

**Energy Efficiency and Peak Demand Reduction Program  
Portfolio Status Report  
to the  
Public Utilities Commission of Ohio**

**For the period  
January 1, 2016 to December 31, 2016**

Ohio Edison Company  
The Cleveland Electric Illuminating Company  
The Toledo Edison Company

Docket Nos. 17-1226-EL-EEC  
17-1227-EL-EEC  
17-1228-EL-EEC

May 15, 2017

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## 1 Introduction

Pursuant to Rule 4901:1-39-05, Ohio Administrative Code (“O.A.C.”) and the Commission’s February 24, 2016 Entry in Docket No. 16-0072-EL-WVR, Ohio Edison Company (“Ohio Edison” or “OE”), The Cleveland Electric Illuminating Company (“CEI”) and The Toledo Edison Company (“Toledo Edison” or “TE”, collectively, “Companies”) submit their Portfolio Status Report (“Report”) for the period January 1, 2016 through December 31, 2016 (“Reporting Period”). This Report addresses the Companies’ compliance with the energy efficiency (“EE”) and peak demand reduction (“PDR”) benchmarks set forth in R.C. § 4928.66(A) for the Reporting Period.

### 1.1 History and Background

On December 15, 2009, the Companies filed their respective three year Energy Efficiency and Peak Demand Reduction Plans in Case Nos. 09-1947-EL-POR *et al.*, setting forth portfolios of Energy Efficiency and Peak Demand Reduction programs that covered the period of 2010-2012<sup>1</sup>. The Companies have previously filed reports demonstrating the EE and PDR savings achieved in compliance with benchmarks set forth in R.C. § 4928.66(A).<sup>2</sup>

On July 31, 2012, the Companies filed their respective three year Energy Efficiency and Peak Demand Reduction Plans (“EEPDR Plans”) in Case Nos. 12-2190-EL-POR *et al* (“Portfolio Case”), setting forth portfolios of Energy Efficiency and Peak Demand Reduction (EE&PDR) programs covering the period of 2013-2015.<sup>3</sup> The Commission approved these EEPDR Plans in its March 23, 2013 Opinion and Order, with certain modifications on rehearing.

Effective September 12, 2014, the General Assembly passed Substitute Senate Bill 310 (“S.B. 310”), which amended, among other things, R.C. §4928.66. In accordance with S.B. 310, on September 24, 2014, the Companies filed an Application to amend the 2013-2015 EEPDR Plans (“Amended Plan”) in the Portfolio Case<sup>4</sup>. The Commission approved these amended EEPDR Plans in its November 20, 2014 Opinion and Order, with certain modifications. The amended EEPDR Plans cover the years 2015-2016.

On January 19, 2016, the Companies submitted a waiver application in Docket No. 16-0072-EL-WVR to extend the 2013-2015 Reporting deadline from March 15, 2016 to May 15, 2016. On February 24, 2016, the Commission granted the waiver request for 2015, and granted each electric utility in Ohio the ability

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<sup>1</sup> See generally, *In re Application of [the Companies] for Approval of Their Energy Efficiency and Peak Demand Reduction Program Portfolio Plans for 2010 Through 2012 and Associated Cost Recovery Mechanism*, Case Nos. 09-1947-EL-POR *et al*, Application and Related Reports.

<sup>2</sup> See generally, *Energy Efficiency and Peak Demand Reduction Program Portfolio Status Reports to the Public Utilities Commission of Ohio*, Case Nos. 16-0941-EL-EEC *et al.* (2015), 15-0900-EL-EEC *et al.* (2014), 14-0859-EL-EEC *et al.* (2013), 13-1185-EL-EEC *et al.* (2012), 12-1533-EL-EEC *et al.* (2011), 11-2956-EL-EEC *et al.* (2010), and 10-227-EL-EEC *et al.* (2009)

<sup>3</sup> See generally, *In the Matter of the Application for Approval of Energy Efficiency and Peak Demand Reduction Program Portfolio Plans for 2013 to 2015*, Case Nos. 12-2190-EL-POR *et al.*, Application and Related Reports.

<sup>4</sup> See generally, *Application (Verified) for Approval of Amended Energy Efficiency and Peak Demand Reduction Plans for 2015 through 2016*, Case Nos. 12-2190-EL-POR *et al.*, Application and related materials.

to file its Portfolio Status Report until May 15 of the year following a compliance period for each reporting year through 2018.

## 2 2016 Compliance Demonstration

Rule 4901:1-39-05(C)(1), O.A.C., requires that an electric distribution utility (“EDU”) demonstrate the actual energy savings and demand reductions, and the expected demand reductions that the EDU’s EE&PDR programs have achieved during the reporting period, relative to the EDU’s corresponding baselines. In doing so, an EDU must provide: (i) an update to the initial benchmark report; (ii) a comparison with the applicable benchmark; and (iii) an affidavit of compliance. Each requirement as applicable to the Companies is presented below.

### 2.1 Benchmark Update

The Companies’ Initial Benchmark Reports were submitted for Commission approval as part of their respective EEPDR Plans (for the years 2013 through 2015) and updated as part of the Companies’ Amended Plan Filing (for the years 2015-2016)<sup>5</sup>. The initial benchmarks included in the EEPDR Plans incorporated projected amounts contributed by mercantile customer projects filed for approval by April 24, 2012. Those benchmarks have been updated, as shown in Exhibits 1 and 2 to reflect actual sales adjusted in accordance with Rule 4901:1-39-05(B) of the O.A.C, and the impacts of customers who have opted out of the Companies’ portfolio plan consistent with Section 4928.66(A)(2)(a) of Ohio Revised Code.

### 2.2 Summary of Portfolio Impacts

Cumulative energy and demand savings in this report reflect *ex ante* or expected savings calculations based on the State of Ohio Energy Efficiency Technical Reference Manual (“TRM”), as approved on July 31, 2013<sup>6</sup>, and R.C. §4928.662. Details are noted in the program evaluation reports set forth in Appendices A-D.

Based on the summary of reported annualized Portfolio impacts through the end of the Reporting Period from approved and pending programs below, OE, CEI and TE each achieved all EE and PDR statutory requirements for 2016.

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<sup>5</sup> Each Company’s Initial Benchmark Report was included in the Companies’ respective EEPDR Plans as Section 1.0, Table 3, as well as the Amended Plan as Attachment 2.

<sup>6</sup> See generally, *In The Matter Of The Protocols For The Measurement And Verification Of Energy Efficiency And Peak Demand Reduction Measures*, Case No. 09-0512-GE-UNC

**Table 2-1: The Companies' annualized energy and demand Portfolio impacts through the end of the Reporting Period<sup>7</sup>**

Utility	Energy Efficiency Benchmarks and Results (MWh)				Peak Demand Benchmarks and Results (MW)			
	Updated 2016 Compliance Benchmark	Savings from Approved Programs <sup>1</sup>	Savings from Projects Pending PUCO Approval <sup>2</sup>	Savings from Approved Programs and Pending Projects	Updated 2016 Compliance Benchmark	Savings from Approved Programs <sup>1</sup>	Savings from Projects Pending PUCO Approval <sup>2</sup>	Savings from Approved Programs and Pending Projects
OE	930,873	1,676,650	174,233	1,850,883	225.48	627.07	60.92	687.98
CEI	732,793	1,525,815	67,574	1,593,389	168.75	585.84	23.94	609.78
TE	312,536	677,403	42,593	719,997	83.17	239.46	14.89	254.35
<b>TOTAL</b>	<b>1,976,202</b>	<b>3,879,869</b>	<b>284,401</b>	<b>4,164,269</b>	<b>477.40</b>	<b>1,452.37</b>	<b>99.75</b>	<b>1,552.11</b>

<sup>1</sup>Includes cumulative 2013-2016 Portfolio Results as listed in Tables 2-2 and 2-3, plus results of the Companies' 2009-2012 Portfolio progress, and modifications for prior period adjustments

<sup>2</sup>Includes projects pending PUCO approval as listed in Tables 2-2 and 2-3, as well as prior year Transmission and Distribution projects pending before the Commission in Dockets 12-1550-EL-EEC et. seq. , and 13-1188-EL-EEC et. seq.

<sup>7</sup> Ex ante annualized results from approved programs from 2009 through 2016 including transmission and distribution applications filed with the Commission as of May 15, 2017 and Energy Special Improvement District applications filed with the Commission as of March 31, 2016. Values include adjustments by appropriate loss factors with the exception of Transmission and Distribution Program values.

## 2.3 Summary of Energy Impacts by Program

A summary of annualized 2013-2016 cumulative Portfolio energy impacts by program is presented in the following table:

**Table 2-2: Annualized 2013-2016 cumulative Portfolio energy impacts and participation by program**

Approved Programs	Ohio Edison		Cleveland Electric		Toledo Edison		Program Totals	
	Participants / Units	MWh	Participants / Units	MWh	Participants / Units	MWh	Participants / Units	MWh
<b>Residential</b>								
Direct Load Control Program	12,388	195	7,066	102	1,738	28	21,192	325
Appliance Turn-In Program	18,104	28,457	12,384	19,429	4,499	7,081	34,987	54,967
Energy Efficient Products Program	658,289	121,436	563,283	82,629	204,580	33,325	1,426,152	237,390
Home Performance Program	284,563	140,039	194,680	97,209	94,457	45,809	573,700	283,057
Low-Income Program	6,210	11,274	6,595	11,757	3,048	4,902	15,853	27,933
<b>Small Enterprise</b>								
Energy Efficiency Equipment Program - Small	1,818	118,332	1,783	128,783	721	47,475	4,322	294,590
Energy Efficient Buildings Program - Small	21,888	74,787	11,882	43,449	7,265	24,188	41,035	142,424
C&I Audit Program <sup>2</sup>	2	N/A	47	N/A	0	N/A	49	N/A
<b>Mercantile Customer Program</b>								
Mercantile Customer Program	354	90,518	319	115,880	166	71,769	839	278,166
<b>Mercantile Utility (Large Enterprise)</b>								
Demand Reduction Program	469	0	366	0	109	0	944	0
Energy Efficient Equipment Program - Large	401	176,021	146	51,509	230	81,588	777	309,119
Energy Efficient Buildings Program - Large	5	5,480	0	0	3	11,373	8	16,853
<b>Government Tariff Lighting Program</b>								
Government Tariff Lighting Program	0	0	5	958	1	53	6	1,010
<b>Transmission and Distribution</b>								
Conservation Voltage Reduction Study	0	N/A	0	N/A	0	N/A	0	N/A
T&D Improvements	0	0	0	0	0	0	0	0
Smart Grid Modernization Initiative	0	0	3,992	4	0	0	3,992	4
<b>Other</b>								
Customer Action Program <sup>3</sup>	4,022,977	217,431	2,888,698	178,773	1,159,192	62,488	8,070,867	458,691
<b>Subtotal Actual Results</b>	<b>5,027,468</b>	<b>983,969</b>	<b>3,691,246</b>	<b>730,482</b>	<b>1,476,009</b>	<b>390,078</b>	<b>10,194,723</b>	<b>2,104,530</b>
<b>Projects Pending PUCO Approval<sup>1</sup></b>								
Mercantile Customer Program	0	0	0	0	0	0	0	0
T&D Improvements	12	153,906	12	53,612	12	36,962	36	244,480
Energy Special Improvement District	0	0	1	66	0	0	1	66
<b>Subtotal Potential Results</b>	<b>12</b>	<b>153,906</b>	<b>13</b>	<b>53,678</b>	<b>12</b>	<b>36,962</b>	<b>37</b>	<b>244,547</b>
<b>Total Portfolio</b>	<b>5,027,480</b>	<b>1,137,875</b>	<b>3,691,259</b>	<b>784,160</b>	<b>1,476,021</b>	<b>427,041</b>	<b>10,194,760</b>	<b>2,349,077</b>
Values shown above may include modifications made for prior period adjustments								
<sup>1</sup> Includes Transmission and Distribution projects filed for approval in Dockets 14-0862-EL-EEC et. seq. , 15-0372-EL-EEC et. seq. , 16-0944-EL-EEC et. seq. , 17-1222-EL-EEC et. seq. , and Energy Special Improvement District projects filed for approval in Docket 16-708-EL-EEC								
<sup>2</sup> Includes customers from both large and small C&I sectors. Savings from this program may be reflected in subsequent year reports								
<sup>3</sup> Residential participants represent the number of units, C&I participants represents the population supporting the savings. Full details can be found in Appendix D								

## 2.4 Summary of Demand Impacts by Program

A summary of annualized 2013-2016 Portfolio demand impacts by program is presented in the following table:

**Table 2-3: Annualized 2013- 2016 Portfolio demand impacts and participation by program**

Approved Programs	Ohio Edison		Cleveland Electric		Toledo Edison		Program Totals	
	Participants / Units	MW	Participants / Units	MW	Participants / Units	MW	Participants / Units	MW
<b>Residential</b>								
Direct Load Control Program	12,388	8.50	7,066	4.80	1,738	1.14	21,192	14.43
Appliance Turn-In Program	18,104	5.62	12,384	3.81	4,499	1.37	34,987	10.80
Energy Efficient Products Program	658,289	15.66	563,283	10.94	204,580	4.39	1,426,152	31.00
Home Performance Program	284,563	16.91	194,680	12.05	94,457	6.29	573,700	35.25
Low-Income Program	6,210	1.64	6,595	1.68	3,048	0.80	15,853	4.12
<b>Small Enterprise</b>								
Energy Efficiency Equipment Program - Small	1,818	19.25	1,783	21.04	721	6.96	4,322	47.25
Energy Efficient Buildings Program - Small	21,888	15.43	11,882	8.45	7,265	5.08	41,035	28.96
C&I Audit Program <sup>2</sup>	2	N/A	47	N/A	0	N/A	49	N/A
<b>Mercantile Customer Program</b>								
Mercantile Customer Program	354	10.40	319	7.81	166	8.30	839	26.51
<b>Mercantile Utility (Large Enterprise)</b>								
Demand Reduction Program	469	361.94	366	355.51	109	124.46	944	841.91
Energy Efficient Equipment Program - Large	401	23.61	146	6.85	230	10.07	777	40.53
Energy Efficient Buildings Program - Large	5	0.68	0	0.00	3	1.49	8	2.17
<b>Government Tariff Lighting Program</b>								
Government Tariff Lighting Program	0	0.00	5	0.09	1	0.01	6	0.10
<b>Transmission and Distribution</b>								
Conservation Voltage Reduction Study	0	N/A	0	N/A	0	N/A	0	N/A
T&D Improvements	0	0.00	0	0.00	0	0.00	0	0.00
Smart Grid Modernization Initiative	0	0.00	3,992	0.44	0	0.00	3,992	0.44
<b>Other</b>								
Customer Action Program <sup>3</sup>	4,022,977	46.49	2,888,698	41.62	1,159,192	14.25	8,070,867	102.36
<b>Subtotal Actual Results</b>	<b>5,027,468</b>	<b>526.12</b>	<b>3,691,246</b>	<b>475.10</b>	<b>1,476,009</b>	<b>184.62</b>	<b>10,194,723</b>	<b>1,185.84</b>
<b>Projects Pending PUCO Approval<sup>1</sup></b>								
Mercantile Customer Program	0	0.00	0	0.00	0	0.00	0	0.00
T&D Improvements	12	53.67	12	18.85	12	12.88	36	85.40
Energy Special Improvement District	0	0.00	1	0.05	0	0.00	1	0.05
<b>Subtotal Potential Results</b>	<b>12</b>	<b>53.67</b>	<b>13</b>	<b>18.90</b>	<b>12</b>	<b>12.88</b>	<b>37</b>	<b>85.45</b>
<b>Total Portfolio</b>	<b>5,027,480</b>	<b>579.79</b>	<b>3,691,259</b>	<b>493.99</b>	<b>1,476,021</b>	<b>197.51</b>	<b>10,194,760</b>	<b>1,271.29</b>

Values shown above may include modifications made for prior period adjustments

<sup>1</sup>Includes Transmission and Distribution projects filed for approval in Dockets 14-0862-EL-EEC et. seq. , 15-0372-EL-EEC et. seq. , 16-0944-EL-EEC et. seq. , 17-1222-EL-EEC et. seq. , and Energy Special Improvement District projects filed for approval in Docket 16-708-EL-EEC

<sup>2</sup> Includes customers from both large and small C&I sectors. Savings from this program may be reflected in subsequent year reports

<sup>3</sup> Residential participants represent the number of units, C&I participants represents the population supporting the savings. Full details can be found in Appendix D

## 2.5 Affidavit of Compliance

Attached hereto as Exhibit 3 is an affidavit of Compliance executed by Eren G. Demiray, Manager, Energy Efficiency Reporting.

## 2.6 Banking of Energy Savings

The Companies will bank any surplus energy savings and peak demand reduction amount and apply such savings toward future energy efficiency and peak demand reduction benchmarks in line with R.C. § 4928.662 (G).

## **2.7 Shared Savings**

In accordance with the Companies' proposal and the November 20, 2014 Finding and Order in Case Nos. 12-2190-EL-POR *et al*, the Companies are not seeking Shared Savings on the adjusted net benefits resulting from implementation of the Amended Plan in 2016.



### 3 Summary of Finances

#### 3.1 Total Resource Cost Test

A summary of portfolio finances and Total Resource Cost (“TRC”) Test<sup>8</sup> results as defined by Rule 4901:1-39-01(Y), O.A.C., is presented in the following table:

**Table 3-1: Summary of 2013-2016 Portfolio Finances and TRC Test**

Program	Ohio Edison		Cleveland Electric		Toledo Edison	
	Total 2013-2016 Program Spend Including Common Costs	TRC <sup>1</sup>	Total 2013-2016 Program Spend Including Common Costs	TRC <sup>1</sup>	Total 2013-2016 Program Spend Including Common Costs	TRC <sup>1</sup>
<b>Residential</b>						
Direct Load Control Program	\$2,806,615	1.30	\$1,798,669	1.09	\$710,268	0.59
Appliance Turn-In Program	\$3,498,235	3.77	\$2,361,400	3.84	\$910,097	3.52
Energy Efficient Products Program	\$5,597,768	3.92	\$3,696,194	3.81	\$1,827,879	3.45
Home Performance Program	\$14,019,335	2.67	\$9,179,312	2.93	\$4,892,778	2.24
Low-Income Program	\$8,586,514	0.42	\$8,830,553	0.43	\$3,606,343	0.45
<b>Small Enterprise</b>						
Energy Efficiency Equipment Program - Small	\$7,986,313	1.94	\$7,784,650	2.13	\$3,651,159	1.94
Energy Efficient Buildings Program - Small	\$2,900,566	5.30	\$1,994,119	4.00	\$1,082,225	4.57
C&I Audit Program <sup>2</sup>	\$20,731	0.00	\$199,869	0.00	\$3,901	0.00
<b>Mercantile Utility (Large Enterprise)</b>						
Demand Reduction Program	\$1,346	N/A	\$1,206	N/A	\$1,599	N/A
Energy Efficient Equipment Program - Large	\$12,275,837	4.34	\$4,347,830	3.73	\$6,801,260	3.74
Energy Efficient Buildings Program - Large	\$1,079,458	2.06	\$391,925	0.00	\$976,245	4.04
<b>Government Tariff Lighting Program</b>						
Government Tariff Lighting Program	\$43,430	0.00	\$113,916	2.84	\$9,973	0.00
<b>Transmission and Distribution</b>						
Conservation Voltage Reduction Study	\$249,624	N/A	\$248,809	N/A	\$248,571	N/A
<b>Other</b>						
Customer Action Program <sup>3</sup>	\$1,405,383	2.67 / 70.41	\$807,151	2.98 / 103.91	\$608,994	1.49 / 52.32
<b>Total Portfolio TRC (excluding Mercantile Program UCT)</b>		<b>2.83</b>		<b>2.62</b>		<b>2.36</b>
<b>Mercantile Customer Program</b>		<b>UCT<sup>2</sup></b>		<b>UCT<sup>2</sup></b>		<b>UCT<sup>2</sup></b>
<b>Mercantile Customer Program<sup>4</sup></b>	\$3,599,176	11.50	\$4,513,649	10.88	\$3,175,469	10.25

Values shown above may include modifications made for prior period adjustments

<sup>1</sup> Any Program TRC score of 0.00 reflects no participants or kWh savings in the 2013-2016 program years. N/A reflects a TRC score is not applicable for that program. The Smart Grid Modernization Initiative, Transmission & Distribution Improvements, and Energy Special Improvement District programs have no reportable costs or TRC score

<sup>2</sup> Includes customers from both large and small C&I sectors.

<sup>3</sup> The Companies have included both the Total Resource Cost (TRC) and Utility Cost Test (UCT) test results for CAP. The Commission recognizes the appropriateness of the UCT test as it applies to mercantile customers in O.A.C. 4901:1-39-08 (A). The CAP program is similar to the Mercantile Customer program with respect to the timing of implementation of the project, that is, the energy savings from this program occur in the past, thus the incremental cost to the participating customers is not relevant for cost effectiveness testing. The more appropriate test is the UCT, which includes costs from the perspective of the utility, such as administrative, EM&V, and marketing costs; and does not include participants' incremental costs

<sup>4</sup> In line with the Commission's Orders in 10-834-EL-POR and 12-665-EL-UNC, the Companies' evaluator has calculated Mercantile program cost effectiveness using the Utility Cost Test (UCT), not the Total Resource Cost (TRC) Test

### 4 Description of Programs

The programs described below were historically offered to customers, or offered in each of the Companies' respective service territories during 2016, as noted. Rule 4901:1-39-05 (C)(2)(c), O.A.C. requires the Companies to include a “recommendation for whether each program should be continued, modified, or eliminated.” The Companies' recommendations for program continuation or suspension for

<sup>8</sup> TRC results included herein have been calculated by the Companies' EM&V contractor, ADM Associates, Inc., consistent with the formula set forth in OAC 4901:1-39-01(Y). The TRC test is required in Ohio to assess the life-cycle cost-effectiveness of EE&PDR programs. The TRC test compares the costs of investments in energy efficiency measures and programs incurred today against numerous assumptions regarding potential long term benefits of programs.

2017 were made in its December 9, 2016 Stipulation and Recommendation in Case No. 16-0743-EL-POR, and are incorporated herein by reference.

#### 4.1 Direct Load Control

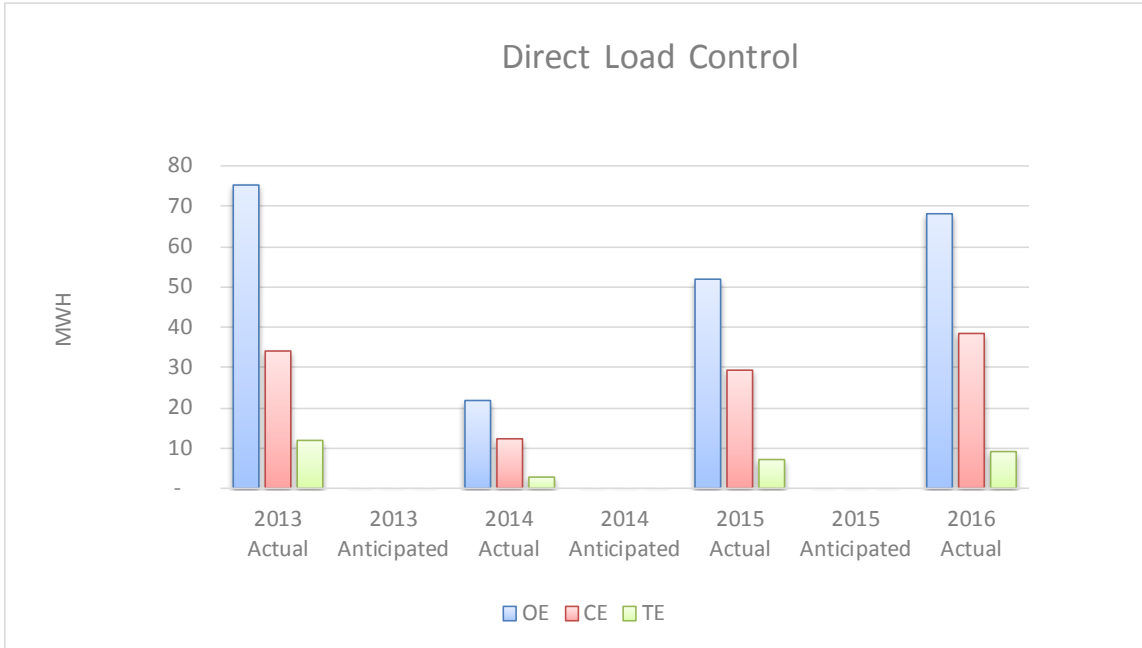
This peak demand reduction program, was designed to operate during peak hours in the summer of 2016, for residential homeowners who meet the following criteria: (1) The customer must reside in a location that supports the communication strategy; (2) The customer must have a working central air conditioner or heat pump.

The supplied thermostat included a device that cycles the compressors of central air conditioners using a cycling strategy of 50%. This allowed the Companies to cycle central air conditioning compressor load during summer peak periods. The result of this equipment upgrade provided the Companies with a program that had the capability to reduce loads over several hours during the summer cycling season. Participating customers could also program the thermostat for their preferred day, night, and seasonal settings in order to achieve electric and gas energy savings throughout the year.

#### Program Partners and Trade Allies

The program was administered by Honeywell Utility Solutions.

Table 4-1: Direct Load Control Trend Analysis<sup>9</sup>



<sup>9</sup> Direct Load Control trend analysis compares gross MWh savings to anticipated MWh savings as filed in the Companies' July 12, 2012 EEPDR Plans. The Direct Load Control Program supports PDR primarily, and the Companies did not anticipate specific MWh energy efficiency savings from the Program as part of their EEPDR Plans.

## 4.2 Residential Appliance Turn-In

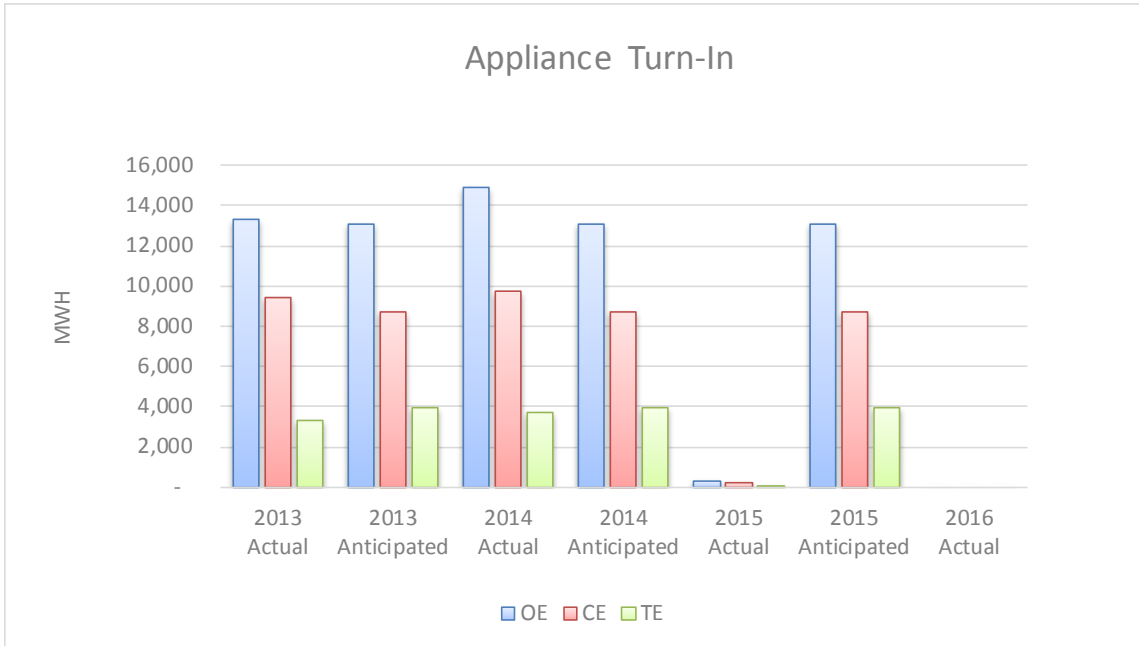
This program suspended scheduling appointments as of December 31, 2014. This program first launched on May 2, 2011, the program was designed to help customers reduce their energy consumption by removing old, working refrigerators, freezers, and room air conditioners (RACs) from their homes for recycling. There was a limit of two refrigerators or freezers per household per calendar year. A maximum of two room air conditioners could be picked up at the same time as the refrigerator and/or freezer. The old appliances, which are generally inefficient, were permanently removed from the system.

The program targeted existing multi- and single-family households, renters and homeowners who had old, inefficient refrigerators, freezers, or RACs. Marketing for the program consisted of newspaper, radio, and TV ads; bill stuffers; and community events. There was an additional marketing channel for low-income participants, who may have become aware of the program from auditors from other low-income specific energy efficiency programs. To be eligible for the program, appliances to be recycled had to be in working condition, plugged in and cooling at the time of pick-up. The customer received pick-up and removal service in addition to a \$50 incentive per recycled refrigerator or freezer. Customers that also had inefficient, working RAC units received a \$25 incentive for each recycled unit.

### Program Partners and Trade Allies

The program was administered by JACO Environmental Incorporated.

Table 4-2: Residential Appliance Turn-In Trend Analysis<sup>10</sup>



<sup>10</sup> Residential Appliance Turn-In trend analysis compares gross MWh savings to anticipated MWh savings as filed in the Companies' July 12, 2012 EEPDR Plans. The Companies did not include a projection of 2016 activity in their September 24, 2014 Amended Plan Filing.

### 4.3 Residential Energy Efficient Products

This program suspended taking applications as of December 31, 2014. .. The Energy Efficient Product Program provided rebates and incentives to residential customers who purchased and installed ENERGY STAR® qualified appliances, efficient lighting, consumer electronics, and high efficiency HVAC equipment and services.

The appliances for which the program provided rebates included the following ENERGY STAR®-rated energy efficient measures:

- Dehumidifiers
- Refrigerators
- Freezers
- Clothes washers

The HVAC services and equipment promoted with rebates through the program included the following measures:

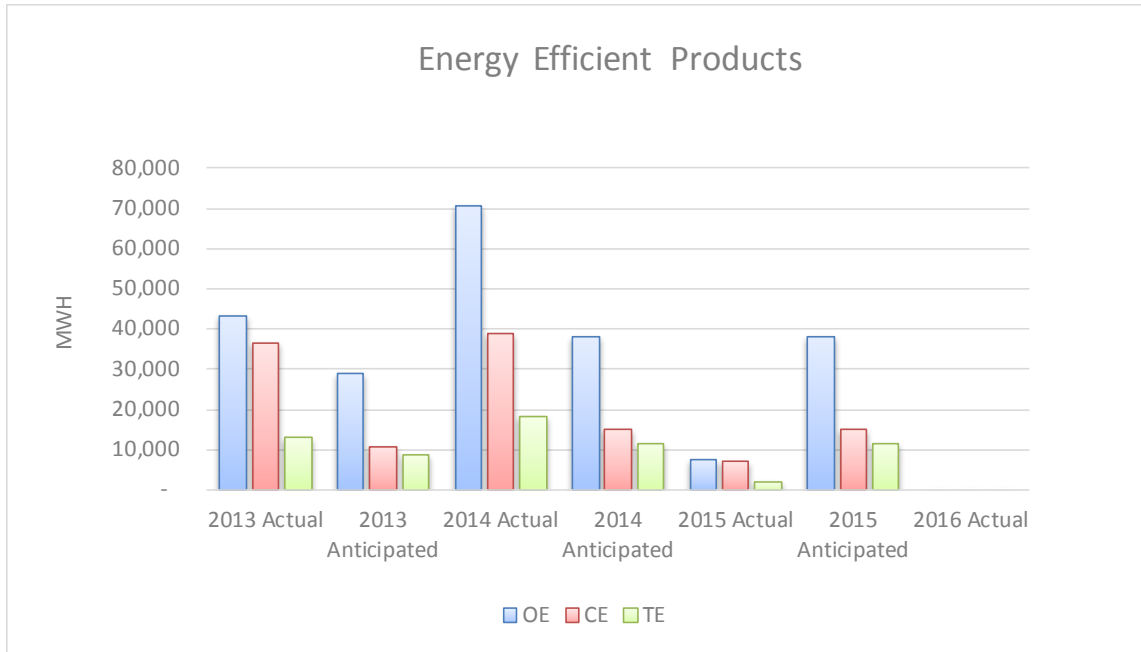
- Residential HVAC maintenance/tune ups
- Room air conditioners
- High efficiency central air conditioning
- High efficiency air source heat pumps
- ENERGY STAR® qualified high efficiency ground source heat pumps
- High efficiency ductless mini split air conditioning
- High efficiency ductless mini split heat pumps
- High efficiency electric water heaters
- High efficiency heat pump water heaters
- Whole House Fan

The consumer electronics portion of the program provided incentives for the promotion of sales of smart strips, ENERGY STAR televisions, computers, and computer monitors. The lighting rebate portion of the program included a wide range of compact fluorescent (CFL) and light emitting diode (LED) bulbs, including both specialty and general purpose options. In addition to the CFLs and LEDs, rebates were offered for Ceiling Fans with integral CFLs and torchiere floor lamps.

#### **Program Partners and Trade Allies**

The program was administered by Honeywell Utility Solutions.

**Table 4-3: Residential Energy Efficient Products Trend Analysis<sup>11</sup>**



## 4.4 Residential Home Performance Program

### 4.4.1 Audits Subprogram

#### Comprehensive Home Audit Offering

This offering suspended taking applications as of December 31, 2014. The Comprehensive Home Audit offering, which was administered by Honeywell, had three main elements:

- Residential customers paid no more than \$350 for their comprehensive home audit then submitted a rebate application form for up to \$250 once they achieved a minimum of 350 kWh in energy savings.
- At the time of the energy audit, several direct install measures were available to the customer.
- Energy auditors would also recommended additional, rebate eligible, improvements that could be installed by a participating home improvement contractor.

The energy audits were performed by contractors certified through the Building Performance Institute (BPI). The audit service included the following:

- Evaluation of the home’s heating and cooling system, insulation, windows, doors, appliances, and lighting;
- Diagnostic testing with a blower door to detect air leaks in the home’s building envelope; and
- Providing an energy audit report that recommends energy-saving projects and measures appropriate to the home.

<sup>11</sup> Residential Energy Efficient Products trend analysis compares gross MWh savings to anticipated MWh savings as filed in the Companies’ July 12, 2012 EEPDR Plans. The Companies did not include a projection of 2016 activity in their September 24, 2014 Amended Plan Filing.

As part of an audit, the auditor could have installed several types of measures. These direct install measures included:

- ENERGY STAR® Compact Fluorescent Lamps (CFLs)
- LED nightlights
- Water reduction measures (low flow showerheads, faucet aerators)
- Pipe wrap insulation
- Furnace whistles

In addition, energy auditors might have also recommended other measures to improve energy efficiency that could be installed by a participating home improvement contractor. The Companies offered rebates of \$0.10 per annual kWh saved for having the following types of measures installed by a contractor:

- Attic Insulation
- Wall Insulation
- Duct Sealing
- Air Sealing
- ENERGY STAR Qualified Window
- HVAC Early Replacement

The measures could have been installed by participating home improvement contractors at the customer's option.

### **Online Audits Offering**

This offering was suspended as an energy efficiency offering as of December 31, 2014. The Online Audit Offering, first implemented in Ohio in December 2009, allowed residential customers who reside in single family or multi-family housing to analyze their home energy use and billing history. Customers of the Companies were able to take a home energy audit at any time during the year, either by accessing an online software application (i.e., the *Home Energy Analyzer*) through the Companies' website or by conducting a home energy audit by telephone with assistance from a Contact Center Customer Service Representative.

### **Telephone Audits Offering**

This offering was suspended as an energy efficiency offering as of December 31, 2014. A telephone home energy audit was typically initiated when a customer telephoned the Companies' Customer Service Center with questions about an electric bill. A Customer Service Representative (CSR) explained the bill to the customer in terms of the key factors that contribute to the customer's energy use. The customer was offered a home energy audit that included a review of the customer's billing history. For the telephone audit, a CSR walked a customer through the audit application, inputting the customer's data for them. There were three levels to a telephone audit. Once a telephone audit participant's data had been entered, the CSR provided the conservation and savings findings over the telephone. During the telephone conversation, the customer service representative suggested ways in which the customer could save energy, given identification of the main energy uses in the home.

The customer service representative estimated what the customer's bill should have been in light of the billing history review and the home/appliance profile and offered a judgment as to whether the customer's electric bill was reasonable or not.

A telephone audit typically concluded with a customer service representative offering to send the customer literature on how to save energy in the home. Materials offered to telephone audit participants by mail include the following:

- A 2-page document titled "*Understanding Electricity Usage and Costs*" that shows the customer a formula for costing out kWh values and a chart of appliances with columns for Watts, average hours of use, average kWh used per month and average cost for that appliance;
- A 21-page document titled "*More than 100 ways to improve your electric bill*"; and
- A computer link to the *Home Energy Analyzer*.

The customer did not receive a written, customized home energy analysis report. Rather, customers receiving a telephone audit were offered a brochure on tips for saving energy in the home.

### **Energy Conservation Kits Subprogram**

This subprogram suspended taking applications as of December 31, 2014. The subprogram was administered by Power Direct. The Energy Conservation Kit Subprogram provided FirstEnergy Ohio customers with energy efficiency measures and educational materials to encourage residential energy usage reduction. The target market for the subprogram was residential single-family homeowners.

Kits were provided to customers upon request, and the contents of kits varied slightly depending on the customers' water heating fuel source. Participants received measure descriptions and installation guidelines with their kits, and were able to choose which measures to install. The conservation kits also contained educational materials regarding residential energy saving behaviors, which encouraged kit recipients to further reduce their electricity usage. Additionally, the kits included promotional materials for the Companies' other energy efficiency incentive opportunities such as appliance recycling rebates and ENERGY STAR® appliance rebates. This practice took advantage of the unique kit distribution marketing channel, and encouraged cross-participation in multiple programs offered by the Companies.

The Energy Conservation Subprogram required customers to request kits via the electronic application on the Ohio Energy Kit website or by calling a toll-free telephone number. The Companies verified that the prospective participant was a customer of one of the participating EDCs, and that they had not already received a kit during the subprogram. Kits were typically shipped to customers within a few weeks of the request date. The conservation kits included a help line telephone number that allowed participants to report measure defects or ask questions regarding the subprogram and specific measures.

The School Education and Kit Subprogram provided an opportunity for parents or guardians of students in kindergarten through 5<sup>th</sup> grade to request an Energy Conservation Kit after the school had participated in the subprogram. The subprogram included a 25-minute performance on energy conservation and

corresponding curriculum for the classroom. Parents were able to request a kit through an electronic application on the Student Energy Kit website or request a kit through a permission slip submitted to their child's teacher. Kits were shipped to the student's homes within a few weeks of the request.

### **New Homes Subprogram**

This subprogram suspended taking applications as of December 31, 2014. The Residential New Construction Subprogram incented builders for the completion of building of energy efficient homes. Homes had to meet third-party verification standards for energy efficiency to qualify for incentives. A full remodel of an existing home (gutting the home down to the studs) also qualified under this subprogram.

The Companies offered rebates for builders of new, energy efficient homes. Each newly built home was eligible for a rebate of \$400, plus an additional \$0.10 per annual kWh saved over the reference home, as calculated by the modeling software, REM/Rate. The ENERGY STAR® rating or equivalent Home Energy Rating System Program (HERS) score was used to determine eligibility. Also available was a \$350 base incentive with a \$0.10 per annual kWh saved over the reference home for homes which did not meet ENERGY STAR but were built 30% or greater above 2009 IECC. Participants could receive a rebate based on the calculated energy savings related to the home's construction as reported on the "fuel summary report" or similar modeling software output. Qualifying homes that were built to ENERGY STAR® Version 3.0 requirements, were at least 15 percent more efficient than the 2009 IECC, and were located within the service areas of one of the Companies.

The Companies contracted with Performance Systems Development ("PSD") to implement the subprogram on their behalf to eligible customers. PSD promoted the subprogram to builders and raters and is a resource for subprogram participation. PSD processed the rebates to builders once eligibility of the home had been determined and met.

In addition to paying cash incentives, this subprogram also represented a market transformation subprogram, aimed at reducing multiple barriers to this higher level of construction standards. Builders were able to attend training sessions which highlighted the improved energy performance of the homes, promoted the subprogram, and communicated the associated benefits of buying a subprogram-qualified home. The following are examples of the types of training opportunities that were provided:

- Sales staff training sessions on how to use the subprogram and energy efficiency as a strong selling point
- Technical training sessions on building to subprogram specifications and energy-efficient construction practices

Subprogram participation was contingent upon an internal eligibility review and verification process conducted by PSD. This process provided a first layer of assurance to the Companies and the participating builders that the homes met subprogram specifications and were at least 15% more efficient than required by code (IECC 2009) for ENERGY STAR homes or for homes which do not meet the ENERGY STAR standard, be built at least 30% more efficient than required by code (IECC 2009). The first level of quality control was implemented through HERS (Home Energy Rating System) Raters



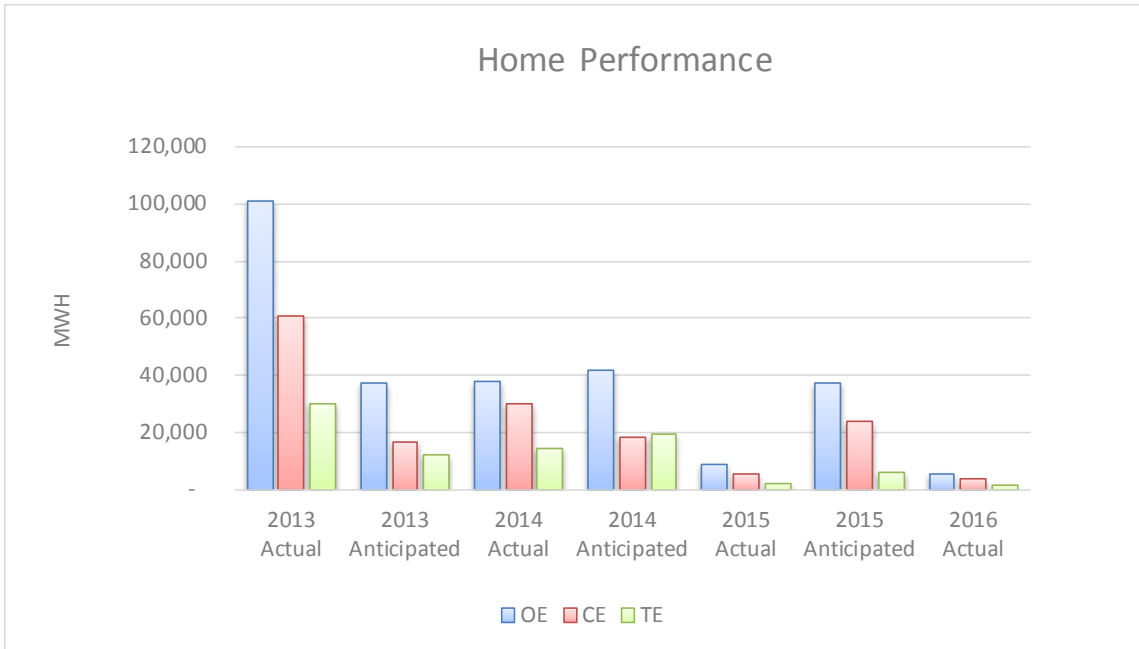
who implemented the RESNET (Residential Energy Services Network) testing processes and procedures or the equivalent. All participating builders met the quality control requirements of the approved HERS Providers including the use of certified HERS Raters to perform inspections of the home during construction and just prior to occupancy. The second level of quality control involved plan reviews for each plan type and for all participants. The plan review was conducted by PSD. All participating homebuilders were assigned an Account Manager to help them maximize their benefits from participation and leveraged available incentives and opportunities for market differentiation.

**Behavioral Modification Subprogram**

This subprogram suspended issuing energy usage reports in 2015. The Companies contracted with Opower, Inc. (“Opower”) to administer a behavioral based subprogram targeted at residential customers. The Opower subprogram was designed to generate greater awareness of energy use and of how to manage energy use through energy efficiency education in the form of Home Energy Usage Reports. The subprogram provided customers with information about their energy use, compared the household’s energy use to that of a group of similar households (both average and most efficient neighbors), and educated customers on measures, practices or behaviors that may reduce their energy use.

Customers received reports about energy use by U.S. mail or email approximately every other month.

**Table 4-4: Residential Home Performance Trend Analysis<sup>12</sup>**



<sup>12</sup> Residential Home Performance trend analysis compares gross MWh savings to anticipated MWh savings as filed in the Companies’ July 12, 2012 EEPDR Plans. The Companies did not include a projection of 2016 activity in their September 24, 2014 Amended Plan Filing.

## 4.5 Residential Low-Income

The Low-Income Program provided weatherization measures, energy efficiency solutions and client education to low income customers that receive electric services from the Companies.

The Low-Income Program for 2016 was a continuation of the program that began in 2003. In the state of Ohio, there is a collaborative effort that strives to leverage federal, state, utility, and other funding sources to provide weatherization and energy saving products and services to low income customers. However, the Community Connections program does function as a standalone program when customers are not eligible for other program resources. The program restructured contractor fee structures and payments in June 2015 to encourage contractors to perform standalone services. The program targeted residential customers at or below 200% of federal poverty guidelines and/or landlords of residents eligible for one of the following:

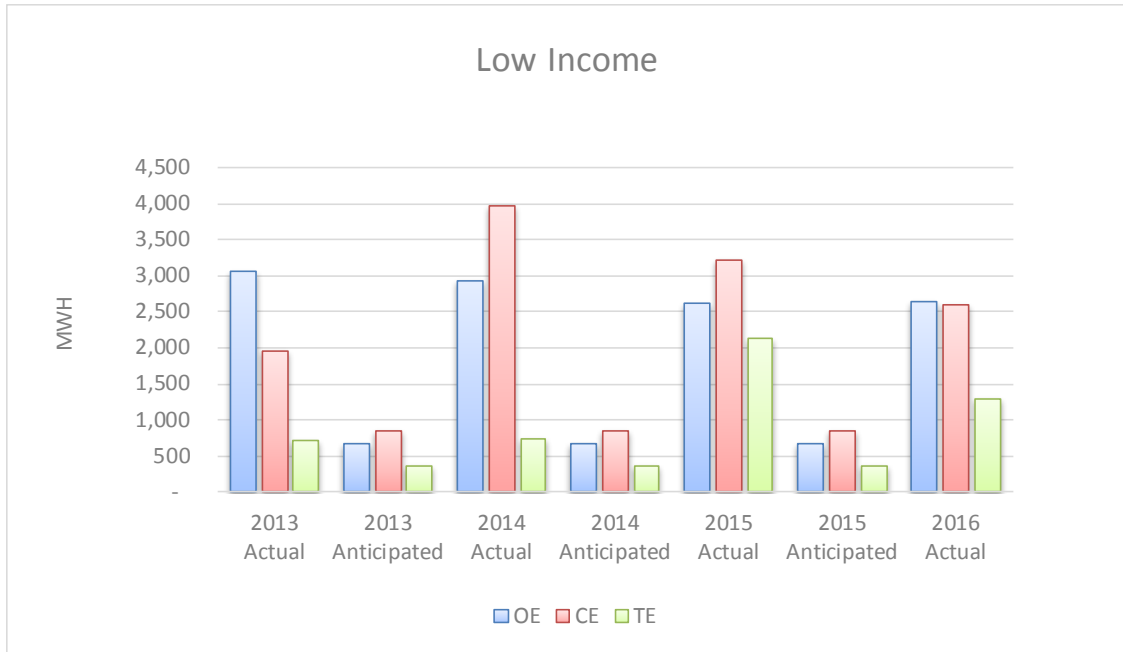
- Low Income Home Energy Assistance Program (LIHEAP), a federally-funded energy payment assistance program known in Ohio as HEAP
- Percentage Income Payment Program (PIPP), an energy payment assistance program
- Home Weatherization Assistance Program (HWAP), a federally-funded energy assistance program designed to increase the energy efficiency of dwellings owned or occupied by income-eligible customers

Local agencies interviewed have on-staff “inspectors” who visited the customer’s home. Inspectors metered the customer’s refrigerator and/or freezer to monitor the electrical use to determine the unit(s) eligibility for replacement based on kWh thresholds. The inspector talked with the client to understand energy use in the home and to provide energy conservation education. As part of the discussion, the inspector identified which lights in the home are eligible to be replaced with compact fluorescent lamps (CFLs) for the fixtures that meet the minimum use criteria. The local agencies determined how best to leverage all of the funds (federal, state, utility, and other) available to the customer by taking into account what improvement and replacement equipment the customer needs. Other measures that were administered through the program included: installation of insulation, air infiltration reduction (using pressure diagnostics and blower door tests), and electric water heater measures (water heater wraps, energy-saving shower heads, and faucet aerators). Health and safety measures included roof repairs/replacement, electric wiring repairs and upgrades and CO detectors.

### Program Partners and Trade Allies

Ohio Partners for Affordable Energy (“OPAE”) administered the Low-Income program and works with the Companies to coordinate the program implementation by the local agencies.

**Table 4-5: Residential Low Income Trend Analysis<sup>13</sup>**



#### 4.6 Commercial / Industrial Small Equipment

This program suspended taking applications as of December 31, 2014. This program offered a range of rebates for technologies applicable to business and other non-residential facilities. To be eligible to participate in the C/I Small Equipment Program, a customer had to be considered “small” as defined by the customer’s rate schedule.

The Energy Efficiency measures that were implemented by the Small Equipment Program were organized into five categories: *HVAC & Water Heating measures, Appliances measures, Food Service measures, Lighting measures, and Custom Equipment measures.*

The HVAC & Water Heater measures within Small Equipment were intended to encourage customers to maintain or install more efficient HVAC equipment and water heating equipment in an effort to reduce both energy consumption and demand. The Appliance measures within Small Equipment were intended to encourage customers with inefficient refrigeration and room air conditioning appliances to replace them with ENERGY STAR® qualified appliances in an effort to reduce both energy consumption and demand. The Food Service measures within the Small Equipment were intended to encourage customers to install more efficient food service equipment in an effort to reduce both energy consumption and demand. The Lighting measures within Small Equipment were intended to encourage customers to install more efficient lighting equipment in an effort to reduce both energy consumption and demand. The Custom measures within Small Equipment were intended to encourage customers to retrofit to or install more efficient specialized process equipment and applications in an effort to reduce both energy consumption and demand.

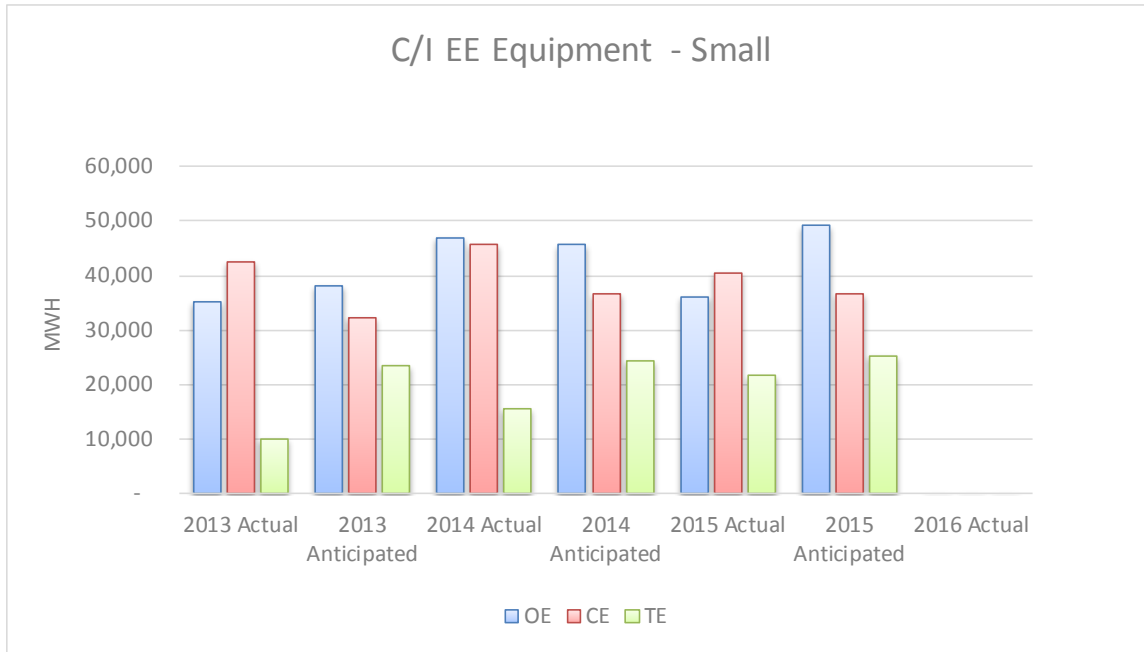
<sup>13</sup> Residential Low Income trend analysis compares gross MWh savings to anticipated MWh savings as filed in the Companies’ July 12, 2012 EPDR Plans. The Companies did not include a projection of 2016 activity in their September 24, 2014 Amended Plan Filing.

Customers were able to submit small equipment projects using the program’s online application process. Equipment projects were categorized into eight types and include, prescriptive and calculated lighting, HVAC and water heaters, appliances, food services, custom equipment, traffic signals, and data centers.

**Program Partners and Trade Allies**

The program was administered by Sodexo, Inc. In addition to the program partner, the Companies utilized various trade allies and administrators to help facilitate the implementation of programs.

**Table 4-6: C/I Small Equipment Trend Analysis<sup>14</sup>**



**4.7 Commercial / Industrial Small Buildings**

This program suspended taking applications as of December 31, 2014. The primary objective of this program was to increase the energy efficiency of existing buildings used by commercial and industrial customers. Qualifying existing commercial, industrial, and municipal customers with buildings in the Companies’ service territories were eligible to participate in the program.

The Energy Efficiency measures that were implemented by the Program were organized into four categories: *New Construction measures, Audit measures, Custom Buildings measures, and Kit measures.*

The New Construction measure was intended to encourage customers to construct buildings to higher efficiency codes and standards. The Audit measure was intended to encourage customers to acquire a detailed third party energy efficiency audit for their building. The Custom Buildings measure was intended

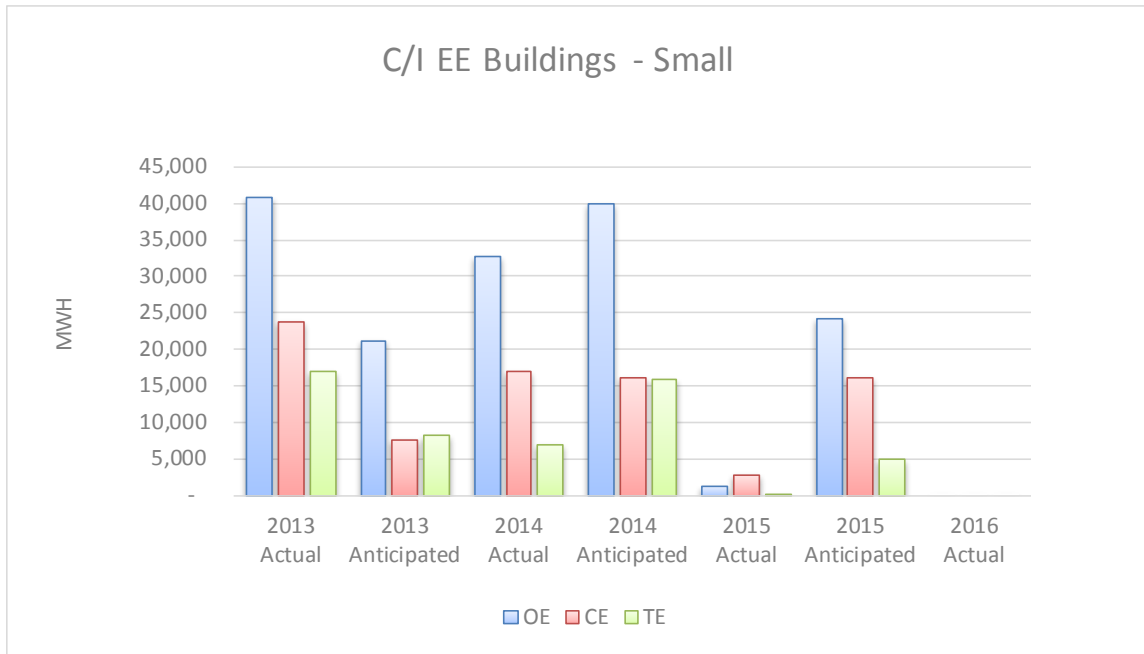
<sup>14</sup> C/I Small Equipment trend analysis compares gross MWh savings to anticipated MWh savings as filed in the Companies’ July 12, 2012 EEPDR Plans. The Companies did not include a projection of 2016 activity in their September 24, 2014 Amended Plan Filing.

to encourage customers to install specialized building shell improvements that reduce energy consumption and power demand. The Kit measure provided FirstEnergy Ohio customers with low-cost energy efficiency measures and educational materials to encourage energy usage reduction.

**Program Partners and Trade Allies**

The program was administered by Sodexo, Inc. In addition to the program partner, the Companies utilized various trade allies and administrators to help facilitate the implementation of programs.

**Table 4-7: C/I Small Buildings Trend Analysis<sup>15</sup>**



**4.8 C&I Audit Program<sup>16</sup>**

Pursuant to the Companies’ December 1, 2015 stipulation and recommendation in Case No. 14-1297-EL-SSO, as modified and approved by Commission Order dated March 31, 2016. The Companies partnered with the Council of Smaller Enterprises (COSE) to perform American Society of Heating, Refrigeration, and Air-Conditioning Engineers (ASHRAE) Level II Energy Efficiency Audits for commercial and industrial customers located within the Companies' service territories.

<sup>15</sup> C/I Small Buildings trend analysis compares gross MWh savings to anticipated MWh savings as filed in the Companies’ July 12, 2012 EEPDR Plans. The Companies did not include a projection of 2016 activity in their September 24, 2014 Amended Plan Filing.

<sup>16</sup> A trend analysis is not applicable to this program as no energy efficiency savings are being claimed as part of this program.

## 4.9 Commercial / Industrial Large Equipment

This program suspended taking applications as of December 31, 2014. This program offered a range of rebates for technologies applicable to business and other non-residential facilities.

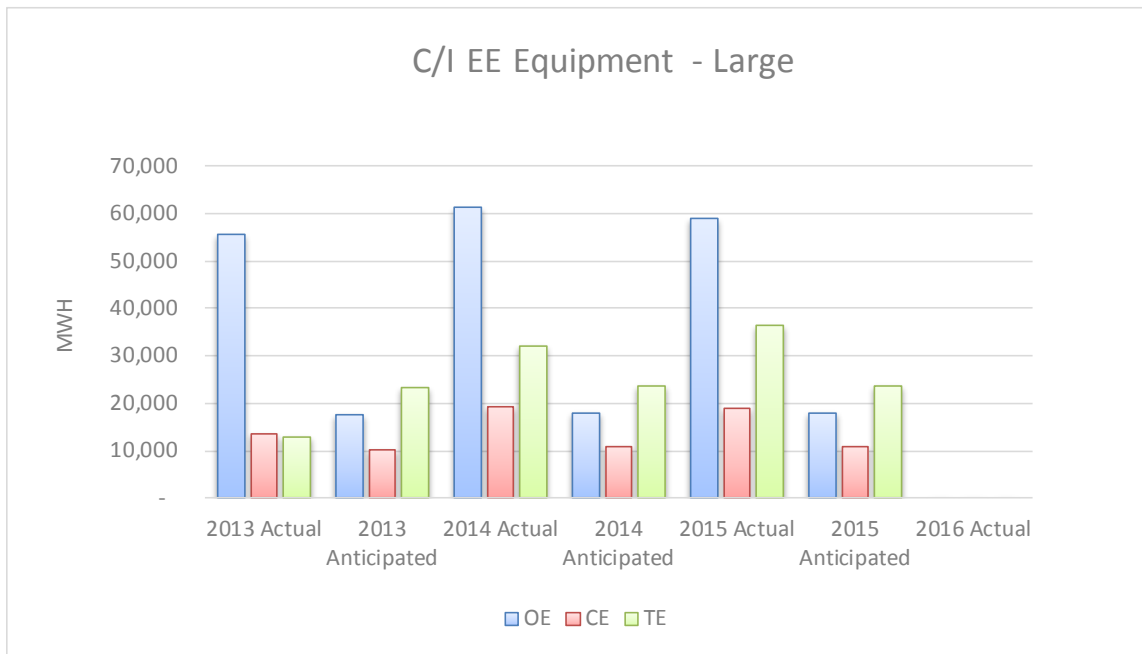
The Energy Efficiency measures that were implemented by the Large Equipment Program were organized into three categories: *HVAC measures, Lighting measures, and Custom Equipment measures.*

The HVAC measures within Large Equipment were intended to encourage customers to maintain or install more efficient HVAC equipment in an effort to reduce both energy consumption and demand. The Lighting measures within Large Equipment were intended to encourage customers to install more efficient lighting equipment in an effort to reduce both energy consumption and demand. The Custom measures within Large Equipment were intended to encourage customers to retrofit to or install more efficient specialized process equipment in an effort to reduce both energy consumption and demand.

### Program Partners and Trade Allies

The program was administered by Sodexo, Inc. In addition to the program partner, the Companies utilized various trade allies and administrators to help facilitate the implementation of programs.

**Table 4-8: C/I Large Equipment Trend Analysis<sup>17</sup>**



<sup>17</sup> C/I Large Equipment trend analysis compares gross MWh savings to anticipated MWh savings as filed in the Companies' July 12, 2012 EEPDR Plans. The Companies did not include a projection of 2016 activity in their September 24, 2014 Amended Plan Filing.

## 4.10 Commercial / Industrial Large Buildings

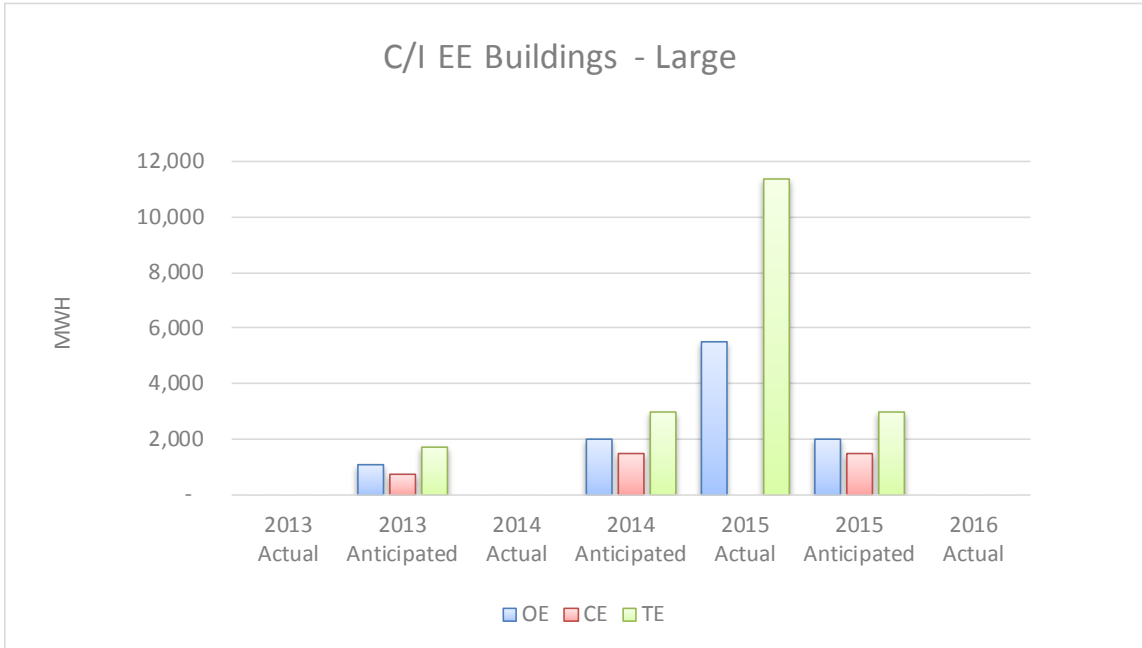
This program suspended taking applications as of December 31, 2014. The primary objective of this program was to increase the energy efficiency of existing buildings used by commercial and industrial customers. Qualifying existing commercial, industrial, and municipal customers with buildings in the Companies' service territories were eligible to participate in the program.

The Energy Efficiency measures that were implemented by the Program includes two categories: *Audit measures* and *Custom Buildings measures*. The Audit measure was intended to encourage customers to acquire a detailed third party energy efficiency audit for their building. The Custom Buildings measure was intended to encourage customers to install specialized building shell improvements that reduce energy consumption and power demand.

### Program Partners and Trade Allies

The program was administered by Sodexo, Inc. In addition to the program partner, the Companies utilized various trade allies and administrators to help facilitate the implementation of programs.

Table 4-9: C/I Large Buildings Trend Analysis<sup>18</sup>



<sup>18</sup> C/I Large Buildings trend analysis compares gross MWh savings to anticipated MWh savings as filed in the Companies' July 12, 2012 EEPDR Plans. The Companies did not include a projection of 2016 activity in their September 24, 2014 Amended Plan Filing.

## 4.11 Mercantile Customer

All customers that meet the definition of “mercantile customer,” as defined in R.C. § 4928.01 (A) (19) were eligible for this program. Since July 1, 2009, the Companies have worked with customers across their respective service territories to jointly file applications to commit the customer’s EE&PDR projects to the Companies for inclusion in the Companies’ EE&PDR results, pursuant to division R.C. § 4928.66(A)(2)(c).

Eligible customers who achieved EE&PDR savings independent of other direct utility programs or incentives were eligible to file joint applications with the Companies to the Commission for commitment of these savings to the Companies in exchange for a request to exempt the customer from paying certain charges included in the Companies’ Rider DSE.

Customers had to demonstrate verification of savings and that these savings were sustainable. The Companies reviewed all documentation and determined that customers met this requirement to the Companies’ satisfaction before filing an application. The Companies assisted customers with compliance with the latest Commission orders pertaining to the measurement and verification of these savings.

### Program Partners and Trade Allies

The Companies used Administrators, based on agreements approved by the Commission. Administrators were trained periodically on the latest interpretation of Commission orders and rules, process changes, and general updates.

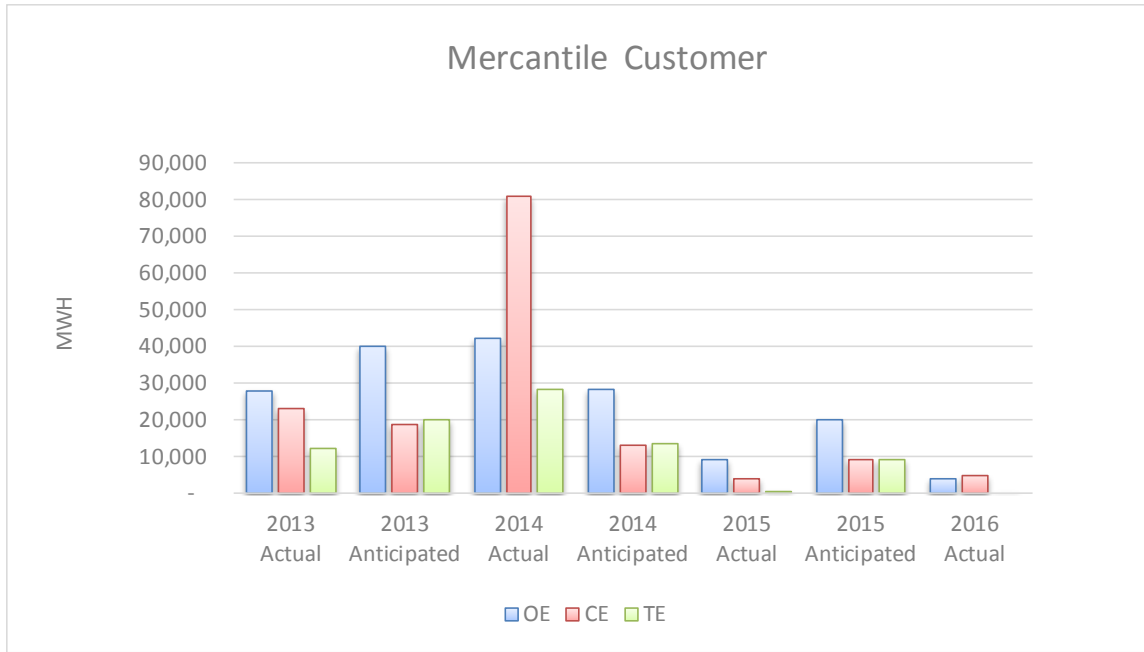
In 2016, the list of Administrators included: Association of Independent Colleges & Universities, COSE, County Commissioners’ Association of Ohio (CCAO), Industrial Energy Users of Ohio, Ohio Hospitals Association, Ohio Manufacturer’s Association, and the Ohio Schools Council.

The role of Administrators included the following:

- Educating customers about the program. This step includes providing customers with background on EE & PDR requirements for utilities, explaining the exemption option that is available
- Identifying customers who appear to qualify as a mercantile customer, who are interested in the program, who have projects that may qualify and who otherwise qualify under the Companies’ applicable rate schedules
- Providing estimates of potential EE and PDR savings
- Screening potential customer project(s) to determine if the project(s) appear to qualify under Commission Rules and Company rate schedules
- For those projects that qualify, complete all necessary forms provided by the Companies and gather all supporting documentation required by the Companies and/or the Commission.



**Table 4-10: Mercantile Customer Trend Analysis<sup>19</sup>**



## 4.12 Government Tariff Lighting

### Government Tariff Lighting Program

This program suspended taking applications as of December 31, 2014. This program provided local governments with rebates for replacing inefficient traffic signals, pedestrian light signals, and customer owned and maintained street lighting with high efficiency LED equipment.

#### Program Partners and Trade Allies

The program was administered by Sodexo, Inc.

### Experimental Company Owned LED Lighting Program<sup>20</sup>

This program is being offered on an experimental basis through December 31, 2019. Available to municipalities and governmental authorities that elect to take service from light-emitting diode (LED) lights owned by the Companies for the lighting of streets, sidewalks, parks, and other public grounds.

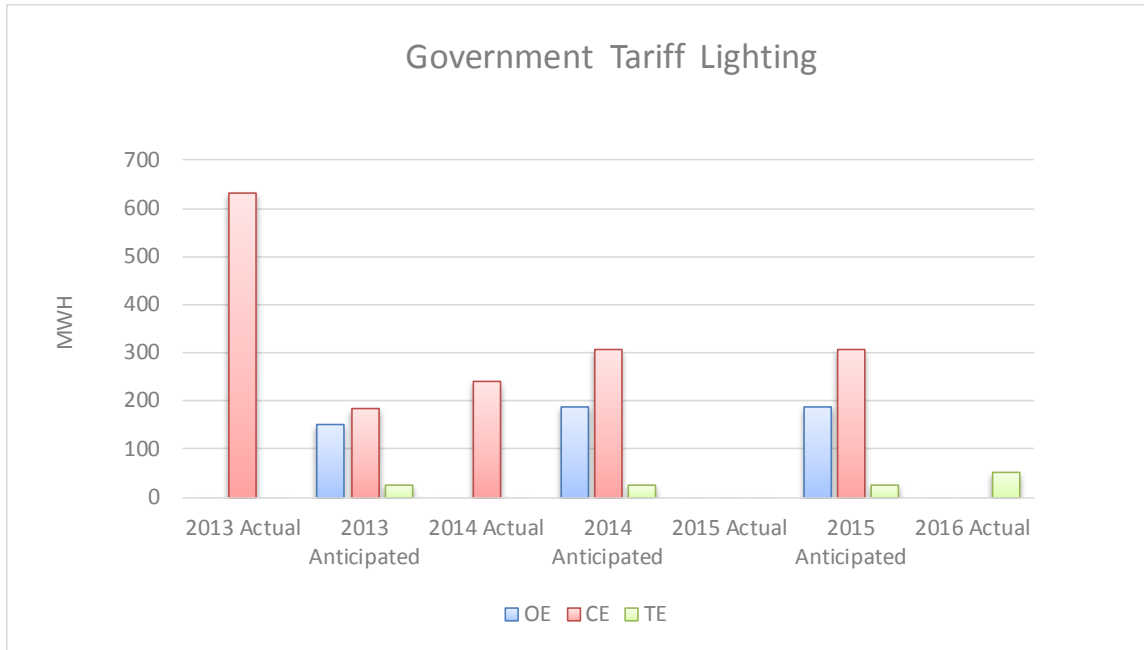
#### Program Partners and Trade Allies

The program was administered by the Companies.

<sup>19</sup> Mercantile Customer trend analysis compares gross MWh savings to anticipated MWh savings as filed in the Companies' July 12, 2012 EEPDR Plans. The Companies did not include a projection of 2016 activity in their September 24, 2014 Amended Plan Filing.

<sup>20</sup> A trend analysis is not applicable to this program as no energy efficiency savings were anticipated in the Companies' EEPDR Plan nor are any MWh energy efficiency savings being claimed as part of this program.

**Table 4-11: Government Tariff Lighting Trend Analysis<sup>21</sup>**



### 4.13 Transmission and Distribution<sup>22</sup>

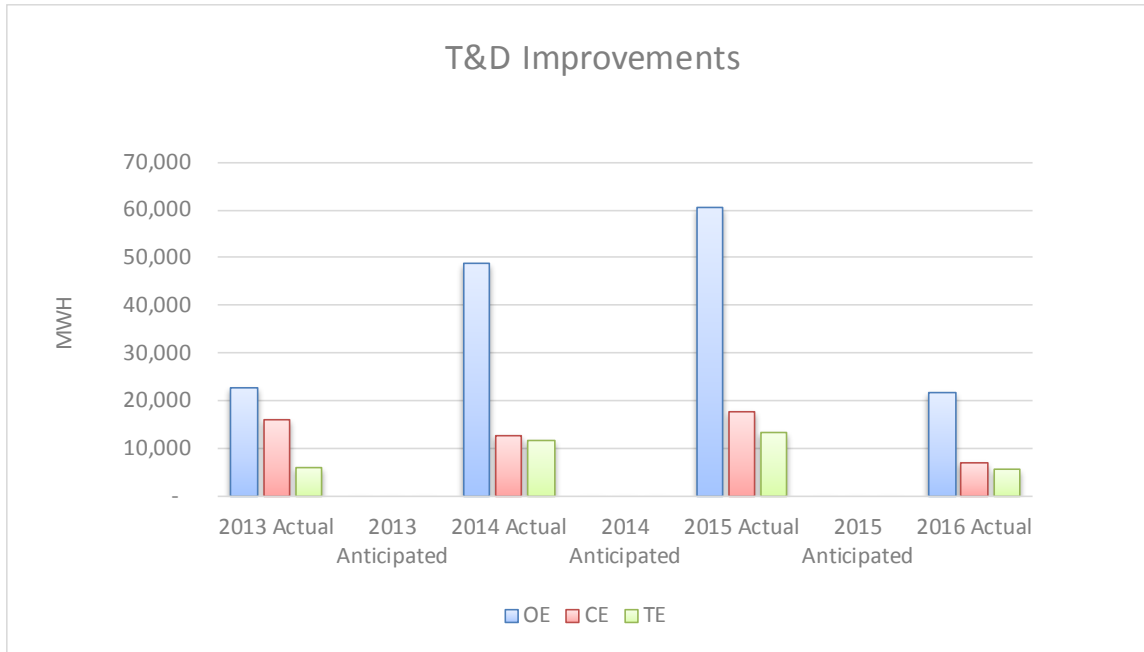
Past and present Transmission and Distribution infrastructure improvement projects are filed in accordance with Commission rules with savings calculated based on pre-project and post-project electrical system parameters using a load flow analysis tool. Key activities for this program consist of projects such as:

- Re-conductoring of lines
- Substation improvements
- Adding capacitor banks
- Replacement of regulators

<sup>21</sup> Government Tariff Lighting trend analysis compares gross MWh savings to anticipated MWh savings as filed in the Companies' July 12, 2012 EEPDR Plans. The Companies did not include a projection of 2016 activity in their September 24, 2014 Amended Plan Filing.

<sup>22</sup> Pursuant to O.A.C. 4901:1-39-05 (C)(2)(iv) the Companies have submitted a description of pending Transmission and Distribution infrastructure improvements made by the electric utilities during 2016 in Case Nos. 17-1222-EL-EEC, 17-1223-EL-EEC, and 17-1224-EL-EEC.

**Table 4-12: Transmission and Distribution Trend Analysis<sup>23</sup>**



#### 4.14 Demand Reduction

The Companies’ Demand Reduction Program<sup>24</sup> leveraged demand response resources including load curtailment resources participating in the PJM market, resources participating on the Companies’ C/I Interruptible Load reduction Tariffs (ELR and OLR), or through contracts for demand response attributes with customers or PJM Curtailment Service Providers.

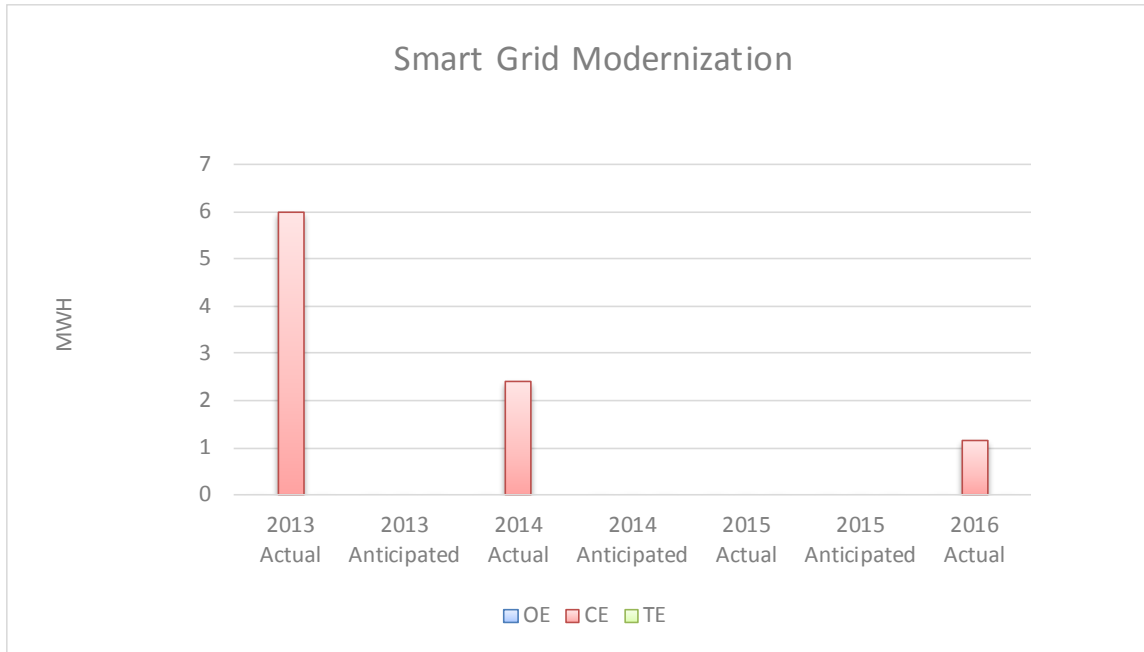
#### 4.15 Smart Grid Modernization Initiative

The Companies’ Smart Grid Modernization Initiative (“SGMI”) Ohio Site Deployment included three smart grid technologies: automated meters, distribution automation, and volt var controls. Although the Department of Energy funding period ended June 1, 2015, the Companies have a commitment to the Public Utilities Commission of Ohio to continue to annually report on the distribution automation and volt var control information through June 1, 2019. In addition, as a result of the Order in Case 09-1820-EL-ATA the Companies will continue to offer Rider RCP to non-shopping customers in the Ohio Site Deployment footprint on a limited basis (up to 250 customers). Rider RCP is a time of use rate with critical peak pricing periods. Customers on the rider receive day-ahead notification of the critical peak events and could receive up to 15 notifications during the summer period.

<sup>23</sup> Transmission and Distribution trend analysis compares gross MWh savings to anticipated MWh savings as filed in the Companies’ July 12, 2012 EEPDR Plans. The Companies did not anticipate specific MWh energy efficiency savings from the Transmission and Distribution Program as part of their EEPDR Plans.

<sup>24</sup> A trend analysis is not applicable to this program as no energy efficiency savings were anticipated in the Companies’ EEPDR Plan nor are any MWh energy efficiency savings being claimed as part of this program.

**Table 4-13: Smart Grid Modernization Trend Analysis<sup>25</sup>**



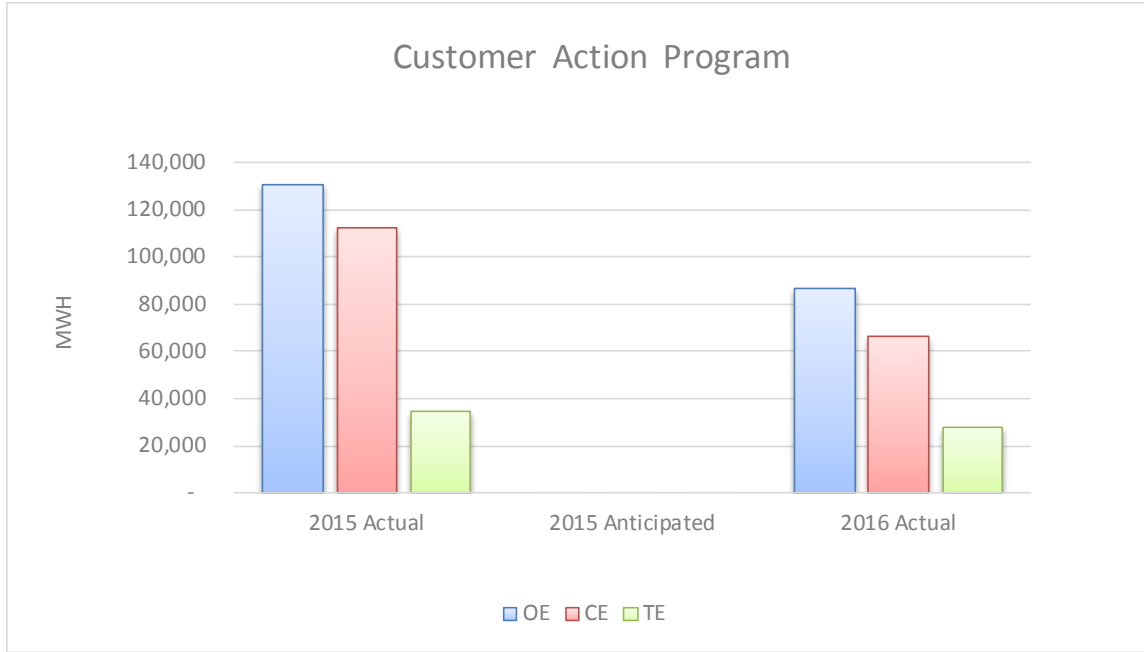
### 4.16 Customer Action Program

The Customer Action Program (“CAP”) captured energy savings and peak demand reductions achieved through actions taken by customers in 2016 outside of utility incentive programs pursuant to § R.C. 4928.662. The Evaluation, Measurement and Verification (EM&V) vendor employed a variety of EM&V approaches to capture customer and market information to support claimed savings. Methods utilized to obtain and support claimed savings included surveying efforts; market research; site verification visits; and other evaluation, measurement and verification activities.

The survey efforts collected information such as customer demographics, building use and characteristics including, heating and cooling systems, lighting and controls, home appliances and equipment, miscellaneous end uses, customer energy use practices and behavior, conservation efforts, and the characteristics of any new and replaced equipment as well as other information as required. On-site verifications were also conducted for a sample of customers to collect information regarding the installed conservation measures. Market data on the distribution of energy efficient products was acquired through organizations such as the Air-Conditioning, Heating & Refrigeration Institute and the Association of Home Appliance Manufacturers to support the total number of units of each measure type installed in the Companies’ service territories.

<sup>25</sup> Smart Grid Modernization trend analysis shows gross MWh savings achieved during the reporting period. The Companies did not anticipate specific MWh energy efficiency savings from the Smart Grid Modernization Program as part of their 2013-2015 EEPDR Plans.

**Table 4-14: Customer Action Program Trend Analysis<sup>26</sup>**



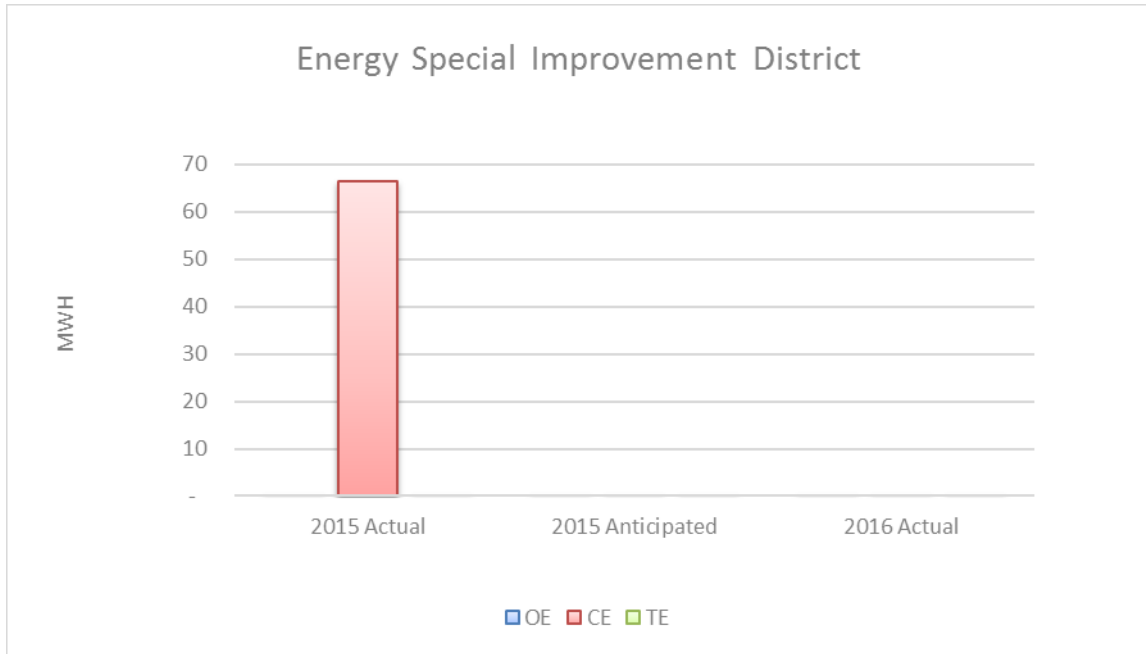
### 4.17 Energy Special Improvement District

Pursuant to R.C. 1710.061, townships and municipalities may create Energy Special Improvement Districts that offer Property-Assessed Clean Energy (PACE) financing to their constituents to install energy improvements. Consistent with this statute, the Companies have included resulting savings toward its compliance with the energy efficiency and peak demand reduction requirements of section [4928.66](#) of the Revised Code<sup>27</sup>.

<sup>26</sup> Customer Action Program trend analysis shows gross MWh savings achieved during the reporting period. The Companies did not forecast specific MWh energy efficiency savings from the Customer Action Program as part of their Amended EEPDR Plans.

<sup>27</sup> Savings included in this report represent projects from Energy Special Improvement Districts in the Companies' territories as filed in Docket 16-708-EL-EEC.

**Table 4-14: Energy Special Improvement District Trend Analysis<sup>28</sup>**



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<sup>28</sup> Energy Special Improvement District Program trend analysis shows gross MWh savings achieved during the reporting period. The Companies did not forecast specific MWh energy efficiency savings from this program as part of their Amended EEPDR Plans.

## 5 Summary of Evaluation, Measurement and Verification Reports

Pursuant to Rule 4901:1-39-05(C)(2)(b), an EDU must include an Evaluation, Measurement and Verification (“EM&V”) report that documents “the energy savings and peak-demand reduction values and the cost-effectiveness of each energy efficiency and demand-side management program reported in the electric utility’s portfolio status report,” including (i) “documentation of any process evaluations and expenditures”; (ii) “measured and verified savings”; and (iii) the “cost-effectiveness of each program.” In addition, the EM&V reports include surveys of those trade allies and customers who participated in the programs. The TRC test as performed by the EM&V Contractor is included in Table 3-1. The EM&V Report must confirm that the measures were actually installed, the installation meets reasonable quality standards, and the measures are operating correctly and are expected to generate the predicted savings. Unless otherwise noted in evaluation reports, EM&V was generally conducted consistent with Ohio’s Technical Reference Manual.

For details on how EM&V was conducted, see the applicable reports included as Appendices A-D.<sup>29</sup>

## 6 Conclusion

The Companies each achieved all EE and PDR statutory requirements for 2016.

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<sup>29</sup> These EM&V reports were prepared consistent with a template provided to the Companies in February, 2011, by the Commission’s EM&V consultant.

Energy Efficiency Compliance Baselines and Benchmarks (MWh)										
Electric Utility	Year	Sales	Total Opt Outs	Adjustments	Adjusted Retail Sales	Approved Mercantile Addbacks (Less Opt Outs)	Fully Adjusted Sales	Compliance Baseline	Cumulative Target %	Compliance Benchmark
		(A)	(B)	(C)	(D)=(A)-(B)+(C)	(E)	(F)=(D)+(E)	(G)=Average(F)	(H)	(I)=(G)*(H)
OE	2013	24,304,505	2,268,277	(341,572)	21,694,656	334,885	22,029,541			
	2014	24,927,292	2,405,537	(366,538)	22,155,218	288,574	22,443,792			
	2015	24,291,651	2,055,816	(511,911)	21,723,924	293,649	22,017,573			
	2016							22,163,635	4.20%	930,873
CEI	2013	18,712,244	1,400,669	(290,544)	17,021,031	478,446	17,499,477			
	2014	18,733,302	1,495,322	(169,383)	17,068,597	488,467	17,557,065			
	2015	18,501,986	1,487,301	(222,090)	16,792,595	493,215	17,285,810			
	2016							17,447,451	4.20%	732,793
TE	2013	10,528,690	3,119,765	(98,509)	7,310,416	170,279	7,480,695			
	2014	10,543,885	3,171,883	(132,961)	7,239,041	173,871	7,412,912			
	2015	10,454,511	3,148,170	(49,834)	7,256,507	173,911	7,430,418			
	2016							7,441,342	4.20%	312,536
Ohio	2013	53,545,440	6,788,711	(730,625)	46,026,103	983,610	47,009,713			
	2014	54,204,479	7,072,741	(668,881)	46,462,856	950,912	47,413,768			
	2015	53,248,149	6,691,288	(783,835)	45,773,026	960,775	46,733,801			
	2016							47,052,428	4.20%	1,976,202

**Notes:**

(C) Includes weather adjustments and adjustments to reflect EDR sales (Automaker credits), RAR, and special contracts and the loss of a large OE customer.

(E): These data were updated to include those mercantile customer self-directed projects that were approved for approval through December 31, 2016.



Peak Demand Baselines and Benchmarks (MW)										
Electric Utility	Year	Operating Company Retail Peaks	Total Opt Outs	Adjustments	Adjusted Retail Peaks	Approved Mercantile Addbacks (Less Opt Outs)	Fully Adjusted Retail Peaks	Compliance Baseline	Cumulative Target %	Compliance Benchmark
		(A)	(B)	(C)	(D)=(A)-(B)+(C)	(E)	(F)=(D)+(E)	(G)=Average(F)	(H)	(I)=(G)*(H)
OE	2013	5,242.4	310.8	(45.9)	4,885.7	36.7	4,922.4			
	2014	4,884.1	310.7	(49.5)	4,523.9	38.0	4,561.9			
	2015	5,024.6	267.8	(38.3)	4,718.4	38.2	4,756.6			
	2016							4,747.0	4.75%	225.5
CEI	2013	4,025.0	181.1	(194.8)	3,649.1	52.3	3,701.3			
	2014	3,838.3	211.8	(191.0)	3,435.4	52.6	3,488.0			
	2015	3,801.3	210.4	(174.9)	3,415.9	52.7	3,468.6			
	2016							3,552.7	4.75%	168.8
TE	2013	2,120.8	298.8	-	1,822.0	32.4	1,854.4			
	2014	2,080.4	410.7	-	1,669.6	32.7	1,702.4			
	2015	2,058.7	395.2	-	1,663.5	32.8	1,696.2			
	2016							1,751.0	4.75%	83.2
Ohio	2013	11,388.3	790.8	(240.7)	10,356.8	121.3	10,478.1			
	2014	10,802.7	933.3	(240.5)	9,628.9	123.4	9,752.3			
	2015	10,884.5	873.5	(213.2)	9,797.8	123.7	9,921.5			
	2016							10,050.6	4.75%	477.4

**Notes:**

(A) For Ohio total: Value reflects sum of 3 operating company non-coincident peaks and not OH coincident peak.

(C) Includes adjustments to reflect EDR sales (Automaker credits), RAR, and special contracts and the loss of a large OE customer.

(E) These data were updated to include those mercantile customer self-directed projects that were approved for approval through December 31, 2016.

**BEFORE THE  
PUBLIC UTILITIES COMMISSION OF OHIO**

Case Nos. 17-1226-EL-EEC  
17-1227-EL-EEC  
17-1228-EL-EEC


Affidavit of Eren G. Demiray – Exhibit 3

STATE OF OHIO            )  
  )     SS  
COUNTY OF SUMMIT     )

I, EREN G. DEMIRAY, being first duly sworn in accordance with law, deposes and states as follows:

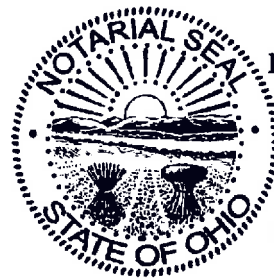
1. I am the Manager, Energy Efficiency, Reporting for FirstEnergy Service Company. As part of my duties, I am responsible for ensuring that Ohio Edison Company (“Ohio Edison”), The Cleveland Electric Illuminating Company (“CEI”) and The Toledo Edison Company (“Toledo Edison”) (collectively, “Companies”) comply with energy efficiency (“EE”) and peak demand reduction (“PDR”) requirements imposed at either the federal or state level.
2. I have personal knowledge of the information and matters set forth herein, and offer this affidavit pursuant to Section 4901:1-39-05(C)(1)(c) of the Ohio Administrative Code.
3. Each of the Companies achieved the EE and PDR results as set forth in the Companies’ 2016 Portfolio Status Report (“Report”) being filed in the above-referenced dockets.
4. As indicated in the Report, each of the Companies achieved all EE and PDR statutory requirements for 2016.

FURTHER AFFIANT SAYETH NAUGHT.

  
Eren G. Demiray

Sworn to before me and subscribed in my presence this 11<sup>th</sup> day of May, 2017.





**KIMBERLY A. CORRIGAN**  
NOTARY PUBLIC  
STATE OF OHIO  
Recorded in  
Medina County  
My Comm. Exp. 1/28/2020

**This foregoing document was electronically filed with the Public Utilities**

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**Case No(s). 17-1226-EL-EEC, 17-1227-EL-EEC, 17-1228-EL-EEC**

Summary: Annual Report 2016 Energy Efficiency and Peak Demand Reduction electronically filed by Ms. Carrie M Dunn on behalf of The Toledo Edison Company and The Cleveland Electric Illuminating Company and Ohio Edison Company