and appliance standards; and ii) support adoption of newer energy codes and appliance standards as warranted by market conditions. Specific program activities target needs of local building officials. The program includes, but is not limited to, the following:

- Educating local code officials and building professionals on current standards and development;
- Providing documentation of the specific local benefits of code enforcement and the promotion of newer energy code adoptions over time;
- Ensuring utility incentive programs align with local energy codes and appliance standards; and
- Collaborating with relevant stakeholders to build a more robust community while advancing the adoption and implementation of strong, effective building energy codes and appliance standards across the local jurisdictions within TEP's service territory.

b. Program Goals, Objectives, and Savings Targets

The program is designed to increase energy savings in the residential and commercial sectors by improving levels of building code compliance, supporting periodic energy code updates/adoptions as warranted by market conditions, and advocating for higher efficiency electric appliances.

c. Levels of Participation

Program activities were selected based on previously effective approaches used in other jurisdictions, feedback from local code officials, and contacts with municipal leaders in locations that currently lack building codes. Program staff maintains a consistent level of activity and engagement with relevant stakeholders. Activities include: participation in energy code adoption committees, technical support (calculations, research, information) for code adoption committees, public testimony in support of code adoption before city councils, participation in organizations that promote increased appliance standards for EE (such as the Consortium for Energy Efficiency), ensuring that ongoing DSM programs align well with energy code requirements and appliance standards, and funding for local agencies to enforce and improve energy codes and appliance standards over time.

In addition to the ongoing efforts, TEP provided a letter to support in March 2015 for a DOE grant application for the Arizona Governor's Office of Energy Policy ("GOEP") to promote education and awareness of energy efficiencies and savings in wastewater facilities in the State of Arizona. If approved, TEP would provide financial support to the GOEP in providing wastewater operator training in Arizona.

Outreach strategies include website promotion, direct outreach to local code officials and networks of municipal leaders who are members of committees conducting activities related to building code enhancement, and communications with other TEP EE program implementation staff.

d. Costs Incurred

There were no reported costs during this reporting period.

e. Evaluation and Monitoring Activities and Results

TEP staff attend, support and participate in meetings that encourage the understanding, adoption and enforcement of building codes, receive feedback from participants on staff interaction with the meeting attendees, and then review and evaluate the feedback.

f. kW, kWh, and Therm Savings

Measure	kW savings	kWh savings	Therm savings
Energy Codes & Standards Enhancement	39,600	19,182,000	0

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

g. Environmental Benefits realized

Realized environmental benefits are reflected in Table 5 above.

h. Incremental benefits and net benefits

Incremental benefits and net benefits are reflected in Table 4 above.

i. Performance-incentive calculations for the previous year

Performance-incentive calculations are reflected in Table 4 above.

j. Problems Encountered and Proposed Solutions

No problems were encountered during this reporting period.

k. Program Modifications

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

l. 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 2016.

4.17 Conservation Voltage Reduction

a. Description

The Conservation Voltage Reduction ("CVR") program is an existing program approved by the Commission in Decision No. 74885. The program achieves load reductions through

changes in voltage regulation parameters at the substation/feeder level.[2] This change involves a physical adjustment in transformer settings governing voltage at the substation. By adjusting substation voltage, the program impacts energy flows and capacity, including demand coincident with the system peak period(s).

b. Program Goals, Objectives, and Savings Targets

Changes in voltage translate into demand and energy savings through the basic physical relationships governing power: Watts = Volts X Amps. For this program, reducing the voltage reduces demand and reduces consumption. The change in voltage targeted by this program is approximately 2 percent which will fall within the tolerance bandwidth required to ensure power quality and equipment performance by end-use customers. In most instances, customers will not notice, nor experience, any negative changes in equipment performance (e.g., air-conditioning, lighting and motor performance and use), resulting from the change in voltage.

c. Levels of Participation

The yearlong pilot program was initiated by TEP Engineering in November 2014 and completed in November 2015.

d. Costs Incurred

Per Commission Decision No. 74885 expenses incurred by this program may not be recovered through the DSM surcharge.

e. Evaluation and Monitoring Activities and Results

NCI performed quarterly reconciliations for the program to verify coincident demand and energy savings. The NCI MER report is attached in **Appendix 3**.

f. kW, kWh, and Therm Savings

No. of Participants	kW savings	kWh savings	Therm savings
1	0	538,590	0

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

g. Environmental Benefits realized

Realized environmental benefits are reflected in Table 5 above.

h. Incremental benefits and net benefits

Incremental benefits and net benefits are reflected in Table 4 above.

i. Performance-incentive calculations for the previous year

Performance-incentive calculations are reflected in Table 4 above.

j. Problems Encountered and Proposed Solutions

Energy savings were less than anticipated during the pilot phase. TEP continues to analyze the data to determine the cause.

k. Program Modifications

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

[2] Schneider, et al. "Evaluation of Conservation Voltage Reduction (CVR) on a National Level." Pacific Northwest National Laboratory. July 2010

l. Programs or Measures Terminated
No measures were terminated during this reporting period. TEP does not plan to terminate this Program in 2016.

4.18 Generation Improvement and Facilities Upgrade

a. Description
The Facilities Upgrade Program would include installation of high efficiency motors and variable speed drives, along with projects to reduce a power plant's auxiliary power or increase capacity.

b. Program Goals, Objectives, and Savings Targets
There were no planned generation or facility upgrade projects during this reporting period.

c. Levels of Participation
No energy saving upgrades were installed during the reporting period.

a) Costs Incurred
There are no reported costs for this program during the reporting period.

d. Evaluation and Monitoring Activities and Results
There are no reported activities for this program during the reporting period.

e. kW, kWh, and Therm Savings
There are no reported savings for this program during the reporting period.

f. Environmental Benefits realized
There are no reported environmental benefits for this program during the reporting period.

g. Incremental benefits and net benefits
There are no reported incremental or net benefits for this program during the reporting period.

h. Performance-incentive calculations for the previous year
There are no reported performance-incentive for this program during the reporting period.

i. Problems Encountered and Proposed Solutions
No problems were encountered during this reporting period.

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

k. Programs or Measures Terminated
No measures were terminated during this reporting period. TEP does not plan to terminate this Program in 2016.

4.19 Commercial and Industrial Direct Load Control Program

a. 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 an IC that 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 to 4 hours.

b. 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.

c. Levels of Participation

The IC enrolled 61 participating sites and TEP in-house enrolled 145 participating water utility pumping sites.

d. 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 Direct Load Control Program	$0	$9,670	$1,150	$423,551	$12,810	$383	$3,208	$450,771

e. Evaluation and Monitoring Activities and Results

NCI performed quarterly reconciliations for the program to verify coincident demand and energy savings. The NCI MER report is attached in **Appendix 3**.

f. kW, kWh, and Therm Savings

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

Number of Sites	Number of Events	Maximum MW Commitment	MWh savings credit
206	8	18.48	13,671

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

g. Environmental Benefits realized

Realized environmental benefits are reflected in Table 5 above.

h. Incremental benefits and net benefits

Incremental benefits and net benefits are reflected in Table 4 above.

i. Performance-incentive calculations for the previous year

Performance-incentive calculations are reflected in Table 4 above.

j. Problems Encountered and Proposed Solutions

Program growth was challenging in 2015. TEP introduced a program variation to allow customers to choose between the Standard program offering and an Emergency program offering. Customers with back-up generation that did not qualify to participate in the Standard offering, because their generators were not NESHAP compliant, can qualify to participate in the Emergency offering.

An event under the parameters of the Emergency offering can only be triggered in case of a NERC Energy Emergency Alert (EEA) Level 2 (as defined by the NERC Reliability Standard EOP-002-3) or as a deviation of voltage or frequency of 5 percent or greater below standard voltage or frequency. Customers with non-NESHAP compliant generators are restricted to 15 hours of operation per year, so these customers receive a smaller incentive than customers participating in the Standard offering. The Emergency offering also requires participants to curtail load within 10 minutes, versus 30 minutes for the Standard offering. The result is more customer participation in the case of an EEA Level 2 event, at less cost per participant. TEP introduced the Emergency Program offering in September 2015.

k. Program Modifications

In order to expand the potential load reduction for emergency or reliability purposes TEP has partnered with municipal water utilities to initiate load control events on their pumping systems. Participating municipal water pumping customers have existing switching equipment and onsite back-up power generation. For these customers TEP has devised a delivery mechanism that uses TEP owned communications equipment to remotely control the customer's switching equipment via access to the customer's networked control system. The remote access delivery method is done at a lower cost than alternatives and increases the cost-effectiveness of the program.

l. Programs or Measures Terminated

No measures were terminated during this reporting period. TEP does not plan to terminate this Program in 2016.

Appendix 1 – Commission Approved DSM Programs and Measures for 2015

DSM Program	Approved Measures
Residential Programs	
Low-Income Weatherization	Whole House Low Income Weatherization
Residential New Construction	Energy Efficient New Homes
Shade Tree Program	Shade Trees
Efficient Products	ENERGY STAR® Lighting (CFL)
	Residential LEDs
	2x Incandescents
	Advanced Power Strips – Smart Strips
	Variable Speed Pool Pumps
	ENERGY STAR Ceiling Fans
	ENERGY STAR Central Air Conditioner
	ENERGY STAR Clothes Washer
	ENERGY STAR Freezer
	ENERGY STAR Refrigerator
	ENERGY STAR Room Air Conditioner
Existing Home Program	Duct Test & Repair (DTR)
	Early Retirement HVAC Quality Install
	Early Retirement HVAC Quality Install DTR Tier 1 & 2
	HVAC Quality Install
	HVAC Quality Install DTR Tier 1 & 2
	HVAC Advanced Tune-up
	WCC Stand-Alone
	Shade Screens
Multi-Family Homes	Multi-Family Homes
	ES Integral CFL
	Faucet Aerators - Electric WH only
	Low Flow Showerheads - Electric WH only
Appliance Recycling	Refrigerator and Freezer Recycling
Commercial Programs	
C&I Comprehensive	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
	Advanced Power Strips – Load Sensors, Occupancy Sensors, Timer Plug Strip
	Air Cooled Chillers < 150 tons
	Air Cooled Chillers > 150 tons
	Anti-sweat heater controls
	Beverage Controls (VendingMiser)
	Carbon Dioxide Sensors
	Carbon Monoxide Sensors
	Custom Measures
	Computer Power Monitoring Systems
	Daylighting controls
	Delamping
	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)
	Efficient Condensers
	Efficient Compressors
	Energy efficient exit signs
	Energy Efficient ODP motors
	Energy Efficient TEFC Motors
	Green Motor Rewind
	Hardwired CFL
	Heat Pump Water Heaters
	HIDs to T8/T5
	High Efficiency Evaporator Fan Motors
	High Efficiency Reach-in Refrigerators and Freezers
	Hotel Room HVA Control
	HVAC System Test & Repair
	Induction Lighting
	Induction Lighting Outdoor
	Integral Screw In CFL
	LED Canopy Lighting
	LED Channel Signs
	LED Interior Lights
	LED Outdoor Lighting

	LED Traffic Lights
	LED Tubes replacing fluorescent-Indoor
	LED Tubes replacing fluorescent-Outdoor
	Occupancy sensors
	Outdoor CFL
	Premium T8 Lighting
	Programmable Thermostats
	Refrigerated Display Automatic Door Closers
	Refrigerated LED Case Lighting
	Screw in cold cathode CFL
	Strip Curtains
	Variable Speed Drives
	Water Cooled Chillers < 200 tons
	Water Cooled Chillers > 400 tons
	Water Cooled Chillers 201 - 400 tons
Small Business/Schools	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
	Advanced Power Strips – Load Sensors, Occupancy Sensors, Timer Plug Strip
	Anti-sweat heater controls
	Beverage Controls (VendingMiser)
	Daylighting controls
	De-lamping
	Energy efficient exit signs
	Evaporative Fan Controls
	Hard Wire CFL
	HIDs to T8/T5
	High Efficiency Evaporator Fan Motors
	Induction Lighting Interior
	Integral Screw In CFL
	Integrated Case Control and Motor Retro-fit
	LED Interior
	Occupancy sensors
	Outdoor CFL
	Programmable Thermostats
	Refrigerated Display Automatic Door Closers
	Strip Curtains

	Variable Speed Drives
Commercial New Construction	Commercial New Construction
Bid for Efficiency	Pilot Program
Retro-Commissioning	Retro-Commissioning ("RCx")
Combined Heat & Power	Combined Heat & Power ("CHP") Program
Behavioral Sector	
Behavioral Comprehensive	CFL Giveaway
	Community Education Kit
	Direct Canvassing Kit
	K-12 Education Kit
Support Programs	
Consumer Education and Outreach	Education & Outreach
Energy Codes and Standards	Energy Codes and Standards
Utility Improvement Sector	
Conservation Voltage Reduction	Conservation Voltage Reduction (CVR)
Generation and Facilities Upgrades	Generation and Facilities Upgrades
C & I Demand Response	Demand Response/Direct Load Control

Appendix 2 – Arizona Department of Housing Report

ARIZONA DEPARTMENT OF HOUSING
TRAINING, MONITORING AND EVALUATION REPORT
FISCAL YEAR 2016 ANNUAL REPORT
January 2016

Training and Monitoring for Weatherization

Training for the Weatherization Assistance Program (WAP) is done through a variety of methods; the two biggest ones are one on one field training when an issue is noted in the field and class room/lab training. The one on one field training is done by the state monitors when they are out in the field looking at work in progress and monitoring jobs that are completed. When a monitor sees something that is not to WAP standards it is noted and immediately brought to the agencies attention. If training is required, it is done right then in the field where it is best as it is hands-on training.

The class room/lab training is provided by the Southwest Building Science Training Center (Training Center), operated by the Foundation for Senior Living Home Improvement (FSL). The state's weatherization program has a long history working with the training center in developing curriculum and training weatherization workers. The main stay of WAP training from the Training Center is WAP boot camp and Success with Weatherization (Critical Details), which is required for all WAP field workers. 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 Success with Weatherization training was developed through a two year grant for quality control in weatherization by the Training Center and Advance Energy. The course focuses on critical details of the work being performed and teaches the steps necessary to complete the work, correctly every time. The training material and detail sheets that are taught in the class are available online to the students once they have completed the course. This is the first year that Success with Weatherization has been incorporated into the program. That state mandated that at least one field personnel and one member of management attend the course from each agency.

The Training Center also offers courses in Lead RRP, OSHA 10 and OSHA 30 Certifications, WAP administration and many more. Some of these are required by the weatherization program but other facilities can provide the training. The two (2) above listed trainings can only be taken at the Training Center. A complete list of training courses offered by the Training Center can be found at:
http://www.swbstc.org/trainings/

The Training 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/

Peer-to-Peer Fiscal and Technical Procedures

The Arizona WAP has a peer-to-peer working group that allows the fiscal and technical staff from the agencies and the ADOH 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 few 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.

Monitoring

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 of the job sites will be visited, with each agency being monitored at least once during the twelve month period. 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 Utility's investments, while maintaining or improving the customers' health and safety.

Utility Bill Analysis

This report includes jobs completed across Arizona using data provided by TEP, UniSource Gas and Electric 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 (LIHEAP, DOE, utility funding) spent on diagnostics, energy measures and health and safety measures is .99 SIR. The combined SIR of all jobs reviewed to date for funds spent on energy measures and diagnostics is 1.26. Please note that sub-grantees often run parallel programs using other funds such as CDBG to cover those items that cause deferrals.

The average energy savings per home reviewed was 2229 kWh of electricity and 35 therms of natural gas (gas therms average includes all electric homes).

ADOH will continue to track utility histories of completed jobs, the tracking of post-weatherization energy savings will give positive feedback to weatherization staff, highlighting measures or processes that provide high returns. Local operational changes can be based on this information to improve cost-effectiveness.

Appendix 3 – Navigant Consulting, Inc. Measurement, Evaluation, And Research Report

The Navigant Consulting, Inc. report is provided directly to Commission Staff.