

BEFORE THE ARIZONA CORPORATION COMMISSION

COMMISSIONERS

TOM FORESE - CHAIRMAN
BOB BURNS
DOUG LITTLE
ANDY TOBIN
BOYD W. DUNN

IN THE MATTER OF THE APPLICATION OF) DOCKET NO. E-01933A-17-0128
TUCSON ELECTRIC POWER COMPANY FOR)
APPROVAL OF ITS 2018 ENERGY EFFICIENCY)
IMPLEMENTATION PLAN AND FOR A)
WAIVER UNDER A.A.C. R14-2-2419.)

APPLICATION

Tucson Electric Power Company ("TEP"), through undersigned-counsel, hereby submits for approval its 2018 Energy Efficiency Implementation Plan ("2018 EE Plan") in compliance with A.A.C. R14-2-2401, *et seq.* In conjunction with the approval of its 2018 EE Plan, TEP also requests approval of a: (i) change in the Demand Side Management Surcharge ("DSM Surcharge") from \$0.001916 to \$0.003034 per kWh for residential customers; (ii) Plan of Administration for its DSM Surcharge; and (iii) waiver pursuant to A.A.C. R14-2-2419 from the 2018 Energy Efficiency Standard set forth in A.A.C. R14-2-2404(B). In compliance with A.A.C. R14-2-2405(C), customers will be notified of this 2018 EE Plan filing via bill message to commence with the first billing cycle of August 2017.

Accordingly, TEP requests the Commission issue an order prior to December 31, 2017, to be effective January 1, 2018, that approves:

1. TEP's 2018 Energy Efficiency Implementation Plan;
2. The revised DSM Surcharge;
3. The Plan of Administration for its DSM Surcharge; and
4. The requested waiver of the 2018 Energy Efficiency Standard.

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...

1 RESPECTFULLY SUBMITTED this 1st day of August 2017.

2 TUCSON ELECTRIC POWER COMPANY

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Tucson Electric Power

Tucson Electric Power Company

2018

Energy Efficiency

Implementation Plan

Docket No. E-01933A-17-0128

August 1, 2017

Tucson Electric Power Company
2018 TEP Energy Efficiency Implementation Plan

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Tucson Electric Power Company

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Executive Summary

The Tucson Electric Power Company (“TEP” or the “Company”) 2018 Energy Efficiency Implementation Plan (“EE Plan”)¹ sets forth the Company’s plan to achieve energy savings through cost-effective energy efficiency programs, in compliance with A.A.C. R14-2-2401, *et seq.* This EE Plan describes how the Company has demonstrated compliance in 2016 with the cumulative EE Standard (“Standard”) set forth in A.A.C. R14-2-2404(B) for the previous year, and how TEP plans to continue working with customers to achieve significant energy savings while producing substantial environmental benefits for our community for 2017 and 2018.²

This EE Plan also describes how TEP’s view of energy efficiency (“EE”) continues to evolve. The Company is looking beyond 2020 with a broader, more strategic approach to EE, with lower costs, more appropriate incentive levels and reliability benefits for our entire system. Instead of merely accumulating kilowatt-hour (“kWh”) savings, TEP’s EE programs will focus increasingly on reducing peak demand, and providing targeted, cost-effective assistance to limited-income customers.

TEP is proposing new initiatives to explore the potential benefits of managing residential peak demand within specific, heavily stressed areas of the Company’s local electric grid. With the Residential Load Management Pilot Program, TEP intends to satisfy requirements described in Commission Decision No. 75975 (February 24, 2017) by using smart thermostats to adjust home air conditioners, heat pumps, water heaters and other appliances during peak usage periods, relieving the burden on heavily loaded circuits. Participants would sign up for a Time-of-Use or Demand pricing plan and receive an incentive for their involvement. This will enable the Company to study the effectiveness of targeted energy storage systems to help reduce peak demand and congestion on specific distribution feeders.

A new Commercial Community Development Pilot Program would encourage job growth and expansion by providing incentives to commercial customers that revitalize vacant commercial facilities by installing cost-effective EE measures. Energy savings achieved through the program would allow participants to direct more resources into their operations while helping to reduce peak demand and energy usage.

The Company plans to explore the water-energy nexus and potential EE related measures. If there are cost-effective opportunities to reduce water loss and achieve energy savings, the Company will file a supplemental program that will be funded as a pilot program using the currently approved C&I budget.

This EE Plan also would continue proven, cost-effective offerings like the Schools Energy Efficiency Program and increases incentives for our Low Income Weatherization Program.

Energy savings achieved through the measures proposed in this EE Plan would add to the kWh reductions already achieved through previous efforts. Customers participating in TEP’s EE programs have saved more than 1 million megawatt-hours, enough energy to power more than 100,000 homes for a year. The Company looks forward to continued energy savings while exploring new ways to work with customers to limit system costs and improve reliability by reducing peak demand.

As described in our 2017 Integrated Resource Plan, TEP will continue to meet the energy needs of customers with a flexible and responsive resource portfolio that meets the needs of a growing, changing community. New technologies will create new energy choices for customers and new opportunities for utilities. TEP is committed to providing safe, reliable service to customers while managing resources in ways that help us build a more sustainable energy portfolio.

¹ Definitions for the EE Plan are contained in Appendix E.

² The Company is still, however, requesting a waiver herein pursuant to A.A.C. R14-2-2419 from the 2018 EE Standard set forth in A.A.C. R14-2-2404(B).

I. Introduction

The EE Plan documents the Company's objective to achieve energy savings through cost-effective energy efficiency programs. TEP hereby submits this EE Plan for approval by the Arizona Corporation Commission ("Commission") in compliance with Arizona Administrative Code ("A.A.C.") R14-2-2405 which requires TEP to describe how it has demonstrated compliance with the EE Standard ("Standard") set forth in A.A.C. R14-2-2404(B) for the previous year and how TEP intends to make progress against the Standard for 2017 and 2018.

TEP designed its 2018 EE Plan to cost-effectively yield an estimated 175,530 MWh of annual energy savings at a lifetime cost of \$0.012 per kWh, providing 63.52 MW of peak demand savings.

The projected portfolio budget is \$22,916,762 million, compared with the currently approved EE Plan budget for 2017 at \$22,916,762. If approved, the DSM Surcharge ("DSMS") will increase from \$0.001916 to \$0.003034 per kWh of retail sales for residential customers, and increase from 1.9700% to 3.0559% of retail revenue for non-residential customers.³ Despite approximately identical budgets between 2017 and 2018, the DSMS must increase because in 2016 the DSMS was reduced due to an over-collection of DSMS revenues. The DSMS requested in this EE Plan reflects an undercollected amount of \$1.1 million from 2017

The Company met the Cumulative Annual EE Standard set forth in A.A.C. R14-2-2404(B) for 2016.

The Company currently anticipates that it will achieve approximately 14.3% of cumulative EE savings in 2017, compared with the Cumulative Annual EE Standard of 14.5% set forth in A.A.C. R14-2-2404(B) for 2017. TEP expects to be slightly below the Cumulative Annual EE Standard of 17% for 2018. Accordingly, the Company requests a waiver pursuant to A.A.C. R14-2-2419 from the 2018 EE Standard set forth in A.A.C. R14-2-2404(B).⁴ The waiver notwithstanding, TEP will continue to strive to maximize the cost-effective savings achieved with the dollars spent.

TEP's proposed portfolio budget, portfolio savings, net benefits, and benefit-cost results are summarized in Table 1.

Table 1: Summary of Proposed 2018 TEP Portfolio Costs, Savings, and Benefits

Year	Total Program Budget (\$/year)	Annual Energy Savings (MWh)	Lifetime Energy Savings (MWh)	Peak Demand Savings (MW)	\$/kWh (Lifetime)	Portfolio Societal Test Ratio
2018	\$22,916,762	175,530	1,843,578	63.52	\$0.012	2.53

³ Decision No. 75975, page 195, directs TEP and Staff to address a uniform methodology for assessing the DSMS. The Company will work with Staff on this issue to propose an appropriate change to the billing methodology for the DSMS.

⁴ The Commission approved such a waiver for TEP in Decision No. 75450 (February 22, 2016). *See also* TEP Letter of Notice to continue 2016 EE Plan through 2017 without change (June 1, 2016).

Requested Approvals

TEP respectfully requests the following:

1. Commission approval of its 2018 EE Implementation Plan on or before December 31, 2017.
2. Approval of the 2018 EE Implementation Plan budget for \$22,916,762;
3. Approval for an increase in the DSMS from \$0.001916 to \$0.003034 per kWh of retail sales for residential customers, and from 1.9700% to 3.0559% of retail revenue for non-residential customers; and
4. A waiver pursuant to A.A.C. R14-2-2419 from the 2018 EE Standard set forth in A.A.C. R14-2-2404(B).

A. Implementation Plan Compliance

The programs documented herein are designed to make progress toward the Company's energy savings, load management and demand response goals for the 2018 program year, as set forth under A.A.C. R14-2-2403.

The 2018 EE Plan also proposes new programs as directed by the Commission in TEP's phase one rate case order (Decision No. 75975). Decision No. 75975 requires TEP to comply with the following:

IT IS FURTHER ORDERED that Tucson Electric Power Company, in its 2018 DSM Implementation Plan, increase the peak demand reductions (MW) from EE programs in 2018 and increase the peak demand reduction capability (MW) from DR and load management programs (not including Time-of-Use or other rates) in 2018 compared to the reported 2016 peak demand reductions from DR and load management programs. Such programs must consider facilitating energy storage and other advanced technologies.⁵

In selecting and planning the programs for the 2018 EE Plan, the Company has considered the cost-effectiveness and peak demand reduction of the programs; the impact of the programs on Market Transformation; the sustainability of the programs' savings; the opportunities to reduce the need for incentives; and the necessary funding to make progress toward the goals established under Decision No. 75975.

Based on market conditions, the Company is proposing incentive level reductions for almost every program in the 2018 program year. Details for each change are included in the program descriptions in Section III of the EE Plan. Additional detail is included in Appendix B, Table B-6. For most programs, the changes include reducing incentive levels from 75% of the incremental cost of the program measures to 50% of the incremental cost of the program measures. Also proposed is the inclusion of a min/max model that will not exceed 50% of the incremental cost of program measures; this will allow the Company to adjust incentives to react more quickly to market conditions. For custom projects in the C&I portfolio, the Company is proposing to reduce incentives from \$0.10 to \$0.06 per kWh.

⁵ Decision No. 75975 at page 196, lines 10-15.

Table 2 shows the progress towards the Energy Efficiency Standard. TEP tracks progress to the Standard by dividing the current year Cumulative Annual Energy Savings by the previous years Retail Energy Sales.

Table 2: TEP Cumulative Energy Savings as Compared to the Standard for Years 2010 – 2018

Year	Retail Energy Sales (MWh)	Incremental Annual Energy Savings (MWh)	Cumulative Annual Energy Savings (MWh)	Cumulative Annual Savings as a % of Prior Year Retail Sales (%)	Cumulative EE Standard Savings as a Percent (%)
2010	9,291,788				0.00%
2011	9,332,107	139,539	139,539	1.50%	1.25%
2012	9,264,818	105,655	245,194	2.63%	3.00%
2013	9,278,918	177,425	422,619	4.56%	5.00%
2014	8,520,347	221,215	643,834	6.94%	7.25%
2015	8,431,556	168,600	812,434	9.54%	9.50%
2016	8,387,868	199,467	1,011,901	12.00%	12.00%
2017	8,307,215	185,282	1,197,183	14.27%	14.50%
2018	8,359,425	175,530	1,372,713	16.52%	17.00%

B. DSM Surcharge

If the EE Plan is approved, the DSM Surcharge (“DSMS”) will increase from \$0.001916 to \$0.003034 per kWh of retail sales for residential customers, and increase from 1.9700% to 3.0559% of retail revenue for non-residential customers.

C. DSM Programs

The section below includes a list of programs in TEP’s EE Plan. Table 3 below includes the estimated budgets by program. Table 4 below includes an estimate of the annual kWh and kW savings, estimated total cost and cost per kWh reduction for each program. Detailed DSM program descriptions are included in Section III of this document.

1. Continued/Existing Programs Descriptions

Residential Sector

- N/A

Non-Residential Sector

- Combined Heat and Power (CHP)

Behavioral Sector

- Home Energy Reports

Support Sector

- Consumer Education and Outreach
- Energy Codes and Standards Enhancement

Utility Improvement Sector

- Conservation Voltage Reduction
- Generation Improvements & Facility Upgrades

2. Modified or New Programs Descriptions

Residential Sector

- Efficient Products
- Existing Homes
- Low-Income Weatherization
- Multi-Family
- Residential Load Management Pilot Program
- Residential New Construction
- Shade Tree

Non-Residential Sector

- Commercial & Industrial (C&I) Comprehensive
- Commercial New Construction
- Commercial & Industrial Demand Response Program
- Small Business Direct Install and Schools Facilities
- Commercial Community Development Pilot

Behavioral Sector

- Behavioral Comprehensive

Support Sector

- N/A

Utility Improvement Sector

- N/A

3. Discontinued Program Descriptions

Residential Sector

- Appliance Recycling

Non-Residential Sector

- Bid for Efficiency
- Retro-commissioning

4. Estimated Cost of each DSM Program

The estimated costs for each DSM program are included in Table 3 below.

Table 3: TEP 2018 Estimated Program Budget by Program

Program	Incentives	Program Delivery	Program Marketing	Utility Program Administration	Measurement, Evaluation and Research (MER)	Total Budget
Residential Sector						
Efficient Products	\$1,027,100	\$634,710	\$136,009	\$0	\$68,005	\$1,865,824

Program	Incentives	Program Delivery	Program Marketing	Utility Program Administration	Measurement, Evaluation and Research (MER)	Total Budget
Existing Homes	\$1,795,702	\$1,295,228	\$49,474	\$0	\$22,568	\$3,162,972
Low-Income Weatherization	\$998,979	\$1,471	\$3,386	\$95	\$321	\$1,004,252
Multi-Family	\$2,223,766	\$1,880,689	\$82,668	\$41,334	\$62,001	\$4,290,458
Residential Load Management Pilot Program	\$282,900	\$987,360	\$76,640	\$118,600	\$110,000	\$1,575,500
Residential New Construction	\$690,000	\$220,952	\$103,111	\$0	\$14,730	\$1,028,794
Shade Tree	\$239,822	\$7,715	\$3,600	\$0	\$514	\$251,652
Subtotal	\$7,258,269	\$5,028,126	\$444,889	\$152,029	\$278,138	\$13,179,450
Non-Residential Sector						
Combined Heat and Power Pilot	\$0	\$0	\$0	\$0	\$0	\$0
C&I Comprehensive Program	\$3,336,235	\$712,742	\$42,425	\$42,425	\$50,910	\$4,184,738
C&I Demand Response	\$0	\$700,000	\$0	\$0	\$0	\$700,000
Commercial New Construction	\$217,513	\$29,003	\$1,934	\$0	\$1,289	\$249,738
Commercial Community Development Pilot	\$0	\$200,000	\$250,000	\$50,000	\$0	\$500,000
Commercial Schools	\$414,000	\$73,000	\$5,000	\$0	\$8,000	\$500,000
Small Business Direct Install	\$272,516	\$414,626	\$28,927	\$4,821	\$33,749	\$754,639
Subtotal	\$3,826,263	\$2,056,371	\$323,286	\$97,246	\$85,948	\$6,889,115
Behavioral Sector						
Behavioral Comprehensive	\$343,761	\$224,374	\$20,168	\$0	\$7,563	\$595,866

Program	Incentives	Program Delivery	Program Marketing	Utility Program Administration	Measurement, Evaluation and Research (MER)	Total Budget
Home Energy Reports	\$319,260	\$141,734	\$326,310	\$9,141	\$30,886	\$827,330
Subtotal	\$663,021	\$366,107	\$346,478	\$9,141	\$38,449	\$1,423,196
Support Sector						
Consumer Education and Outreach	\$0	\$252,000	\$140,000	\$0	\$8,000	\$400,000
Energy Codes and Standards	\$0	\$25,000	\$0	\$0	\$0	\$25,000
Program Development, Analysis and Reporting Software	\$0	\$0	\$0	\$0	\$1,000,000	\$1,000,000
Subtotal	\$0	\$277,000	\$140,000	\$0	\$1,008,000	\$1,425,000
Utility Improvement						
Conservation Voltage Reduction	\$0	\$0	\$0	\$0	\$0	\$0
Generation Improvements & Facility Upgrades	\$0	\$0	\$0	\$0	\$0	\$0
Subtotal	\$0	\$0	\$0	\$0	\$0	\$0
Total	\$11,747,554	\$7,727,604	\$1,254,653	\$258,416	\$1,410,535	\$22,916,762
Percent of Cost by Category	52.72%	34.32%	5.57%	1.08%	6.31%	100.00%

5. Estimated Total Cost

5.1. Cost Per KWh Reduction

Table 4: TEP 2018 Estimated Costs and Savings by Program

Program	Annual Energy Savings at Generator (MWh)	Coincident Demand Savings at Generator (MW)	Total Program Budget (\$)	Cost per Lifetime kWh Saved (\$/kWh)	Cost per First Year kWh Saved (\$/kWh)
Residential Sector					
Efficient Products	20,709	2.15	\$1,865,824	\$0.004	\$0.090
Existing Homes	9,231	5.60	\$3,162,972	\$0.019	\$0.343
Low-Income Weatherization	1,126	0.52	\$1,004,252	\$0.064	\$0.892
Multi-Family	13,598	6.87	\$4,290,458	\$0.017	\$0.316
Residential Load Management Pilot Program	130	0.00	\$1,575,500	\$0.000	\$0.000
Residential New Construction	5,298	3.54	\$1,028,794	\$0.006	\$0.194
Shade Tree	593	0.22	\$251,652	\$0.011	\$0.425
Subtotal	50,685	18.91	\$13,179,450	\$0.012	\$0.260
Non-Residential Sector					
Combined Heat and Power Pilot	0	0.00	0	\$0.000	\$0.000
C&I Comprehensive Program	31,298	7.92	\$4,184,738	\$0.009	\$0.134
C&I Direct Load Control	19,599	32.24	\$700,000	\$0.000	\$0.000
Commercial New Construction	2,238	0.94	\$249,738	\$0.006	\$0.112
Commercial Community Development -Pilot	0	0.00	\$500,000	\$0.000	\$0.000
Commercial Schools	1,022	0.12	\$500,000	\$0.018	\$0.489
Small Business Direct Install	4,821	0.41	\$754,639	\$0.005	\$0.157
Subtotal	58,977	41.64	\$6,889,115	\$0.082	\$0.117
Behavioral Sector					
Behavioral Comprehensive	4,825	0.35	\$595,866	\$0.005	\$0.123
Home Energy Reports	7,583	0.95	\$827,330	\$0.012	\$0.109
Subtotal	12,408	1.30	\$1,423,196	\$0.007	\$0.115
Support Sector					

Program	Annual Energy Savings at Generator (MWh)	Coincident Demand Savings at Generator (MW)	Total Program Budget (\$)	Cost per Lifetime kWh Saved (\$/kWh)	Cost per First Year kWh Saved (\$/kWh)
Consumer Education and Outreach	0	0.00	\$400,000	\$0.000	\$0.000
Energy Codes and Standards	6,000	1.64	\$25,000	\$0.004	\$0.004
Program Development, Analysis and Reporting Software	0	0.00	\$1,000,000	\$0.000	\$0.000
Subtotal	6,000	1.64	\$1,425,000	\$0.238	\$0.238
Utility Improvement					
Conservation Voltage Reduction	0	0.00	0	\$0.000	\$0.000
Generation Improvements & Facility Upgrades	0	0.00	0	\$0.000	\$0.000
Subtotal	0	0.00	\$0		\$0.000
EE Standard Allowed Credits	47,460	0.04	0	\$0.000	\$0.000
Total	175,530	63.52	\$22,916,762	\$0.012	\$0.131

II. DSM Tariffs (R14-2-2406)

A. DSM Surcharge Calculations

1. Request to Modify and Reset Existing Adjustment Mechanism

A.A.C. R14-2-2410(A) allows TEP to recover the costs incurred in planning, designing, implementing, and evaluating each Commission-approved DSM measure or DSM program. The Company uses a DSMS adjustment mechanism to recover such costs. TEP requests to modify and reset its existing DSM Surcharge to recover the reasonable and prudent costs associated with implementing DSM programs as permitted in A.A.C. R14-2-2406(C). Accordingly, if approved, the DSM Surcharge (“DSMS”) will increase from \$0.001916 to \$0.003034 per kWh of retail sales for residential customers, and increase from 1.9700% to 3.0559% of retail revenue for non-residential customers.

2. Description of Method Proposed to Recover Costs

TEP does not currently have a DSMS Plan of Administration (“POA”) in place.⁶ TEP therefore includes a DSMS POA with this Implementation Plan filing for Commission approval. See Appendix D for further information.

3. Data Supporting the Level of Costs that Will Be Incurred

As required by A.A.C. R14-2-2410(A) (3), TEP includes data supporting the level of costs that the Company believes will be incurred in order to implement the programs detailed within this EE Plan. See Section I.B.4 for further information.

⁶ Decision No. 75975 at page 173, lines 2-5.

III. DSM Programs and Measures (R14-2-2407)

Residential Programs

The following section includes a summary of TEP's Residential Programs.

A. Appliance Recycling (Suspended)

1. Description of program

The Appliance Recycling program is an existing program most recently approved by the Commission in Decision No. 75450 (February 11, 2016).

2. Modifications Proposed

TEP proposes to discontinue this Program. As previously reported to the Commission, due to the unforeseen shut down of operations by the IC, JACO Environmental, Inc., on November 20th, 2015, the Appliance Recycling program was temporarily suspended. In 2016, TEP, in conjunction with UNS Electric, released an RFP to restart the program but did not receive a proposal that met all requirements of the program. In 2017, the companies planned to release an updated RFP and to restart the program utilizing an in-house administered web portal. Despite these efforts, TEP has been unable to find a viable, cost-effective, and financially sound IC to successfully restart program delivery.

3. Program objectives and rationale

Not applicable.

4. Targeted market segment

Not applicable.

5. Estimated level of customer participation

Not applicable.

6. Estimate of the baseline

Not applicable.

7. Estimated societal benefits and savings

Not applicable.

8. Estimated societal costs

Not applicable

9. Estimated environmental benefits

Not applicable

10. Estimated benefit-cost ratio

Not applicable

11. Marketing and delivery strategy

Not applicable

12. Estimated annual costs and budget

Not applicable

13. Implementation schedule

The Program has been suspended since November 2015. TEP proposes that the program be immediately discontinued.

14. Description of MER plan

Not applicable.

15. Other information relevant to the consideration of the tariff filing

TEP has provided all of the information it believes is necessary for consideration of the tariff filing for this program.

B. Efficient Products Program (Existing Program)

1. Description of Program

The Efficient Products program is an existing program that has been in place since 2008 and was most recently approved by the Commission in Decision No. 75450. The Program promotes the installation of energy efficient products by eligible customers in TEP service territory through retail promotions and partnerships.

2. Modifications Proposed

TEP is requesting lowering incentive levels to 50% of incremental cost and is using the min/max incentive model applied to the weighted average, as shown in Appendix B, Table B-6. This approach is in response to market trends. In addition, TEP is requesting to implement a monthly incentive maximum of up to \$3,500 per retailer to be set within the appliance program.

TEP is requesting approval to add one new measure for 2018: “ENERGY STAR® qualified Heat Pump Water Heaters.” The proposed measure and its associated metrics are shown in Appendix A.

3. Program objectives and rationale

There are no proposed modifications to the Program's objectives and rationale. The Program offers customers opportunities to reduce their energy consumption by purchasing energy efficient retail products, and furthers the transformation of the market through leveraging retail partnerships, training retail staff, and working with retailers to increase 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 ENERGY STAR® products;
- Increase the availability of ENERGY STAR® products in the marketplace; and
- Increase the awareness and knowledge of retailers and TEP customers about the benefits of ENERGY STAR® products.

4. Targeted market segment

There are no proposed modifications to the targeted market segment. The Program is available to residential and small commercial customers in the TEP service territory.

5. Estimated level of customer participation

The estimated level of customer participation for 2018 is shown in Appendix B, Table B-1. The corresponding data for the proposed measure is shown in Appendix A, Table A-1.

6. Estimate of the baseline

The estimated baseline for 2018 is shown in Appendix B, Table B-2. The corresponding data for the proposed measure is shown in Appendix A, Table A-2.

7. Estimated societal benefits and savings

The estimated societal benefits and savings for 2018 are shown in Appendix B, Table B-3 in. The corresponding data for the proposed measure is shown in Appendix A, Table A-3.

8. Estimated societal costs

The estimated societal costs for 2018 are shown in Appendix B, Table B-3. The corresponding data for the proposed measure is shown in Appendix A, Table A-3.

9. Estimated environmental benefits

The estimated environmental benefits for 2018 are shown in Appendix B, Table B-4. The corresponding data for the proposed measure is shown in Appendix A, Table A-4.

10. Estimated cost benefit ratio

The estimated benefit-cost ratio for 2018 is shown in Appendix B, Table B-3. The corresponding data for the proposed measure is shown in Appendix A, Table A-3.

11. Marketing and delivery strategy

The Program is primarily marketed through mass-market channels (e.g., radio, newspaper, website, social media etc.), or through educational and training partnerships with participating retailers. A proposed modification to this program is to add an education component to Pool Pump sub-program.

12. Estimated annual costs and budget

The estimated annual Program costs and budget for 2018 are shown in Table 3. The estimated annual budget and costs for the Program's existing measures are shown in Appendix B, Table B-5. The corresponding data for the proposed measure is shown in Appendix A, Table A-5.

13. Implementation schedule

TEP plans to implement any changes to the program within 30 days of receiving the Commission's approval.

14. Description of MER plan

The MER plan is consistent with the strategy previously approved by the Commission.

15. Other information relevant to the consideration of the tariff filing

TEP has provided all of the information it believes is necessary for consideration of the tariff filing for this program.

C. Existing Homes (Existing Program)

1. Description of program

The Existing Homes program has been in place since 2008 and was most recently approved by the Commission in Decision No. 75450.

The Program, now marketed as the "Efficient Home Program," is designed to encourage homeowners to increase the energy efficiency of their homes. The Program provides incentives for high-efficiency HVAC equipment and tune-ups, duct sealing and installing smart thermostats.

2. Modifications Proposed

TEP is requesting lowering incentive levels to 50% of incremental cost and using the min/max incentive model applied to the weighted average, as shown in Appendix B, Table B-6. This approach is in response to market trends.

TEP is requesting approval to add one new measure for 2018: "ENERGY STAR® qualifying Heat Pump Water Heaters." The proposed measure and its associated metrics are shown in Appendix A.

3. Program objectives and rationale

There are no proposed changes to the objectives and rationale for the Program. The objectives of the Existing Homes program are to achieve energy savings in the residential sector, as follows:

- Properly size and provide quality installation of high efficiency HVAC equipment, tune-up existing equipment, seal leaky ductwork, and install smart thermostats.
- Cultivate customer demand, and a qualified contractor base, for comprehensive EE retrofits in alignment with the "Home Performance with ENERGY STAR" program.

4. Targeted market segment

TEP is requesting the following modifications to the program. TEP requests that the eligibility criteria be modified to allow the Program to be available to residential customers with qualifying properties including rentals and/or individual ownership with four (4) or less connected units.

5. Estimated level of customer participation

The estimated level of customer participation for 2018 is shown in Appendix B, Table B-1. The corresponding data for the proposed measure is shown in Appendix A, Table A-1.

6. Estimate of the baseline

The estimated baseline for 2018 is shown in Appendix B, Table B-2. The corresponding data for the proposed measure is shown in Appendix A, Table A-2.

7. Estimated societal benefits and savings

The estimated societal benefits and savings for 2018 are shown in Appendix B, Table B-3. The corresponding data for the proposed measure is shown in Appendix A, Table A-3.

8. Estimated societal costs

The estimated societal costs for 2018 are shown in Appendix B, Table B-3. The corresponding data for the proposed measure is shown in Appendix A, Table A-3.

9. Estimated environmental benefits

The estimated environmental benefits for 2018 are shown in Appendix B, Table B-4. The corresponding data for the proposed measure is shown in Appendix A, Table A-4.

10. Estimated benefit-cost ratio

The estimated benefit-cost ratio for 2018 is shown in Appendix B, Table B-3. The corresponding data for the proposed measure is shown in Appendix A, Table A-3.

11. Marketing and delivery strategy

TEP provides program management, oversight, and marketing. All measures except smart thermostats are provided by a third-party IC that is responsible for: i) recruitment, training, and mentorship of participating contractors; ii) data tracking; iii) rebate processing; and iv) technical support.

There is one proposed change to the marketing and delivery strategy for the Program: in conjunction with the proposed Residential Load Management Pilot Program, TEP proposes that new and existing customers who already own a smart thermostat(s) be invited to participate in the proposed pilot program.

12. Estimated annual costs and budget

The estimated annual Program costs and budget for 2018 are shown in Table 3. The estimated annual budget and costs for the Program's existing measures are shown in Appendix B, Table B-5. The corresponding data for the proposed measure is shown in Appendix A, Table A-5.

13. Implementation schedule

TEP plans to implement any changes to the program within 30 days of receiving the Commission's approval.

14. Description of MER plan

The MER plan is consistent with the strategy previously approved by the Commission.

15. Other information relevant to the consideration of the tariff filing

TEP has provided all of the information it believes is necessary for consideration of the tariff filing for this program.

D. Low-Income Weatherization (Existing Program)

1. Description of program

The Low-Income Weatherization (LIW) program is an existing program and was most recently approved by the Commission in Decision No. 75450. This program is designed to install weatherization measures to reduce electric bills for eligible customers and improve their comfort and quality of life. Energy savings realized through the program allows low-income customers to better utilize their limited income for other items such as health and safety.

2. Modifications Proposed

The Company proposes to increase the maximum expenditure per home from the currently approved \$3,000 to \$6,000. Over the last few years, the Company has found that in a significant number of cases, the cost to implement necessary measures required to create reasonable energy efficiency exceeded \$3,000. The proposed \$6,000 cap is consistent with the level approved for Arizona Public Service in Decision 68647 (April 12, 2006).

In addition, TEP requests the ability to utilize additional agencies to those currently approved to assist in the delivery the LIW Program.

3. Program objectives and rationale

There are no changes to the Program's objectives and rationale. The objectives of the Program are to:

- Increase the number of homes weatherized each year;
- Reduce participating low-income customers' average household utility bills by utilizing energy conservation measures as defined in the rules maintained by the Weatherization Assistance Program (WAP), as shown in Appendix C, a program funded by the United States Department of Energy ("DOE")
- Improve the quality of life for customers by providing them with a safer and healthier home.

4. Targeted market segment

There are no changes to the Program's targeted market segment. The Program is available to low-income residential customers in the TEP service territory at or below 200 percent of the Federal Poverty Level.

5. Estimated level of customer participation

The estimated level of customer participation for 2018 is shown in Appendix B, Table B-1.

6. Estimate of the baseline

The estimated baseline for 2018 is shown in Appendix B, Table B-2.

7. Estimated societal benefits and savings

The estimated societal benefits and savings for 2018 are shown in Appendix B, Table B-3.

8. Estimated societal costs

The estimated societal costs for 2018 are shown in Appendix B, Table B-3.

9. Estimated environmental benefits

The estimated environmental benefits for 2018 are shown in Appendix B, Table B-4.

10. Estimated benefit-cost ratio

TEP is requesting a modification to the Commission requirement to re-establish cost-effectiveness for low-income customer programs. Because the Program offers significant benefits to vulnerable customer populations, other utilities governed by the Commission have established the precedent of demonstrating cost-effectiveness of the program one time, and having the benefits to costs ratio assumed equal to 1.00 for future years.

11. Marketing and delivery strategy

TEP proposes the utilization of various measures laid out in the WAP Rules, as shown in Appendix C. For measures that require direct installation, TEP will perform a pre- and post-inspection of the units to ensure proper installation.

The weatherization component is delivered by community action agencies approved by the Arizona Department of Housing ("ADOH"). These agencies provide program administration, planning, promotion, verification of participant eligibility, labor, materials, equipment and tracking software. Funding is provided to relevant agencies by TEP upon documentation of work completed.

Weatherization measures fall into four major categories: i) duct repair; ii) pressure management/infiltration control; iii) attic insulation; and iv) repair or replacement of non-functional or hazardous appliances. Weatherization is conducted in accordance with WAP Rules.

12. Estimated annual costs and budget

The estimated annual Program costs and budget for 2018 are shown in Table 3.

13. Implementation schedule

TEP plans to implement any changes to the program within 30 days of receiving the Commission's approval.

14. Description of the plan for MER

Prior to 2016, TEP used the LIW savings numbers published on an annual basis by the Governor's Office and the ADOH to assign deemed savings values to homes weatherized through the LIW program. These numbers were not specific to TEP territory however, and the source of these savings values was not transparent. In 2016, Navigant conducted an analysis of actual REM/Design program files from participating homes in the TEP and UNS Electric service areas which underwent weatherization during 2015. Based on this analysis, Navigant provided TEP with updated and more accurate savings values specific to the TEP and UNS Electric's programs. TEP has used these research-based savings values for claiming program savings during 2016 and will do so in future years.

15. Other information relevant to the consideration of the tariff filing

TEP has provided all of the information it believes is necessary for consideration of the tariff filing for this program.

E. Multi-Family (Existing Program)

1. Description of program

The Multi-Family program is an existing program and was most recently approved by the Commission in Decision No. 75450.

The Program is designed to overcome barriers to energy efficiency in the multi-family housing market. The Program is available to multi-family properties with buildings consisting of five (5) or more connecting residential units. Qualifying properties could include rentals and/or individually owned properties.

The Program encourages multi-family properties to install efficient lighting and low-flow water devices. The Program also offers HVAC tune-up measures, Western Cooling Controls, and Duct Testing and Repair. Additionally, multi-family facility managers are encouraged to participate in the C&I Facilities program, which promotes EE measure installation in common areas.

2. Modifications Proposed

For all measures other than those included in direct install, TEP is requesting lowering incentive levels to up to 50% of incremental cost and is using the min/max incentive model applied to the weighted average, refer to Appendix B, Table B-6 to see the recommended incentive for each measure. This approach is in response to market trends.

TEP is requesting approval to add two (2) new measures to the Multi-Family program, each of which have been previously approved by the Commission⁷ for use in other TEP programs:

- *HVAC (Replace-On-Burnout)*: This measure has been most recently approved for use in TEP's Existing Homes program. The proposed measure and its associated metrics are shown in Appendix A.
- *HVAC (Early Retirement)*: This measure has been most recently approved for use in TEP's Existing Homes program. The proposed measure and its associated metrics are shown in Appendix A.

3. Program objectives and rationale

There are no changes to the Program's objectives or rationale. The potential for energy efficiency improvements in the multi-family housing market remains largely under-realized. Because of various market barriers, such as split incentives, capital constraints and lack of awareness, energy efficiency improvements are typically a low priority. Through the direct installation and renovation/rehabilitation implementation framework, this Program addresses these issue and offers substantial energy savings.

The objectives of the Program are to:

- Reduce peak demand and overall energy consumption in the multi-family housing market;
- Promote energy efficiency retrofits for both dwelling units and common areas (through the C&I Program); and
- Increase overall awareness of the importance and benefits of EE improvements to the landlord, tenants, and property ownership community.

4. Targeted market segment

There are no proposed modifications to targeted market segment for this Program. The Program is available to multi-family properties with buildings consisting of five (5) or more connecting residential units. Qualifying properties could include rentals and/or individually owned properties.

5. Estimated level of customer participation

The estimated level of customer participation for 2018 is shown in Appendix B, Table B-1. The corresponding data for the proposed measure is shown in Appendix A, Table A-1.

6. Estimate of the baseline

The estimated baseline for 2018 is shown in Appendix B, Table B-2. The corresponding data for the proposed measure is shown in Appendix A, Table A-2.

⁷ Decision No. 75450.

7. Estimated societal benefits and savings

The estimated societal benefits and savings for 2018 are shown in Appendix B, Table B-3. The corresponding data for the proposed measure is shown in Appendix A, Table A-3.

8. Estimated societal costs

The estimated societal costs for 2018 are shown in Appendix B, Table B-3. The corresponding data for the proposed measure is shown in Appendix A, Table A-3.

9. Estimated environmental benefits

The estimated environmental benefits for 2018 are shown in Appendix B, Table B-4. The corresponding data for the proposed measure is shown in Appendix A, Table A-4.

10. Estimated benefit-cost ratio

The estimated benefit-cost ratio for 2018 is shown in Appendix B, Table B-3. The corresponding data for the proposed measure is shown in Appendix A, Table A-3.

11. Marketing and delivery strategy

There are no proposed modifications to the marketing and delivery strategy for this Program. Marketing and communications strategies may include notifying property managers and owners through updates to the website, training seminars, call center on-hold messages, direct mail promotion, outreach to rental housing industry associations, and working with contractors and industry specialists. Primary emphasis is placed on low-income, subsidized housing complexes and on larger, older, and less efficient complexes.

Program delivery for existing measures is provided by either TEP staff and/or an implementation contractor ("IC").

12. Estimated annual costs and budget

The estimated annual Program costs and budget for 2018 are shown in Table 3. The estimated annual budget and costs for the Program's existing measures are shown in Appendix B, Table B-5. The corresponding data for the proposed measures is shown in Appendix A, Table A-5.

13. Implementation schedule

TEP plans to implement any changes to the program within 30 days of receiving the Commission's approval.

14. Description of the plan for MER

The MER plan is consistent with the strategy previously approved by the Commission.

15. Other information relevant to the consideration of the tariff filing

TEP has provided all of the information it believes is necessary for consideration of the tariff filing for this program.

F. Residential Load Management Pilot Program (New Program)

1. Description of program

Decision No. 75975 directed TEP to propose a residential or feeder level Demand Response (“DR”) program with energy storage as part of its 2018 EE Plan.

IT IS FURTHER ORDERED that Tucson Electric Power Company shall propose to the Commission, for approval, a residential or feeder level DR or load management program with a budget of \$1.3 million which may be funded using unspent DSMAC⁸ collections, that facilitates energy storage technology, as discussed herein, within 120 days of the effective date of this Order.⁹

“Residential customers who participate in the program will be placed on advanced, time-differentiated rate plans. This advanced rate would include proper price signals based on the principles of: 1) an On Peak/Off Peak rate with sufficient rate spread between the two time periods, 2) a manageable On Peak window to allow for adequate “peak shaving,” and 3) proper price signals based on seasonality. As such, TEP will use rate plans and tariffs deemed appropriate by the Company for participants in this program [sic].”¹⁰

In accordance with that Decision, TEP is proposing a new Residential Load Management pilot program that incorporates residential Demand Response, residential Thermal Storage, and Feeder Level Energy Storage. This pilot will let TEP explore the potential benefits of managing residential peak demand to align with system needs through direct load management of appliances. Such appliances may include air-conditioners (“AC”), heat pumps, water heaters and bi-directional communicating devices like smart thermostats to send load management signals to these appliances. Through vendor partnerships, TEP can manage the load of these appliances during periods of peak demand. Participants in this Program will also participate in one of the Commission approved time differentiated residential tariffs, and receive an annual incentive of up to \$80 using a min/max model; the Company proposes an initial annual incentive level of \$40 with flexibility to adjust the incentive level of this pilot if needed to drive participation.

- **Demand Response** – Communicating smart thermostats will be used to manage participants’ ACs or heat pumps during system peak events, by either adjusting thermostat settings or cycling compressor run times. Participants will have the option to manage thermostat temperature settings, opt-out of load management events, and will receive an incentive of \$40 annually for participating. The program will be managed to accomplish minimal impact on participating customers i.e. temperature adjustments within a limited range.
- **Thermal Storage**– Communicating smart thermostats, high efficiency air conditioners and heat pumps, and/or communicating water heaters with high storage capacity will be used to reduce system peak and provide load management by shifting demand into periods that are off-peak at the feeder level. Features that may be tested include the ability for participants to opt for automatic pre-cooling of their home prior to peak demand periods, and the use of thermal water heater storage to engage excess renewable energy during mid-day on shoulder months. This pilot program will allow TEP to study the effectiveness of these load management technologies.

⁸ Decision No. 75975 includes “DSMAC” as an abbreviation for “DSM Adjustor Charge,” which is an alternate nomenclature for “DSM Surcharge,” or “DSMS”.

⁹ Decision No. 75975 at page 196, lines 20-23.

¹⁰ Decision No. 75975 at page 174, lines 15-20.

- **Feeder Level Energy Storage** – Feeder-level energy storage will be explored as a way to reduce system peak, provide feeder congestion relief, and support local power quality on selected distribution feeders.
- **Geo-targeting** – While this Program will be available to all residential customers, marketing will be emphasized in areas where the company has prioritized system assets that will have the most positive impact from load management.

2. Modifications Proposed

N/A

3. Program objectives and rationale

The Residential Load Management pilot program is intended to analyze the feasibility and effectiveness of the direct load management of participating customers' appliances, to study the effectiveness of residential-level thermal storage strategies, and to assess the efficiency of feeder-level battery storage to provide congestion relief and reduce system peaks. These strategies, either individually or in various combinations, will be assessed based on their ability to shift energy use and manage peak demand. The Residential Load Management pilot program benefits all TEP customers by helping defer the expense of future infrastructure investments.

4. Targeted market segment

The Program is targeted to residential customers who own or want to install a communicating smart thermostats or who elect to participate in the thermal storage pilot. TEP will consider and may opt to recruit participants into the thermal storage pilot who are served by selected feeders identified by TEP as needing congestion relief.

5. Estimated level of customer participation

Table 5. Estimated Participation for Residential Load Management Pilot Program

DR Strategy	2018 Estimated Participation
Residential Load Management	650
Residential Thermal Storage Pilot	200

6. Estimate of the baseline

Baseline data is not available for the new measures proposed in this pilot program. Through the pilot program TEP will evaluate both the market and technical potential of the measures and strategies.

7. Estimated societal benefits and savings

NA

8. Estimated societal costs

The estimated societal costs for 2018 are shown in Table 3.

9. Estimated environmental benefits

NA

10. Estimated benefit-cost ratio

NA

11. Marketing and delivery strategy

Eligible customers from the TEP service territory will be invited to participate in this program. For the DR component, TEP will leverage the existing base of customers who already own smart thermostats, and will encourage the participation of its customers who install smart thermostats through its other residential EE programs. Participation will be solicited mainly through digital means including e-notifications and email.

12. Estimated annual costs and budget

Decision No. 75975 directs TEP to establish a \$1.3 million budget for this pilot program. See Table 3 above.

13. Implementation schedule

Table 7 shows a planned implementation schedule for the first year of the program, with dates for major milestones in the program design, implementation and evaluation.

Table 6. Residential Load Management Pilot Program Implementation Schedule

LOAD MANAGEMENT PILOT PROGRAM:	Demand Response	Thermal Storage	Feeder Storage
Program plan submitted to ACC for approval	August, 2017		
Anticipated date of approval	January, 2018		
Finalize program design and agreements	3 months after approval	4 months after approval	3 months after approval
Award program implementation contracts	3 months after approval	4 months after approval	3 months after approval
Complete agency and contractor training	4 months after approval	5 months after approval	NA
Program launch; Customer enrollment	9 months after approval	8 months after approval	5 months after approval

Program evaluation complete (12 month cycle)	15 months after customer launch	15 months after customer launch	15 months after customer launch
Conclude pilot, Year 3	36 months after approval		

14. Description of the plan for MER

The MER plan is consistent with the strategy previously approved by the Commission.

15. Any other information relevant to the consideration of the tariff filing

TEP has provided all of the information it believes is necessary for consideration of the tariff filing for this program.

G. Residential New Construction (Existing Program)

1. Description of program

The Residential New Construction program, marketed as the “Energy Smart Homes” Program, is an existing program most recently approved by the Commission in Decision No. 75450.

The Program provides a monetary incentive, to homebuilders that achieve a Home Energy Rating System (“HERS”) Index score of ≤ 65 for a newly constructed home, as determined by the ENERGY STAR® Certified Homes program requirements or equivalent.

2. Modifications Proposed

TEP is requesting to lower the incentive for new single family homes from \$400 to \$300 using the proposed min/max incentive model, shown in Appendix B, Table B-6.

New Construction Multi-Family: TEP is requesting approval of New Construction for Multi-Family housing focusing on low income areas. The proposed measure and its associated metrics are shown in Appendix A.

3. Program objectives and rationale

There are no proposed modifications to the Program’s objectives and rationale. The objectives of the Program are to promote energy efficient building practices. This is accomplished through builder training, customer awareness, and the promotion of energy efficient homes to consumers.

4. Targeted market segment

TEP is requesting approval for a proposed modification to the Program's eligibility criteria to include low income multi-family housing.

Builders of newly-constructed single-family homes in the TEP service territory are currently eligible to participate in the program.

5. Estimated level of customer participation

The estimated level of customer participation for 2018 is shown in Appendix B, Table B-1.

6. Estimate of the baseline

The estimated baseline for 2018 is shown in Appendix B, Table B-2.

7. Estimated societal benefits and savings

The estimated societal benefits and savings for 2018 are shown in Appendix B, Table B-3.

8. Estimated societal costs

The estimated societal costs for 2018 are shown in Appendix B, Table B-3.

9. Estimated environmental benefits

The estimated environmental benefits for 2018 are shown in Appendix B, Table B-4.

10. Estimated benefit-cost ratio

The estimated benefit-cost ratio for 2018 is shown in Appendix B, Table B-3.

11. Marketing and delivery strategy

TEP is requesting approval for a proposed modification to the Program's marketing and delivery strategy. The Program is marketed to select builders primarily through direct business-to-business contacts. With the addition of a multi-family measure, marketing will also occur through direct engagement with multi-family apartment owners and managers.

The program is delivered by TEP staff. Home inspections are conducted by third-parties certified by the Residential Energy Services Network ("RESNET"), who are selected by each builder.

12. Estimated annual costs and budget

The estimated annual Program costs and budget for 2018 are shown in Table 3. The estimated annual budget and costs for the Program's existing measures are shown in Appendix B, Table B-5.

13. Implementation schedule

TEP plans to implement any changes to the program within 30 days of receiving the Commission's approval.

14. Description of the plan for MER

The MER plan is consistent with the strategy previously approved by the Commission.

15. Other information relevant to the consideration of the tariff filing

TEP has provided all of the information it believes is necessary for consideration of the tariff filing for this program.

H. Shade Tree (Existing Program)

1. Description of program

The Shade Tree Program is an existing program that was most recently approved by the Commission in Decision No. 75450.

The Shade Tree Program, currently marketed under the name “Trees for You” (“TFY”), provides desert-adapted trees to TEP customers.

2. Modifications Proposed

The Company is proposing to suspend the program during the summer months (June to August), because of the low survival rate for trees planted during the summer heat, and to reduce incentive levels for non-residential customers.

- The fee for the 15 gallon trees be increased from \$15 to \$25 per tree for non-residential customers.
- The fee for the 5 gallon trees be increased from \$5 to \$10 for non-residential customers.

3. Program objectives and rationale

There are no proposed modifications to the Program’s objectives and rationale. The objective of the Program is to promote energy conservation, encourage environmental sustainability, and increase awareness of 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.

4. Targeted market segment

There are no proposed modifications to the Program’s eligibility criteria. The Program is currently available to all TEP customers.

5. Estimated level of customer participation

The estimated level of customer participation for 2018 is shown in Appendix B, Table B-1.

6. Estimate of the baseline

The estimated baseline for 2018 is shown in Appendix B, Table B-2.

7. Estimated societal benefits and savings

The estimated societal benefits and savings for 2018 are shown in Appendix B, Table B-3.

8. Estimated societal costs

The estimated societal costs for 2018 are shown in Appendix B, Table B-3.

9. Estimated environmental benefits

The estimated environmental benefits for 2018 are shown in Appendix B, Table B-4.

10. Estimated benefit-cost ratio

The estimated benefit-cost ratio for 2018 is shown in Appendix B, Table B-3.

11. Marketing and delivery strategy

The Program is delivered in coordination with Civano Nursery, primarily in partnership with additional nurseries. Residents complete an online application and pay for the tree(s) via TEP's website. Civano Nursery delivers the tree(s) to a participating nursery of the customer's choice for pickup by the customer. Residential customers are limited to three 5-gallon trees per year, in order to prevent a potential shortage for other eligible customers. Each tree must be planted on the south, west, or east side of the home, and within 15 feet of an occupied structure.

Community organizations, commercial customers, and schools are also eligible to participate in the Program. These customers have the option to purchase up to ten 15-gallon trees per year, which must also be planted according to the above guidelines. This limit can be increased if a non-residential customer can demonstrate sufficient space to plant the shade tree, and if there are sufficient supplies for residential customers. Partner nursery deliver the tree(s) directly to their intended sites for non-residential customers.

All customers that receive trees through the Shade Tree Program also receive information on caring for and planting shade trees. TEP staff performs post-inspection and verification of installation biennially on 200 randomly selected trees. The sample size is designed to generate an acceptable level of confidence that a sufficiently high proportion of Program trees are planted properly. During inspection, tree mortality is noted as well. This inspection protocol ensures that the delivered trees are planted in accordance with program guidelines.

As part of its outreach activities TEP occasionally gives away complimentary shade trees at community events in order to draw customers to its education and outreach booth and provide customers with information on additional TEP EE programs.

12. Estimated annual costs and budget

The estimated annual Program costs and budget for 2018 are shown in Table 3. The estimated annual budget and costs for the Program's existing measures are shown in Appendix B, Table B-5.

13. Implementation schedule

TEP plans to implement any changes to the program within 30 days of receiving the Commission's approval.

14. Description of MER plan

The MER plan is consistent with the strategy previously approved by the Commission.

15. Other information relevant to the consideration of the tariff filing

TEP has provided all of the information it believes is necessary for consideration of the tariff filing for this program.

Commercial & Industrial Programs

The following section includes a summary of TEP's Commercial and Industrial (C&I) programs.

Annual Customer Caps

The Company proposes that the amount of incentives any customer may receive on an annual basis be established and set at \$600,000 plus 50% of any remaining eligible incentive amount. TEP generally defines the customer as the energy efficiency decision maker at an organization or firm that receives electric service from TEP on an approved rate schedule.

Proposed Modifications to the Commercial Portfolio Incentive Levels

TEP is requesting changes to the incentive levels for this program on the proposed min/max incentive model in order to respond to market trends to a maximum of 50% of incremental cost, shown in Appendix B, Table B-6.

TEP proposes that when a project can fall into multiple commercial EE programs (*i.e.*, Easy Save and Easy Save Plus), if there are two possible incentives, the lower of the two incentive levels applies.

TEP proposes to reduce the incentive for annual energy saved for all custom cost-effective measures to \$0.06 per kWh from the current \$0.10 per kWh).

A. Commercial & Industrial (C&I) Comprehensive Program (Existing Program)

1. Description of Program

The C&I Comprehensive Program, currently marketed as the "EasySave Plus" program, is an existing program which has been offered since 2008 and most recently approved by the Commission in Decision No. 75450. The program provides incentives to TEP's non-residential customers for installation of EE measures in existing facilities. Eligible participants include small and large commercial customers, industrial customers, and other customers receiving service under a non-residential tariff.

The Program currently offers incentives up to 75% of incremental cost for the installation of high efficiency HVAC, lighting, and refrigeration equipment and controls, motors and motor drives, plug load equipment, as well as many other high-efficiency measures. The incremental cost is the cost of equipment of the energy efficient measure over the cost of equipment of a less efficient baseline unit that would otherwise have been installed in absence of incentives. The baseline at a minimum is considered to meet the federal equipment standards and/or local building codes. In some cases, the incremental cost may include the cost of labor if an energy efficient measure is a retrofit project that would not otherwise have been undertaken by a building owner in the absence of incentives. The program also provides customers with the opportunity to propose and receive rebates for innovative EE solutions through custom measures.

2. Modifications Proposed

TEP is requesting to reduce incentive levels to 50% of incremental cost and is using the min/max incentive model applied to the weighted average, shown in Appendix B, Table B-6. This approach is in response to market trends.

In addition, TEP is requesting approval of the following new measures to be incentivized by the C&I Comprehensive Program in 2018:

- Demand-Controlled Kitchen Ventilation (DCKV)
- High Efficiency Laboratory Fume Hoods
- Compressed Air Systems: Variable Frequency Drive (VFD) Air Compressor
- Compressed Air Systems: Zero-Loss Condensate Drain Trap
- Cogged V-belts

All of the measures listed above have historically been incentivized through TEP's custom measure analysis. TEP determined these measures to be cost-effective, providing a positive societal benefit, as shown in Appendix A, Table A-3.

In addition to measures listed above, TEP also evaluated Cycling Air Dryer. However, this technology is not currently cost-effective. The details of this measure's analysis can also be found in Appendix B, Table B-3.

Furthermore, following updates associated with changes in equipment costs and utility avoided costs, TEP found a number of existing measures to no longer be cost-effective. TEP requests to discontinue the following existing measures, based on societal benefit to cost ratio of less than 1, as can be found in Appendix B, Table B-3.

- Premium T-8 Lighting
- HID to T8/T5 Interior Lighting
- Pulse Start Metal Halide Exterior Lighting
- Advanced Power strips with Occupancy Sensors

TEP requests approval to continue offering its non-residential customers existing measures, along with the new measures and the consolidated programs, providing incentives as approved by the Commission. The requested incentive levels for C&I Comprehensive Program measures represent the weighted average of incentives for each installed unit, which vary depending on the unit energy usage, efficiency, capacity, power, and incremental cost of the EE measure compared to its installed baseline equipment.

New Measure for 2018: Demand-Controlled Kitchen Ventilation (DCKV)

DCKV uses advanced sensors and variable speed controls to offer significant reductions in commercial kitchen energy use. While most restaurant ventilation systems operate at only one or two speeds, regardless of the actual need, DCKV responds to real-time kitchen volume. Automatic fan controls modulate or shut off the exhaust fan when cooking is reduced or no cooking is performed during slow periods. This can be accomplished through the use of temperature sensors, optical smoke/steam sensors, and space pressure monitoring.

TEP proposes to offer a new DCKV prescriptive measure within the C&I Comprehensive Program, which will leverage the energy savings associated with upgrading existing constant volume kitchen exhaust hood controls with variable volume controls. TEP has determined this measure to be cost-

effective, as can be seen in Appendix A, Table A-3. TEP encourages its implementation with incentives to TEP customers and requires the following:

- Baseline unit is a functional, constant air volume kitchen exhaust hood with manual controls for exhaust and make-up air systems.
- Efficient measure is a DCKV system, as described above, that meets the minimum requirements of the 2012 International Mechanical Code for commercial kitchen exhaust hoods.

New Measure for 2018: High Efficiency Laboratory Fume Hoods

Laboratory fume hoods are intended to provide adequate protection for workers conducting experiments or manufacturing activities within hoods in laboratories, and these hoods are energy-intensive. According to Lawrence Berkeley National Laboratory, a typical laboratory fume hood in the United States uses 3.5-times as much energy as a home.¹¹ The growth in new construction and renovation of hospital, medical, and pharmaceutical research facilities presents an opportunity to increase the energy efficiency of fume hoods.

TEP requests approval for a prescriptive High Efficiency Laboratory Fume Hood measure that will result in energy savings associated with retrofitting inefficient laboratory fume hoods with high efficiency laboratory fume hoods. Energy savings are achieved based on reduced fan energy of makeup and exhaust air systems, reduced cooling or heating energy of makeup air, where necessary. TEP has determined this measure to be cost-effective, as can be seen in Appendix A, Table A-3. TEP encourages its implementation with incentives to TEP customers and requires the following:

- Baseline unit is a laboratory fume hood with constant volume, variable air volume, or two state controls for exhaust and make-up air systems. These systems typically have face airflow velocity of approximately 100 FPM to keep contaminated air from escaping into laboratory spaces.
- High efficiency laboratory fume hood is a retrofit, replacement, or a new installation. Its design must reduce the air turbulence within the hood and must safely operate at a face airflow velocity of 50-60 FPM. The upgraded system must meet all state and local codes and/or the authority with the appropriate jurisdiction.

New Measure for 2018: Compressed Air Systems, VFD Air Compressor

Approximately 70% of all manufacturers have compressed air systems, which power a variety of equipment, including machine tools, material handling, separation equipment, and spray painting equipment.¹² Energy audits conducted by the US DOE suggest that over 50% of compressed air systems at small to medium sized industrial facilities have low-cost energy conservation opportunities.¹³ Savings derive from installation of an air compressor with a VFD or variable displacement capacity (VDC) in place of a typical modulating compressor. VFD/VDC air

¹¹ Laboratory Fume Hood Energy Model. Lawrence Berkley National Laboratory.
<http://fumehoodcalculator.lbl.gov/>

¹² Minnesota Technical Assistance Program Fact Sheet. University of Minnesota. 2008.
<http://www.mntap.umn.edu/greenbusiness/energy/82-CompAir.pdf>

¹³ Ibid.

compressors improve EE of the compressor motor by matching the output needed to meet the full or partial load of a compressor.

TEP requests approval for a prescriptive measure that will achieve energy savings associated with upgrading modulating air compressors with VFD/VDC compressors. Energy savings are calculated using representative baseline and efficient demand for compressor capacities according to facility's load shape and number of hours the compressor is expected to operate at full capacity. TEP has determined this measure to be cost-effective, as can be seen in Appendix A, Table A-3. TEP encourages its implementation with incentives to TEP customers and requires the following:

- Baseline unit is a modulating compressor with a blow down valve, which typically chokes off the inlet air to modulate the compressor output.
- Efficient measure is a VFD/VDC compressor with power output of ≤ 40 HP and a properly sized air receiver. Air receivers are designed to provide a supply buffer to meet short-term demand spikes which can exceed the compressor capacity.

New Measure for 2018: Compressed Air Systems, Zero-Loss Drain Trap

As discussed in the measure above, compressed air systems provide a significant opportunity to improve EE. Compressed air systems require condensate drains to eliminate moisture in the system and maintain compressed air quality for use in industrial and commercial air operated equipment. Typical drain types are timed drains, float-operated drains, or manual drains, which can clog or stick open and result in long-term, chronic compressed air leaks. Zero-loss drains remove condensate from a compressed air system without air leaks, resulting in less air demand and consequently greater efficiency.

TEP requests approval for a prescriptive measure that will achieve energy savings associated with upgrading standard drain traps with zero-loss drain traps. TEP has determined this measure to be cost-effective, as can be seen in Appendix A, Table A-3. TEP encourages its implementation with incentives to TEP customers and requires the following:

- Baseline unit is a compressed air system with condensate drain traps using either 1) electrically operated solenoid valves, 2) float-operated mechanical drains, or 3) manual valve drains.
- Efficient measure is a zero-loss condensate trap with moisture sensors to determine when condensate is present, upon which the drain opens to expel the liquid, completely eliminating compressed air losses.

New Measure for 2018: Cogged V-belts

Approximately one in three motors used by C&I customers are outfitted with belt drives. Belt drives allow flexibility in locating motors with respect to load and offer the ability to change the drive-speed of the load. Cogged V-belts have slots that run perpendicular to the belt's length, which reduce the belt's bending resistance. They can be used with the same pulleys as equivalently rated V-belts, allowing for easy retrofit replacement during a maintenance cycle. Cogged V-belts last longer and operate at 2% higher efficiency than standard belts.¹⁴

TEP requests approval for a prescriptive measure that will achieve energy savings associated with upgrading standard belts to cogged V-belts. TEP has determined this measure to be cost-effective, as

¹⁴ Cogged Belt and Synchronous Belt Drives (Electric). Consumers Energy Business Solutions. March 12, 2013. P.4.

can be seen in Appendix A, Table A-3. TEP encourages its implementation with incentives to TEP customers and requires the following:

- Baseline unit is a drive using standard belts, which on average operate at 93% efficiency due to slipping and belt flexing.
- Efficient unit is a cogged V-belt, manufactured with grooves that are perpendicular to the belt length. The grooves reduce energy losses associated with belt flexing, resulting in a longer lifespan and typically higher EE of about 95%.

3. Program objectives and rationale

There are no proposed modifications to the objectives and rationale. The primary goal of the C&I Comprehensive Program is to encourage TEP's non-residential customers to install EE measures in existing facilities. More specifically, the program is designed to:

- Provide incentives to facility operators for the installation of high-efficiency lighting, HVAC, refrigeration, motors, air compressors, plug load equipment and controls, which reduce building energy usage
- Overcome market barriers, such as:
 - Lack of awareness of the benefits and costs of EE improvements
 - Performance uncertainty associated with EE projects
 - High initial cost of EE measures
- Increase awareness and knowledge of facility operators, managers, and decision makers of the benefits of high-efficiency equipment and systems.

4. Targeted market segment

There are no proposed modifications to the target market segments for this program. The C&I Comprehensive Program is available to TEP's small and large commercial and industrial customers, charter, private, or public schools, as well as other customers who receive service from TEP under non-residential tariffs. To be eligible, TEP non-residential customers must replace equipment installed in existing facilities with more energy efficient equipment.

5. Estimated level of customer participation in program or measure

The estimated level of customer participation for 2018 is shown in Appendix A, Table A-1 for proposed new measures and for existing measures in Appendix B, Table B-1.

6. Estimate of the baseline

The estimates of the baseline for 2018 for proposed new measures is shown in Appendix A, Table A-2 and for existing measures in Appendix B, Table B-2.

7. Estimated societal benefits and savings from program or measure

The estimated societal benefits and savings for 2018 for proposed new measures are shown in Appendix A, Table A-3 and for existing measures in Appenix B, Table B-3.

8. Estimated societal costs

The estimated societal costs for 2018 for proposed new measures are shown in Appendix A, Table A-3 and for existing measures in Appendix B, Table B-3.

9. Estimated environmental benefits

The estimated environmental benefits for 2018 for proposed new measures are shown in Appendix A, Table A-4 and for existing measures in Appendix B, Table B-4.

10. Estimated benefit-cost ratio

The estimated benefit-cost ratio for 2018 for proposed new measures is shown in Appendix A, Table A-3 and for existing measures in Appendix B, Table B-3. TEP will continue to monitor the cost-effectiveness of the measures and the program.

11. Marketing and delivery strategy

There are no proposed modifications to the marketing and delivery strategy for this program. The Company utilizes internal and external resources to work with customers and contractors to promote participation in the C&I Comprehensive Program. TEP conducts marketing and advertising campaigns highlighting that high efficiency equipment reduces customer energy bills and benefits the environment. The program provides consumers and trade allies with educational and promotional material designed to provide decision makers with the ability to make more informed choices.

TEP assigns an in-house program manager to oversee the program and provide guidance on program activities consistent with TEP's goals and customer service requirements. TEP works with an IC on systems for collecting the data needed for program management and evaluation.

- It is the customer's responsibility to report to the IC any rebates and incentives offered by other entities (e.g. federal, state, and/or local governments) for energy efficiency upgrades received or applied for by the customer. The incentive paid to the customer by TEP is net of these additional incentives.

12. Estimated annual costs and budget

The estimated annual cost and budget for 2018 for the program are shown in Table 3 and Table 4

13. Implementation schedule

TEP plans to implement any changes to the program within 30 days of receiving the Commission's approval.

14. MER plan

The MER plan is consistent with the strategy previously approved by the Commission.

15. Other information relevant to the consideration of the tariff filing

TEP has provided all of the information it believes is necessary for consideration of the tariff filing for this program.

B. Commercial New Construction Program (Existing Program)

1. Description of program or measure

The Commercial New Construction (“CNC”) program is an existing program most recently approved by the Commission in Decision No. 75450. The CNC Program is designed to promote improved building EE in new commercial facilities relative to standard building practices. It targets building developers, providing incentives for commercial facilities that incorporate energy efficient construction and designs that exceed building codes adopted in TEP territories. Customers may elect to participate in the CNC Program by submitting an application directly to TEP or through an installation contractor.

TEP currently pays incentives to the building owners or developers at \$0.10 per kWh for building energy use reduction in kWh during the first year of building operation up to a maximum of 50% of the incremental cost of energy efficient equipment, construction, or design over the baseline equipment, construction, or design cost necessary to meet the local building codes. Each project has an incentive cap to not exceed \$75,000 per project. In addition, the CNC Program provides technical support and consumer education regarding available energy efficiency design options for new commercial construction.

2. Modifications Proposed

TEP is requesting the new incentive level to be \$0.06/kWh versus the original approved customer incentive of \$0.10/kWh for reduction in building energy use in kWh during the first year of building operation. The incentives will not exceed 50% of the incremental measure costs, up to \$75,000 per project per year. (Per Decision No. 70459 (August 6, 2008) and most recently in Decision No. 75450.) The measure analysis will be utilizing the min/max model applied to the weighted average.

TEP is requesting approval for the following new measures to be incentivized by the CNC Program in 2018:

- High Performance Glazed Windows
- High Efficiency Packaged and Split Air Conditioners
- High Efficiency Packaged and Split Heat Pumps
- Reduced Lighting Power Density
- Economic Development payment would be excluded from the cost test.

All of these measures have positive societal benefit and have been determined by TEP to be cost-effective, as can be seen in Table A-3.

In Decision No. 74885 (December 31, 2014) Staff recommended to terminate Packaged AC units of 11.5 – 20 tons of 11.24 EER. TEP is requesting for the Commission to reconsider the decision as equipment costs have decreased and TEP’s avoided costs have been updated, this measure now passes the cost-effectiveness test, as can be seen in Appendix A, Table A-3.

New Measure in 2018: High Performance Glazed Windows

High efficiency windows can significantly reduce commercial building cooling loads by reducing solar and thermal heat transmitted from the outdoors. Significant reduction in energy use can be achieved through installation of double-paned glass windows with low-e films, coatings, and/or gas-filled gaps, reducing solar energy transmission and thermal conduction into the building beyond

IECC 2012 / ASHRAE 90.1 – 2010 version, which serves as the baseline for estimating energy savings achieved by new measures in new construction.

TEP requests approval for a new prescriptive measure that will achieve energy savings associated with upgrading baseline windows to high efficiency glazed windows. TEP has determined this measure to be cost-effective, as shown in Appendix A, Table A-3, and encourages its implementation with incentives to TEP customers. Window and daylighting modeling software, ResFen 5.0, from Lawrence Berkeley National Laboratory is used to determine savings associated with high performance windows for Tucson climate. TEP requires the following:

- Baseline unit is a commercial fixed window with a U-factor of 0.50 and solar heat gain coefficient (SHGC) of 0.25, as prescribed by IECC 2012 / ASHRAE 90.1 – 2010 version.
- Efficient measure is a window, window film, or window coating corresponding to a lower U-factor and/or SHGC, tiered with increased efficiency.

New Measure for 2018: High Efficiency Packaged and Split Air Conditioners

HVAC energy consumption is one of the largest components of a new building's energy use intensity. TEP requests approval to offer a prescriptive measure that will achieve energy savings associated with upgrading minimum efficiency packaged and split air conditioner (A/C) equipment to higher efficiency equipment. Energy savings are calculated by using baseline and high efficiency EER's along with annual Equivalent Full Load Cooling Hours specific to Tucson's climate. TEP has determined this measure to be cost-effective, as can be seen in Appendix A, Table A-3. TEP encourages its implementation with incentives to TEP customers and requires the following:

- Baseline unit is a packaged or split A/C unit with EER that meets the minimum requirements prescribed in IECC 2012 / ASHRAE 90.1-2010. Baseline EER for 63.3 ton units or greater should have EER of 9.5, 20-63.3 ton units of 9.8, 11.25-20 ton units of 10.8, for 5.4-11.3 ton units of 11, and <5.4 ton units of 14.
- Efficient unit is a packaged or split A/C with EER above 10 for units 20 tons or greater, 11 for units 11.25 – 20 tons, 11.2 for units 5.4-11.25 tons, and 14.5 for units less than 5.4 tons.

New Measure for 2018: High Efficiency Packaged and Split Heat Pumps

TEP requests approval to offer a prescriptive measure that will achieve energy savings associated with upgrading minimum efficiency packaged and split heat pump equipment to higher efficiency equipment. Energy savings are calculated by using baseline and high efficiency EER's along with annual Equivalent Full Load Cooling and Heating Hours specific to Tucson's climate. TEP has determined this measure to be cost-effective, as can be seen in Appendix A, Table A-3. TEP encourages its implementation with incentives to TEP customers and requires the following:

- Baseline unit is a packaged or split heat pump unit with EER that meets the minimum requirements prescribed in IECC 2012 / ASHRAE 90.1-2010. Baseline for 20 ton and greater units should have a minimum EER of 9.3 and HSPF of 10.9, 11.25-20 ton units, EER 10.4 and HSPF 10.9, for 5.4-11.3 ton units, EER 10.8 and HSPF of 11.3, and <5.4 ton units, EER 14 and HSPF of 8.2.
- Efficient packaged or split HP unit with capacity greater than 20 tons should have EER above 10 and HSPF above 11.3, 11.25 – 20 ton units, EER above 11 and HSPF above 11.3, 5.4 – 11.25 ton units, EER above 11 and HSPF above 11.6, and 5.4 tons or smaller units, EER above 14.5 and HSPF above 8.5.

New Measure for 2018: Lighting Power Density

Lighting Power Density (LPD) is a measurement of lighting power in watts per square foot in a commercial or industrial building. IECC 2012 / ASHRAE Standard 90.1-2010 sets the maximum allowable LPD using the Building Area Method¹⁵ for typical building types. Typical lighting power densities, as allowed in ASHRAE guidelines, provide opportunities for building owners to lower LPD while still providing excellent visual quality and recommended illumination levels for both positive physiological and psychological perceptions, which lead to improved productivity and efficient work-mission delivery. Building owners can achieve energy savings by optimizing LPD to meet the minimum illumination requirements as provided by building code, through using optimal luminaire placement design as well as converting from linear fluorescent to LED lighting. TEP calculates energy savings for the affected building floor space using the difference between allowed LPD under the ASHRAE/IESNA Standard, and installed LPD, multiplied by the expected annual hours of operation by building type.

- Baseline technology is assumed to be fluorescent lighting with LPD at levels prescribed by the IECC 2012 / ASHRAE Standard 90.1-2010.
- Efficient measure is technology equivalent to LED lighting, which provides minimum illumination level prescribed by IECC 2012 / ASHRAE Standard 90.1-2010.

3. Program objectives and rationale

There are no proposed modifications to the objectives and rationale. The primary goal of the program is to encourage energy efficient new building design and construction for new commercial projects in TEP's service area.

4. Targeted market segment

There is no proposed modification to the targeted market segments for this program. The CNC Program is available to non-residential customers of all rate classes, specifically building owners, developers, and designers, undertaking new commercial building projects or major renovations in existing buildings within TEP's service territory. Major renovations include substantial changes to an existing structure, ranging from complete gutting of a building to installation of insulation, new windows, HVAC equipment, etc.

5. Estimated level of customer participation in program or measure

The estimated level of customer participation in 2018 for proposed new measures is shown in Table A-1 and for existing measures in Appendix B, Table B-1.

6. Estimate of the baseline

The baseline is determined based on IECC / ASHRAE 90.1 building code adopted in TEP territories. As the versions of the building codes change over time and local jurisdictions adopt updated versions, TEP updates the baseline of the measures to reflect the requirements set in the buildings codes. For 2018, the baseline is set to reflect requirements set forth in IECC 2012 and ASHRAE 90.1 – 2010 versions, and TEP will update the baseline if new versions of the building code are adopted by TEP's

¹⁵ As defined in ANSI/ASHRAE/IESNA Standard 90.1, Sections 9.5 and 9.6, Tables 9.5.1 and 9.6.1, regarding Baseline Lighting Power Density. <http://lightingcontrolsassociation.org/2011/04/18/ashrae-releases-90-1-2010-part-1-design-scope-administrative-requirements/>

jurisdictions. The estimates of the baseline or each proposed measure for 2018 is shown in Appendix A, Table A-2 and for existing measures in Appendix B, Table B-2.

7. Estimated societal benefits and savings from program or measure

The estimated societal benefits and savings for 2018 for proposed new measures are shown in Appendix A, Table A-3 and for existing measures in Appendix B, Table B-3.

8. Estimated societal costs

The estimated societal costs for 2018 for proposed new measures are shown in Appendix A, Table A-3 and for existing measures in Appendix B, Table B-3.

9. Estimated environmental benefits

The estimated environmental benefits for 2018 for proposed new measures are shown in Appendix A, Table A-4 and for existing measures in Appendix B, Table B-4.

10. Estimated benefit-cost ratio

In Decision No. 75450, the Commission determined measures in the CNC Program to be cost-effective. The estimated benefit-cost ratio for 2018 for proposed new measures is shown in Appendix A, Table A-3 and for existing measures in Appendix B, Table B-3. TEP will continue to monitor the cost-effectiveness of the measures and the program.

11. Marketing and delivery strategy

There are no proposed modifications to the marketing and delivery strategy. The CNC Program provides building energy design resources, and educational and promotional materials to building owners, developers, and design teams, in order to provide decision makers in the commercial new construction market with the ability to make informed choices. The Company utilizes internal and external resources to promote education and understanding of various critical EE options during building design and construction, encouraging building owners, developers, and design teams to explore all available EE options during design stages of building construction. The marketing strategy includes education seminars, website promotion, outreach and presentations at professional and community forums, as well as direct outreach.

TEP assigns an in-house program manager to oversee the program, provide guidance on program activities consistent with TEP's goals and customer service requirements. TEP works with an IC on systems for collecting the data needed for program management, building design proposals to ASHRAE 90.1 Standard – 2004 version, and evaluation.

12. Estimated annual costs and budget

The estimated annual cost and budget for 2018 for the program are shown in Table 3 and Table 4.

13. Implementation schedule

TEP plans to implement any changes to the program within 30 days of receiving the Commission's approval.

14. Description of the plan for MER

The MER plan is consistent with the strategy previously approved by the Commission

15. Other information relevant to the consideration of the tariff filing

TEP has provided all of the information it believes is necessary for consideration of the tariff filing for this program.

C. Schools Energy Efficiency (Pilot) Program (“SEE”)

1. Description of Program or Measure

The Schools Energy Efficiency (Pilot) program is an existing program approved by the Commission in Decision 75450 (February 11, 2016), which offers incentives for EE measures in existing K-12 schools that can not raise the necessary capital to participate in the current TEP non-residential program. The program provides incentives at 100% of the project cost for the installation of EE measures including: lighting equipment and controls; HVAC equipment; motors and motor drives; refrigeration, and custom measures.

2. Modifications Proposed

The company proposes that the pilot be modified from 2 years to 1 and that the budget be reduced from \$ 1 million to \$500,000.

The approved SEE pilot program included a cap per public school district or charter school organization of \$250,000, the Company proposes to reduce this cap to \$100,000 in order to allow more schools to participate.

3. Program objectives and rationale

The SEE program is designed to address barriers of entry for this market segment, including issues of limited investment capital, limited awareness of energy cost savings, and required short-term payback.

Preference is given to schools that demonstrate a lack of ability to raise the necessary capital to participate in TEP’s other non-residential programs.

4. Market Segment Description

Public or charter school grades K-12 that have documented inability to raise capital to fund the cost of the projects themselves. Projects must demonstrate significant opportunity for energy savings from EE retro-fit projects. Priority will be given to schools that have not done any recent EE retro-fits and have not received rebates from the existing schools program during the past three years.

5. Estimated Level of Customer Participation In Program or Measure

Estimated level of customer participation for this program is hard to gauge and will be based on interest in the program and funding available.

6. Estimate of the Baseline

Not Applicable

7. Estimated Societal Benefits and Savings from Program or Measure

Not Applicable

8. Estimated Societal Costs

Not Applicable

9. Estimated Environmental Benefits

Not Applicable

10. Estimated benefit-cost ratio

Not Applicable

11. Marketing and Delivery Strategy

The Company will solicit participation within the TEP service territory by contacting school districts and charter school organizations to verify eligibility and encourage participation in the program. The program will be managed by an IC under direction of the Company program manager.

12. Estimated Annual Costs and Budget

The estimated annual cost and budget for 2018 for the program are shown in Table 3 and Table 4

13. Implementation Schedule

TEP plans to implement any changes to the program within 30 days of receiving the Commission's approval.

14. Description of the Plan for MER

The MER plan is consistent with the previously filed strategies for TEP's other programs.

15. Any Other Information the Commission Believes is Relevant to the Consideration of the Tariff Filing

TEP has provided all of the information it believes is necessary for consideration of the tariff filing for this program.

D. Small Business Direct Install & School Facilities Program (Existing Program)

1. Description of program

The TEP Small Business Direct Install and School Facilities program, marketed as the “EasySave Program,” is an existing program most recently approved by the Commission in Decision No. 75450. The program is open to participation by all small non-residential customers and all K-12 schools in the TEP service territory. The program provides incentives for a select group of retrofit and replace-on-burnout (ROB) EE measures in existing small businesses, including high-efficiency lighting equipment upgrades, high-efficiency HVAC equipment, lighting controls, programmable thermostats, and selected refrigeration measures. The program utilizes an online proposal generation and project tracking application to reduce transaction costs. Small businesses and schools can also participate in the C&I Comprehensive program with reduced incentive amounts.

TEP currently pays incentives up to 75% of the measure’s incremental costs for all approved measures within this program.

To encourage contractors to pursue lighting retrofit projects with greater energy savings, TEP currently pays incentives of \$0.10 per kWh saved for all lighting measures during the first year of equipment operation. This strategy will allow a greater incentive for lighting retrofits of systems that operate greater hours per year, as these will result in greater energy savings compared to a similar lighting system that operates less hours per year. TEP currently caps incentives at 75% of incremental costs, which is defined as the installed cost of an energy efficient measure over the installed cost of a less efficient baseline unit that would otherwise have been installed in absence of incentives. The baseline at a minimum is considered to meet the federal equipment standards and/or local building codes. In some cases, the incremental cost may include the total cost of labor if an energy efficient measure is a retrofit project that would not otherwise have been undertaken by a building owner in absence of incentives.

Furthermore, following updates associated with changes in equipment costs and utility avoided costs, TEP found a number of existing measures to no longer be cost-effective. TEP requests to discontinue the following existing measures, based on societal benefit to cost ratio of less than 1, as can be found in Appendix B, Table B-3:

- Outdoor Induction Lighting
- Indoor Induction Lighting
- Advanced Power Strips with Occupancy Sensors

2. Modifications Proposed

TEP is requesting approval to continue the Small Business Direct Install and School Facilities Program in 2018 with modifications:

TEP proposes that when a customer project is eligible to participate in both programs (C&I and Small Business Direct Install), the entire customer project must be submitted and completed under only one of the programs at the customer’s discretion.

TEP is requesting changes to the incentive levels to \$0.06/kWh for this program on the proposed min/max incentive model in order to respond to market trends up to a maximum of 50% of

incremental cost, shown in Appendix B, Table B-6. The measure analysis will be utilizing the min/max model applied to the weighted average.

3. Program objectives and rationale

There are no proposed modifications to the objectives and rationale. The primary goal of the program is to encourage small commercial customers and schools in TEP's service territory to install EE measures in existing facilities. More specifically, the program is designed to:

- Encourage installation of high-efficiency lighting equipment and controls, HVAC equipment, energy-efficient refrigeration system retrofits, etc.;
- Encourage contractors to promote the program and provide turn-key installation services to small business customers;
- Assure the participation process is clear, easy to understand and simple;
- Increase the awareness and knowledge of facility managers and other decision makers on the benefits of high-efficiency equipment and systems.

4. Targeted market segment

There are no proposed modifications to the targeted market segment. The Program offers incentives directly to contractors for the installation of high efficiency measures at existing small business facilities and schools. The existing Program is open to non-residential customers, including all existing K-12 school facilities, including charter, private, and public schools, within TEP's service territory who are receiving service under TEP's non-residential rate tariff.

5. Estimated level of customer participation in program or measure

The estimated level of customer participation in 2018 for existing measures is shown in Appendix B, Table B-1.

6. Estimate of the baseline

The estimates of the baseline for 2018 for existing measures is shown in Appendix B, Table B-2.

7. Estimated societal benefits and savings from program or measure

The estimated societal benefits and savings for 2018 for existing measures are shown in Appendix B, Table B-3.

8. Estimated societal costs

The estimated societal costs for 2018 for proposed existing measures are shown in Appendix B, Table B-3.

9. Estimated environmental benefits

The estimated environmental benefits for 2018 for existing measures are shown in Appendix B, Table B-4.

10. Estimated benefit-cost ratio

In Decision No. 75450 the Commission determined each measure and the program to be cost-effective. TEP will continue to monitor the cost-effectiveness of the program. Cost-effectiveness details for the program, its existing measures and the proposed new measures are provided in Appendix B, Table B-3.

11. Marketing and delivery strategy

There are no proposed modifications to program marketing and delivery strategy. TEP has assigned an in-house program manager to oversee the program and provide guidance on program activities consistent with TEP's goals and customer service requirements. The IC working with TEP provides the primary contact for small business customers. The IC is responsible for application and incentive processing, monitoring the installation contractors, participation tracking and reporting, and overall quality control and management of the delivery process.

Utilizing internal and external resources, the marketing and communications strategy is designed to inform small business customers on how they can participate and realize the benefits of the program. The strategy includes specific outreach to customers and contractors who complete retrofit projects for small business. Another important component of the marketing plan is a focus on the content and functionality of the TEP website, which directs customers to information about the program.

12. Estimated annual costs and budget

The estimated annual cost and budget for 2018 for the program are shown in Table 3 and Table 4.

13. Implementation schedule

TEP plans to implement any changes to the program within 30 days of receiving the Commission's approval.

14. Description of the plan for MER

The MER plan is consistent with the strategy previously approved by the Commission

15. Other information relevant to the consideration of the tariff filing

TEP has provided all of the information it believes is necessary for consideration of the tariff filing for this program.

E. Bid for Efficiency Program (Discontinued)

1. Description of program

The Bid for Efficiency (“BFE”) Program is an existing program most recently approved by the Commission in Decision No. 75450.

2. Modifications Proposed

Upon evaluation TEP has determined that it can more cost-effectively deliver the same EE measures to the same customer segment by reallocating the approved funding for this program into the C&I Comprehensive Program and / or the Small Business Direct Install and School Facilities Program. Therefore TEP requests approval to discontinue this program and reallocate the funding previously approved for the BFE Program into the aforementioned Programs.

3. Program objectives and rationale

Not applicable.

4. Targeted market segment

Not applicable.

5. Estimated level of customer participation in program or measure

Not applicable.

6. Estimate of the baseline

Not applicable.

7. Estimated societal benefits and savings from program or measure

Not applicable.

8. Estimated societal costs

Not applicable.

9. Estimated environmental benefits

Not applicable.

10. Estimated benefit-cost ratio

Not applicable.

11. Marketing and delivery strategy

Not applicable.

12. Estimated annual costs and budget

Not applicable.

13. Implementation schedule

TEP proposes that the program be immediately discontinued.

14. Description of the plan for MER

Not applicable.

15. Other information relevant to the consideration of the tariff filing

Not applicable.

F. Retro-commissioning Pilot (Discontinued)

1. Description of program

The Retro-commissioning Pilot is an existing program most recently approved by the Commission in Decision No. 75450.

2. Proposed Modifications

Based on evaluation of this program, TEP determined that the Retro-commissioning Pilot has had low participation rates, when compared to other C&I Programs. TEP prefers to reallocate the funds that were previously dedicated to this program to other C&I programs that have higher cost-effectiveness and higher participation rates. Therefore, the Company requests permission from the Commission to discontinue the Retro-commissioning Pilot program.

3. Program objectives and rationale

Not applicable.

4. Targeted market segment

Not applicable.

5. Estimated level of customer participation

Not applicable.

6. Estimate of the baseline

Not applicable.

7. Estimated societal benefits and savings

Not applicable.

8. Estimated societal costs

Not applicable.

9. Estimated environmental benefits

Not applicable.

10. Estimated benefit-cost ratio

Not applicable.

11. Marketing and delivery strategy

Not applicable

12. Estimated annual costs and budget

Not applicable.

13. Implementation schedule

TEP proposes that the program be immediately discontinued.

14. Description of MER plan

Not applicable.

15. Other information relevant to the consideration of the tariff filing

Not applicable.

G. Combined Heat & Power (CHP) Pilot Program (Existing Program)

TEP is requesting no budget for the CHP Pilot Program, but will continue to count savings toward the EE Standard if any new CHP installation projects are implemented in its territory, as has been previously approved by the Commission in Decision No. 75450.

H. Commercial and Industrial (C&I) Demand Response Program (Existing Program)

1. Description of program or measure

The C&I Demand Response Program, also known as C&I Direct Load Control or Direct Load Response Program and marketed as “TEP DemandSmart,” is an existing program approved by the Commission in Decision No. 71787 (July 12, 2010). The Program is designed to manage peak demand and mitigate system emergencies through C&I load curtailment. The Program has historically been administered by an implementation contractor who has negotiated load reduction agreements with commercial customers to provide TEP a confirmed and guaranteed load reduction capacity available upon request. The Program provides up to 40 MW of summer peak demand reduction, is available for up to 80 hours per customer per year, with a typical load control event lasting 3 to 4 hours. Customers are compensated with incentives for their participation at negotiated levels depending on multiple factors, including the size of the facility, amount of kW under load control, and the frequency with which the resource can be utilized. Some Customers only participate in emergency load control events at a reduced incentive level.

2. Proposed Modifications

The company proposes that administration of this Program will be managed in-house by TEP personnel to improve the cost effectiveness of this program.

3. Program objectives and rationale

There are no proposed modifications to program objectives and rationale. Modifications to customer controls for chillers, rooftop AC units, lighting, fans, and other technologies can reduce power demand at peak times or to alleviate system constraints. In addition, the program may be used to support standard benefits of demand-response programs, which include:

- Avoided firm capacity required to meet reserve requirements;
- Greater grid stability and reduction in outages due to reduced grid demand.

4. Targeted market segment

The C&I DLC program is available to all non-residential customers in TEP’s service territory.

5. Estimated level of customer participation

67 total participants, not including interruptible rates customers which are included in saving calculations.

6. Estimate of the baseline

Not applicable.

7. Estimated societal benefits and savings

Not applicable.

8. Estimated societal costs

The estimated societal costs for the program for 2018 is shown in Table 3.

9. Estimated environmental benefits

Not applicable.

10. Estimated benefit-cost ratio

In Decision No. 74885, the Commission determined the Program to be cost-effective.

11. Marketing and delivery strategy

Recruitment is targeted at large commercial and industrial customers based on their ability to provide reliable and significant load control reductions when called upon. Customers are compensated with incentives for their participation at negotiated levels depending on multiple factors, including the size of the facility, amount of kW under load control, and the frequency with which the resource can be utilized. TEP anticipates this modification will reduce costs while delivering a more reliable load reduction resource.

In order to expand the potential load reduction for reliability purposes TEP has also partnered with municipal water utilities to initiate load control events on their pumping systems.

12. Estimated annual costs and budget

The estimated annual cost and budget for 2018 for the program are shown in Table 3 and Table 4.

13. Implementation schedule

TEP plans to implement any changes to the program within 30 days of receiving the Commission's approval.

14. Description of the plan for MER

The MER plan is consistent with the strategy previously approved by the Commission.

15. Other information relevant to the consideration of the tariff filing

TEP has provided all of the information it believes is necessary for consideration of the tariff filing for this program.

I. Commercial Community Development (Pilot Program)

1. Description of program

TEP proposes a Commercial Community Development Pilot Program which encourages commercial customers through enhanced incentives to participate in EE programs and to use savings (both from energy bills and incentives) to reinvest in the community. The pilot program will be available to commercial customers utilizing two approaches:

- Revitalization of vacant commercial facilities
 - Available to all non-residential customers. TEP will work with property owners/managers and commercial real estate brokers to identify vacant spaces that are hard to fill. Using funds from this pilot program, an IC managed by the Company will perform an energy assessment of the vacant space. A report will be delivered to the property owner/manager or real estate broker that shows potential DSM projects that would lead to EE, the total energy/bill savings that could be realized, and projected rebate amounts for identified projects. Property owners/managers and real estate brokers could use this report in their sales process for filling the space. Any resulting EE projects could be eligible for incentives through one of the Company's existing EE programs.
- Reinvestment of energy savings in economic development
 - Limited to Small General Service rate class (SGS) customers that participate in existing programs. After rebates are paid from existing programs, participating customers will be paid \$5,000 per new positions added (capped at 5 new jobs), that are filled after the project is completed (within 6 months) and still filled 12 months after start date.

2. Modifications Proposed

Not applicable.

3. Program objectives and rationale

The objective of Revitalization of vacant commercial facilities is to support commercial property owners in attracting new business occupants. This approach is beneficial for the following reasons:

- Vacant spaces become occupied which allows for the potential for community development
- Future tenants reduce their energy consumption
- Potential peak reduction by upgrading EE measures

The objective of the reinvestment of energy savings in economic development is to focus marketing of approved Commercial EE measures to commercial customers that are committed to reinvesting money from energy savings toward economic development. This approach is beneficial for the following reasons:

- Increases the stability of commercial businesses
- Adds jobs in the community
- Reduces energy consumption
- Potential peak reduction by upgrading EE measures

4. Targeted market segment

- Revitalization of vacant commercial facilities
 - All non-residential customers
- Reinvestment of energy savings in economic development
 - Limited to Small General Service rate class (SGS) customers that participate in existing programs.

5. Estimated level of customer participation

Participation in this new pilot program will be limited by the approved funding and project incentive caps.

6. Estimate of the baseline

As a market transformation program this Program is intended to increase participation in Commercial EE programs, and effect broader market transformation, including changes to customer behavior.

7. Estimated societal benefits and savings

The Commercial Community Development pilot program provides additional incentives for non-residential customers to participate in EE programs, as such, savings and benefits will be tracked under the applicable Commercial EE program.

8. Estimated societal costs

The estimated societal costs for participating projects are per the applicable Commercial EE programs.

9. Estimated environmental benefits

Environmental benefits will be tracked along with savings under the applicable Commercial EE program.

10. Estimated benefit-cost ratio

TEP will not track the cost effectiveness of the Program. Savings are difficult to quantify but TEP believes that this program will help improve the cost effectiveness of its commercial DSM/EE programs, through increased participation.

11. Marketing and delivery strategy

This pilot program will be administered through a utility managed implementation contractor with the depth of Commercial EE experience to support the needs of a diverse group of commercial and business customers. The program administrator will screen and assess prospective projects in order to establish potential energy savings and incentives under the Commercial portfolio program that best meet the objectives of the Program. Once a project is qualified to participate in an existing Commercial EE program it will then move forward under that program.

Administration and reporting for both portions of the program will include tracking the number of new employees added through new occupancies or expansions under this pilot.

12. Estimated annual costs and budget

The estimated annual Program costs and budget for 2018 are shown in Table 3.

13. Implementation schedule

The program will begin accepting applications within six months of Commission approval.

14. Description of MER plan

The MER plan is consistent with the strategy previously approved by the Commission.

15. Other information relevant to the consideration of the tariff filing

TEP has provided all of the information it believes is necessary for consideration of the tariff filing for this program.

Behavioral Sector

The following section includes a summary of TEP's Behavioral Programs.

A. Behavioral Comprehensive (Existing Program)

1. Description of program

The Behavioral Comprehensive program is an existing program and was most recently approved by the Commission in Decision No. 75450. No modifications are being proposed for this Program.

The Program includes four educational subprograms for both residential and commercial customers. The focus of these subprograms is to educate current and future energy users on how changes in behavior, including purchasing decisions, can improve EE and help lower energy bills for the consumer.

The four subprograms consist of:

- **Direct Canvassing:** The direct canvassing initiative is designed to reach homeowners and provide them with program material regarding TEP's DSM program offerings. In addition, homeowners receive energy efficient LED light bulbs to install in their homes.
- **K-12 Education:** The K-12 education program is a three-part energy education program that includes a pre-visit lesson, an onsite classroom presentation, and a post-visit activity; all are aligned with the Arizona Department of Education standards. Students are instructed on how to save energy in their homes and are provided with a take-home energy-saving kit containing one or more of: LED light bulbs, bathroom faucet aerators, kitchen faucet aerators, low flow showerheads, and LED nightlights.
- **Community Education:** The community education program is designed to engage with community groups and work with public entities to offer EE workshops. Customers who attend the workshop are educated on the benefits of EE, emphasizing behavioral changes that

- lead to energy savings. Participants are provided with an energy-saving kit containing items such as LED light bulbs, bathroom faucet aerators, kitchen faucet aerators, low flow showerheads, and LED nightlights.
- **Lighting Outreach Promotions:** The Lighting Outreach program provides complimentary energy efficient lighting, such as LED light bulbs, through participation in community events and through collaboration with community organizations. The program complements the presence of TEP at community events and its overall education and outreach efforts and EE messaging.

2. Modifications Proposed

TEP proposes discontinuing direct canvassing due to high cost and lack of impact on peak demand, low-income customers, and schools.

TEP proposes to change the program name for the Lightning Outreach Promotion subprogram to Community Outreach in order to include approved measures other than lighting, see Appendix A, Table A-1

3. Program objectives and rationale

There are no changes to the program objectives and rationale. The objective of the Program is to produce long-term energy savings by influencing energy related behaviors and providing customers with information to help them better understand and manage their energy usage.

4. Targeted market segment

There are no proposed modifications to the targeted market segment. All TEP customers are eligible for this Program, with the primary focus on the following groups: residential rate customers, small and medium commercial rate customers, various renewable rate customers, and future customers (i.e. students).

5. Estimated level of customer participation

The estimated level of customer participation 2018 is shown in Appendix B, Table B-1.

6. Estimate of the baseline

The estimated baseline for 2018 is shown in Appendix B, Table B-2.

7. Estimated societal benefits and savings

The estimated societal benefits and savings for 2018 are shown in Appendix B, Table B-3.

8. Estimated societal costs

The estimated societal costs for 2018 are shown in Appendix B, Table B-3.

9. Estimated environmental benefits

The estimated environmental benefits for 2018 are shown in Appendix B, Table B-4.

10. Estimated benefit-cost ratio

The estimated benefit-cost ratio for 2018 is shown in Appendix B, Table B-3.

11. Marketing and delivery strategy

There are no proposed modifications to the marketing and delivery strategy for this Program. Marketing and communications strategies include notifying TEP customers through updates to the website, training seminars, call center on-hold messages, direct mail promotion, outreach events, and working with industry specialists. The Program is delivered by TEP staff and/or an IC.

12. Estimated annual costs and budget

The estimated annual Program costs and budget for 2018 are shown in Table 3. The estimated annual budget and costs for the Program's existing measures are shown in Appendix B, Table B-5.

13. Implementation schedule

TEP plans to implement any changes to the program within 30 days of receiving the Commission's approval.

14. Description of the plan for MER

The MER plan is consistent with the strategy previously approved by the Commission.

15. Other information relevant to the consideration of the tariff filing

TEP has provided all of the information it believes is necessary for consideration of the tariff filing for this program.

B. Home Energy Reports (Existing Program)

1. Description of program

The Home Energy Reports ("HER") program is an existing program that was most recently approved in by the Commission in Decision No. 75450. The Program is designed to promote behaviors that conserve energy, such as turning off lights or appliances, adjusting thermostat set-points, and performing regular equipment maintenance. The Program is expected to encourage behavioral changes through targeted and comparative education regarding a participating customer's energy consumption. Program reports build customer awareness of how much energy they consume, and provides feedback on how a customer's behaviors can affect their home energy consumption.

2. Modifications Proposed

No new measures or modifications are being proposed.

3. Program objectives and rationale

There are no proposed modifications to the Program's objectives and rationale. The Program's primary objective is to influence energy related behaviors by:

- Providing regular energy consumption reports and tips on how to conserve energy;
- Engaging customers about their behavior and their installed products to enhance the accuracy of the energy reports; and
- Delivering first time participants a HER starter kit that includes behavior based energy conservation tips and LED light bulbs.

Additionally, the Program encourages customers to take advantage of other DSM related programs in order to promote efficient home operation and lower the customer's energy bills.

4. Targeted market segment

There are no proposed modifications to the targeted market segment. The Program is available to TEP residential customers.

5. Estimated level of customer participation

The estimated level of customer participation 2018 is shown in Appendix B, Table B-1.

6. Estimate of the baseline

The estimated baseline for 2018 is shown in Appendix B, Table B-2.

7. Estimated societal benefits and savings

The estimated societal benefits and savings for 2018 are shown in Appendix B, Table B-3.

8. Estimated societal costs

The estimated societal costs for 2018 are shown in Appendix B, Table B-3.

9. Estimated environmental benefits

The estimated environmental benefits for 2018 are shown in Appendix B, Table B-4.

10. Estimated benefit-cost ratio

The estimated benefit-cost ratio for 2018 is shown in Appendix B, Table B-3.

11. Marketing and delivery strategy

There are no proposed modifications to the marketing and delivery strategy for the Program. The Home Energy Reports are delivered to customers by mail or email. After a lengthy RFP review process an IC was selected to implement the program in 2017. TEP jointly develops the marketing strategy and messaging with the IC. The Program is also included in the integrated marketing approach developed and used for all TEP DSM measures.

12. Estimated annual costs and budget

The estimated annual Program costs and budget for 2018 are shown in Table 3. The estimated annual budget and costs for the Program's existing measures are shown in Appendix B, Table B-5.

13. Implementation schedule

The program is already implemented.

14. Description of MER plan

The MER plan is consistent with the strategy previously approved by the Commission.

15. Other information relevant to the consideration of the tariff filing

TEP has provided all of the information it believes is necessary for consideration of the tariff filing for this Program.

Support Sector

The following section includes a summary of TEP's Support Programs.

A. Energy Codes and Standards Enhancement Program (Existing Program)

1. Description of program

The Energy Codes and Standards Enhancement Program is an existing program that was most recently approved by the Commission in Decision No. 75450.

The Program encourages energy savings by 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 the adoption of newer energy codes and appliance standards as warranted by market conditions. Specific program activities target the needs of the local code officials. The Program includes:

- 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 while advancing the adoption and implementation of strong, effective building energy codes and appliance standards across the local jurisdictions within TEP's service territory.

2. Modifications Proposed

No modifications are being proposed for this Program.

3. Program objectives and rationale

There are no proposed modifications to the Program's objectives and rationale. 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 appliances.

4. Targeted market segment

There are no proposed modifications to the targeted market segment. The Program seeks to engage building officials in local jurisdictions, as well as a variety of local building partners, within the TEP service territories.

5. Estimated level of customer participation

Not applicable.

6. Estimate of the baseline

Not applicable.

7. Estimated societal benefits and savings

Not applicable.

8. Estimated societal costs

The estimated societal costs for 2018 are shown in Table 3.

9. Estimated environmental benefits

Not applicable.

10. Estimated benefit-cost ratio

Not applicable.

11. Marketing and delivery strategy

There are no proposed modifications to the marketing and delivery strategy for this Program. 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.

The marketing strategy includes 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.

12. Estimated annual costs and budget

The estimated annual Program costs and budget for 2018 are shown in Table 3. The estimated annual budget and costs for the Program's existing measures are shown in Appendix B, Table B-5.

13. Implementation schedule

The Program is already implemented.

14. Description of the plan for MER

The MER plan is consistent with the strategy previously approved by the Commission.

15. Other information relevant to the consideration of the tariff filing

TEP has provided all of the information it believes is necessary for consideration of the tariff filing for this program.

B. Consumer Education and Outreach (Existing Program)

1. Description of program

The Consumer Education and Outreach (CEO) program is an existing program most recently approved by the Commission in Decision No. 75450.

The Program includes several educational components:

- Communications that encourage energy savings through participation in the Company's EE programs and pricing plans that promote reduced on-peak usage and demand.
- Various marketing or other fees associated with participating in community events to provide educational opportunities to customers tied to promoting the overall message of EE, demand response, peak demand reduction, or environmental sustainability.
- General Company cross-promotional marketing and advertisement expenses tied to promoting the overall message of EE, demand response, peak demand reduction, or environmental sustainability.

2. Modifications Proposed

In TEP rate case Decision No. 75975, the Commission ordered the Company to "explore the development of enhanced customer education, information and feedback" for all residential customers to support managing and reducing their energy bills, and report on such efforts in this EE

Plan.¹⁶ In 2017, programming and materials were enhanced to include information on how residential customers can save money through selecting and one of the new optional rates available in 2017.

In addition, the Company is in the process of building a new interval data repository and customer interface to provide customers access to daily energy use feedback and related energy efficiency educational content.

3. Program objectives and rationale

The Program's primary objective is to increase awareness of, and participation in, the Company's other DSM programs, but is also intended to effect a broader market transformation, including changes in customer's behavior.

4. Targeted market segment

There are no proposed modifications to the targeted market segment. This program is targeted to all of TEP's customers.

5. Estimated level of customer participation

Not applicable.

6. Estimate of the baseline

Not applicable.

7. Estimated societal benefits and savings

Not applicable.

8. Estimated societal costs

The estimated societal costs for 2018 are shown in Table 3.

9. Estimated environmental benefits

Not applicable.

10. Estimated benefit-cost ratio

Not applicable.

¹⁶ Decision No. 75975, Finding of Fact 65.

11. Marketing and delivery strategy

This program utilizes a variety of marketing channels, including, but are not limited to:

- Bill messages
- TEP's website (www.tep.com)
- The TEP mobile application
- Brochures
- Email newsletter articles
- Metro, traffic and radio advertising
- Outreach at community events

12. Estimated annual costs and budget

The estimated annual Program costs and budget for 2018 are shown in Table 3. The estimated annual budget and costs for the Program's existing measures are shown in Appendix B, Table B-5.

13. Implementation schedule

The program is already implemented.

14. Description of the plan for MER

The MER plan is consistent with the strategy previously approved by the Commission.

15. Other information relevant to the consideration of the tariff filing

TEP has provided all of the information it believes is necessary for consideration of the tariff filing for this Program.

Utility Improvement

The following section includes a summary of TEP's Utility Improvement Programs.

A. Conservation Voltage Reduction (Existing Program)

TEP is requesting approval for the Conservation Voltage Reduction program with no budget, but will continue to count savings toward the EE Standard if any new voltage reduction activities are implemented, as has been previously approved by the Commission in Decision No. 75450.

B. Generation Improvement and Facilities Upgrades (Existing Program)

TEP is requesting approval for the Generation Improvement and Facilities Upgrade program with no budget, but will continue to count savings toward the EE Standard if any new generation improvements and facility upgrades are implemented in TEP's facilities, as has been previously approved by the Commission in Decision No. 75450.

IV. Portfolio Management

TEP is requesting budget approval for portfolio management with modifications.

TEP serves as the program administrator for the EE portfolio. TEP provides comprehensive program administrative, contract management, strategic planning, and program oversight functions including financial planning and budgeting. TEP has a dedicated team of DSM and Customer Solutions program staff that perform these functions for the Company.

A. Program Design, Implementation and Management

1. Program design

- High-level guidance and direction to the ICs, including review and revision of proposed annual implementation plans and proposed milestones. The Company will additionally engage with the IC team on a daily basis when working through strategy and policy issues.
- Review and approval of IC invoices and ensure program activities are within budget and on schedule.
- Review of IC operational databases for accuracy, ensuring incorporation of data into TEP's comprehensive portfolio tracking database to be used for overall tracking and regulatory reporting.
- Review of measure saving estimates maintained by the IC.
- Oversight and coordination of evaluation, measurement, and verification of ICs.
- Public education and outreach to community groups, trade allies, and trade associations.
- Provide guidance and direction on new initiatives or strategies proposed by the ICs.
- Communicate to ICs the other TEP initiatives that may provide opportunities for cross-program promotion.
- Review and approve printed materials and advertising plans from ICs.
- Create and provide material for advertising on programs delivered by the utility.
- Evaluate portfolio and program effectiveness, and recommend modifications to programs and approach as needed.
- Perform periodic review of program metrics, conduct investment analysis, and review evolving program design.

2. Program implementation and management

To learn from and leverage positive experiences from other jurisdictions, TEP implements programs through a combination of third-party ICs and utility staff. TEP designs programs to be as cost-effective as possible, utilizing ICs to implement programs in cases where they provide the lowest cost per kWh saved. Similarly, TEP utilizes its staff to implement programs in cases where it is more cost effective. ICs are selected for delivery of programs through a competitive request for proposal process.

TEP provides high-level administrative, contract management, program design and marketing oversight of the selected ICs. A portfolio of this size and scope requires careful management and oversight.

Trade allies are essential to the effective implementation of many EE programs. Trade allies are considered program partners and are kept informed on EE portfolio updates. Open communication with trade allies about what is and is not working in the field is essential. To ensure effective two-way communication, the Company emphasizes coordination, meetings, and frequent communication with

these key partners to advance program goals. A schedule of meetings, workshops, educational seminars, and other relevant events by program, along with clear and concise program descriptions are distributed to the trade allies at program kickoff meetings. Ongoing training and program updates are a key part of program delivery.

TEP staff take primary responsibility for general EE education and awareness strategies and activities, including maintaining the Company's website, and distributing mass-market general education and efficiency awareness promotions.

B. Program Reporting Requirements

1. Tracking and reporting

TEP has developed a comprehensive internal tracking and reporting system to record all key activities within the portfolio of programs. ICs are responsible for tracking and reporting EE program activities by entering the relevant details of each project into this comprehensive data tracking system. The system allows customized reporting to meet reporting requirements in an efficient, transparent, and accurate manner.

1. Proposed changes to reporting requirements

TEP is not requesting any changes to TEP reporting requirements at this time. However, TEP proposes to harmonize UNS Electric filing requirements to match those specified for TEP in order to maximize reporting efficiency between the two companies and jointly reduce administrative burden.

C. Program Marketing and Outreach Strategy

The marketing and outreach strategy for this portfolio of programs encourages participation among customers, key market players, and trade allies. The objective of the marketing and communications strategy is to make customers and key market actors aware of the Company's program offerings and benefits, and to influence their decision to use more energy efficient options making when purchasing or installing energy systems or equipment.

The specifics of the marketing strategy depend on the program and the demographics of the group being engaged. Depending on the target demographic, marketing will generally include a mix of broadcast, internet, print media, radio, direct contact, direct mail, bill inserts, or presentations. The program descriptions describe the proposed marketing approach for each program.

Additionally, TEP works with regional, state, and national programs and partners to optimize cooperative marketing programs and campaigns. Marketing efforts are designed to dovetail with other statewide or regional efficiency programs and campaigns, including those offered by APS and UNS Electric.

D. Midstream Adjustments

While this plan presents detailed information on approach, EE measures and proposed incentive levels, unforeseen changes in market conditions require regular review and revisions to portions of this plan to reflect new information. As such, adjustments to these programs may be necessary. When the need for adjustments arises, the Company will update the Commission in a timely manner and give the Commission opportunity to provide input.

E. Inter-Utility Coordination

1. Inter-utility coordination

TEP works with APS, UNS Electric and other utilities to maximize the effectiveness of the programs; in particular, where gas and electric services overlap, regular communication and coordination will be necessary. This collaboration involves working together to identify savings opportunities, as well as providing consistent messaging and parallel programs to reduce confusion and difficulty for customers and trade allies. TEP intends to continue collaboration with others to provide cohesive marketing messages, as well as designing incentive programs, incentive forms and incentive levels that are easily transferable with adjacent utilities.

2. Leveraging other utility efficiency initiatives

Within Arizona, several entities and initiatives are promoting EE including: the state government; Southwest Energy Efficiency Project (“SWEEP”); US Environmental Protection Agency and US DOE’s ENERGY STAR brand; and Federal tax credits. TEP and its ICs work diligently to remain aware and up-to-date, and to cooperate with efficiency efforts being directed at Arizona energy users. Wherever feasible, co-marketing efforts are employed in an attempt to send a clear and consistent message on the benefits of EE and the resources available to help achieve it.

F. Lost Fixed Cost Recovery and Performance Incentives

In Decision No. 73912 (June 27, 2013), the Commission outlined the Lost Fixed Cost Recovery (“LFCR”) to allow TEP to recover lost fixed costs associated with the implementation of EE/DSM programs. The same Decision by the Commission defines Performance Incentives to be recovered linked to energy and demand savings generated by TEP’s EE/DSM programs. A subset of EE/DSM programs offered by TEP count towards LFCR and/or Performance Incentives. Table 8 summarizes TEP program applicability to LFCR and Performance Incentives based on TEP’s current understanding of LFCR and Performance Incentive guidelines. TEP requests clarification from the Commission on the data presented in this table.

Table 7: Lost Fixed Cost Recovery and Performance Incentives Summary

Program	LFCR (Yes/ No)	Performance Incentives (Yes / No)
Residential Sector		
Efficient Products	Yes	Yes
Existing Homes	Yes	Yes
Low-Income Weatherization	Yes	Yes
Multi-Family	Yes	Yes
Residential Load Management Pilot Program	No	Yes
Residential New Construction	Yes	Yes
Shade Tree	Yes	Yes
Non-Residential Sector		
Commercial & Industrial (C&I) Comprehensive	Yes	Yes
Small Business Direct Install and Schools Facilities	Yes	Yes
Commercial New Construction	Yes	Yes
Bid for Efficiency Program	Yes	Yes
Commercial & Industrial (C&I) Direct Load Control	No	Yes
Commercial Schools	Yes	Yes
Combined Heat and Power (CHP) Program Pilot	No	No
Behavioral Sector		
Behavioral Comprehensive	Yes	Yes

Program	LFCR (Yes/ No)	Performance Incentives (Yes / No)
Home Energy Reports	Yes	Yes
Support Sector		
Consumer Education and Outreach	N/A	N/A
Energy Codes and Standards Enhancement	No	No
Program Development, Analysis and Reporting Software	N/A	N/A
Utility Sector		
Conservation Voltage Reduction	No	No
Generation Improvements & Facility Upgrades	No	No

Waiver to Standard

The Company currently anticipates that it will achieve approximately 14.3% of cumulative EE savings in 2017, compared with the Cumulative Annual EE Standard of 14.5% set forth in A.A.C. R14-2-2404(B) for 2017. TEP also expects to be slightly below the Cumulative Annual EE Standard of 17% for 2018. Accordingly, the Company requests a waiver pursuant to A.A.C. R14-2-2419 from the 2018 EE Standard set forth in A.A.C. R14-2-2404(B).¹⁷ The waiver notwithstanding, TEP will continue to strive to maximize the cost-effective savings achieved with the dollars spent.

¹⁷ The Commission approved such a waiver for TEP in Decision No. 75450 (February 22, 2016). *See also* TEP Letter of Notice to continue 2016 EE Plan through 2017 without change (June 1, 2016).

APPENDICES

Appendix A. Proposed Measure Data

Table A-1: Estimated Customer Participation for Proposed Measures

Sector	Program	Measure	Estimated Customer Participation	Units
Residential	Efficient Products	Energy Star Heat Pump Water Heater	1	Per Water Heater
		Program Total:	13	
	Existing Homes	Energy Star Heat Pump Water Heater	1	Per Water Heater
		Program Total:	1	
	Multi-Family	ER HVAC with QI (All Electric)	243	Per HVAC Unit
		ER HVAC with QI (Dual Fuel)	1,000	Per HVAC Unit
		ER HVAC with QI Tier 1 (All Electric)	25	Per HVAC Unit
		ER HVAC with QI Tier 1 (Dual Fuel)	50	Per HVAC Unit
		ER HVAC with QI Tier 2 (All Electric)	2	Per HVAC Unit
		ER HVAC with QI Tier 2 (Dual Fuel)	10	Per HVAC Unit
		HVAC QI (All Electric)	500	Per HVAC Unit
		HVAC QI (Dual Fuel)	1,000	Per HVAC Unit
		HVAC QI Tier 1 (All Electric)	25	Per HVAC Unit
		HVAC QI Tier 1 (Dual Fuel)	75	Per HVAC Unit
		HVAC QI Tier 2 (All Electric)	10	Per HVAC Unit
		HVAC QI Tier 2 (Dual Fuel)	50	Per HVAC Unit
		Program Total:	2,990	
	Residential New Construction	ENERGY Smart Multi-Family (All Electric)	650	Per Home
		ENERGY Smart Multi-Family (Dual Fuel)	650	Per Home
		Program Total:	1,300	
Non-Residential	C&I Facilities	VSD Compressors	1	Per Compressor HP

Sector	Program	Measure	Estimated Customer Participation	Units
		Cycling Dryer Compressor	1	scfm
		Automated Drain Trap Compressor	1	Per Compressor Drain
		Commercial Kitchen Exhaust Fan	1	Per Unit
		Gogged V-Belt	1	Per HP
		Fume Hoods	1	Per Unit
		Program Total:	5	
	Commercial New Construction	High Efficiency EER Packaged and Split ACs	2	Per Unit
		Reduced Lighting Power Density	5	Per Unit
		High Performance Glaze	1	Per Sq. Ft.
		High Efficiency EER Packaged and Split HPs	2	Per Unit
		Program Total:	10	

Table A-2: Estimate of Baseline for Proposed Measures

Sector	Program	Measure	Base Efficiency Description	Improved Efficiency Description	Avoided Costs	Annual Energy Savings at Generator (kWh)	Coincident Peak Demand Savings at Generator (kW)	Cost per First Year kWh Saved (\$/kWh)	Cost per Lifetime kWh Saved (\$/kWh)
Residential	Efficient Products	Energy Star Heat Pump Water Heater	Non Energy Star Unit	Energy Star Unit	\$3,508	125,051	8	\$0.346	\$0.023
	Existing Homes	Energy Star Heat Pump Water Heater	Non Energy Star Unit	Energy Star Unit	\$35	1,251	0	\$0.523	\$0.035
	Multi-Family	ER HVAC with QI (All Electric)	≥8.5 EER no QI	With QI	\$5,772	199,379	110	\$0.473	\$0.032
		ER HVAC with QI (Dual Fuel)	≥8.5 EER no QI	With QI	\$19,422	551,038	423	\$0.525	\$0.021
		ER HVAC with QI Tier 1 (All Electric)	≥8.5 EER no QI or DTR	≥14% ≤ 49% Reduction leakage	\$594	20,512	11	\$0.464	\$0.031
		ER HVAC with QI Tier 1 (Dual Fuel)	≥8.5 EER no QI or DTR	≥14% ≤ 49% Reduction leakage	\$971	27,552	21	\$0.512	\$0.020
		ER HVAC with QI Tier 2 (All Electric)	No QI or DTR	≥50% Reduction leakage	\$89	3,083	2	\$0.318	\$0.021
		ER HVAC with QI Tier 2 (Dual Fuel)	No QI or DTR	≥50% Reduction leakage	\$324	9,180	7	\$0.368	\$0.015
		HVAC QI (All Electric)	≥8.5 EER no QI	With QI	\$18,198	628,642	347	\$0.436	\$0.029

		HVAC QI (Dual Fuel)	≥8.5 EER no QI	With QI	\$22,709	644,307	494	\$0.899	\$0.036
		HVAC QI Tier 1 (All Electric)	No QI or DTR	≥14% ≤ 49% Reduction leakage	\$1,138	39,297	22	\$0.379	\$0.025
		HVAC QI Tier 1 (Dual Fuel)	No QI or DTR	≥14% ≤ 49% Reduction leakage	\$2,185	62,002	48	\$0.734	\$0.029
		HVAC QI Tier 2 (All Electric)	No QI or DTR	≥50% Reduction leakage	\$750	25,917	14	\$0.290	\$0.019
		HVAC QI Tier 2 (Dual Fuel)	No QI or DTR	≥50% Reduction leakage	\$2,405	68,243	52	\$0.505	\$0.020
	Residential New Construction	ENERGY Smart Multi-Family (All Electric)	Multi-Family Building	HERS ≤ 65	\$46,024	1,594,836	802	\$0.274	\$0.009
		ENERGY Smart Multi-Family (Dual Fuel)	Multi-Family Building	HERS ≤ 65	\$39,198	1,112,122	853	\$0.327	\$0.011
	C&I Facilities	VSD Compressors	Standard Compressor	High Efficiency Compressor	\$1,375	49,717	7	\$0.080	\$0.008
Non-Residential		Cycling Dryer Compressor	Non-Cycling Dryer	Cycling Dryer	\$166	6,019	1	\$0.625	\$0.048
		Automated Drain Trap Compressor	standard condensate drains	no-loss condensate drains	\$75	2,707	0	\$0.156	\$0.016
		Commercial Kitchen Exhaust Fan	Standard Fan	High Efficiency Fan	\$1,582	56,286	24	\$0.227	\$0.015
		Gogged V-Belt	Standard Belt	Gogged V-Belt	\$32	1,134	0	\$0.037	\$0.007

		Fume Hoods	Standard Fume Hood	High Efficiency Hood	\$419	14,922	2	\$0.080	\$0.005
	Commercial New Construction	High Efficiency EER Packaged and Split ACs	9.3 to 10.3 EER	11 to 11.6 EER	\$253	8,119	3	\$0.131	\$0.006
		Reduced Lighting Power Density	Standard Lighting	LPD Installed	\$2,654	95,141	8	\$0.069	\$0.006
		High Performance Glaze	No Glaze Windows	High Glaze Windows	\$0	2	0	\$0.337	\$0.017
		High Efficiency EER Packaged and Split HPs	9.3 to 10.3 EER	11 to 11.6 EER	\$293	10,100	2	\$0.185	\$0.012

Table A-3: Societal Benefits, Costs, and Cost-effectiveness for Proposed Measures

Sector	Program	Measure	Societal Benefits	Societal Costs	Societal Benefits to Cost Ratio
Residential	Efficient Products	Energy Star Heat Pump Water Heater	\$893	\$839	1.06
		Program Total:	\$893	\$839	1.06
	Existing Homes	Energy Star Heat Pump Water Heater	\$893	\$1,060	0.84
		Program Total:	\$893	\$1,060	0.84
	Multi-Family	ER HVAC with QI (All Electric)	\$1,082	\$652	1.66
		ER HVAC with QI (Dual Fuel)	\$968	\$495	1.96
		ER HVAC with QI Tier 1 (All Electric)	\$1,082	\$637	1.70
		ER HVAC with QI Tier 1 (Dual Fuel)	\$968	\$480	2.02
		ER HVAC with QI Tier 2 (All Electric)	\$2,224	\$746	2.98
		ER HVAC with QI Tier 2 (Dual Fuel)	\$1,746	\$536	3.26
		HVAC QI (All Electric)	\$1,533	\$906	1.69
		HVAC QI (Dual Fuel)	\$1,417	\$1,061	1.34
		HVAC QI Tier 1 (All Electric)	\$1,916	\$954	2.01
		HVAC QI Tier 1 (Dual Fuel)	\$1,831	\$1,089	1.68
		HVAC QI Tier 2 (All Electric)	\$3,159	\$1,109	2.85
		HVAC QI Tier 2 (Dual Fuel)	\$3,066	\$1,170	2.62
		Program Total:	\$20,991	\$9,835	2.13
	Residential New Construction	ENERGY Smart Multi-Family (All Electric)	\$4,246	\$1,824	2.33
		ENERGY Smart Multi-Family (Dual Fuel)	\$4,970	\$1,777	2.80
		Program Total:	\$9,216	\$3,601	2.56

Non-Residential	C&I Facilities	VSD Compressors	\$18,669	\$9,461	1.97
		Cycling Dryer Compressor	\$2,448	\$7,357	0.33
		Automated Drain Trap Compressor	\$846	\$773	1.09
		Commercial Kitchen Exhaust Fan	\$45,055	\$23,996	1.88
		Gogged V-Belt	\$203	\$54	3.77
		Fume Hoods	\$7,963	\$1,989	4.00
		Program Total:	\$75,183	\$43,630	1.72
	Commercial New Construction	High Efficiency EER Packaged and Split ACs	\$3,675	\$1,488	2.47
		Reduced Lighting Power Density	\$9,144	\$7,237	1.26
		High Performance Glaze	\$3	\$2	1.48
		High Efficiency EER Packaged and Split HPs	\$3,499	\$2,866	1.22
		Program Total:	\$16,321	\$11,592	1.41

Table A-4: Environmental Benefits for Proposed Measures

Sector	Program	Measure	Annual CO2 Savings	Annual NOx Savings	Annual SOx Savings	Lifetime CO2 Savings	Lifetime NOx Savings	Lifetime SOx Savings
			(Metric Tons)	(Metric Tons)	(Metric Tons)	(Metric Tons)	(Metric Tons)	(Metric Tons)
Residential	Efficient Products	Energy Star Heat Pump Water Heater	239,448,599	324,882	269,259	3,591,728,984	4,873,231	4,038,892
		Program Total:	239,448,599	324,882	269,259	3,591,728,984	4,873,231	4,038,892
	Existing Homes	Energy Star Heat Pump Water Heater	2,394,486	3,249	2,693	35,917,290	48,732	40,389
		Program Total:	2,394,486	3,249	2,693	35,917,290	48,732	40,389
	Multi-Family	ER HVAC with QI (All Electric)	381,772,945	517,987	429,303	5,726,594,178	7,769,800	6,439,544
		ER HVAC with QI (Dual Fuel)	1,055,132,708	1,431,596	1,186,495	26,378,317,691	35,789,906	29,662,365
		ER HVAC with QI Tier 1 (All Electric)	39,277,052	53,291	44,167	589,155,780	799,362	662,504
		ER HVAC with QI Tier 1 (Dual Fuel)	52,756,635	71,580	59,325	1,318,915,885	1,789,495	1,483,118
		ER HVAC with QI Tier 2 (All Electric)	5,903,557	8,010	6,639	88,553,353	120,149	99,578
		ER HVAC with QI Tier 2 (Dual Fuel)	17,578,302	23,850	19,767	439,457,548	596,253	494,169
		HVAC QI (All Electric)	1,203,730,485	1,633,213	1,353,593	18,055,957,269	24,498,189	20,303,888
		HVAC QI (Dual Fuel)	1,233,725,377	1,673,909	1,387,322	30,843,134,425	41,847,736	34,683,043
		HVAC QI Tier 1 (All Electric)	75,245,877	102,093	84,614	1,128,688,161	1,531,396	1,269,208
		HVAC QI Tier 1 (Dual Fuel)	118,721,318	161,080	133,502	2,968,032,962	4,027,005	3,337,547
		HVAC QI Tier 2 (All Electric)	49,626,803	67,333	55,805	744,402,039	1,009,999	837,079
		HVAC QI Tier 2 (Dual Fuel)	130,672,200	177,295	146,941	3,266,804,997	4,432,377	3,673,516
		Program Total:	4,364,143,259	5,921,237	4,907,470	91,548,014,287	124,211,666	102,945,558
	Residential New Construction	ENERGY Smart Multi-Family (All Electric)	3,053,807,526	4,143,383	3,434,000	91,614,225,774	124,301,502	103,020,013

		ENERGY Smart Multi-Family (Dual Fuel)	2,129,502,844	2,889,294	2,394,622	63,885,085,308	86,678,810	71,838,650
		Program Total:	5,183,310,369	7,032,677	5,828,622	155,499,311,083	210,980,311	174,858,663
Non-Residential	C&I Facilities	VSD Compressors	95,198,339	129,164	107,050	951,983,395	1,291,644	1,070,503
		Cycling Dryer Compressor	11,524,948	15,637	12,960	149,824,327	203,281	168,477
		Automated Drain Trap Compressor	5,183,943	7,034	5,829	51,839,434	70,335	58,293
		Commercial Kitchen Exhaust Fan	107,777,162	146,231	121,195	1,616,657,435	2,193,469	1,817,928
		Gogged V-Belt	2,170,623	2,945	2,441	10,853,117	14,725	12,204
		Fume Hoods	28,572,695	38,767	32,130	428,590,429	581,508	481,949
		Program Total:	250,427,712	339,778	281,605	3,209,748,136	4,354,962	3,609,355
	Commercial New Construction	High Efficiency EER Packaged and Split ACs	15,545,806	21,092	17,481	357,553,544	485,126	402,068
		Reduced Lighting Power Density	182,177,417	247,177	204,858	2,186,129,003	2,966,124	2,458,298
		High Performance Glaze	4,649	6	5	92,983	126	105
		High Efficiency EER Packaged and Split HPs	19,339,813	26,240	21,748	290,097,196	393,602	326,214
		Program Total:	217,067,685	294,516	244,092	2,833,872,726	3,844,977	3,186,684

Table A-5: Costs and Budget for Proposed Measures

Sector	Program	Measure	Rebates & Incentives	Non-Rebate Costs	Total Measure Costs
Residential	Efficient Products	Energy Star Heat Pump Water Heater	\$40,500	\$2,765	\$43,265
		Program Total:	\$40,500	\$2,765	\$43,265
	Existing Homes	Energy Star Heat Pump Water Heater	\$405	\$249	\$654
		Program Total:	405	249	654
	Multi-Family	ER HVAC with QI (All Electric)	64,086	30,302	94,389
		ER HVAC with QI (Dual Fuel)	205,645	83,748	289,393
		ER HVAC with QI Tier 1 (All Electric)	6,401	3,118	9,519
		ER HVAC with QI Tier 1 (Dual Fuel)	9,911	4,187	14,098
		ER HVAC with QI Tier 2 (All Electric)	512	469	981
		ER HVAC with QI Tier 2 (Dual Fuel)	1,982	1,395	3,377
		HVAC QI (All Electric)	178,751	95,543	274,294
		HVAC QI (Dual Fuel)	481,505	97,923	579,428
		HVAC QI Tier 1 (All Electric)	8,938	5,972	14,910
		HVAC QI Tier 1 (Dual Fuel)	36,113	9,423	45,536
		HVAC QI Tier 2 (All Electric)	3,575	3,939	7,514
		HVAC QI Tier 2 (Dual Fuel)	24,075	10,372	34,447
		Program Total:	1,021,493	346,392	1,367,885
	Residential New Construction	ENERGY Smart Multi-Family (All Electric)	195,000	242,387	437,387
		ENERGY Smart Multi-Family (Dual Fuel)	195,000	169,023	364,023
		Program Total:	390,000	411,411	801,411
Non-Residential	C&I Facilities	VSD Compressors	2,625	1,348	3,973
		Cycling Dryer Compressor	3,597	163	3,760
		Automated Drain Trap Compressor	350	73	423
		Commercial Kitchen Exhaust Fan	11,235	1,526	12,761
		Gogged V-Belt	12	31	42

		Fume Hoods	792	405	1,197
		Program Total:	18,611	3,546	22,156
	Commercial New Construction	High Efficiency EER Packaged and Split ACs	943	117	1,060
		Reduced Lighting Power Density	5,222	1,370	6,592
		High Performance Glaze	1	0	1
		High Efficiency EER Packaged and Split HPs	1,725	145	1,871
		Program Total:	7,891	1,633	9,523

Table A-6: Proposed Measure Recommended Incentive with Min/Max Range

Sector	Program	Measure	Minimum Incentive	Recommended Incentive	Maximum Incentive
Residential	Efficient Products	Energy Star Heat Pump Water Heater	\$81	\$405	\$406
	Existing Homes	Energy Star Heat Pump Water Heater	\$81	\$405	\$406
	Multi-Family	ER HVAC with QI (All Electric)	\$53	\$264	\$264
		ER HVAC with QI (Dual Fuel)	\$41	\$206	\$206
		ER HVAC with QI Tier 1 (All Electric)	\$51	\$256	\$256
		ER HVAC with QI Tier 1 (Dual Fuel)	\$40	\$198	\$198
		ER HVAC with QI Tier 2 (All Electric)	\$51	\$256	\$256
		ER HVAC with QI Tier 2 (Dual Fuel)	\$40	\$198	\$198

		HVAC QI (All Electric)	\$72	\$358	\$358
		HVAC QI (Dual Fuel)	\$96	\$482	\$482
		HVAC QI Tier 1 (All Electric)	\$72	\$358	\$358
		HVAC QI Tier 1 (Dual Fuel)	\$96	\$482	\$482
		HVAC QI Tier 2 (All Electric)	\$72	\$358	\$358
		HVAC QI Tier 2 (Dual Fuel)	\$96	\$482	\$482
	Residential New Construction	ENERGY Smart Multi-Family (All Electric)	\$100	\$300	\$834
		ENERGY Smart Multi-Family (Dual Fuel)	\$100	\$300	\$834
Non-Residential	C&I Facilities	VSD Compressors	\$811	\$2,625	\$4,057
		Cycling Dryer Compressor	\$719	\$3,597	\$3,597
		Automated Drain Trap Compressor	\$70	\$350	\$350
		Commercial Kitchen Exhaust Fan	\$2,247	\$11,235	\$11,235
		Gogged V-Belt	\$2	\$12	\$12
		Fume Hoods	\$158	\$792	\$792
	Commercial New Construction	High Efficiency EER Packaged and Split ACs	\$143	\$471	\$715
		Reduced Lighting Power Density	\$696	\$1,044	\$3,481
		High Performance Glaze	\$0	\$1	\$1
		High Efficiency EER Packaged and Split HPs	\$279	\$863	\$1,397

Appendix B. Existing and Proposed Measure Data

Table B-1: Estimated Customer Participation for Existing and Proposed Measures

Sector	Program	Measure	Estimated Customer Participation	Units
RESIDENTIAL	Efficient Products	Advanced Power Strip-Load Sensor	100	Per Sensor
		Energy Star Central AC and HP	100	Per Unit
		Energy Star Clothes Washer	2,500	Per Freezer
		Energy Star Freezer	300	Per Freezer
		Energy Star Heat Pump Water Heater	100	Per Water Heater
		Energy Star Refrigerator	2,500	Per Refrigerator
		Energy Star Room AC	100	Per Unit
		Residential 15K LED Light	100,000	Per bulb
		Residential 25K LED Light	300,000	Per bulb
		Variable Speed Pool Pumps	1,500	Per Pool Pump
	Program Total:		407,200	
	Existing Homes	Advanced Tune-up	1,500	Per Tune Up
		DTR Tier 1 (All Electric)	13	Per DTR
		DTR Tier 1 (Dual Fuel)	1,180	Per DTR
		DTR Tier 2 (All Electric)	5	Per DTR
		DTR Tier 2 (Dual Fuel)	419	Per DTR
		Energy Star Heat Pump Water Heater	1	Per Water Heater
		ER HVAC with QI (All Electric)	143	Per HVAC Unit
		ER HVAC with QI (Dual Fuel)	700	Per HVAC Unit
		ER HVAC with QI Tier 1 (All Electric)	9	Per HVAC Unit
		ER HVAC with QI Tier 1 (Dual Fuel)	38	Per HVAC Unit

		ER HVAC with QI Tier 2 (All Electric)	1	Per HVAC Unit
		ER HVAC with QI Tier 2 (Dual Fuel)	4	Per HVAC Unit
		HVAC QI (All Electric)	275	Per HVAC Unit
		HVAC QI (Dual Fuel)	900	Per HVAC Unit
		HVAC QI Tier 1 (All Electric)	13	Per HVAC Unit
		HVAC QI Tier 1 (Dual Fuel)	46	Per HVAC Unit
		HVAC QI Tier 2 (All Electric)	5	Per HVAC Unit
		HVAC QI Tier 2 (Dual Fuel)	17	Per HVAC Unit
		Indoor and Outdoor Coil Clean	1	Per Coil Clean
		Refrigerant Charge Repair	1	Per Charge
		Smart Thermostats	5,000	Per Thermostat
		Western Cooling Control™	5	Per WCC
		Program Total:	10,276	
	Low Income Weatherization	Energy Ease	1	Per Home
		Program Total:	1	
	Multi-Family	Advanced Tune-up	1,000	Per Tune Up
		DTR Tier 1 (All Electric)	250	Per DTR
		DTR Tier 1 (Dual Fuel)	2,000	Per DTR
		DTR Tier 2 (All Electric)	150	Per DTR
		DTR Tier 2 (Dual Fuel)	2,000	Per DTR
		ER HVAC with QI (All Electric)	243	Per HVAC Unit
		ER HVAC with QI (Dual Fuel)	1,000	Per HVAC Unit
		ER HVAC with QI Tier 1 (All Electric)	25	Per HVAC Unit
		ER HVAC with QI Tier 1 (Dual Fuel)	50	Per HVAC Unit
		ER HVAC with QI Tier 2 (All Electric)	2	Per HVAC Unit
		ER HVAC with QI Tier 2 (Dual Fuel)	10	Per HVAC Unit
		Faucet Aerator Bathroom-Electric WH	3,300	Per Aerator

NON-RESIDENTIAL		Faucet Aerator Kitchen-Electric WH	2,500	Per Aerator
		HVAC QI (All Electric)	500	Per HVAC Unit
		HVAC QI (Dual Fuel)	1,000	Per HVAC Unit
		HVAC QI Tier 1 (All Electric)	25	Per HVAC Unit
		HVAC QI Tier 1 (Dual Fuel)	75	Per HVAC Unit
		HVAC QI Tier 2 (All Electric)	10	Per HVAC Unit
		HVAC QI Tier 2 (Dual Fuel)	50	Per HVAC Unit
		Indoor and Outdoor Coil Clean	750	Per Coil Clean
		Low Flow Showerheads-Electric WH	3,000	Per Showerhead
		Refrigerant Charge Repair	2,500	Per Charge
		Residential 15K LED	10	Per bulb
		Residential 25K LED	30,500	Per bulb
		Smart Thermostats	2,500	Per Thermostat
		Western Cooling Control™	2,000	Per WCC
		Program Total:	55,450	
	Residential New Construction	ENERGY Smart Homes (All Electric)	100	Per Home
		ENERGY Smart Homes (Dual Fuel)	900	Per Home
		ENERGY Smart Multi-Family (All Electric)	650	Per Home
		ENERGY Smart Multi-Family (Dual Fuel)	650	Per Home
		Program Total:	2,300	
	Shade Tree	Shade Tree	9,000	Per Tree
		Program Total:	9,000	
NON-RESIDENTIAL	C&I Comprehensive	Advanced Power Strips-Load Sensors	1	Per Sensor
		Advanced Power Strips-Occupancy Sensors	1	Per Sensor
		Advanced Power Strips-Timer Plug Strip	1	Per Plug Strip
		Air-Cooled Chillers	3	Per Ton

	Anti-Sweat Heater Controls	65	Per Ln Ft
	Automated Drain Trap Compressor	1	Per Compressor Drain
	Beverage Controls ("Vending Miser")	1	Per Sensor
	CO Sensors	1	Per Sensor
	CO2 Sensors	3	Per Sensor
	Commercial Kitchen Exhaust Fan	1	Per Unit
	Computer Power Monitoring System	1	Per Fixture
	Custom Measure	175	per customer
	Cycling Dryer Compressor	1	scfm
	Daylighting Controls	1	Per Control
	Delamping	1,400	Per Lamp
	Economizers	1	Per Economizer
	Efficient Compressors	1	Per Compressor
	Efficient Condensers	1	Per Condensor
	EMS-HVAC Delivery	3,000,000	Per Sq Ft
	Energy Efficient Exit Sign	215	Per Exist Sign
	Energy Efficient ODP Motors	1	per HP
	Energy Efficient TEFC Motors	2	per HP
	Evaporative Fan Controls	30	Per Control
	Floating Head Pressure Controls	1	Per Control
	Fume Hoods	1	Per Unit
	Gogged V-Belt	1	Per HP
	Green Motor Rewind	1	Per Motor
	Heat Pump Water Heaters	1	Per Water Heater
	HIDs to T8/T5-Exterior	1	Per Fixture
	HIDs to T8/T5-Interior	1	Per Fixture
	High Efficiency EER Packaged and Split ACs	50	Per Unit
	High Efficiency EER Packaged and Split HPs	50	Per Unit
	High Efficiency Evaporator Fan Motors (ECM)	125	Per Motor

	High Efficiency Reach-In Refrigerators and Freezers	1	Per Appliance
	High Efficiency SEER Packaged and Split ACs	1	Per Unit
	High Efficiency SEER Packaged and Split HPs	5	Per Unit
	Hotel Room HVAC Control	180	Per Sensor
	HVAC System Test and Repair	120	Per HVAC Unit
	Induction Lighting	20	Per Fixture
	Induction Lighting Outdoor	1	Per Fixture
	LED Indoor Lights	20,000	Per Bulb
	LED Outdoor Lighting	5,000	Per Bulb
	LED Traffic Lights	1	Per Lamp
	LED Tubes Indoor	34,000	Per Fixture
	LED Tubes Outdoor	250	Per Fixture
	Occupancy Sensors	7,800	Per Sensor
	Premium T8 Lighting	1	Per Lamp
	Programmable Thermostats	30	per Thermostat
	PTAC	1	Per unit
	PTHP	1	Per Unit
	Pulse Start Metal Halide Exterior	1	Per Fixture
	Pulse Start Metal Halide Interior	1	Per Fixture
	Reach-In Cooler Controls ("Vending Miser")	6	Per Sensor
	Refrigerated Display Automatic Door Closers	9	Per Door
	Refrigeration LED Strip Lighting	300	Per Door
	Shade Screens	1	Per Sq Ft
	Snack Controls ("Vending Miser")	1	Per Sensor
	Strip Curtain	210	Per Sq feet
	Variable Refrigerant Flow	1	Per kBtuh
	Variable Speed Drives	65	per HP
	VSD Compressors	1	Per Compressor HP
	Water-Cooled Chillers-Centrifugal	1	Per ton

		Water-Cooled Chillers-Reciprocating	1	Per ton
		Water-Cooled Chillers-Screw	1	Per ton
		Window Films	6,000	Per Sq Ft
		Program Total:	3,076,150	
	Commercial New Construction	High Efficiency EER Packaged and Split ACs	2	Per Unit
		High Efficiency EER Packaged and Split HPs	2	Per Unit
		High Performance Glaze	1	Per Sq. Ft.
		Reduced Lighting Power Density	5	Per Unit
		Whole Building Performance	25	Per Custmer
		Program Total:	35	
	C&I Small Business	Advanced Power Strips-Load Sensor	1	Per Sensor
		Advanced Power Strips-Occupancy Sensors	1	Per Sensor
		Advanced Power Strips-Timer Plug Strip	1	Per Sensor
		Anti-Sweat Heater Controls	97	Per Lin Ft
		Vending Miser Controls	1	Per Sensor
		Custom Measure	200	per Customer
		Daylighting Controls	1	Per kW base load
		Delamping	45	Per Fixture
		Economizers	1	Per Economizer
		EMS HVAC Delivery	1	Per Sq Ft
		Energy Efficient Exit Signs	125	Per fixture
		HIDs to T8/T5-Exterior	1	Per Fixture
		HIDs to T8/T5-Interior	1	Per Fixture
		High Efficiency Evaporator Fan Motors (ECM)	50	Per Motor
		High Efficiency SEER Packaged and Split ACs	50	Per Unit
		High Efficiency SEER Packaged and Split HPs	4	Per Unit
		HVAC System Test and Repair	50	Per Unit

		Induction Lighting Indoor	1	Per Lamp
		Induction Lighting Outdoor	1	Per Lamp
		LED Indoor Lights	8,500	Per Lamp
		LED Outdoor Lighting	2,500	Per Lamp
		LED Tubes Replacing Fluorescent Indoor	6,500	Per Bulb
		LED Tubes Replacing Fluorescent Outdoor	2,000	Per Bulb
		Occupancy Sensor	1	Per Sensor
		Premium T8 Lighting	1,000	Per fixture
		Programmable Thermostat	1	Per Unit
		PTAC	10	Per unit
		PTHP	10	Per Unit
		Refrigerated Display Auto Door Closers	1	Per Door
		Shade Screen	1	Per Sq Ft
		Strip Curtain	1	Per Sq feet
		Variable Refrigerant Flow	1	Per kBtuh
		Variable Speed Drives	1	per HP
		Program Total:	21,159	
BEHAVIORAL	Behavioral Comprehensive	Community Education Kit	1,650	Per Kit
		K-12 Education Kit	7,200	Per Kit
		K-12 Safety Kit	5,600	Per Kit
		Lighting Outreach Promotion	60,000	Per Bulb
		Night Lights	5,000	Per Bulb
		Program Total:	79,450	
	Home Energy Reports	Home Energy Reports	17,000	Per Home
		Program Total:	17,000	

Table B-2: Estimate of Baseline for Existing and Proposed Measures

Sector	Program	Measure	Base Efficiency Description	Improved Efficiency Description	Avoided Costs	Annual Energy Savings at Generator (kWh)	Coincident Peak Demand Savings at Generator (kW)	Cost per First Year kWh Saved (\$/kWh)	Cost per Lifetime kWh Saved (\$/kWh)
RESIDENTIAL	Efficient Products	Advanced Power Strip-Load Sensor	Standard Strips	Smart Strips - Load Sensor	\$256	9,246	0.83	\$0.149	\$0.012
		Energy Star Central AC and HP	Non Energy Star Unit	Energy Star Unit	\$3,146	89,255	60.00	\$0.327	\$0.023
		Energy Star Clothes Washer	Non Energy Star Unit	Energy Star Unit	\$10,977	386,525	45.64	\$0.202	\$0.018
		Energy Star Freezer	Non Energy Star Unit	Energy Star Unit	\$353	12,776	1.53	\$0.158	\$0.013
		Energy Star Heat Pump Water Heater	Non Energy Star Unit	Energy Star Unit	\$3,508	125,051	8.00	\$0.364	\$0.024
		Energy Star Refrigerator	Non Energy Star Unit	Energy Star Unit	\$6,430	232,763	27.81	\$0.148	\$0.009
		Energy Star Room AC	Non Energy Star Unit	Energy Star Unit	\$595	19,624	5.19	\$0.091	\$0.010
		Residential 15K LED Light	44.2 W Incd/Halogen	11.6 Weighted Avg W LED	\$89,731	3,228,743	276.80	\$0.092	\$0.006
		Residential 25K LED Light	44.2 W Incd/Halogen	11.6 Weighted Avg W LED	\$377,933	13,598,957	1,165.82	\$0.077	\$0.003
		Variable Speed Pool Pumps	single speed baseline	Variable Spd Pool Pump	\$85,532	3,006,287	559.51	\$0.110	\$0.009
		Program Total:			\$578,461	20,709,226	2,151.13	\$0.090	\$0.004
	Existing Homes	Advanced Tune-up	No Action	Advanced Tune-up	\$34,305	973,285	683.17	\$0.352	\$0.044

		DTR Tier 1 (All Electric)	No DTR	$\geq 14\% \leq 49\%$ Reduction leakage	\$662	22,869	12.63	\$0.341	\$0.017
		DTR Tier 1 (Dual Fuel)	No DTR	$\geq 14\% \leq 49\%$ Reduction leakage	\$57,075	1,619,328	1,241.85	\$0.381	\$0.019
		DTR Tier 2 (All Electric)	No DTR	$\geq 50\%$ Reduction leakage	\$448	15,484	8.55	\$0.292	\$0.015
		DTR Tier 2 (Dual Fuel)	No DTR	$\geq 50\%$ Reduction leakage	\$34,867	989,244	758.64	\$0.320	\$0.016
		Energy Star Heat Pump Water Heater	Non Energy Star Unit	Energy Star Unit	\$35	1,251	0.08	\$0.523	\$0.035
		ER HVAC with QI (All Electric)	≥ 8.5 EER no QI	With QI	\$9,924	342,821	189.11	\$0.434	\$0.029
		ER HVAC with QI (Dual Fuel)	≥ 8.5 EER no QI	With QI	\$46,682	1,324,463	1,011.48	\$0.461	\$0.019
		ER HVAC with QI Tier 1 (All Electric)	≥ 8.5 EER no QI or DTR	$\geq 14\% \leq 49\%$ Reduction leakage	\$781	26,964	14.89	\$0.432	\$0.029
		ER HVAC with QI Tier 1 (Dual Fuel)	≥ 8.5 EER no QI or DTR	$\geq 14\% \leq 49\%$ Reduction leakage	\$3,161	89,684	68.78	\$0.464	\$0.019
		ER HVAC with QI Tier 2 (All Electric)	No QI or DTR	$\geq 50\%$ Reduction leakage	\$118	4,078	2.25	\$0.364	\$0.024
		ER HVAC with QI Tier 2 (Dual Fuel)	No QI or DTR	$\geq 50\%$ Reduction leakage	\$451	12,796	9.81	\$0.388	\$0.016
		HVAC QI (All Electric)	≥ 8.5 EER no QI	With QI	\$17,911	618,738	341.64	\$0.361	\$0.024
		HVAC QI (Dual Fuel)	≥ 8.5 EER no QI	With QI	\$50,951	1,445,565	1,108.59	\$0.504	\$0.020
		HVAC QI Tier 1 (All Electric)	No QI or DTR	$\geq 14\% \leq 49\%$ Reduction leakage	\$1,100	38,007	20.99	\$0.371	\$0.025

		HVAC QI Tier 1 (Dual Fuel)	No QI or DTR	$\geq 14\% \leq 49\%$ Reduction leakage	\$3,433	97,391	74.69	\$0.496	\$0.020
		HVAC QI Tier 2 (All Electric)	No QI or DTR	$\geq 50\%$ Reduction leakage	\$599	20,707	11.43	\$0.315	\$0.021
		HVAC QI Tier 2 (Dual Fuel)	No QI or DTR	$\geq 50\%$ Reduction leakage	\$1,808	51,306	39.35	\$0.399	\$0.016
		Indoor and Outdoor Coil Clean	No Action	Coil Clean	\$5	155	0.16	\$0.360	\$0.072
		Refrigerant Charge Repair	No Action	Refrigerant Charge Repair	\$22	614	0.43	\$0.313	\$0.039
		Smart Thermostats	Standard Thermostat	Smart Thermostat	\$49,799	1,533,680	-	\$0.244	\$0.024
		Western Cooling Control™	No Action	Control Added	\$77	2,179	1.56	\$0.302	\$0.030
		Program Total:			\$314,215	9,230,606	5,600.08	\$0.343	\$0.019
	Low Income Weatherization	Energy Ease	No Action	Weatherization	\$39,703	1,126,449	524.66	\$0.892	\$0.064
		Program Total:			\$39,703	1,126,449	524.66	\$0.892	\$0.064
	Multi-Family	Advanced Tune- up	No Action	Advanced Tune-up	\$11,808	335,008	230.96	\$0.451	\$0.056
		DTR Tier 1 (All Electric)	No DTR	$\geq 14\% \leq 49\%$ Reduction leakage	\$17,836	616,142	138.93	\$0.213	\$0.011
		DTR Tier 1 (Dual Fuel)	No DTR	$\geq 14\% \leq 49\%$ Reduction leakage	\$101,904	2,891,204	965.28	\$0.256	\$0.013
		DTR Tier 2 (All Electric)	No DTR	$\geq 50\%$ Reduction leakage	\$10,702	369,685	204.13	\$0.219	\$0.011
		DTR Tier 2 (Dual Fuel)	No DTR	$\geq 50\%$ Reduction leakage	\$101,904	2,891,204	2,217.23	\$0.266	\$0.013

	ER HVAC with QI (All Electric)	≥8.5 EER no QI	With QI	\$5,772	199,379	110.09	\$0.473	\$0.032
	ER HVAC with QI (Dual Fuel)	≥8.5 EER no QI	With QI	\$19,422	551,038	422.59	\$0.525	\$0.021
	ER HVAC with QI Tier 1 (All Electric)	≥8.5 EER no QI or DTR	≥14% ≤ 49% Reduction leakage	\$594	20,512	11.33	\$0.464	\$0.031
	ER HVAC with QI Tier 1 (Dual Fuel)	≥8.5 EER no QI or DTR	≥14% ≤ 49% Reduction leakage	\$971	27,552	21.13	\$0.512	\$0.020
	ER HVAC with QI Tier 2 (All Electric)	No QI or DTR	≥50% Reduction leakage	\$89	3,083	1.70	\$0.318	\$0.021
	ER HVAC with QI Tier 2 (Dual Fuel)	No QI or DTR	≥50% Reduction leakage	\$324	9,180	7.04	\$0.368	\$0.015
	Faucet Aerator Bathroom- Electric WH	2.2 GPM	0.5 GPM Bath and 1.5 GPM Kit	\$4,369	155,739	9.44	\$0.173	\$0.017
	Faucet Aerator Kitchen-Electric WH	2.2 GPM	0.5 GPM Bath and 1.5 GPM Kit	\$5,062	180,446	10.94	\$0.180	\$0.018
	HVAC QI (All Electric)	≥8.5 EER no QI	With QI	\$18,198	628,642	347.11	\$0.436	\$0.029
	HVAC QI (Dual Fuel)	≥8.5 EER no QI	With QI	\$22,709	644,307	494.11	\$0.899	\$0.036
	HVAC QI Tier 1 (All Electric)	No QI or DTR	≥14% ≤ 49% Reduction leakage	\$1,138	39,297	21.70	\$0.379	\$0.025
	HVAC QI Tier 1 (Dual Fuel)	No QI or DTR	≥14% ≤ 49% Reduction leakage	\$2,185	62,002	47.55	\$0.734	\$0.029
	HVAC QI Tier 2 (All Electric)	No QI or DTR	≥50% Reduction leakage	\$750	25,917	14.31	\$0.290	\$0.019
	HVAC QI Tier 2 (Dual Fuel)	No QI or DTR	≥50% Reduction leakage	\$2,405	68,243	52.33	\$0.505	\$0.020

		Indoor and Outdoor Coil Clean	No Action	Coil Clean	\$4,091	116,075	106.68	\$0.314	\$0.063
		Low Flow Showerheads-Electric WH	4 GPM	1.5 GPM with hot water sensor	\$17,918	638,749	28.45	\$0.173	\$0.017
		Refrigerant Charge Repair	No Action	Refrigerant Charge Repair	\$27,103	768,970	536.75	\$0.315	\$0.039
		Residential 15K LED	44.2 W Incd/Halogen	11.6 Weighted Avg W LED	\$10	350	0.03	\$0.215	\$0.010
		Residential 25K LED	44.2 W Incd/Halogen	11.6 Weighted Avg W LED	\$29,651	1,066,917	92.06	\$0.215	\$0.007
		Smart Thermostats	Standard Thermostat	Smart Thermostat	\$28,451	876,217	483.75	\$0.252	\$0.025
		Western Cooling Control™	No Action	Control Added	\$14,534	412,346	294.97	\$0.370	\$0.037
		Program Total:			\$449,899	13,598,204	6,870.61	\$0.316	\$0.017
	Residential New Construction	ENERGY Smart Homes (All Electric)	Standard Home	HERS <= 65	\$10,818	374,851	188.55	\$0.144	\$0.005
		ENERGY Smart Homes (Dual Fuel)	Standard Home	HERS <= 65	\$78,120	2,216,397	1,699.73	\$0.186	\$0.006
		ENERGY Smart Multi-Family (All Electric)	Multi-Family Building	HERS <= 65	\$46,024	1,594,836	802.22	\$0.186	\$0.006
		ENERGY Smart Multi-Family (Dual Fuel)	Multi-Family Building	HERS <= 65	\$39,198	1,112,122	852.88	\$0.239	\$0.008
		Program Total:			\$174,160	5,298,206	3,543.38	\$0.194	\$0.006
	Shade Tree	Shade Tree	No Tree	Shade Tree	\$17,774	592,773	219.15	\$0.427	\$0.011
		Program Total:			\$17,774	592,773	219.15	\$0.478	\$0.011

NON-RESIDENTIAL	C&I Comprehensive	Advanced Power Strips-Load Sensors	Standard Strips	Smart Strips - Load Sensor	\$3.68	133	0.01	\$0.10	\$0.009
		Advanced Power Strips-Occupancy Sensors	Standard Strips	Smart Strips - Occ Sensor	\$6.22	224	0.02	\$0.07	\$0.006
		Advanced Power Strips-Timer Plug Strip	Standard Strips	Smart Strips - Timer Plug Strip	\$6.64	240	0.02	\$0.07	\$0.006
		Air-Cooled Chillers	1.28 kW/ton	1.12 kW/ton	\$40.89	1,313	0.56	\$0.10	\$0.005
		Anti-Sweat Heater Controls	No Controls	Antisweat Controls	\$498.68	18,027	2.40	\$0.07	\$0.006
		Automated Drain Trap Compressor	standard condensate drains	no-loss condensate drains	\$74.89	2,707	0.37	\$0.16	\$0.016
		Beverage Controls ("Vending Miser")	No Controls	Occupancy Sensors	\$50.22	1,815	0.22	\$0.07	\$0.006
		CO Sensors	No Sensors	Sensors	\$974.86	31,293	13.47	\$0.04	\$0.004
		CO2 Sensors	No Sensors	Sensors	\$149.67	4,804	2.07	\$0.15	\$0.010
		Commercial Kitchen Exhaust Fan	Standard Fan	High Efficiency Fan	\$1,582.00	56,286	24.22	\$0.23	\$0.015
		Computer Power Monitoring System	no power monitor	computer power monitor	\$6.74	246	0.01	\$0.05	\$0.013
		Custom Measure	No Action	custom actions	\$234,368.78	7,523,169	1,343.53	\$0.21	\$0.015
		Cycling Dryer Compressor	Non-Cycling Dryer	Cycling Dryer	\$166.50	6,019	0.83	\$0.62	\$0.048
		Daylighting Controls	No Controls	Daylighting Controls	\$69.28	2,513	0.29	\$0.07	\$0.005
		Delamping	Lighting Fixture	Fixture Removed	\$6,276.88	228,703	21.28	\$0.05	\$0.003
		Economizers	No Economizer	Economizer	\$32.51	1,043	0.45	\$0.18	\$0.012

	Efficient Compressors	1.85 COP	2.2 COP	\$59.90	2,165	0.27	\$0.06	\$0.004
	Efficient Condensers	No Condensers	Use of Condensers	\$8.15	295	0.04	\$0.09	\$0.009
	EMS-HVAC Delivery	no controls	EMS HVAC controls	\$149,146.68	4,971,701	4,279.53	\$0.18	\$0.012
	Energy Efficient Exit Sign	Incandescent/CFL sign	LED sign	\$2,438.96	89,122	9.02	\$0.09	\$0.009
	Energy Efficient ODP Motors	88.7 % effy	89.2% effy	\$7.82	278	0.04	\$0.07	\$0.005
	Energy Efficient TEFC Motors	89.3 % effy	89.8% effy	\$13.29	473	0.06	\$0.10	\$0.007
	Evaporative Fan Controls	No Controls	fan controls	\$974.04	35,212	4.35	\$0.09	\$0.008
	Floating Head Pressure Controls	No Controls	Floating Head Pressure Controls	\$57.34	2,073	0.26	\$0.04	\$0.002
	Fume Hoods	Standard Fume Hood	High Efficiency Hood	\$419.40	14,922	2.05	\$0.08	\$0.005
	Gogged V-Belt	Standard Belt	Gogged V-Belt	\$31.86	1,134	0.16	\$0.04	\$0.007
	Green Motor Rewind	94.7% effy	95.2% Effy	\$243.34	8,658	1.19	\$0.08	\$0.017
	Heat Pump Water Heaters	EF = .86	EF = 2.35	\$236.99	8,505	1.01	\$0.12	\$0.009
	HIDs to T8/T5-Exterior	565 W Metal Halide	263 W T5/T8s	\$33.53	1,228	0.04	\$0.09	\$0.005
	HIDs to T8/T5-Interior	565 W Metal Halide	263 W T5/T8s	\$20.99	761	0.11	\$0.14	\$0.012
	High Efficiency EER Packaged and Split ACs	9.3 to 10.3 EER	11 to 11.6 EER	\$6,951.04	231,708	99.08	\$0.18	\$0.012
	High Efficiency EER Packaged and Split HPs	9.3 to 10.3 EER	11 to 11.6 EER	\$4,823.42	166,075	59.24	\$0.30	\$0.020
	High Efficiency Evaporator Fan Motors (ECM)	shaded pole muter	EC motor	\$2,957.29	106,906	13.21	\$0.09	\$0.006
	High Efficiency Reach-In	standard reach-in	EnergyStar Reach-in	\$32.15	1,162	0.14	\$0.10	\$0.007

	Refrigerators and Freezers							
	High Efficiency SEER Packaged and Split ACs	SEER 14	Wtd Avg from 15-18 SEER	\$49.05	1,575	0.68	\$0.28	\$0.018
	High Efficiency SEER Packaged and Split HPs	SEER 14	Wtd Avg from 15-18 SEER	\$298.14	10,265	3.08	\$0.15	\$0.010
	Hotel Room HVAC Control	Standard no-Sensor	Sensor Control	\$5,877.63	195,927	60.58	\$0.07	\$0.009
	HVAC System Test and Repair	No Test and Repair	With Test and Repair	\$10,907.20	363,584	112.41	\$0.18	\$0.010
	Induction Lighting	190 W Metal Halide or HPS	93.61 W Induction	\$384.11	13,995	1.11	\$0.17	\$0.006
	Induction Lighting Outdoor	190 W Metal Halide or HPS	93.61 W Induction	\$25.18	917	0.03	\$0.13	\$0.007
	LED Indoor Lights	Incandescent	Energy Star Certified LED	\$90,444.17	3,281,023	260.12	\$0.08	\$0.014
	LED Outdoor Lighting	Incandescent	Energy Star Certified LED	\$25,603.91	937,841	152.95	\$0.08	\$0.013
	LED Traffic Lights	Incandescent	Energy Star Certified LED	\$12.10	442	0.04	\$0.11	\$0.016
	LED Tubes Indoor	34 W fluorescent wtd avg	15 W LED tube wtd avg	\$98,602.99	3,592,674	284.82	\$0.10	\$0.008
	LED Tubes Outdoor	34 W fluorescent wtd avg	15 W LED tube wtd avg	\$761.77	27,903	0.97	\$0.10	\$0.009
	Occupancy Sensors	No Controls	Occupancy Sensors	\$98,154.69	3,576,340	383.61	\$0.11	\$0.004
	Premium T8 Lighting	T12 Lamps	Premium T8 Lamps	\$1.84	67	0.01	\$0.12	\$0.008
	Programmable Thermostats	non-programmable	programmable	\$5,131.90	209,526	-	\$0.03	\$0.003
	PTAC	10.2 EER Base Unit	11.2 EER Base Unit	\$5.90	189	0.08	\$0.20	\$0.014
	PTHP	10 EER Base Unit	11.3 EER Base Unit	\$7.42	255	0.06	\$0.16	\$0.011

	Pulse Start Metal Halide Exterior	565 Fixture Watts	394 Fixture Watts	\$19.38	706	0.02	\$0.16	\$0.015
	Pulse Start Metal Halide Interior	472 Fixture Watts	329 Fixture Watts	\$21.83	800	0.06	\$0.16	\$0.012
	Reach-In Cooler Controls ("Vending Miser")	No Controls	Occupancy Sensors	\$224.58	8,119	1.00	\$0.08	\$0.007
	Refrigerated Display Automatic Door Closers	Standard Doors	Automatic Door Closers	\$1,052.74	38,057	4.70	\$0.04	\$0.007
	Refrigeration LED Strip Lighting	32 W T-8	20 W LED	\$5,585.61	192,568	32.37	\$0.06	\$0.016
	Shade Screens	no screens	shading coeff: 0.24	\$0.55	18	0.01	\$0.14	\$0.014
	Snack Controls ("Vending Miser")	No Controls	Occupancy Sensors	\$10.04	363	0.04	\$0.17	\$0.014
	Strip Curtain	No curtains	Curtains	\$3,132.29	113,232	14.00	\$0.04	\$0.009
	Variable Refrigerant Flow	Standard Refrigerant Flow	Variable Refrigerant Flow	\$56.75	1,892	0.49	\$0.05	\$0.004
	Variable Speed Drives	no VSD	VSD	\$143,501.51	5,105,648	700.91	\$0.06	\$0.004
	VSD Compressors	Standard Compressor	High Efficiency Compressor	\$1,375.29	49,717	6.83	\$0.08	\$0.008
	Water-Cooled Chillers-Centrifugal	0.84 kW/Ton	0.67 kW/Ton	\$6.28	202	0.09	\$0.16	\$0.008
	Water-Cooled Chillers-Reciprocating	0.84 kW/Ton	0.67 kW/Ton	\$8.03	258	0.11	\$0.07	\$0.003
	Water-Cooled Chillers-Screw	0.84 kW/Ton	0.67 kW/Ton	\$6.48	208	0.09	\$0.17	\$0.008
	Window Films	No Film	Window Film	\$1,636.87	52,543	22.61	\$0.23	\$0.015

		Program Total:			\$905,670.85	31,297,766	7,923.45	\$0.13	\$0.009
	Commercial New Construction	High Efficiency EER Packaged and Split ACs	9.3 to 10.3 EER	11 to 11.6 EER	\$253	8,119	3.49	\$0.131	\$0.006
		High Efficiency EER Packaged and Split HPs	9.3 to 10.3 EER	11 to 11.6 EER	\$293	10,100	2.40	\$0.185	\$0.012
		High Performance Glaze	No Glaze Windows	High Glaze Windows	\$0	2	0.00	\$0.337	\$0.017
		Reduced Lighting Power Density	No LPD	Installed LPD	\$2,654	95,141	7.50	\$0.069	\$0.006
		Whole Building Performance	No Action	Whole Building Constructed	\$66,177	2,124,263	927.59	\$0.113	\$0.006
		Program Total:			\$69,378	2,237,626	940.98	\$0.112	\$0.006
	C&I Small Business	Advanced Power Strips-Load Sensor	standard strips	Smart Strips - Load Sensor	\$1	27	0.01	\$0.470	\$0.039
		Advanced Power Strips-Occupancy Sensors	Standard Strips	Smart Strips - Occ Sensor	\$2	62	0.02	\$0.262	\$0.022
		Advanced Power Strips-Timer Plug Strip	standard strips	Smart Strips - Timer Plug Strip	\$0	16	0.02	\$0.691	\$0.058
		Anti-Sweat Heater Controls	no controls	antisweat controls	\$740	26,764	3.31	\$0.152	\$0.013
		Vending Miser Controls	No Controls	Occupancy Sensors	\$33	1,177	0.15	\$0.185	\$0.015
		Custom Measure	No Action	custom actions	\$47,187	1,514,701	119.91	\$0.123	\$0.009
		Daylighting Controls	no controls	daylighting controls	\$55	1,990	0.16	\$0.215	\$0.014
		Delamping	Lighting Fixture	Fixture Removed	\$206	7,502	0.59	\$0.166	\$0.011
		Economizers	No Economizer	Economizer	\$33	1,043	-	\$0.253	\$0.017

	EMS HVAC Delivery	no controls	EMS HVAC controls	\$0	2	0.00	\$0.257	\$0.017
	Energy Efficient Exit Signs	Incandescent/CFL sign	LED sign	\$1,418	51,815	5.25	\$0.228	\$0.023
	HIDs to T8/T5-Exterior	565 W Metal Halide	263 W T5/T8s	\$34	1,228	0.04	\$0.183	\$0.010
	HIDs to T8/T5-Interior	565 W Metal Halide	263 W T5/T8s	\$33	1,197	0.09	\$0.196	\$0.011
	High Efficiency Evaporator Fan Motors (ECM)	shaded pole motor	EC motor	\$1,183	42,763	5.29	\$0.191	\$0.013
	High Efficiency SEER Packaged and Split ACs	SEER 14	Wtd Avg from 15-18 SEER	\$1,647	52,879	22.76	\$0.430	\$0.020
	High Efficiency SEER Packaged and Split HPs	SEER 14	Wtd Avg from 15-18 SEER	\$188	6,473	1.54	\$0.223	\$0.011
	HVAC System Test and Repair	No Test and Repair	With Test and Repair	\$4,545	151,493	46.84	\$0.219	\$0.012
	Induction Lighting Indoor	243 W Metal Halide or HPS wtd avg	96.2 W Induction lamp wtd avg	\$24	868	0.07	\$0.210	\$0.012
	Induction Lighting Outdoor	67 to 1180 W MH or HPS wtd avg	23 to 409 W Induction wtd avg	\$25	917	0.03	\$0.205	\$0.011
	LED Indoor Lights	15-100 W Incan & 70-1000 W HPS or MH	3-184 Watt LED	\$38,106	1,382,348	109.59	\$0.155	\$0.022
	LED Outdoor Lighting	15-100 W Incan & 70-1000 W HPS or MH	3-184 Watt LED	\$13,695	501,631	17.52	\$0.144	\$0.024
	LED Tubes Replacing Fluorescent Indoor	34 W fluorescent wtd avg	15 W LED tube wtd avg	\$18,851	686,835	54.45	\$0.188	\$0.014
	LED Tubes Replacing Fluorescent Outdoor	34 W fluorescent wtd avg	15 W LED tube wtd avg	\$6,094	223,223	7.80	\$0.183	\$0.017

		Occupancy Sensor	No Controls	Occupancy Sensors	\$13	459	0.04	\$0.233	\$0.008
		Premium T8 Lighting	T12	Premium T8	\$1,843	67,167	5.32	\$0.229	\$0.015
		Programmable Thermostat	non-programmable	programmable	\$171	6,984	-	\$0.107	\$0.010
		PTAC	10.2 EER Base Unit	11.2 EER Base Unit	\$59	1,893	0.81	\$0.276	\$0.035
		PTHP	10 EER Base Unit	11.3 EER Base Unit	\$74	2,554	0.61	\$0.229	\$0.029
		Refrigerated Display Auto Door Closers	Standard Doors	Automatic Door Closers	\$117	4,229	0.52	\$0.109	\$0.022
		Shade Screen	no screens	shading coeff: 0.24	\$1	17	0.01	\$0.217	\$0.022
		Strip Curtain	No curtains	Curtains	\$15	539	0.07	\$0.109	\$0.027
		Variable Refrigerant Flow	Standard Refrigerant Flow	Variable Refrigerant Flow	\$57	1,892	0.49	\$0.126	\$0.008
		Variable Speed Drives	no VSD	VSD	\$2,208	78,548	10.78	\$0.129	\$0.009
		Program Total:			\$138,655	4,821,235	414.08	\$0.157	\$0.015
	Behavioral Comprehensive	Community Education Kit	no action	9W LED's, Showerhead, Faucet Aerator, LED nightlight	\$10,068	364,666	24.75	\$0.136	\$0.006
BEHAVIORAL		K-12 Education Kit	no action	9W LEDs, Shower, Aerator, NiteLite	\$43,911	1,590,457	108.00	\$0.136	\$0.006
		K-12 Safety Kit	no action	9W LEDs	\$16,456	592,126	33.81	\$0.115	\$0.004
		Lighting Outreach Promotion	no action	9W LEDs	\$58,330	2,098,854	181.11	\$0.115	\$0.004
		Night Lights	no action	9W LEDs	\$4,971	178,875	-	\$0.118	\$0.007

		Program Total:			\$133,736	4,824,977	347.67	\$0.123	\$0.005
	Home Energy Reports	Home Energy Reports	no action	Behavioral actions from HER	\$216,233	7,583,139	948.09	\$0.109	\$0.012
		Program Total:			\$216,233	7,583,139	948.09	\$0.109	\$0.012

Table B-3: Societal Benefits, Costs, and Cost-effectiveness for Existing and Proposed Measures

Sector	Program	Measure	Societal Benefits	Societal Costs	Societal Benefits to Cost Ratio
RESIDENTIAL	Efficient Products	Advanced Power Strip-Load Sensor	\$35	\$34	1.03
		Energy Star Central AC and HP	\$1,196	\$532	2.25
		Energy Star Clothes Washer	\$186	\$64	2.92
		Energy Star Freezer	\$15	\$11	1.39
		Energy Star Heat Pump Water Heater	\$893	\$839	1.06
		Energy Star Refrigerator	\$49	\$29	1.69
		Energy Star Room AC	\$92	\$54	1.69
		Residential 15K LED Light	\$15	\$7	2.12
		Residential 25K LED Light	\$31	\$7	4.36
		Variable Speed Pool Pumps	\$1,017	\$442	2.30
		Program Total:	\$3,529	\$2,018	1.75
	Existing Homes	Advanced Tune-up	\$511	\$328	1.56
		DTR Tier 1 (All Electric)	\$2,429	\$974	2.49
		DTR Tier 1 (Dual Fuel)	\$2,604	\$897	2.90

		DTR Tier 2 (All Electric)	\$4,276	\$1,190	3.59
		DTR Tier 2 (Dual Fuel)	\$4,485	\$1,044	4.30
		Energy Star Heat Pump Water Heater	\$893	\$1,060	0.84
		ER HVAC with QI (All Electric)	\$2,808	\$1,606	1.75
		ER HVAC with QI (Dual Fuel)	\$3,239	\$1,370	2.37
		ER HVAC with QI Tier 1 (All Electric)	\$3,852	\$1,995	1.93
		ER HVAC with QI Tier 1 (Dual Fuel)	\$4,237	\$1,723	2.46
		ER HVAC with QI Tier 2 (All Electric)	\$5,732	\$2,161	2.65
		ER HVAC with QI Tier 2 (Dual Fuel)	\$6,001	\$1,843	3.26
		HVAC QI (All Electric)	\$2,793	\$1,178	2.37
		HVAC QI (Dual Fuel)	\$3,573	\$1,298	2.75
		HVAC QI Tier 1 (All Electric)	\$3,629	\$1,591	2.28
		HVAC QI Tier 1 (Dual Fuel)	\$4,724	\$1,678	2.81
		HVAC QI Tier 2 (All Electric)	\$5,140	\$1,783	2.88
		HVAC QI Tier 2 (Dual Fuel)	\$6,758	\$1,807	3.74
		Indoor and Outdoor Coil Clean	\$99	\$96	1.04
		Refrigerant Charge Repair	\$485	\$271	1.79
		Smart Thermostats	\$263	\$193	1.37
		Western Cooling Control™	\$443	\$177	2.51
		Program Total:	\$68,974	\$26,262	2.63
	Low Income Weatherization	Energy Ease	\$1,595,464	\$1,004,252	1.59
		Program Total:	\$1,595,464	\$1,004,252	1.59
	Multi-Family	Advanced Tune-up	\$260	\$251	1.04
		DTR Tier 1 (All Electric)	\$1,390	\$705	1.97
		DTR Tier 1 (Dual Fuel)	\$1,214	\$550	2.21
		DTR Tier 2 (All Electric)	\$3,403	\$705	4.83
		DTR Tier 2 (Dual Fuel)	\$2,804	\$550	5.10

	ER HVAC with QI (All Electric)	\$1,082	\$652	1.66
	ER HVAC with QI (Dual Fuel)	\$968	\$495	1.96
	ER HVAC with QI Tier 1 (All Electric)	\$1,082	\$637	1.70
	ER HVAC with QI Tier 1 (Dual Fuel)	\$968	\$480	2.02
	ER HVAC with QI Tier 2 (All Electric)	\$2,224	\$746	2.98
	ER HVAC with QI Tier 2 (Dual Fuel)	\$1,746	\$536	3.26
	Faucet Aerator Bathroom-Electric WH	\$17	\$8	2.12
	Faucet Aerator Kitchen-Electric WH	\$27	\$13	2.05
	HVAC QI (All Electric)	\$1,533	\$906	1.69
	HVAC QI (Dual Fuel)	\$1,417	\$1,061	1.34
	HVAC QI Tier 1 (All Electric)	\$1,916	\$954	2.01
	HVAC QI Tier 1 (Dual Fuel)	\$1,831	\$1,089	1.68
	HVAC QI Tier 2 (All Electric)	\$3,159	\$1,109	2.85
	HVAC QI Tier 2 (Dual Fuel)	\$3,066	\$1,170	2.62
	Indoor and Outdoor Coil Clean	\$87	\$84	1.04
	Low Flow Showerheads-Electric WH	\$166	\$37	4.52
	Refrigerant Charge Repair	\$241	\$199	1.21
	Residential 15K LED	\$20	\$8	2.70
	Residential 25K LED	\$25	\$8	3.37
	Smart Thermostats	\$297	\$206	1.44
	Western Cooling Control™	\$210	\$121	1.73
	Program Total:	\$31,153	\$13,278	2.35
Residential New Construction	ENERGY Smart Homes (All Electric)	\$6,589	\$1,907	3.46
	ENERGY Smart Homes (Dual Fuel)	\$7,368	\$1,825	4.04
	ENERGY Smart Multi-Family (All Electric)	\$4,246	\$1,824	2.33
	ENERGY Smart Multi-Family (Dual Fuel)	\$4,970	\$1,777	2.80
	Program Total:	\$23,172	\$7,332	3.16

	Shade Tree	Shade Tree	\$107	\$55	1.95
		Program Total:	\$107	\$55	1.95
NON-RESIDENTIAL	C&I Comprehensive	Advanced Power Strips-Load Sensors	\$50	\$36	\$50
		Advanced Power Strips-Occupancy Sensors	\$85	\$60	\$85
		Advanced Power Strips-Timer Plug Strip	\$91	\$25	\$91
		Air-Cooled Chillers	\$548	\$74	\$548
		Anti-Sweat Heater Controls	\$119	\$37	\$119
		Automated Drain Trap Compressor	\$846	\$773	\$846
		Beverage Controls ("Vending Miser")	\$762	\$264	\$762
		CO Sensors	\$17,219	\$2,848	\$17,219
		CO2 Sensors	\$1,618	\$993	\$1,618
		Commercial Kitchen Exhaust Fan	\$45,055	\$23,996	\$45,055
		Computer Power Monitoring System	\$27	\$19	\$27
		Custom Measure	\$31,285	\$17,016	\$31,285
		Cycling Dryer Compressor	\$2,448	\$7,357	\$2,448
		Daylighting Controls	\$1,239	\$587	\$1,239
		Delamping	\$100	\$28	\$100
		Economizers	\$1,055	\$348	\$1,055
		Efficient Compressors	\$1,093	\$306	\$1,093
		Efficient Condensers	\$105	\$47	\$105
		EMS-HVAC Delivery	\$3	\$2	\$3
		Energy Efficient Exit Sign	\$137	\$117	\$137
		Energy Efficient ODP Motors	\$149	\$32	\$149
		Energy Efficient TEFC Motors	\$126	\$78	\$126
		Evaporative Fan Controls	\$492	\$340	\$492
		Floating Head Pressure Controls	\$1,046	\$149	\$1,046
		Fume Hoods	\$7,963	\$1,989	\$7,963
		Gogged V-Belt	\$203	\$54	\$203

	Green Motor Rewind	\$1,552	\$1,445	\$1,552
	Heat Pump Water Heaters	\$3,800	\$2,314	\$3,800
	HIDs to T8/T5-Exterior	\$517	\$237	\$517
	HIDs to T8/T5-Interior	\$277	\$258	\$277
	High Efficiency EER Packaged and Split ACs	\$2,499	\$1,555	\$2,499
	High Efficiency EER Packaged and Split HPs	\$3,499	\$2,884	\$3,499
	High Efficiency Evaporator Fan Motors (ECM)	\$432	\$179	\$432
	High Efficiency Reach-In Refrigerators and Freezers	\$586	\$201	\$586
	High Efficiency SEER Packaged and Split ACs	\$1,069	\$830	\$1,069
	High Efficiency SEER Packaged and Split HPs	\$1,414	\$554	\$1,414
	Hotel Room HVAC Control	\$486	\$188	\$486
	HVAC System Test and Repair	\$1,750	\$1,030	\$1,750
	Induction Lighting	\$466	\$212	\$466
	Induction Lighting Outdoor	\$386	\$218	\$386
	LED Indoor Lights	\$31	\$22	\$31
	LED Outdoor Lighting	\$31	\$17	\$31
	LED Traffic Lights	\$118	\$87	\$118
	LED Tubes Indoor	\$41	\$22	\$41
	LED Tubes Outdoor	\$32	\$22	\$32
	Occupancy Sensors	\$240	\$159	\$240
	Premium T8 Lighting	\$9	\$19	\$9
	Programmable Thermostats	\$2,065	\$456	\$2,065
	PTAC	\$104	\$110	\$104
	PTHP	\$177	\$135	\$177
	Pulse Start Metal Halide Exterior	\$202	\$253	\$202
	Pulse Start Metal Halide Interior	\$311	\$281	\$311
	Reach-In Cooler Controls ("Vending Miser")	\$568	\$236	\$568
	Refrigerated Display Automatic Door Closers	\$726	\$257	\$726
	Refrigeration LED Strip Lighting	\$193	\$88	\$193

		Shade Screens	\$12	\$5	\$12
		Snack Controls ("Vending Miser")	\$152	\$112	\$152
		Strip Curtain	\$70	\$25	\$70
		Variable Refrigerant Flow	\$1,378	\$177	\$1,378
		Variable Speed Drives	\$72,236	\$10,027	\$72,236
		VSD Compressors	\$18,669	\$9,461	\$18,669
		Water-Cooled Chillers-Centrifugal	\$252	\$131	\$252
		Water-Cooled Chillers-Reciprocating	\$323	\$27	\$323
		Water-Cooled Chillers-Screw	\$260	\$76	\$260
		Window Films	\$9	\$6	\$9
		Program Total:	\$230,806	\$91,892	2.51
Commercial New Construction		High Efficiency EER Packaged and Split ACs	\$3,675	\$1,488	2.47
		High Efficiency EER Packaged and Split HPs	\$3,499	\$2,866	1.22
		High Performance Glaze	\$3	\$2	1.48
		Reduced Lighting Power Density	\$9,144	\$7,237	1.26
		Whole Building Performance	\$83,453	\$17,993	4.64
		Program Total:	\$99,774	\$29,586	11.07
C&I Small Business		Advanced Power Strips-Load Sensor	\$50	\$35	1.45
		Advanced Power Strips-Occupancy Sensors	\$73	\$61	1.20
		Advanced Power Strips-Timer Plug Strip	\$91	\$21	4.42
		Anti-Sweat Heater Controls	\$116	\$57	2.05
		Vending Miser Controls	\$494	\$320	1.55
		Custom Measure	\$4,220	\$1,101	3.83
		Daylighting Controls	\$816	\$718	1.14
		Delamping	\$68	\$41	1.68
		Economizers	\$1,055	\$424	2.49
		EMS HVAC Delivery	\$3	\$2	1.61

BEHAVIORAL		Energy Efficient Exit Signs	\$137	\$126	1.09
		HIDs to T8/T5-Exterior	\$517	\$326	1.59
		HIDs to T8/T5-Interior	\$599	\$349	1.72
		High Efficiency Evaporator Fan Motors (ECM)	\$432	\$241	1.79
		High Efficiency SEER Packaged and Split ACs	\$1,367	\$804	1.70
		High Efficiency SEER Packaged and Split HPs	\$1,433	\$560	2.56
		HVAC System Test and Repair	\$1,704	\$1,251	1.36
		Induction Lighting Indoor	\$454	\$280	1.62
		Induction Lighting Outdoor	\$386	\$285	1.36
		LED Indoor Lights	\$36	\$34	1.05
		LED Outdoor Lighting	\$33	\$32	1.04
		LED Tubes Replacing Fluorescent Indoor	\$41	\$29	1.41
		LED Tubes Replacing Fluorescent Outdoor	\$32	\$30	1.07
		Occupancy Sensor	\$315	\$192	1.64
		Premium T8 Lighting	\$29	\$24	1.22
		Programmable Thermostat	\$2,065	\$965	2.14
		PTAC	\$191	\$124	1.55
		PTHP	\$177	\$153	1.15
		Refrigerated Display Auto Door Closers	\$726	\$565	1.29
		Shade Screen	\$12	\$6	2.04
		Strip Curtain	\$70	\$64	1.09
		Variable Refrigerant Flow	\$1,378	\$315	4.37
		Variable Speed Drives	\$41,916	\$15,752	2.66
		Program Total:	\$61,037	\$25,285	2.41
BEHAVIORAL	Behavioral Comprehensive	Community Education Kit	\$240	\$30	8.01
		K-12 Education Kit	\$206	\$30	6.87
		K-12 Safety Kit	\$59	\$12	4.80
		Lighting Outreach Promotion	\$25	\$4	6.17

		Night Lights	\$12	\$4	2.79
		Program Total:	\$542	\$81	6.73
	Home Energy Reports	Home Energy Reports	\$106	\$49	2.18
		Program Total:	\$106	\$49	2.18

Table B-4: Environmental Benefits for Existing and Proposed Measures

Sector	Program	Measure	Annual CO2 Savings (Metric Tons)	Annual NOx Savings (Metric Tons)	Annual SOx Savings (Metric Tons)	Lifetime CO2 Savings (Metric Tons)	Lifetime NOx Savings (Metric Tons)	Lifetime SOx Savings (Metric Tons)
RESIDENTIAL	Efficient Products	Advanced Power Strip-Load Sensor	17,704,946	24,022	19,909	212,459,352	288,263	238,910
		Energy Star Central AC and HP	170,905,576	231,883	192,183	2,392,678,067	3,246,368	2,690,562
		Energy Star Clothes Washer	740,121,235	1,004,191	832,265	8,141,333,589	11,046,101	9,154,913
		Energy Star Freezer	24,463,408	33,192	27,509	293,560,890	398,301	330,109
		Energy Star Heat Pump Water Heater	239,448,599	324,882	269,259	3,591,728,984	4,873,231	4,038,892
		Energy Star Refrigerator	445,696,575	604,718	501,185	7,131,145,195	9,675,485	8,018,958
		Energy Star Room AC	37,576,865	50,984	42,255	338,191,788	458,856	380,296
		Residential 15K LED Light	6,182,428,694	8,388,273	6,952,129	92,736,430,409	125,824,101	104,281,930
		Residential 25K LED Light	26,039,418,392	35,330,090	29,281,274	703,064,296,576	953,912,421	790,594,390

	Variable Speed Pool Pumps	5,756,468,932	7,810,334	6,473,138	69,077,627,185	93,724,012	77,677,653
	Program Total:	39,654,233,222	53,802,569	44,591,106	886,979,452,036	1,203,447,139	997,406,613
Existing Homes	Advanced Tune-up	1,863,655,662	2,528,594	2,095,677	14,909,245,292	20,228,753	16,765,416
	DTR Tier 1 (All Electric)	43,788,890	59,412	49,241	875,777,798	1,188,249	984,810
	DTR Tier 1 (Dual Fuel)	3,100,704,544	4,207,013	3,486,736	62,014,090,876	84,140,258	69,734,721
	DTR Tier 2 (All Electric)	29,648,583	40,227	33,340	592,971,670	804,540	666,795
	DTR Tier 2 (Dual Fuel)	1,894,214,421	2,570,056	2,130,040	37,884,288,421	51,401,121	42,600,806
	Energy Star Heat Pump Water Heater	2,394,486	3,249	2,693	35,917,290	48,732	40,389
	ER HVAC with QI (All Electric)	656,437,316	890,649	738,162	9,846,559,744	13,359,739	11,072,437
	ER HVAC with QI (Dual Fuel)	2,536,094,479	3,440,954	2,851,833	60,866,267,489	82,582,900	68,443,996
	ER HVAC with QI Tier 1 (All Electric)	51,630,192	70,051	58,058	774,452,883	1,050,772	870,871
	ER HVAC with QI Tier 1 (Dual Fuel)	171,728,381	233,000	193,108	4,121,481,138	5,591,995	4,634,597
	ER HVAC with QI Tier 2 (All Electric)	7,808,120	10,594	8,780	117,121,803	158,910	131,703
	ER HVAC with QI Tier 2 (Dual Fuel)	24,502,303	33,245	27,553	588,055,275	797,869	661,267
	HVAC QI (All Electric)	1,184,765,983	1,607,482	1,332,267	17,771,489,744	24,112,225	19,984,005
	HVAC QI (Dual Fuel)	2,767,981,698	3,755,577	3,112,590	69,199,542,462	93,889,426	77,814,747
	HVAC QI Tier 1 (All Electric)	72,775,394	98,741	81,836	1,091,630,909	1,481,117	1,227,537
	HVAC QI Tier 1 (Dual Fuel)	186,484,937	253,021	209,702	4,662,123,437	6,325,534	5,242,548
	HVAC QI Tier 2 (All Electric)	39,650,047	53,797	44,586	594,750,701	806,953	668,796

	HVAC QI Tier 2 (Dual Fuel)	98,240,817	133,292	110,472	2,456,020,424	3,332,310	2,761,790
	Indoor and Outdoor Coil Clean	296,349	402	333	1,481,745	2,010	1,666
	Refrigerant Charge Repair	1,175,168	1,594	1,321	9,401,348	12,756	10,572
	Smart Thermostats	2,936,706,526	3,984,502	3,302,321	29,367,065,260	39,845,016	33,023,206
	Western Cooling Control™	4,171,474	5,660	4,691	41,714,743	56,598	46,908
	Program Total:	17,674,855,771	23,981,113	19,875,340	317,821,450,451	431,217,786	357,389,583
Low Income Weatherization	Energy Ease	2,156,935,634	2,926,514	2,425,470	30,197,098,878	40,971,200	33,956,577
	Program Total:	2,156,935,634	2,926,514	2,425,470	30,197,098,878	40,971,200	33,956,577
Multi-Family	Advanced Tune-up	641,477,458	870,352	721,340	5,131,819,662	6,962,815	5,770,721
	DTR Tier 1 (All Electric)	1,179,795,453	1,600,738	1,326,678	23,595,909,054	32,014,754	26,533,552
	DTR Tier 1 (Dual Fuel)	5,536,105,832	7,511,347	6,225,340	110,722,116,636	150,226,946	124,506,798
	DTR Tier 2 (All Electric)	707,877,272	960,443	796,007	14,157,545,432	19,208,853	15,920,131
	DTR Tier 2 (Dual Fuel)	5,536,105,832	7,511,347	6,225,340	110,722,116,636	150,226,946	124,506,798
	ER HVAC with QI (All Electric)	381,772,945	517,987	429,303	5,726,594,178	7,769,800	6,439,544
	ER HVAC with QI (Dual Fuel)	1,055,132,708	1,431,596	1,186,495	26,378,317,691	35,789,906	29,662,365
	ER HVAC with QI Tier 1 (All Electric)	39,277,052	53,291	44,167	589,155,780	799,362	662,504
	ER HVAC with QI Tier 1 (Dual Fuel)	52,756,635	71,580	59,325	1,318,915,885	1,789,495	1,483,118
	ER HVAC with QI Tier 2 (All Electric)	5,903,557	8,010	6,639	88,553,353	120,149	99,578
	ER HVAC with QI Tier 2 (Dual Fuel)	17,578,302	23,850	19,767	439,457,548	596,253	494,169

	Faucet Aerator Bathroom-Electric WH	298,210,552	404,610	335,337	2,982,105,525	4,046,099	3,353,372
	Faucet Aerator Kitchen-Electric WH	345,520,248	468,799	388,537	3,455,202,480	4,687,993	3,885,368
	HVAC QI (All Electric)	1,203,730,485	1,633,213	1,353,593	18,055,957,269	24,498,189	20,303,888
	HVAC QI (Dual Fuel)	1,233,725,377	1,673,909	1,387,322	30,843,134,425	41,847,736	34,683,043
	HVAC QI Tier 1 (All Electric)	75,245,877	102,093	84,614	1,128,688,161	1,531,396	1,269,208
	HVAC QI Tier 1 (Dual Fuel)	118,721,318	161,080	133,502	2,968,032,962	4,027,005	3,337,547
	HVAC QI Tier 2 (All Electric)	49,626,803	67,333	55,805	744,402,039	1,009,999	837,079
	HVAC QI Tier 2 (Dual Fuel)	130,672,200	177,295	146,941	3,266,804,997	4,432,377	3,673,516
	Indoor and Outdoor Coil Clean	222,261,793	301,563	249,933	1,111,308,963	1,507,816	1,249,665
	Low Flow Showerheads-Electric WH	1,223,082,331	1,659,469	1,375,354	12,230,823,309	16,594,690	13,753,536
	Refrigerant Charge Repair	1,472,430,579	1,997,783	1,655,745	11,779,444,633	15,982,263	13,245,962
	Residential 15K LED	669,818	909	753	14,066,172	19,085	15,817
	Residential 25K LED	2,042,944,050	2,771,851	2,297,286	61,288,321,504	83,155,540	68,918,594
	Smart Thermostats	1,677,788,188	2,276,411	1,886,669	16,777,881,875	22,764,106	18,866,694
	Western Cooling Control™	789,564,936	1,071,276	887,864	7,895,649,362	10,712,758	8,878,642
	Program Total:	26,037,977,599	35,328,135	29,279,654	473,412,325,531	642,322,331	532,351,209
Residential New Construction	ENERGY Smart Homes (All Electric)	717,767,972	973,862	807,129	21,533,039,156	29,215,868	24,213,859
	ENERGY Smart Homes (Dual Fuel)	4,243,979,643	5,758,200	4,772,347	127,319,389,291	172,746,003	143,170,398
	ENERGY Smart Multi-Family (All Electric)	3,053,807,526	4,143,383	3,434,000	91,614,225,774	124,301,502	103,020,013

		ENERGY Smart Multi-Family (Dual Fuel)	2,129,502,844	2,889,294	2,394,622	63,885,085,308	86,678,810	71,838,650
		Program Total:	10,145,057,984	13,764,739	11,408,097	304,351,739,530	412,942,182	342,242,920
	Shade Tree	Shade Tree	1,135,047,561	1,540,024	1,276,359	45,401,902,426	61,600,964	51,054,348
		Program Total:	1,135,047,561	1,540,024	1,276,359	45,401,902,426	61,600,964	51,054,348
NON-RESIDENTIAL	C&I Comprehensive	Advanced Power Strips-Load Sensors	253,903	344	286	3,046,835	4,134	3,426
		Advanced Power Strips- Occupancy Sensors	429,541	583	483	5,154,496	6,994	5,796
		Advanced Power Strips-Timer Plug Strip	458,891	623	516	5,506,698	7,471	6,192
		Air-Cooled Chillers	2,513,297	3,410	2,826	50,265,943	68,200	56,524
		Anti-Sweat Heater Controls	34,518,974	46,835	38,817	414,227,692	562,021	465,798
		Automated Drain Trap Compressor	5,183,943	7,034	5,829	51,839,434	70,335	58,293
		Beverage Controls ("Vending Miser")	3,476,215	4,717	3,909	41,714,580	56,598	46,908
		CO Sensors	59,919,756	81,299	67,380	479,358,045	650,389	539,037
		CO2 Sensors	9,199,151	12,481	10,344	137,987,260	187,220	155,166
		Commercial Kitchen Exhaust Fan	107,777,162	146,231	121,195	1,616,657,435	2,193,469	1,817,928
		Computer Power Monitoring System	470,195	638	529	1,880,781	2,552	2,115
		Custom Measure	14,405,439,983	19,545,194	16,198,888	201,676,159,766	273,632,717	226,784,437
		Cycling Dryer Compressor	11,524,948	15,637	12,960	149,824,327	203,281	168,477
		Daylighting Controls	4,812,723	6,530	5,412	72,190,838	97,948	81,178
		Delamping	437,922,449	594,170	492,443	8,320,526,531	11,289,229	9,356,415
		Economizers	1,998,104	2,711	2,247	29,971,562	40,665	33,703
		Efficient Compressors	4,146,514	5,626	4,663	62,197,717	84,389	69,941
		Efficient Condensers	564,439	766	635	5,644,389	7,658	6,347

	EMS-HVAC Delivery	9,519,863,098	12,916,480	10,705,067	142,797,946,473	193,747,194	160,576,004
	Energy Efficient Exit Sign	170,651,169	231,538	191,897	1,706,511,692	2,315,382	1,918,969
	Energy Efficient ODP Motors	533,002	723	599	7,995,024	10,848	8,990
	Energy Efficient TEFC Motors	905,367	1,228	1,018	13,580,505	18,426	15,271
	Evaporative Fan Controls	67,423,474	91,480	75,818	809,081,687	1,097,756	909,811
	Floating Head Pressure Controls	3,968,980	5,385	4,463	59,534,701	80,776	66,947
	Fume Hoods	28,572,695	38,767	32,130	428,590,429	581,508	481,949
	Gogged V-Belt	2,170,623	2,945	2,441	10,853,117	14,725	12,204
	Green Motor Rewind	16,578,217	22,493	18,642	82,891,085	112,466	93,211
	Heat Pump Water Heaters	16,285,661	22,096	18,313	211,713,595	287,251	238,072
	HIDs to T8/T5-Exterior	2,351,846	3,191	2,645	42,333,222	57,437	47,604
	HIDs to T8/T5-Interior	1,457,706	1,978	1,639	17,492,471	23,734	19,670
	High Efficiency EER Packaged and Split ACs	443,677,017	601,978	498,914	6,655,155,259	9,029,665	7,483,709
	High Efficiency EER Packaged and Split HPs	318,001,124	431,462	357,592	4,770,016,865	6,471,923	5,363,874
	High Efficiency Evaporator Fan Motors (ECM)	204,705,213	277,743	230,191	3,070,578,192	4,166,138	3,452,859
	High Efficiency Reach-In Refrigerators and Freezers	2,225,431	3,019	2,502	33,381,467	45,292	37,537
	High Efficiency SEER Packaged and Split ACs	3,014,910	4,091	3,390	45,223,649	61,359	50,854
	High Efficiency SEER Packaged and Split HPs	19,655,972	26,669	22,103	294,839,581	400,036	331,547
	Hotel Room HVAC Control	375,162,667	509,018	421,870	3,001,301,334	4,072,143	3,374,957
	HVAC System Test and Repair	696,194,006	944,591	782,869	12,531,492,117	17,002,636	14,091,638
	Induction Lighting	26,798,342	36,360	30,135	696,756,882	945,355	783,502
	Induction Lighting Outdoor	1,756,492	2,383	1,975	31,616,855	42,898	35,553
	LED Indoor Lights	6,282,534,903	8,524,097	7,064,698	37,695,209,417	51,144,580	42,388,187
	LED Outdoor Lighting	1,795,788,223	2,436,512	2,019,360	10,774,729,341	14,619,073	12,116,162
	LED Traffic Lights	846,475	1,148	952	5,925,323	8,039	6,663

		LED Tubes Indoor	6,879,288,014	9,333,767	7,735,746	89,430,744,183	121,338,970	100,564,692
		LED Tubes Outdoor	53,428,649	72,492	60,080	587,715,143	797,408	660,884
		Occupancy Sensors	6,848,011,495	9,291,331	7,700,575	198,592,333,354	269,448,604	223,316,680
		Premium T8 Lighting	128,611	174	145	1,929,170	2,617	2,169
		Programmable Thermostats	401,202,976	544,349	451,152	4,413,232,739	5,987,841	4,962,671
		PTAC	362,439	492	408	5,436,579	7,376	6,113
		PTHP	488,987	663	550	7,334,808	9,952	8,248
		Pulse Start Metal Halide Exterior	1,352,356	1,835	1,521	14,875,912	20,184	16,728
		Pulse Start Metal Halide Interior	1,531,022	2,077	1,722	19,903,283	27,005	22,381
		Reach-In Cooler Controls ("Vending Miser")	15,545,806	21,092	17,481	186,549,675	253,109	209,775
		Refrigerated Display Automatic Door Closers	72,870,967	98,871	81,943	364,354,834	494,354	409,716
		Refrigeration LED Strip Lighting	368,730,249	500,290	414,636	1,474,920,998	2,001,162	1,658,546
		Shade Screens	33,912	46	38	339,117	460	381
		Snack Controls ("Vending Miser")	695,243	943	782	8,342,916	11,320	9,382
		Strip Curtain	216,818,415	294,178	243,812	867,273,661	1,176,710	975,247
		Variable Refrigerant Flow	3,622,031	4,914	4,073	54,330,467	73,715	61,095
		Variable Speed Drives	9,776,345,208	13,264,473	10,993,481	146,645,178,126	198,967,090	164,902,208
		VSD Compressors	95,198,339	129,164	107,050	951,983,395	1,291,644	1,070,503
		Water-Cooled Chillers-Centrifugal	386,033	524	434	7,720,660	10,475	8,682
		Water-Cooled Chillers-Reciprocating	493,763	670	555	9,875,263	13,399	11,105
		Water-Cooled Chillers-Screw	398,146	540	448	7,962,922	10,804	8,954
		Window Films	100,609,924	136,507	113,136	1,509,148,862	2,047,602	1,697,035
		Program Total:	59,929,275,391	81,311,596	67,390,350	884,080,390,677	1,199,513,714	994,146,624
	Commercial New Construction	High Efficiency EER Packaged and Split ACs	15,545,806	21,092	17,481	357,553,544	485,126	402,068

	High Efficiency EER Packaged and Split HPs	19,339,813	26,240	21,748	290,097,196	393,602	326,214
	High Performance Glaze	4,649	6	5	92,983	126	105
	Reduced Lighting Power Density	182,177,417	247,177	204,858	2,186,129,003	2,966,124	2,458,298
	Whole Building Performance	4,067,560,603	5,518,836	4,573,964	81,351,212,057	110,376,721	91,479,275
	Program Total:	4,284,628,288	5,813,352	4,818,056	84,185,084,783	114,221,698	94,665,959
C&I Small Business	Advanced Power Strips-Load Sensor	51,757	70	58	621,085	843	698
	Advanced Power Strips-Occupancy Sensors	118,415	161	133	1,420,984	1,928	1,598
	Advanced Power Strips-Timer Plug Strip	30,768	42	35	369,213	501	415
	Anti-Sweat Heater Controls	51,247,400	69,532	57,628	614,968,804	834,385	691,531
	Vending Miser Controls	2,254,142	3,058	2,535	27,049,703	36,701	30,417
	Custom Measure	2,900,363,827	3,935,192	3,261,453	37,704,729,754	51,157,498	42,398,893
	Daylighting Controls	3,809,720	5,169	4,284	57,145,804	77,535	64,260
	Delamping	14,365,237	19,491	16,154	215,478,550	292,360	242,305
	Economizers	1,998,104	2,711	2,247	29,971,562	40,665	33,703
	EMS HVAC Delivery	3,173	4	4	47,599	65	54
	Energy Efficient Exit Signs	99,215,796	134,615	111,568	992,157,961	1,346,153	1,115,680
	HIDs to T8/T5-Exterior	2,351,846	3,191	2,645	42,333,222	57,437	47,604
	HIDs to T8/T5-Interior	2,292,724	3,111	2,578	41,269,035	55,994	46,407
	High Efficiency Evaporator Fan Motors (ECM)	81,882,085	111,097	92,076	1,228,231,277	1,666,455	1,381,144

	High Efficiency SEER Packaged and Split ACs	101,253,938	137,381	113,860	2,126,332,707	2,884,992	2,391,057
	High Efficiency SEER Packaged and Split HPs	12,393,787	16,816	13,937	260,269,526	353,132	292,673
	HVAC System Test and Repair	290,080,836	393,580	326,195	5,221,455,049	7,084,431	5,871,516
	Induction Lighting Indoor	1,662,940	2,256	1,870	28,269,978	38,356	31,790
	Induction Lighting Outdoor	1,756,492	2,383	1,975	31,616,855	42,898	35,553
	LED Indoor Lights	2,646,933,694	3,591,340	2,976,472	18,528,535,856	25,139,380	20,835,301
	LED Outdoor Lighting	960,528,186	1,303,238	1,080,112	5,763,169,114	7,819,425	6,480,672
	LED Tubes Replacing Fluorescent Indoor	1,315,158,003	1,784,397	1,478,893	17,097,054,035	23,197,156	19,225,603
	LED Tubes Replacing Fluorescent Outdoor	427,429,195	579,933	480,643	4,701,721,141	6,379,260	5,287,076
	Occupancy Sensor	878,770	1,192	988	26,363,096	35,769	29,645
	Premium T8 Lighting	128,611,360	174,499	144,623	1,929,170,395	2,617,484	2,169,348
	Programmable Thermostat	13,373,433	18,145	15,038	147,107,758	199,595	165,422
	PTAC	3,624,386	4,918	4,076	28,995,086	39,340	32,605
	PTHP	4,889,872	6,635	5,499	39,118,975	53,076	43,989
	Refrigerated Display Auto Door Closers	8,096,774	10,986	9,105	40,483,870	54,928	45,524
	Shade Screen	32,593	44	37	325,930	442	367
	Strip Curtain	1,032,469	1,401	1,161	4,129,875	5,603	4,644
	Variable Refrigerant Flow	3,622,031	4,914	4,073	54,330,467	73,715	61,095
	Variable Speed Drives	150,405,311	204,069	169,130	2,256,079,663	3,061,032	2,536,957

		Program Total:	9,231,749,062	12,525,569	10,381,083	99,240,323,929	134,648,535	111,595,545
BEHAVIORAL	Behavioral Comprehensive	Community Education Kit	698,265,797	947,402	785,198	16,060,113,333	21,790,243	18,059,565
		K-12 Education Kit	3,045,423,443	4,132,008	3,424,573	70,044,739,190	95,036,182	78,765,169
		K-12 Safety Kit	1,133,808,176	1,538,343	1,274,965	32,880,437,094	44,611,933	36,973,985
		Lighting Outreach Promotion	4,018,906,328	5,452,822	4,519,252	116,548,283,516	158,131,846	131,058,311
		Night Lights	342,511,007	464,716	385,153	5,480,176,111	7,435,462	6,162,447
		Program Total:	9,238,914,751	12,535,291	10,389,141	241,013,749,244	327,005,667	271,019,477
	Home Energy Reports	Home Energy Reports	14,520,270,049	19,700,995	16,328,015	130,682,430,441	177,308,952	146,952,131
		Program Total:	14,520,270,049	19,700,995	16,328,015	130,682,430,441	177,308,952	146,952,131

Table B-5: Costs and Budget for Existing and Proposed Measures

Sector					
	Program	Measure	Rebates & Incentives	Non-Rebate Costs	Total Measure Costs
RESIDENTIAL	Efficient Products	Advanced Power Strip-Load Sensor	\$1,000	\$374	\$1,374
		Energy Star Central AC and HP	\$25,600	\$3,615	\$29,215
		Energy Star Clothes Washer	\$62,500	\$15,654	\$78,154
		Energy Star Freezer	\$1,500	\$517	\$2,017
		Energy Star Heat Pump Water Heater	\$40,500	\$5,065	\$45,565
		Energy Star Refrigerator	\$25,000	\$9,427	\$34,427
		Energy Star Room AC	\$1,000	\$795	\$1,795
		Residential 15K LED Light	\$165,000	\$130,764	\$295,764
		Residential 25K LED Light	\$495,000	\$550,758	\$1,045,758
		Variable Speed Pool Pumps	\$210,000	\$121,755	\$331,755
		Program Total:	\$1,027,100	\$838,724	\$1,865,824
	Existing Homes	Advanced Tune-up	\$149,275	\$144,166	\$293,442
		DTR Tier 1 (All Electric)	\$3,250	\$3,387	\$6,637
		DTR Tier 1 (Dual Fuel)	\$295,000	\$239,861	\$534,861
		DTR Tier 2 (All Electric)	\$1,435	\$2,294	\$3,729
		DTR Tier 2 (Dual Fuel)	\$120,269	\$146,530	\$266,800
		Energy Star Heat Pump Water Heater	\$405	\$185	\$590
		ER HVAC with QI (All Electric)	\$80,749	\$50,780	\$131,529
		ER HVAC with QI (Dual Fuel)	\$347,660	\$196,184	\$543,844
		ER HVAC with QI Tier 1 (All Electric)	\$6,294	\$3,994	\$10,288

		ER HVAC with QI Tier 1 (Dual Fuel)	\$23,821	\$13,284	\$37,106
		ER HVAC with QI Tier 2 (All Electric)	\$675	\$604	\$1,279
		ER HVAC with QI Tier 2 (Dual Fuel)	\$2,414	\$1,895	\$4,309
		HVAC QI (All Electric)	\$100,497	\$91,650	\$192,147
		HVAC QI (Dual Fuel)	\$440,503	\$214,122	\$654,625
		HVAC QI Tier 1 (All Electric)	\$6,560	\$5,630	\$12,189
		HVAC QI Tier 1 (Dual Fuel)	\$28,916	\$14,426	\$43,341
		HVAC QI Tier 2 (All Electric)	\$2,398	\$3,067	\$5,465
		HVAC QI Tier 2 (Dual Fuel)	\$10,260	\$7,600	\$17,860
		Indoor and Outdoor Coil Clean	\$25	\$23	\$48
		Refrigerant Charge Repair	\$70	\$91	\$161
		Smart Thermostats	\$175,000	\$227,174	\$402,174
		Western Cooling Control™	\$226	\$323	\$548
		Program Total:	\$1,795,702	\$1,367,270	\$3,162,972
	Low Income Weatherization	Energy Ease	\$998,979	\$5,272	\$1,004,252
		Program Total:	\$998,979	\$5,272	\$1,004,252
	Multi-Family	Advanced Tune-up	\$100,156	\$50,915	\$151,072
		DTR Tier 1 (All Electric)	\$37,500	\$93,643	\$131,143
		DTR Tier 1 (Dual Fuel)	\$300,000	\$439,413	\$739,413
		DTR Tier 2 (All Electric)	\$24,750	\$56,186	\$80,936
		DTR Tier 2 (Dual Fuel)	\$330,000	\$439,413	\$769,413
		ER HVAC with QI (All Electric)	\$64,086	\$30,302	\$94,389
		ER HVAC with QI (Dual Fuel)	\$205,645	\$83,748	\$289,393
		ER HVAC with QI Tier 1 (All Electric)	\$6,401	\$3,118	\$9,519
		ER HVAC with QI Tier 1 (Dual Fuel)	\$9,911	\$4,187	\$14,098
		ER HVAC with QI Tier 2 (All Electric)	\$512	\$469	\$981
		ER HVAC with QI Tier 2 (Dual Fuel)	\$1,982	\$1,395	\$3,377

NON-RESIDENTIAL		Faucet Aerator Bathroom-Electric WH	\$3,300	\$23,670	\$26,970
		Faucet Aerator Kitchen-Electric WH	\$5,000	\$27,425	\$32,425
		HVAC QI (All Electric)	\$178,751	\$95,543	\$274,294
		HVAC QI (Dual Fuel)	\$481,505	\$97,923	\$579,428
		HVAC QI Tier 1 (All Electric)	\$8,938	\$5,972	\$14,910
		HVAC QI Tier 1 (Dual Fuel)	\$36,113	\$9,423	\$45,536
		HVAC QI Tier 2 (All Electric)	\$3,575	\$3,939	\$7,514
		HVAC QI Tier 2 (Dual Fuel)	\$24,075	\$10,372	\$34,447
		Indoor and Outdoor Coil Clean	\$18,750	\$17,641	\$36,391
		Low Flow Showerheads-Electric WH	\$13,500	\$97,079	\$110,579
		Refrigerant Charge Repair	\$125,000	\$116,870	\$241,870
		Residential 15K LED	\$22	\$53	\$75
		Residential 25K LED	\$66,795	\$162,153	\$228,948
		Smart Thermostats	\$87,500	\$133,170	\$220,670
		Western Cooling Control™	\$90,000	\$62,670	\$152,670
		Program Total:	\$2,223,766	\$2,066,692	\$4,290,458
	Residential New Construction	ENERGY Smart Homes (All Electric)	\$30,000	\$23,970	\$53,970
		ENERGY Smart Homes (Dual Fuel)	\$270,000	\$141,728	\$411,728
		ENERGY Smart Multi-Family (All Electric)	\$195,000	\$101,982	\$296,982
		ENERGY Smart Multi-Family (Dual Fuel)	\$195,000	\$71,115	\$266,115
		Program Total:	\$690,000	\$338,794	\$1,028,794
	Shade Tree	Shade Tree	\$239,822	\$11,830	\$251,652
		Program Total:	\$239,822	\$11,830	\$251,652
	C&I Comprehensive	Advanced Power Strips-Load Sensors	\$10	\$4	\$14
		Advanced Power Strips-Occupancy Sensors	\$10	\$6	\$16
		Advanced Power Strips-Timer Plug Strip	\$10	\$6	\$16

	Air-Cooled Chillers	\$93	\$36	\$128
	Anti-Sweat Heater Controls	\$780	\$489	\$1,269
	Automated Drain Trap Compressor	\$350	\$73	\$423
	Beverage Controls ("Vending Miser")	\$75	\$49	\$124
	CO Sensors	\$250	\$848	\$1,098
	CO2 Sensors	\$600	\$130	\$730
	Commercial Kitchen Exhaust Fan	\$11,235	\$1,526	\$12,761
	Computer Power Monitoring System	\$6	\$7	\$13
	Custom Measure	\$1,386,953	\$203,958	\$1,590,911
	Cycling Dryer Compressor	\$3,597	\$163	\$3,760
	Daylighting Controls	\$120	\$68	\$188
	Delamping	\$6,300	\$6,200	\$12,500
	Economizers	\$160	\$28	\$188
	Efficient Compressors	\$80	\$59	\$139
	Efficient Condensers	\$20	\$8	\$28
	EMS-HVAC Delivery	\$780,000	\$134,786	\$914,786
	Energy Efficient Exit Sign	\$5,375	\$2,416	\$7,791
	Energy Efficient ODP Motors	\$12	\$8	\$20
	Energy Efficient TEFC Motors	\$37	\$13	\$49
	Evaporative Fan Controls	\$2,250	\$955	\$3,205
	Floating Head Pressure Controls	\$20	\$56	\$76
	Fume Hoods	\$792	\$405	\$1,197
	Gogged V-Belt	\$12	\$31	\$42
	Green Motor Rewind	\$497	\$235	\$731
	Heat Pump Water Heaters	\$800	\$231	\$1,031
	HIDs to T8/T5-Exterior	\$75	\$33	\$108
	HIDs to T8/T5-Interior	\$85	\$21	\$106
	High Efficiency EER Packaged and Split ACs	\$35,727	\$6,282	\$42,009
	High Efficiency EER Packaged and Split HPs	\$45,458	\$4,502	\$49,961

	High Efficiency Evaporator Fan Motors (ECM)	\$6,250	\$2,898	\$9,148
	High Efficiency Reach-In Refrigerators and Freezers	\$85	\$32	\$116
	High Efficiency SEER Packaged and Split ACs	\$394	\$43	\$436
	High Efficiency SEER Packaged and Split HPs	\$1,245	\$278	\$1,523
	Hotel Room HVAC Control	\$9,000	\$5,312	\$14,312
	HVAC System Test and Repair	\$56,881	\$9,857	\$66,738
	Induction Lighting	\$1,934	\$379	\$2,314
	Induction Lighting Outdoor	\$97	\$25	\$122
	LED Indoor Lights	\$177,579	\$88,951	\$266,529
	LED Outdoor Lighting	\$48,151	\$25,425	\$73,576
	LED Traffic Lights	\$37	\$12	\$49
	LED Tubes Indoor	\$272,000	\$97,400	\$369,400
	LED Tubes Outdoor	\$2,000	\$756	\$2,756
	Occupancy Sensors	\$308,663	\$96,957	\$405,620
	Premium T8 Lighting	\$6	\$2	\$8
	Programmable Thermostats	\$1,500	\$5,680	\$7,180
	PTAC	\$33	\$5	\$38
	PTHP	\$33	\$7	\$40
	Pulse Start Metal Halide Exterior	\$94	\$19	\$113
	Pulse Start Metal Halide Interior	\$105	\$22	\$127
	Reach-In Cooler Controls ("Vending Miser")	\$450	\$220	\$670
	Refrigerated Display Automatic Door Closers	\$360	\$1,032	\$1,392
	Refrigeration LED Strip Lighting	\$6,956	\$5,221	\$12,176
	Shade Screens	\$2	\$0	\$3
	Snack Controls ("Vending Miser")	\$51	\$10	\$61
	Strip Curtain	\$1,050	\$3,070	\$4,120
	Variable Refrigerant Flow	\$50	\$51	\$101
	Variable Speed Drives	\$146,250	\$138,417	\$284,667
	VSD Compressors	\$2,625	\$1,348	\$3,973

		Water-Cooled Chillers-Centrifugal	\$28	\$5	\$33
		Water-Cooled Chillers-Reciprocating	\$10	\$7	\$17
		Water-Cooled Chillers-Screw	\$29	\$6	\$35
		Window Films	\$10,500	\$1,424	\$11,924
		Program Total:	\$3,336,235	\$848,503	\$4,184,738
Commercial New Construction		High Efficiency EER Packaged and Split ACs	\$943	\$117	\$1,060
		High Efficiency EER Packaged and Split HPs	\$1,725	\$145	\$1,871
		High Performance Glaze	\$1	\$0	\$1
		Reduced Lighting Power Density	\$5,222	\$1,370	\$6,592
		Whole Building Performance	\$209,622	\$30,593	\$240,215
		Program Total:	\$217,513	\$32,225	\$249,738
C&I Small Business		Advanced Power Strips-Load Sensor	\$10	\$3	\$13
		Advanced Power Strips-Occupancy Sensors	\$10	\$6	\$16
		Advanced Power Strips-Timer Plug Strip	\$10	\$2	\$11
		Anti-Sweat Heater Controls	\$1,403	\$2,676	\$4,079
		Vending Miser Controls	\$100	\$118	\$218
		Custom Measure	\$34,332	\$151,470	\$185,802
		Daylighting Controls	\$228	\$199	\$427
		Delamping	\$497	\$750	\$1,247
		Economizers	\$160	\$104	\$264
		EMS HVAC Delivery	\$0	\$0	\$0
		Energy Efficient Exit Signs	\$6,625	\$5,181	\$11,806
		HIDs to T8/T5-Exterior	\$102	\$123	\$225
		HIDs to T8/T5-Interior	\$115	\$120	\$234
		High Efficiency Evaporator Fan Motors (ECM)	\$3,893	\$4,276	\$8,170
		High Efficiency SEER Packaged and Split ACs	\$17,461	\$5,288	\$22,749
		High Efficiency SEER Packaged and Split HPs	\$797	\$647	\$1,444

		HVAC System Test and Repair	\$18,045	\$15,149	\$33,194
		Induction Lighting Indoor	\$96	\$87	\$183
		Induction Lighting Outdoor	\$97	\$92	\$188
		LED Indoor Lights	\$75,471	\$138,235	\$213,706
		LED Outdoor Lighting	\$22,200	\$50,163	\$72,363
		LED Tubes Replacing Fluorescent Indoor	\$60,499	\$68,683	\$129,182
		LED Tubes Replacing Fluorescent Outdoor	\$18,615	\$22,322	\$40,937
		Occupancy Sensor	\$61	\$46	\$107
		Premium T8 Lighting	\$8,631	\$6,717	\$15,348
		Programmable Thermostat	\$50	\$698	\$748
		PTAC	\$333	\$189	\$523
		PTHP	\$330	\$255	\$585
		Refrigerated Display Auto Door Closers	\$40	\$423	\$463
		Shade Screen	\$2	\$2	\$4
		Strip Curtain	\$5	\$54	\$59
		Variable Refrigerant Flow	\$50	\$189	\$239
		Variable Speed Drives	\$2,250	\$7,855	\$10,105
		Program Total:	\$272,516	\$482,124	\$754,639
BEHAVIORAL	Behavioral Comprehensive	Community Education Kit	\$30,459	\$19,054	\$49,513
		K-12 Education Kit	\$132,912	\$83,101	\$216,013
		K-12 Safety Kit	\$37,240	\$30,939	\$68,179
		Lighting Outreach Promotion	\$131,400	\$109,665	\$241,065
		Night Lights	\$11,750	\$9,346	\$21,096
		Program Total:	\$343,761	\$252,105	\$595,866
	Home Energy Reports	Home Energy Reports	\$319,260	\$508,070	\$827,330
		Program Total:	\$319,260	\$508,070	\$827,330

Table B-6: Existing and Proposed Measure Recommended Incentive with Min/Max Range

Sector	Program	Measure	Minimum Incentive	Recommended Incentive	Maximum Incentive
RESIDENTIAL	Efficient Products	Advanced Power Strip-Load Sensor	\$3.20	\$10.00	\$16.00
		Energy Star Central AC and HP	\$51.20	\$256.00	\$256.00
		Energy Star Clothes Washer	\$6.03	\$25.00	\$30.16
		Energy Star Freezer	\$1.00	\$5.00	\$5.00
		Energy Star Heat Pump Water Heater	\$81.10	\$405.00	\$405.50
		Energy Star Refrigerator	\$2.68	\$10.00	\$13.42
		Energy Star Room AC	\$5.00	\$10.00	\$25.00
		Residential 15K LED Light	\$0.15	\$1.65	\$3.09
		Residential 25K LED Light	\$0.15	\$1.65	\$3.09
		Variable Speed Pool Pumps	\$39.76	\$140.00	\$198.82
	Existing Homes	Advanced Tune-up	\$19.90	\$99.52	\$99.52
		DTR Tier 1 (All Electric)	\$62.42	\$250.00	\$312.09
		DTR Tier 1 (Dual Fuel)	\$62.42	\$250.00	\$312.09
		DTR Tier 2 (All Electric)	\$57.41	\$287.04	\$287.04
		DTR Tier 2 (Dual Fuel)	\$57.41	\$287.04	\$287.04
		Energy Star Heat Pump Water Heater	\$81.10	\$405.00	\$405.50
		ER HVAC with QI (All Electric)	\$112.94	\$564.68	\$564.68
		ER HVAC with QI (Dual Fuel)	\$99.33	\$496.66	\$496.66
		ER HVAC with QI Tier 1 (All Electric)	\$139.87	\$699.34	\$699.34

		ER HVAC with QI Tier 1 (Dual Fuel)	\$125.38	\$626.88	\$626.88
		ER HVAC with QI Tier 2 (All Electric)	\$135.02	\$675.10	\$675.10
		ER HVAC with QI Tier 2 (Dual Fuel)	\$120.69	\$603.43	\$603.43
		HVAC QI (All Electric)	\$73.09	\$365.44	\$365.44
		HVAC QI (Dual Fuel)	\$97.89	\$489.45	\$489.45
		HVAC QI Tier 1 (All Electric)	\$100.92	\$504.60	\$504.60
		HVAC QI Tier 1 (Dual Fuel)	\$125.72	\$628.60	\$628.60
		HVAC QI Tier 2 (All Electric)	\$95.91	\$479.54	\$479.54
		HVAC QI Tier 2 (Dual Fuel)	\$120.71	\$603.54	\$603.54
		Indoor and Outdoor Coil Clean	\$7.25	\$25.00	\$36.25
		Refrigerant Charge Repair	\$14.85	\$70.16	\$74.26
		Smart Thermostats	\$15.28	\$35.00	\$76.38
		Western Cooling Control™	\$9.02	\$45.10	\$45.10
	Low Income Weatherization	Energy Ease	\$99,897.92	\$998,979.17	\$998,979.17
	Multi-Family	Advanced Tune-up	\$20.03	\$100.16	\$100.16
		DTR Tier 1 (All Electric)	\$33.00	\$150.00	\$165.00
		DTR Tier 1 (Dual Fuel)	\$33.00	\$150.00	\$165.00
		DTR Tier 2 (All Electric)	\$33.00	\$165.00	\$165.00
		DTR Tier 2 (Dual Fuel)	\$33.00	\$165.00	\$165.00
		ER HVAC with QI (All Electric)	\$52.75	\$263.73	\$263.73
		ER HVAC with QI (Dual Fuel)	\$41.13	\$205.64	\$205.64
		ER HVAC with QI Tier 1 (All Electric)	\$51.21	\$256.04	\$256.04
		ER HVAC with QI Tier 1 (Dual Fuel)	\$39.64	\$198.21	\$198.21
		ER HVAC with QI Tier 2 (All Electric)	\$51.21	\$256.04	\$256.04
		ER HVAC with QI Tier 2 (Dual Fuel)	\$39.64	\$198.21	\$198.21
		Faucet Aerator Bathroom-Electric WH	\$0.10	\$1.00	\$5.27

NON-RESIDENTIAL		Faucet Aerator Kitchen-Electric WH	\$0.20	\$2.00	\$6.62
		HVAC QI (All Electric)	\$71.50	\$357.50	\$357.50
		HVAC QI (Dual Fuel)	\$96.30	\$481.50	\$481.50
		HVAC QI Tier 1 (All Electric)	\$71.50	\$357.50	\$357.50
		HVAC QI Tier 1 (Dual Fuel)	\$96.30	\$481.50	\$481.50
		HVAC QI Tier 2 (All Electric)	\$71.50	\$357.50	\$357.50
		HVAC QI Tier 2 (Dual Fuel)	\$96.30	\$481.50	\$481.50
		Indoor and Outdoor Coil Clean	\$6.00	\$25.00	\$30.00
		Low Flow Showerheads-Electric WH	\$0.45	\$4.50	\$28.54
		Refrigerant Charge Repair	\$15.25	\$50.00	\$76.25
		Residential 15K LED	\$0.22	\$2.19	\$2.19
		Residential 25K LED	\$0.22	\$2.19	\$2.19
		Smart Thermostats	\$15.28	\$35.00	\$76.38
		Western Cooling Control™	\$9.00	\$45.00	\$45.00
	Residential New Construction	ENERGY Smart Homes (All Electric)	\$166.71	\$300.00	\$833.57
		ENERGY Smart Homes (Dual Fuel)	\$166.71	\$300.00	\$833.57
		ENERGY Smart Multi-Family (All Electric)	\$100.00	\$300.00	\$833.57
		ENERGY Smart Multi-Family (Dual Fuel)	\$100.00	\$300.00	\$833.57
	Shade Tree	Shade Tree	\$5.33	\$26.65	\$26.65
NON-RESIDENTIAL	C&I Comprehensive	Advanced Power Strips-Load Sensors	\$3.20	\$10.00	\$16.00
		Advanced Power Strips-Occupancy Sensors	\$5.44	\$10.00	\$27.19
		Advanced Power Strips-Timer Plug Strip	\$1.90	\$9.50	\$9.50
		Air-Cooled Chillers	\$6.19	\$30.94	\$30.94
		Anti-Sweat Heater Controls	\$2.91	\$12.00	\$14.54

	Automated Drain Trap Compressor	\$70.00	\$350.00	\$350.00
	Beverage Controls ("Vending Miser")	\$21.47	\$75.00	\$107.34
	CO Sensors	\$200.00	\$250.00	\$1,000.00
	CO2 Sensors	\$95.00	\$200.00	\$475.00
	Commercial Kitchen Exhaust Fan	\$2,246.99	\$11,234.93	\$11,234.93
	Computer Power Monitoring System	\$1.21	\$6.07	\$6.07
	Custom Measure	\$1,585.09	\$7,925.45	\$7,925.45
	Cycling Dryer Compressor	\$719.40	\$3,597.00	\$3,597.00
	Daylighting Controls	\$51.86	\$120.00	\$259.30
	Delamping	\$2.40	\$4.50	\$12.02
	Economizers	\$32.00	\$160.00	\$160.00
	Efficient Compressors	\$24.70	\$80.00	\$123.50
	Efficient Condensers	\$3.95	\$19.74	\$19.74
	EMS-HVAC Delivery	\$0.15	\$0.26	\$0.76
	Energy Efficient Exit Sign	\$10.60	\$25.00	\$53.00
	Energy Efficient ODP Motors	\$2.48	\$12.38	\$12.38
	Energy Efficient TEFC Motors	\$7.16	\$18.31	\$35.78
	Evaporative Fan Controls	\$30.77	\$75.00	\$153.87
	Floating Head Pressure Controls	\$9.30	\$20.00	\$46.48
	Fume Hoods	\$158.43	\$792.15	\$792.15
	Gogged V-Belt	\$2.31	\$11.57	\$11.57
	Green Motor Rewind	\$121.03	\$496.67	\$605.16
	Heat Pump Water Heaters	\$208.33	\$800.00	\$1,041.67
	HIDs to T8/T5-Exterior	\$20.35	\$75.00	\$101.75
	HIDs to T8/T5-Interior	\$22.39	\$85.00	\$111.97
	High Efficiency EER Packaged and Split ACs	\$142.91	\$714.54	\$714.54
	High Efficiency EER Packaged and Split HPs	\$279.36	\$909.17	\$1,396.78
	High Efficiency Evaporator Fan Motors (ECM)	\$15.57	\$50.00	\$77.87
	High Efficiency Reach-In Refrigerators and Freezers	\$16.99	\$84.95	\$84.95

	High Efficiency SEER Packaged and Split ACs	\$78.73	\$393.67	\$393.67
	High Efficiency SEER Packaged and Split HPs	\$49.79	\$248.96	\$248.96
	Hotel Room HVAC Control	\$15.86	\$50.00	\$79.31
	HVAC System Test and Repair	\$94.80	\$474.01	\$474.01
	Induction Lighting	\$19.34	\$96.71	\$96.71
	Induction Lighting Outdoor	\$19.34	\$96.71	\$96.71
	LED Indoor Lights	\$1.78	\$8.88	\$8.88
	LED Outdoor Lighting	\$1.93	\$9.63	\$9.63
	LED Traffic Lights	\$7.47	\$37.36	\$37.36
	LED Tubes Indoor	\$1.93	\$8.00	\$9.67
	LED Tubes Outdoor	\$1.93	\$8.00	\$9.67
	Occupancy Sensors	\$14.64	\$39.57	\$73.20
	Premium T8 Lighting	\$1.73	\$6.00	\$8.63
	Programmable Thermostats	\$26.66	\$50.00	\$133.29
	PTAC	\$10.49	\$33.33	\$52.43
	PTHP	\$12.78	\$33.33	\$63.90
	Pulse Start Metal Halide Exterior	\$23.37	\$93.75	\$116.83
	Pulse Start Metal Halide Interior	\$25.97	\$105.00	\$129.84
	Reach-In Cooler Controls ("Vending Miser")	\$19.92	\$75.00	\$99.60
	Refrigerated Display Automatic Door Closers	\$14.20	\$40.00	\$71.00
	Refrigeration LED Strip Lighting	\$7.07	\$23.19	\$35.33
	Shade Screens	\$0.41	\$2.06	\$2.06
	Snack Controls ("Vending Miser")	\$10.26	\$51.30	\$51.30
	Strip Curtain	\$1.02	\$5.00	\$5.11
	Variable Refrigerant Flow	\$12.58	\$50.00	\$62.92
	Variable Speed Drives	\$789.74	\$2,250.00	\$3,948.70
	VSD Compressors	\$811.35	\$2,625.00	\$4,056.75
	Water-Cooled Chillers-Centrifugal	\$12.51	\$27.75	\$62.55
	Water-Cooled Chillers-Reciprocating	\$1.96	\$9.80	\$9.80

		Water-Cooled Chillers-Screw	\$7.03	\$29.00	\$35.16
		Window Films	\$0.60	\$1.75	\$3.00
	Commercial New Construction	High Efficiency EER Packaged and Split ACs	\$142.91	\$471.35	\$714.54
		High Efficiency EER Packaged and Split HPs	\$279.36	\$862.68	\$1,396.78
		High Performance Glaze	\$0.20	\$0.78	\$0.98
		Reduced Lighting Power Density	\$696.25	\$1,044.37	\$3,481.24
		Whole Building Performance	\$1,676.98	\$8,384.88	\$8,384.88
	C&I Small Business	Advanced Power Strips-Load Sensor	\$3.20	\$10.00	\$15.98
		Advanced Power Strips-Occupancy Sensors	\$5.44	\$10.00	\$27.19
		Advanced Power Strips-Timer Plug Strip	\$1.90	\$9.50	\$9.50
		Anti-Sweat Heater Controls	\$2.91	\$14.54	\$14.54
		Vending Miser Controls	\$20.19	\$100.00	\$100.96
		Custom Measure	\$34.33	\$171.66	\$171.66
		Daylighting Controls	\$51.86	\$228.08	\$259.30
		Delamping	\$2.40	\$11.04	\$12.02
		Economizers	\$32.00	\$160.00	\$160.00
		Energy Efficient Exit Signs	\$10.60	\$53.00	\$53.00
		HIDs to T8/T5-Exterior	\$20.35	\$101.75	\$101.75
		HIDs to T8/T5-Interior	\$22.90	\$114.51	\$114.51
		High Efficiency Evaporator Fan Motors (ECM)	\$15.57	\$77.87	\$77.87
		High Efficiency SEER Packaged and Split ACs	\$69.84	\$349.22	\$349.22
		High Efficiency SEER Packaged and Split HPs	\$39.83	\$199.17	\$199.17
		HVAC System Test and Repair	\$94.80	\$360.90	\$474.01
		Induction Lighting Indoor	\$19.34	\$95.91	\$96.71
		Induction Lighting Outdoor	\$19.34	\$96.71	\$96.71
		LED Indoor Lights	\$1.78	\$8.88	\$8.88

		LED Outdoor Lighting	\$1.99	\$9.93	\$9.93
		LED Tubes Replacing Fluorescent Indoor	\$1.86	\$9.31	\$9.31
		LED Tubes Replacing Fluorescent Outdoor	\$1.86	\$9.31	\$9.31
		Occupancy Sensor	\$14.64	\$60.99	\$73.20
		Premium T8 Lighting	\$1.73	\$8.63	\$8.63
		Programmable Thermostat	\$26.66	\$50.00	\$133.29
		PTAC	\$10.49	\$33.33	\$52.43
		PTHP	\$12.78	\$33.00	\$63.90
		Refrigerated Display Auto Door Closers	\$14.20	\$40.00	\$71.00
		Shade Screen	\$0.41	\$2.00	\$2.06
		Strip Curtain	\$1.02	\$5.00	\$5.11
		Variable Refrigerant Flow	\$12.58	\$50.00	\$62.92
		Variable Speed Drives	\$789.74	\$2,250.00	\$3,948.70
BEHAVIORAL	Behavioral Comprehensive	Community Education Kit	\$1.85	\$18.46	\$18.46
		K-12 Education Kit	\$1.85	\$18.46	\$18.46
		K-12 Safety Kit	\$0.67	\$6.65	\$6.65
		Lighting Outreach Promotion	\$0.22	\$2.19	\$2.19
		Night Lights	\$0.24	\$2.35	\$2.35
	Home Energy Reports	Home Energy Reports	\$1.88	\$18.78	\$18.78

Appendix C. WAP Measures for LIW Program

- Audit
- White Roof Coating
- Installation of LED bulbs to replace incandescent bulbs
- Duct Replacement
- Duct Sealing
- Envelope Sealing
- HSD Cooler Repair
- HSD CO & Smoke Detector
- HSD Door
- HSD General Repair
- HSD Installed Stove (Electric Only)
- HSD Repair Stove (Elective Only)
- HSD Replace Registers
- HSD Spot Ventilation
- HSD Electric Water Heater
- HSD Upper/Lower Combustion Air
- HSD HVAC Service (Elective HVAC)
- HVAC Replacement (Electric AC or Heat Pump)
- Installed Insulation
- Low-e Storm Windows
- Misalignment Repair (batt insulation)
- Replace Glass
- Repair Replacement of leaking hot water control valves
- Relocation of Thermostat
- Replacement of evaporative cooler roof jacks with damper system
- Replacement of Refrigerator
- Installation of Sunscreens
- Low Flow Showerhead
- Faucet Aerator
- Weather Stripping
- Water Heater Insulation
- Furnace Filters
- Door Sweep
- Pipe Insulation
- Set-back Thermostat

Tucson Electric Power Company
2018 DSM SURCHARGE PLAN OF ADMINISTRATION
Docket No: E-01933A-15-0322 and E-01933A-15-0239

Tucson Electric Power Company
Demand Side Management Surcharge
Plan of Administration

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Tucson Electric Power Company
2018 DSM SURCHARGE PLAN OF ADMINISTRATION
Docket No: E-01933A-15-0322 and E-01933A-15-0239

1. GENERAL DESCRIPTION

This document describes the plan for administering the Demand Side Management Surcharge (“DSMS”) approved for Tucson Electric Power Company (“TEP” or “Company”) by the Arizona Corporation Commission (“Commission”) pursuant to the Electric Energy Efficiency Standards, A.A.C. R14-2-2401, et seq.

The DSMS described in this Plan of Administration (“POA”) provides for the recovery of Demand Side Management (“DSM”) program costs, including energy efficiency and demand response programs, and energy efficiency performance incentives. The DSMS is applied to all residential customers’ bills as a monthly per-kilowatt-hour (“kWh”) charge. The DSMS is applied to all non-residential customers’ bills as a percentage of their total monthly bill amount.

2. DEFINITIONS

DSM - Demand-Side Management, the implementation and maintenance of one or more DSM programs.

DSM Program - One or more DSM measures provided as part of a single offering to customers.

DSMS Tariff - The Commission-approved schedule of rates designed to recover TEP’s reasonable and prudent costs of complying with the Energy Efficiency Standards.

EEIP – Energy Efficiency Implementation Plan.

Energy Efficiency - The production or delivery of an equivalent level and quality of end-use electric service using less energy, or the conservation of energy by end-use customers.

Energy Efficiency Standard or Standard - The reduction in retail energy sales, in percentage of kWh, required to be achieved through TEP’s approved DSM programs as prescribed in A.A.C. R14-2-2404.

Energy Savings - The reduction in a customer’s energy consumption directly resulting from a DSM program, expressed in kWh.

MER – The 3rd party measurement, evaluation, and research process.

Net Benefits - The incremental benefits resulting from DSM minus the incremental costs of DSM.

Program Costs - The costs associated with the design, implementation, management and compliance, contained in TEP’s EEIP and incurred by the Company, which otherwise would not be incurred without the Commission’s energy efficiency mandate and which are not recovered through base rates.

All other terms and definitions associated with the DSMS are contained in A.A.C. R14-2-2401.

3. FILING AND PROCEDURAL DEADLINES

Changes to the EE Implementation Plan (“EEIP”) will be filed with the Commission in accordance with the Standard, A.A.C. R14-2-2405(A):

Tucson Electric Power Company
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“Except as provided in R14-2-2418, on June 1 of each odd year, or annually at the election of each affected utility, each affected utility shall file with Docket Control, for Commission review and approval, an implementation plan describing how the affected utility intends to meet the energy efficiency standard for the next one or two calendar years, as applicable, except that the initial implementation plan shall be filed within 30 days of the effective date of this Article.”

Requested changes to the DSMS will be filed with the Commission in accordance with the following sections of the EE Standards:

a. Implementation Plans, A.A.C. R14-2-2405(B)(2):

“Except for the initial implementation plan, which shall describe only the next calendar year, a description of how the affected utility intends to comply with this Article for the next two calendar years, including an explanation of any modification to the rates of an existing DSM adjustment mechanism or tariff that the affected utility believes is necessary.”

b. Implementation Plans, A.A.C. R14-2-2405(B)(5):

“A DSM Tariff filing complying with R14-2-2406(A) or a request to modify and reset an adjustment mechanism complying with R14-2-2406(C), as applicable;”

c. DSM Tariffs, A.A.C. R14-2-2406(C)

“If an affected utility has an existing adjustment mechanism to recover the reasonable and prudent costs associated with implementing DSM programs, the affected utility may, in lieu of making a tariff filing under subsection (A), file a request to modify and reset its adjustment mechanism by submitting the information required under subsections (A)(1) and(3).”

If TEP does not file an EEIP in the even-numbered year, the Company may file proposed modifications to the EEIP if TEP or the Commission determines a change or addition is necessary.

4. RATE SCHEDULE APPLICABILITY

The DSMS shall be applied monthly to every customer unless exempted by order of the Commission.

5. ALLOWABLE COSTS

Program Costs (“PC”) recovered through the DSMS include but are not limited to the following: DSM Program development, implementation, marketing and promotion, administrative and general, legal, reporting, training and technical assistance, marketing and communications, monitoring and metering , advertising, educational expenditures, customer incentives, research and development, data collection, tracking and information technology systems, self-direction costs, MER, demonstration facilities and all other activities required to design and implement cost-effective DSM Programs included in the EEIP and approved by the Commission.

TEP includes wages and salaries for employees working to plan, implement, or manage DSM Programs in TEP base rates. If, due to the lag between rate cases, actual labor costs for employees working to plan, implement, or manage DSM Programs, exceed the amount approved in base

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rates, the incremental labor cost will be allocated among programs and included into the calculation of the DSMS.

Unless otherwise ordered by the Commission, TEP includes allowable program costs for all approved programs in the DSMS calculation.

If any DSM Programs generate revenue, any such revenue will be included as a credit in the calculation of the DSMS.

6. PERFORMANCE INCENTIVE

The Performance Incentive (“PI”), as approved by the Commission in Decision No. 73912 (June 27, 2013), is calculated using the lesser of: (i) 8% of the calculated Net Benefits; or (ii) the annual kWh savings from all approved DSM Programs included in the 3rd party MER report, multiplied by \$0.0125 per kWh.

7. TRUE-UP COMPONENT

The True-Up Component is intended to refund or recover the balance of Program Costs and Performance Incentives that have been under or over recovered during the previous EE Plan year. The True-Up Component will be included in the calculation of the subsequent year’s DSMS.

The True-Up Component will be calculated by subtracting actual Program Costs and Program Incentives from the DSMS collections and accruals for the EE Plan year ending December 31.

8. CALCULATION OF THE DSM SURCHARGE

TEP is filing this revised DSMS as part of its EE Implementation Plan.

The DSMS is included in Schedule 1, and summarized as follows:

$$\begin{aligned}\text{Residential DSMS} &= \frac{(PC - TU + PI)}{E_{Tot}} \\ \text{Non-residential DSMS} &= \frac{(PC - TU + PI) * \left(1 - \frac{E_{Res}}{E_{Tot}}\right)}{R_{Tot} - R_{Res}}\end{aligned}$$

Where:

PC = Program Costs as defined in Section 5 forecast for the upcoming year.

PI = Performance Incentives as defined in Section 6 forecast for the upcoming year.

TU = “True-Up” component balance as defined in Section 7.

E_{Tot} = Total retail electric sales (kWh) for the previous calendar year.

E_{Res} = Residential retail electric sales (kWh) for the previous calendar year.

R_{Tot} = Total retail revenue (\$) for the previous calendar year.

R_{Res} = Residential retail revenue (\$) for the previous calendar year.

Tucson Electric Power Company
2018 DSM SURCHARGE PLAN OF ADMINISTRATION
Docket No: E-01933A-15-0322 and E-01933A-15-0239

9. REVIEW PROCESS

The DSMS, and the effective date, is subject to review and approval by the Commission pursuant to A.A.C. R14-2-2406(B).

10. SCHEDULES

The following schedules are attached to this Plan of Administration

- Schedule 1: DSMS Calculations
- Schedule 2: TEP Operating Revenue
- Schedule 3: DSMS Balance

SCHEDULE 1

Tucson Electric Power Company

Existing Rule Option Rate

Without Freeport McMoran

Column A

Column B

Line	Proposed DSM Budget and Adjustments	
1	Total Proposed DSM Budget	Schedule 3, Column A, Line 11
2	True-up	Schedule 3, Column E, Line 10
3	Previous Year's Performance Incentive	Schedule 3, Column B, Line 11
4	Total Annual DSM Recovery for Proposed Implementation Plan Year	Column A: Line 1 - Line 2 + Line 3
	Previous Year's Retail Revenue (\$)	Previous Year's Retail Sales (kWh)
5	Residential	Schedule 2, Column E, Line 6
6	Commercial	Schedule 2, Column E, Line 12
7	Industrial	Schedule 2, Column E, Line 18
8	Mining	Schedule 2, Column E, Line 24
9	Other	Schedule 2, Column E, Line 30
10	Total:	Column A: Line 5 + Line 6 + Line 7 + Line 8 + Line 9 Column B: Line 5 + Line 6 + Line 7 + Line 8 + Line 9
	Residential DSMS for Proposed Budget	
11	DSMS for All Rate Classes if Collected as \$/kWh of Retail Sales (\$/kWh)	Column A, Line 4 / Column B, Line 10
12	DSMS for All Rate Classes if Collected as a Percentage of Retail Revenue (%)	Column A, Line 4 / Column A, Line 10
	Residential DSMS for Proposed Budget	
13	DSMS for Residential Customers (% of Residential Retail Revenue)	Column A, Line 12
14	DSM Recovery Collected from Residential Customers (% of Residential Retail Revenue)	Column A, Line 13 * Column A, Line 5
15	DSMS for Residential Customers (\$/kWh)	Column A, Line 11
16	DSM Recovery Collected from Residential Customers (\$/kWh)	Column A, Line 15 * Column B, Line 5
	Non-residential DSMS for Proposed Budget	
17	Previous Year's Non-residential Retail Revenue (\$)	Column A, Line 10 - Column A, Line 5
18	Previous Year's Non-residential Retail Sales (kWh)	Column B, Line 10 - Column B, Line 5
19	DSMS for Non-residential Customers (\$/kWh)	Column A, Line 11
20	DSM Recovery Collected from Non-residential Customers (\$/kWh)	Column A, Line 19 * Column A, Line 18
21	DSMS for Non-residential Customers (% of Non-residential Retail Revenue)	Column A, Line 20 / Column A, Line 17

SCHEDULE 2

Tucson Electric Power Company - Previous Year's Revenue Summary Report (JAN 1, 20XX - DEC 31, 20XX)

Line	Retail Sales	Column A Average Customers 20XX	Column B Average Customers 20XX-1	Column C Retail Sales (kWh) 20XX	Column D Retail Sales (kWh) 20XX-1	Column E Retail Revenue (\$) 20XX	Column F Retail Revenue (\$) 20XX-1
Residential:							
1	###	-	-	-	-	-	-
2	###	-	-	-	-	-	-
3	###	-	-	-	-	-	-
4	###	-	-	-	-	-	-
5	###	-	-	-	-	-	-
6	Residential Total	Column A: Sum of Lines 1 through 5	Column B: Sum of Lines 1 through 5	Column C: Sum of Lines 1 through 5	Column D: Sum of Lines 1 through 5	Column E: Sum of Lines 1 through 5	Column F: Sum of Lines 1 through 5
Commercial:							
7	###	-	-	-	-	-	-
8	###	-	-	-	-	-	-
9	###	-	-	-	-	-	-
10	###	-	-	-	-	-	-
11	###	-	-	-	-	-	-
12	Commercial Total	Column A: Sum of Lines 7 through 11	Column B: Sum of Lines 7 through 11	Column C: Sum of Lines 7 through 11	Column D: Sum of Lines 7 through 11	Column E: Sum of Lines 7 through 11	Column F: Sum of Lines 7 through 11
Industrial:							
13	###	-	-	-	-	-	-
14	###	-	-	-	-	-	-
15	###	-	-	-	-	-	-
16	###	-	-	-	-	-	-
17	###	-	-	-	-	-	-
18	Industrial Total	Column A: Sum of Lines 13 through 17	Column B: Sum of Lines 13 through 17	Column C: Sum of Lines 13 through 17	Column D: Sum of Lines 13 through 17	Column E: Sum of Lines 13 through 17	Column F: Sum of Lines 13 through 17
Mining:							
19	###	-	-	-	-	-	-
20	###	-	-	-	-	-	-
21	###	-	-	-	-	-	-
22	###	-	-	-	-	-	-
23	###	-	-	-	-	-	-
24	Mining Total	Column A: Sum of Lines 19 through 23	Column B: Sum of Lines 19 through 23	Column C: Sum of Lines 19 through 23	Column D: Sum of Lines 19 through 23	Column E: Sum of Lines 19 through 23	Column F: Sum of Lines 19 through 23
Other:							
25	###	-	-	-	-	-	-
26	###	-	-	-	-	-	-
27	###	-	-	-	-	-	-
28	###	-	-	-	-	-	-
29	###	-	-	-	-	-	-
30	Other Total	Column A: Sum of Lines 25 through 29	Column B: Sum of Lines 25 through 29	Column C: Sum of Lines 25 through 29	Column D: Sum of Lines 25 through 29	Column E: Sum of Lines 25 through 29	Column F: Sum of Lines 25 through 29

SCHEDULE 3

Tucson Electric Power Company - Historical DSM Expenses vs Surcharge Balance						
Line	Column A		Column B	Column C	Column D	Column E
	Year	DSM Expenses (\$)	Performance Incentive (\$) (Collected Following Year)	DSMS Collection (\$)	Annual Over(+) / Under(-) Collected (\$)	Cumulative Over(+) / Under(-) Collected (\$)
1	2008	-	-	-	Line 1: Column C - Column B - Column A	Column D, Line 1
2	2009	-	-	-	Line 2: Column C - Column B - Column A	Column E, Line 1 + Column D, Line 2
3	2010	-	-	-	Line 3: Column C - Column B - Column A	Column E, Line 2 + Column D, Line 3
4	2011	-	-	-	Line 4: Column C - Column B - Column A	Column E, Line 3 + Column D, Line 4
5	2012	-	-	-	Line 5: Column C - Column B - Column A	Column E, Line 4 + Column D, Line 5
6	2013	-	-	-	Line 6: Column C - Column B - Column A	Column E, Line 5 + Column D, Line 6
7	2014	-	-	-	Line 7: Column C - Column B - Column A	Column E, Line 6 + Column D, Line 7
8	2015	-	-	-	Line 8: Column C - Column B - Column A	Column E, Line 7 + Column D, Line 8
9	2016	-	-	-	Line 9: Column C - Column B - Column A	Column E, Line 8 + Column D, Line 9

Tucson Electric Power Company - Forecasted DSM Expenses vs. Surcharge Balance						
	Year	DSM Expenses (Forecasted)	Performance Incentive (Collected Following Year)	DSMS Collection (Forecasted)	Annual Over(+) / Under(-) Collected	True-Up Component Cumulative Over(+) / Under(-) Collected
10	2017	-	-	-	Line 10: Column C - Column B - Column A	Column E, Line 9 + Column D, Line 10
11	2018	-	-	-	Line 11: Column C - Column B - Column A	Column E, Line 10 + Column D, Line 11
12	2019	-	-	-	Line 12: Column C - Column B - Column A	Column E, Line 11 + Column D, Line 12
13	2020	-	-	-	Line 13: Column C - Column B - Column A	Column E, Line 12 + Column D, Line 13

14	Totals	Column A: Sum of Lines 1 through 13	Column B: Sum of Lines 1 through 13	Column C: Sum of Lines 1 through 13	Column D: Sum of Lines 1 through 13	
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Appendix E. Definitions

“A.A.C.” means the Arizona Administrative Code.

“Adjustment mechanism” means a Commission approved provision in Tucson Electric Power Company’s (“TEP”) rate schedule allowing TEP to increase and decrease a certain rate or rates, in an established manner, when increases and decreases in specific costs are incurred by TEP.

“ADOH” means the Arizona Department of Housing.

“APS” means Arizona Public Service Company.

“ASHRAE/IESNA” means the American Society of Heating, Refrigerating and Air-Conditioning Engineers / the Illuminating Engineering Society of North America.

“Baseline” means the level of electricity demand, electricity consumption, and associated expenses estimated to occur in the absence of a specific DSM program, determined as provided in A.A.C. R14-2-2413.

“CFL” means Compact Fluorescent Light bulb.

“CHP” means combined heat and power, which is using a primary energy source to simultaneously produce electrical energy and useful process heat.

“C&I” means commercial and Industrial.

“Commission” means the Arizona Corporation Commission.

“Consumer Education and Outreach” means a program to provide general consumer education about energy-efficiency improvements.

“Cost-effective” means that total incremental benefits from a DSM measure or DSM program exceed total incremental costs over the life of the DSM measure, as determined under A.A.C. R14-2-2412.

“Cumulative Annual EE Standard” means the cumulative annual energy savings by the end of each calendar year as a percentage of the retail energy sales in the prior calendar year.

“DOE” means the United States Department of Energy.

“Demand savings” means the load reduction, measured in kW, occurring during a relevant peak period or periods as a direct result of energy efficiency and demand response programs.

“DSM” means demand-side management, the implementation and maintenance of one or more DSM programs.

“DSM measure” means any material, device, technology, educational program, pricing option, practice, or facility alteration designed to result in reduced peak demand, increased energy efficiency, or shifting of electricity consumption to off-peak periods and includes CHP used to displace space heating, water heating, or another load.

“DSM program” means one or more DSM measures provided as part of a single offering to customers.

“DSM tariff” means a Commission-approved schedule of rates designed to recover an affected utility’s reasonable and prudent costs of complying with this Article.

“EE” means energy efficiency.

“EPA” means the United States Environmental Protection Agency.

“GOEP” means the Governor’s Office of Energy Policy.

“HVAC” means Heating, Ventilation and Air Conditioning.

“Incremental costs” means the additional expenses of DSM measures, relative to baseline.

“IC” means an implementation contractor, a contractor hired to implement a program.

“KW” means kilowatt.

“KWh” means kilowatt-hour.

“LED” means Light Emitting Diode light.

“Load management” means actions taken or sponsored by an affected utility to reduce peak demands or improve system operating efficiency, such as direct control of customer demands through affected-utility-initiated interruption or cycling, thermal storage, or educational campaigns to encourage customers to shift loads.

“Low-income customer” means a customer with a below average level of household income, as defined in an affected utility’s Commission-approved DSM program description.

“MER” means measurement, evaluation, and research. 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 and/or demand response measures and reported savings; and identifying additional EE research opportunities.

“MW” means a Megawatt, 1,000 kilowatts or 1,000,000 watts.

“MWh” means a Megawatt Hour, 1,000 kilowatt-hours.

“Net benefits” means the incremental benefits resulting from DSM minus the incremental costs of DSM.

“Non-market benefits” means improvements in societal welfare that are not bought or sold.

“Program costs” means the expenses incurred by TEP as a result of developing, marketing, implementing, administering, and evaluating Commission-approved DSM programs.

“Program Implementation” means the implementation of programs including administration, fiscal management of costs for labor, overhead, ICs, or other direct program delivery.

“Program Marketing” means the marketing of programs and increasing DSM consumer awareness (direct program marketing as opposed to general consumer education).

“Planning and Administration” means 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” means the 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 Commission reporting and rules requirements.

“Rebates & Incentives” means payments made to customers or contractors as rebates or incentives.

“RESNET” means the Residential Energy Services Network.

“RFP” means Request for Proposal, the process through which proposals are solicited from contractors or vendors.

The “Standard” means the reduction in retail energy sales, in percentage of kWh, required to be achieved through TEP’s approved DSM programs as prescribed in the A.A.C R14-2-2404.

“Therm” means 100,000 Btus (British thermal units).

“Thermal envelope” means the collection of building surfaces, such as walls, windows, doors, floors, ceilings, and roofs, that separate interior conditioned (heated or cooled) spaces from the exterior environment.

“Training and Technical Assistance” means energy-efficiency training and technical assistance for utility employees, contractors, or building officials.

“TEP” or “Company” means Tucson Electric Power Company.

“UNS Electric” means UNS Electric, Inc.

“UNS Gas” means UNS Gas, Inc.

All other terms and definitions associated with the 2018 Energy Efficiency Implementation Plan are contained in A.A.C. R14-2-2401.