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December 21, 2017

Ms. Barcy McNeal
Administration/Docketing
Public Utilities Commission of Ohio
180 East Broad Street, 11th floor
Columbus, Ohio 43215-3793

RE: *In the Matter of the Application of Ohio Edison Company, The Cleveland Electric Illuminating Company, and The Toledo Edison Company for Approval of Their Energy Efficiency and Peak Demand Reduction Program Portfolio Plans for 2017 through 2019, Case No. 16-0743-EL-POR.*

Dear Ms. McNeal:

Pursuant to Section VI.B of the Stipulation and Recommendation approved by the Commission on November 21, 2017, Ohio Edison Company, The Cleveland Electric Illuminating Company, and The Toledo Edison Company (the "Companies") hereby file the Stipulated EE/PDR Plan, reflecting the Commission's ordered changes and modifications. The attached Stipulated EE/PDR Plan may be subject to further changes or modifications by Commission order in response to any applications for rehearing in this proceeding or requests for amendment submitted pursuant to Section V.T of the Stipulation and Recommendation.

Please do not hesitate to contact me if you have any questions.

Very truly yours,

/s/ Carrie M. Dunn-Lucco

An Attorney for Ohio Edison
Company, The Cleveland Electric
Illuminating Company, and The
Toledo Edison Company



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

**Energy Efficiency & Peak Demand Reduction
Program Portfolio Plans**

(For the Period January 1, 2017 through December 31, 2019)

Revised December 21, 2017

Case No. 16-0743-EL-POR

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1.0 OVERVIEW OF PLANS

1.1. Summary describing the electric utility’s Energy Efficiency and Peak Demand Reduction (“EE/PDR”) Program Portfolio Plans (“Plans”) to meet or exceed the statutory benchmarks for EE/PDR reductions.

On September 12, 2014, Substitute S.B. 310 (“S.B. 310”) became effective, revising, among other things, Chapter 4928 of the Ohio Revised Code (“R.C.”). The amendment included the revision of the statutory percentage benchmark reductions in energy consumption and peak demand originally established in Am. Sub S.B. 221 (“S.B. 221”). These benchmarks are set forth in R.C. 4928.66(A)(1)(a) and (b). For the period January 1, 2017 through December 31, 2019 (“Plan Period”), electric distribution utilities (“EDUs”) are required to achieve incremental annual savings of one percent of the baseline and are required to achieve peak demand reductions based on an additional seventy-five hundredths of one percent reduction from the 2016 requirements. Based on these requirements, the cumulative percentage EE/PDR Benchmarks are as follows:

Table 1: S.B. 310 Percentage EE/PDR Benchmarks

Year	Energy Consumption MWh	Peak Demand kW
2017	5.20%	5.50%
2018	6.20%	6.25%
2019	7.20%	7.00%

The Public Utilities Commission of Ohio (“Commission”) adopted rules that address, among other things, an EDU’s compliance with, and measurement and reporting of, a utility’s energy efficiency (“EE”) and peak demand reduction (“PDR”) results (“Rules”).¹ Pursuant to R.C. § 4928.66 and the related Rules, Ohio Edison Company (“Ohio Edison” or “OE”), The Cleveland Electric Illuminating Company (“CEI” or “CE”) and The Toledo Edison Company (“Toledo Edison” or “TE”) (collectively, the “Companies”) developed an energy efficiency and peak demand reduction (“EE/PDR”) strategy that is designed to comply with their respective benchmarks and the provisions in the Companies’ Stipulated Fourth Electric Security Plan as modified, approved, and adopted by the Commission (“Stipulated ESP IV”).² The Companies strived to develop Plans that are consistent throughout the Companies’ service territories.

Based on the above benchmarks, the aggregate MWh and MW reduction requirements for the Companies as a whole are as follows:

¹ See generally, § 4901:1-39-01 et seq., Ohio Admin. Code.

² Case No. 14-1297-EL-SSO (“ESP IV”). In the event the EE/PDR determinations in ESP IV are modified, altered, stayed, and/or reversed on further rehearing, appeal, and/or remand, a request to amend the Plan may be filed with the Commission.³ Consistent with R.C. 4928.66 (A) (2) (a) (ii)

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EE/PDR Program Plans

Table 2: Total FirstEnergy Ohio S.B. 310 EE and PDR Reduction Requirements

Year	Energy Efficiency Benchmarks Percentage	Required Energy Efficiency Savings MWh	Peak Demand Reduction Benchmarks Percentage	Required Peak Demand Reductions MW
2017	5.20%	2,783,193	5.50%	603.9
2018	6.20%	3,273,557	6.25%	688.4
2019	7.20%	3,772,188	7.00%	768.3

Note 1: Values shown represent cumulative requirements

Note 2: Values shown do not include opt outs

Each company's individual requirements are:

Table 3: S.B. 310 Baselines and Benchmarks for the Period 2017 – 2019

Year	Energy Efficiency Baseline MWh ²	Energy Efficiency Benchmarks Percentage	Required Energy Efficiency Savings MWh ¹	Peak Demand Reduction Baseline MW ²	Peak Demand Reduction Benchmarks Percentage	Required Peak Demand Reductions MW ¹
Ohio Edison						
2017	24,123,467	5.20%	1,254,420	5,016	5.50%	275.9
2018	23,578,667	6.20%	1,461,877	5,072	6.25%	317.0
2019	23,310,600	7.20%	1,678,363	5,053	7.00%	353.7
Cleveland Electric Illuminating						
2017	18,844,800	5.20%	979,930	3,864	5.50%	212.5
2018	18,663,967	6.20%	1,157,166	3,859	6.25%	241.2
2019	18,536,600	7.20%	1,334,635	3,852	7.00%	269.6
Toledo Edison						
2017	10,554,667	5.20%	548,843	2,100	5.50%	115.5
2018	10,556,667	6.20%	654,513	2,083	6.25%	130.2
2019	10,544,300	7.20%	759,190	2,072	7.00%	145.0

Note 1: Values shown represent cumulative requirements

Note 2: Values shown do not include opt outs

The figures in Table 2 and 3 represent the Companies' planning benchmarks as required by Rule 4901:1-39-05. They have been calculated consistent with this Rule's requirements and the provisions of R.C. §4928.66(A)(2)(c). These benchmarks are based on information provided in the Companies' April 15, 2016 Long-Term Forecast Report in Case No. 16-582-EL-FOR ("LTFR") in PUCO Form FE-D1 and D3, adjusted for weather and the results of mercantile customer self-directed projects that have been filed with the Commission as of December 31, 2015. The three-year rolling average energy efficiency baselines for years 2017, 2018, and 2019, upon which the energy efficiency benchmarks and peak demand reduction benchmarks are based, are also shown in Table 3. These benchmarks have been established for planning purposes and will be adjusted, as necessary, in the Companies' annual filings that are required by the Commission. Note that

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these values do not include any assumptions for customers choosing to opt out of programs, and actual benchmarks will be impacted by such customers.³

The programs outlined in these Plans were designed based on the Companies' four primary goals: (i) comply with statutory requirements; (ii) comply with the energy efficiency and demand response related provisions from Stipulated ESP IV; (iii) provide programs for each of the major customer classes; and (iv) develop a portfolio that provides implementation flexibility. As indicated below, these Plans contemplate a suite of EE/PDR programs for all major customer segments. It is generally a continuation of programs as approved by the Commission on March 20, 2013 in Case No. 12-2190-EL-POR ("Previous EE/PDR Portfolio Plans") *et al*, and a reactivation of programs previously suspended in the Companies' Amended Plans ("Amended EE/PDR Portfolio Plans")⁴ collectively referred to as "Prior Plans;" as well as an expansion of offerings to include stakeholder suggestions as well as other program ideas and best practices from utility peers in Ohio and nationally. The programs proposed in these Plans include the following:

Residential Programs:

- Appliance Turn-In Program;
- Low-Income Program;
- Direct Load Control Program;
- Energy Efficient Products Program;
- Energy Efficient Homes Program; and
- Customer Action Program – Residential.

Small Enterprise Programs:

- C&I Energy Solutions for Business Program – Small; and
- Customer Action Program – Small C&I.

Mercantile-Utility (Large Enterprise) programs:

- C&I Energy Solutions for Business Program – Large;
- Customer Action Program – Large C&I; and
- Demand Reduction Program – Large C&I.

Government Program:

- Government Tariff Lighting Program.

Other Programs:

- Mercantile Customer Program;

³ Consistent with R.C. 4928.66 (A) (2) (a) (ii)

⁴ On September 24, 2014, the Companies filed an application to amend their existing EE/PDR portfolio plans, which was approved on November 20, 2014 ("Amended EE/PDR Portfolio Plans"). The Companies have been operating under the Amended EE/PDR Portfolio Plans for 2015 and 2016.

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- Transmission & Distribution Upgrades;
- Smart Grid Modernization Initiative; and
- Energy Special Improvement District Program.

Below is a table that details how the Companies' programs included in Prior Plans align with the programs proposed in these Plans:

Table 4: Prior & New Programs

Prior and New Programs	
Prior Program	New Program
Residential Programs	
Appliance Turn-In Program	Appliance Turn In Program
Home Performance Program	Energy Efficient Homes Program
Energy Efficient Products Program	Energy Efficient Products Program
Direct Load Control Program	Residential Demand Response Program
Customer Action Program	Customer Action Program - Res
Residential Low-Income Programs	
Low Income Program	Low Income Energy Efficiency Program
Small Enterprise Programs	
C&I Energy Efficient Equipment Program - Small	C&I Energy Solutions for Business Program - Small
C&I Energy Efficient Buildings Program - Small	
Customer Action Program	Customer Action Program - SCI
Large Enterprise (Mercantile Utility) Programs	
C&I Energy Efficient Equipment Program - Large	C&I Energy Solutions for Business Program - Large
C&I Energy Efficient Buildings Program - Large	
Demand Reduction Program	C&I Demand Response Program - Large
Customer Action Program	Customer Action Program - LCI
Government Programs	
Government Tariff Lighting Program	Government Tariff Lighting Program
Other Programs	
Mercantile Customer Program	Mercantile Customer Program
T&D Improvements	Transmission & Distribution Upgrades
Smart Grid Modernization Initiative	Smart Grid Modernization Initiative
N/A	Energy Special Improvement District

The successful implementation of these Plans are projected to generate Total Discounted Lifetime Benefits of approximately \$375 million for OE, \$266 million for CEI, and \$144 million for TE which result in Total Resource Cost ("TRC") test scores of 1.5 for OE, 1.6 for CEI, and 1.6 for TE.⁵

The total proposed costs for these programs during the Plan Period are \$131 million for OE, \$90 million for CEI, and \$47 million for TE for a total of \$268 million for the Companies as reported in PUCO Table 3 in Appendix C-4 and Appendix B-1. Actual costs incurred will be recovered through the Companies' Rider DSE, which has already been approved by the Commission.

The Companies have prepared an EE/PDR strategy as reflected in these Plans that balances near-term energy savings opportunities among all rate classes with longer-term programs that continue to create jobs and build capacity for delivering greater energy and demand reduction impacts in the future. The result of these efforts

⁵ See Section 8.0 for a discussion on the TRC test.

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is a comprehensive set of programs that, if approved as filed, will enable the Companies to comply with R.C. § 4928.66 requirements, the energy savings and peak demand reduction goals set forth in Table 3, and to meet the provisions in Stipulated ESP IV.

Table 5 shows the number of customers and sales or revenues that make up each Company's major customer segments addressed in these Plans.

Table 5: Customer Class Characteristics

Sector	# of Customers	MWh	MW
<i>Ohio Edison</i>			
Residential (Excluding Low-Income)	843,666	8,115,049	1,974
Residential Low-Income	77,775	748,102	182
Small Enterprise	109,845	6,479,742	1,702
Mercantile-Utility (Large Enterprise)	1,471	8,301,536	1,347
Governmental	504	38,542	3
Total	1,033,261	23,682,971	5,209
<i>Cleveland Electric Illuminating</i>			
Residential (Excluding Low-Income)	610,128	4,872,886	1,167
Residential Low-Income	56,864	454,153	109
Small Enterprise	78,935	6,423,182	1,667
Mercantile-Utility (Large Enterprise)	616	6,524,816	1,007
Governmental	1,812	137,895	0
Total	748,355	18,412,932	3,950
<i>Toledo Edison</i>			
Residential (Excluding Low-Income)	247,683	2,169,610	607
Residential Low-Income	25,182	245,550	69
Small Enterprise	35,020	1,973,173	547
Mercantile-Utility (Large Enterprise)	472	6,180,856	862
Governmental	1,019	51,147	0
Total	309,376	10,620,336	2,086

Forecasted 2017 usage from the LTFR has been assigned to five categories: (i) Residential Other; (ii) Residential Low Income; (iii) Small Enterprise; (iv) Mercantile-Utility; and (v) Governmental.⁶ Residential Customers taking service under the RS tariff were split between "Residential" and "Residential Low Income". Because the Companies do not separately track (and therefore have no way to distinguish between) "Residential Low Income" customers and "Residential" customers, those customers who were enrolled in the Percentage of Income Payment Program ("PIPP") as of January 2016 were used as a proxy for

⁶ Although the Commission has preliminarily indicated a preference for information to be provided for customer segments different from that set forth in Table 5, (*see* Docket No. 09-0714-EL-UNC), the Companies do not track data in a manner that would allow them to present the data in the format requested by the Commission. In light of this, the Companies have attempted to present the data in a format that most closely resembles that requested by the Commission. *See* the Companies' comments filed on September 11, 2009, September 14, 2009, and September 18, 2009 in the above-referenced docket for a more detailed explanation.

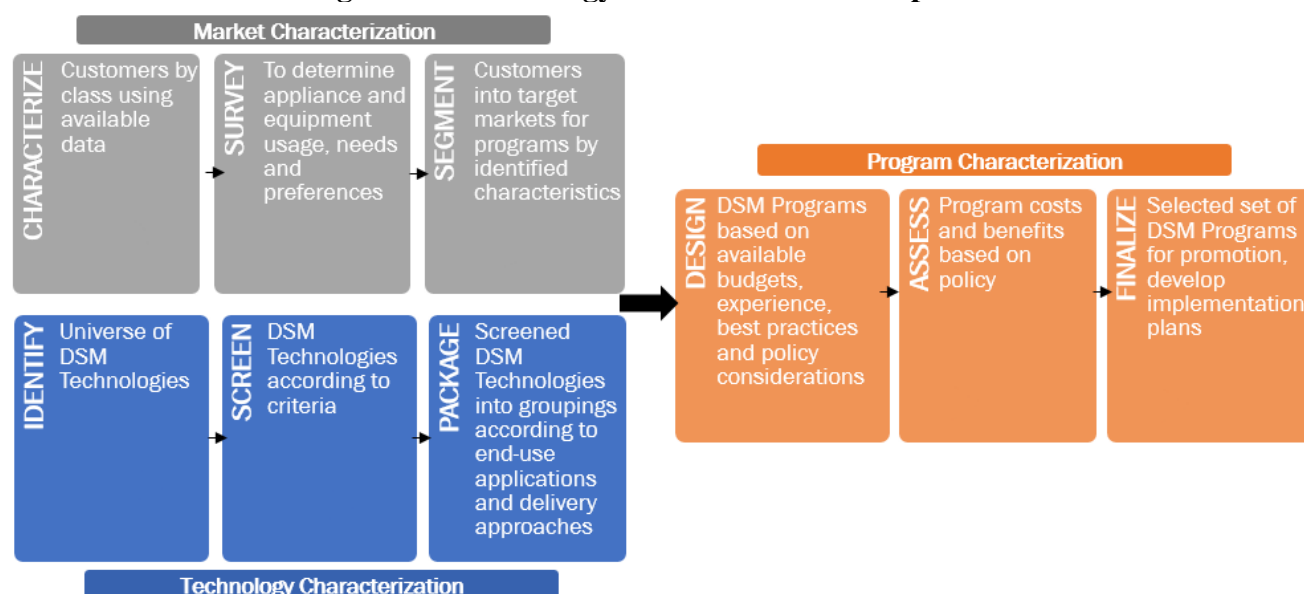
the low income category. For purposes of this plan, the Small Enterprise group consists of small commercial and industrial (“C&I”) customers who are taking service on the General Service Secondary Rate schedule (“GS”). The Mercantile-Utility group consists of large C&I customers taking service on the General Service Primary (“GP”), General Service Sub-transmission (“GSU”), and General Service Transmission (“GT”) rate schedules. The Governmental group consists of customers on the Street Lighting (“STL”) and Traffic Lighting (“TRF”) rate schedules. Customers were assigned to these categories based on available information in the Companies’ billing systems.

1.2. Summary of the process used and key assumptions made to develop the Plan

Process

Figure 1, below illustrates the process undertaken to develop these Plans. The Market Potential Study which was an integral tool in the development of the Plans is included in Appendix D.

Figure 1: FirstEnergy EE/PDR Plan Development Process



The Companies’ plan development approach balances key sources of information:

- Program experience and results, captured through implementation of the previous portfolio of programs, similar programs in other jurisdictions, and best practice ideas from utility peers in Ohio and nationally;
- Industry experience provided by the Companies’ Energy Efficiency consultants, contractors and program administrators;
- Customer attitudes and preferences obtained through mail, email and telephone surveys and interviews conducted as part of the 2016 Market Potential Study; and

- External stakeholder experience and opinions captured through a collaborative process⁷

Collaborative Group members' input was obtained through a series of meetings, followed by conference calls and e-mail communications with interested organizations.

To capture customer data, the Companies commissioned primary market research, with approximately 300 completed phone surveys of C&I customers, 600 completed phone surveys of residential customers, and an additional 3,180 on-line surveys of residential customers. Additionally, interviews were held with Managed Account and National Account representatives along with additional direct surveys to selected large managed accounts to capture needed energy related information on the Companies' largest customers. The resulting survey data was analyzed and informed the Market Potential Study.

The program portfolio design team considered numerous EE/PDR measures and practices, identified by the Companies' Plan development team, Collaborative Group, energy efficiency consultants, and other stakeholders including the Companies' implementation team. This review also considered programs being offered by both Ohio utilities and utilities in other jurisdictions, as well as programs, measures and practices identified from industry reports and awards such as the American Council for an Energy Efficient Economy ("ACEEE"), the Midwest Energy Efficiency Alliance ("MEEA"), and the Association of Energy Service Professionals ("AESP").

When developing the model, the program portfolio design team worked with its energy efficiency consultant to determine certain modeling assumptions, which are discussed in more detail below. The team also relied upon its experience in managing the previous or existing suite of EE/PDR programs as well as its experience in providing similar programs offered by the Companies' sister utilities in other jurisdictions to develop certain model inputs. Other model inputs were based on market survey results, and input from the EE/PDR implementation team.

The program portfolio development team used an iterative process to refine and complete the modeling that included reviewing the projected results for each program and measure and reviewing the results with its energy efficiency consultants and implementation team. This review included assessing the reasonableness of the projected results based on potential in the market, potential customer participation, estimated costs and potential savings. Values for market potential were based on the results set forth in the Market Potential Study. Estimated program participation values were informed by program implementation experience through the Prior Plans, the implementation of sister utility programs in other jurisdictions and the experiences of the Companies' energy efficiency consultants with other utility programs throughout the country. Program energy savings projections were predominantly based upon the protocols included in the Ohio Technical Reference Manual ("TRM") or Pennsylvania TRM. In certain cases, the protocols were

⁷ The Companies' utilized a collaborative process in which interested parties met with the Companies to discuss the development of the Programs included in the Companies' Plans ("Collaborative Group"). This Collaborative Group process is discussed in Section 3.1.5 of the Plan.

adjusted to incorporate recent or current industry information.⁸ To a lesser degree, other industry sources or Companies' assumptions including historical program or evaluation results for similar programs were used as the basis of the savings projections.

Assumptions and Priorities

There are both portfolio based and program/measure specific assumptions that must be made when modeling the programs included in this Plan. For overall compliance purposes, this Plan recognizes that if it exceeds its targets in any given year, the excess will be banked and will be applied towards future years' compliance either during or subsequent to the Plan Period⁹. For purposes of cost effectiveness testing throughout the Plans, the program portfolio development team used a discount rate of 8.48% based on the Companies' most recently authorized overall weighted average cost of capital ("WACC"). Avoided cost data is based on the Companies' forecasts of energy and capacity prices utilized in Stipulated ESP IV and on the results of the Avoided transmission and distribution ("T&D") Study¹⁰. Natural gas avoided costs are based on historical and forecasted natural gas prices from the U.S. Energy Information Administration.

When designing the Plans, one of the design team's priorities was to reactivate and continue programs from the Prior Plans and to expand offerings to include stakeholder suggestions as well as other program ideas and best practices from utility peers in Ohio and nationally.

The above assumptions and priorities yield results that allowed the Companies to develop Plans that will comply with and/or exceed the statutory requirements and that will comply with the provisions in Stipulated ESP IV to offer robust comprehensive energy efficiency plans. However, there are certain conditions under which these programs will be implemented over the next three years that may have a material impact on actual results:

- The timing of the regulatory process and related uncertainty while the Plans are under consideration delays the Companies' ability to enter into contracts with implementation vendors and begin large scale execution of program support and implementation activities prior to approval of the Plans.

⁸ With the exception of new construction whose savings are counted based on 2008 federal standards. R.C.4928.662 (B) *"Energy Efficiency savings and peak demand reduction achieved on and after the effective date of S.B. 310 of the 130th general assembly shall be measured on the higher of an as found or deemed basis, exceed that, solely at the option of the electric distribution utility, such savings and reduction achieved since 2006 may also be measured using this method. For new construction, the energy efficiency savings and peak demand reduction shall be counted based on 2008 federal standards, provided that when new construction replaces an existing facility, the difference in energy consumed, energy intensity, and peak demand between the new and replaced facility shall be counted toward meeting the energy efficiency and peak demand reduction requirements."*

⁹ This is consistent with R.C. 4928.662 (G) *"Any energy efficiency savings or peak demand reduction amount achieved in excess of the requirements may, at the discretion of the electric distribution utility, be banked and applied toward achieving the energy efficiency or peak demand reduction requirements in future years."*

¹⁰ The Avoided T&D Cost Study was completed to comply with the Commission Order in Case No. 12-2190-EL-POR, 12-2191-EL-POR and 12-2192-EL-POR, dated March 20, 2013, at 12: *"The Commission finds that for the next plan cycle, the Companies shall implement Staff's recommendation and shall perform an avoided T&D cost study from actual projects that are relatively certain to be implemented over the following five years and modify the avoided cost based upon these studies."*

- Changing economic conditions over the plan lives may alter the pace of investment estimated, and slow or accelerate the pace of mass market penetration;
- Newly introduced programs and measures included in the Plans will not have a historical basis for participation rates or experience. As a result, installation rates may be lower or higher than modeled, particularly in the early years;
- Targeted participants rates and energy/demand savings may not be achieved due to a variety of factors such as changing technology, market trends or incentives that are not high enough to encourage desired energy efficiency investment. The ability to make mid-stream adjustments on a timely basis to program measures or incentive levels is of paramount importance for the Companies to meet their targets and allows the Companies to proactively address rapidly evolving technology and market trends;
- Customers choosing to opt-out of the opportunity to participate in the Companies' portfolio plans may reduce the energy savings potential across all C&I customer classes.¹¹ As certain programs may be affected more than others; the Companies will closely monitor and track the opt-out customers' usage so that program potential may be assessed. Readjustment of resources may be required to address the shift in potential across programs;
- New or redesigned programs proposed herein will not have a historical basis for participation rates and other factors included in the model. This may cause installation rates to be lower or higher than modeled, particularly in the early years;
- Newly proposed programs may not provide adequate incentives to achieve targeted participants' penetration rates and energy/demand savings; and
- Future legislation, regulation or orders related to EE and PDR¹².

Timely Commission approval of the Plans is critical to provide the Companies with the opportunity to comply with their statutory requirements and Stipulated ESP IV provisions during the Plan Period.

These and other risks have been factored into the Plan to the degree reasonably possible. Nevertheless, because of these and other potential uncertainties, the Commission must have in place a process that affords the Companies the ability to make mid-stream adjustments in a timely manner and provides the Companies with the opportunity to meet their statutory targets and other provisions. Such an approach will also allow the Companies to proactively address rapidly evolving technology and market trends. These Plans are based on the assumption that such a process is in place, and that the Commission approves the Plans in a timely manner.

1.3. Summary tables of portfolio savings goals, budget & cost-effectiveness (PUCO Tables 1, 2 and 3)

PUCO Tables 1-3 in Appendix C-4 summarize the cost-effectiveness, portfolio savings goals and budgets of the Plans.

¹¹ R.C. 4928.6611 "*Beginning January 1, 2017, a customer of an electric distribution utility may opt out of the opportunity and ability to obtain direct benefits from the utility's portfolio plan. Such an opt out shall extend to all of the customer's accounts, irrespective of the size or service voltage level that are associated with the activities performed by the customer and that are located on or adjacent to the customer's premises.*"

¹² The Companies reserve the right to modify the Plans in the event of future changes in legislation, regulation or orders.

PUCO Table 1 sets forth lifetime costs and benefits of the programs being presented to the various customer segments. The Cost Benefit Ratio was calculated consistent with Commission directives. While certain programs within a segment may not pass the TRC, the portfolio as a whole does, as indicated in PUCO Table 1. PUCO Table 2 sets forth the projected MWh and MW savings by customer segment to be achieved as a result of the programs being proposed in this Plan. PUCO Table 3 sets forth the costs of programs for each of the customer segments.

1.4. Summary of the utility implementation strategy to manage the portfolio, engage customers and trade allies, encourage innovation and market access, transform markets, and align or coordinate with other utilities.

The Companies intend to provide market access to the majority of their program services through a mix of third party vendors and administrators selected by the Companies. Pursuant to a stipulation entered into in Case No. 08-0935-EL-SSO, the Companies committed to using specific organizations as “Administrators.” The administrator program is discussed in Section 5.1.1 of the Plans. The Companies use the Administrators primarily to educate their respective customer segments and to “market” various programs being offered by the Companies to achieve the program targets and objectives. The terms and conditions under which Administrators work are set forth in the Administrator agreements approved by the Commission on December 2, 2009 in Docket No. 09-553-EL-EEC. The amounts Administrators are paid were approved in the Commission's December 2, 2009 and March 16, 2011 Entries in Docket No. 09-553-EL-EEC and in Case No. 14-1297-EL-SSO. The various program descriptions included in Sections 3.2 through 3.6 of the Plans include a description of the anticipated delivery process.

The programs included in the Amended EE/PDR Portfolio Plans are currently being managed by various third-party vendors. While these Plans are being considered for approval, the Companies will evaluate existing and past vendor performance and determine if certain aspects of the current process should be modified or eliminated. On an as needed basis, the Companies will solicit bids from potential implementation vendors, either in addition to, or in place of, current vendors. However, contracts with select vendors cannot be finalized prior to Commission approval, thus making it critical that the Commission approve the Plans within a reasonable time frame.

The Companies will continue providing general customer awareness that is designed to educate both customers and the media about energy efficiency and peak demand reduction programs and benefits. The Companies will review the market survey results and the results from the Market Potential Study as well as feedback received from their implementation vendors to assess whether new or modified messages should be incorporated into marketing campaigns. The Companies will also continue to rely on the Collaborative Group to provide valuable feedback and to assist in making their constituencies aware of potential EE/PDR opportunities.

Market access and market transformation are generally discussed in the specific program descriptions set forth in Sections 3.2 through 3.5 of the Plans. More specifically, the Plans are projected to cost \$268 million. These spending levels over relatively short periods of time should contribute to market transformation by providing an influx of funds that should increase the demand for Ohio-specific retail and wholesale stock of more efficient electric consuming appliances, HVAC equipment, lighting and other process equipment. The programs included in the Plans and promoted by the Companies should also have the effect of making customers aware of efficient alternatives, thus creating an increased level of demand for such equipment. In light of this anticipated market transformation, the Companies will continue to evaluate new measures, including those that were not accepted for inclusion in the Plans, and will vet with the Collaborative Group potential new measures as circumstances arise during the Plan Period. To the extent that new measures show

promise for inclusion in the Companies' portfolios, such measures will be discussed in the annual status report or in a separate filing with the Commission.

When designing these Plans, the Companies reviewed stakeholder suggestions as well as other program ideas and best practices from utility peers in Ohio and nationally. The Companies plan to continue these discussions and research to inform future program opportunities. Specifically, the Companies will investigate the feasibility of a geo-targeting pilot program for possible deferral or avoidance of select system T&D upgrades.

1.5. Summary of the utility's data management, quality assurance and internal evaluation processes, including how the Plan and individual programs will be updated or refined based on evaluation results.

The Companies are committed to designing and implementing robust processes, organizations and systems that achieve the energy savings and demand reduction targets established under S.B. 221 and revised in S.B. 310, as well as the provisions in Stipulated ESP IV.

Section 6.0 of this report presents detailed plans regarding the data management, quality assurance and evaluation processes for the Plans. Each program description in Section 3 provides a brief description of the planned evaluation, measurement and verification ("EM&V") steps intended for each program. Further, the Companies are committed to working with the Commission Staff and/or the selected statewide Independent Program Evaluator as appropriate to support their efforts in evaluating the programs. On an as needed basis, informal vendor-conducted customer satisfaction surveys will be performed to provide feedback to the Companies, as well as comments from the Companies' Administrators and Collaborative Group. In addition to making interim adjustments to programs as suggested by these feedback activities, the Companies will propose any major changes it believes are necessary in their annual reporting or in a separate filing with the Commission at other times as deemed necessary by the Companies.

1.6. Summary of any cost recovery mechanisms.

The Companies will continue to collect costs associated with the design, approval, administration and implementation of the programs included in the Plans through their current Demand Side Management and Energy Efficiency Rider (Rider DSE), which has already been approved by the Commission. The Companies are not seeking to modify their Riders DSE in this proceeding. Additionally, consistent with previous Commission Orders, lost distribution revenue and any shared savings resulting from the Shared Savings Mechanism included in the Plans will also flow through this Rider. Further, any revenues received for participation in the PJM Reliability Pricing Model capacity auctions for the Companies' EE and PDR resources, net of the PJM revenue sharing, costs, and/or penalties, will be credited against program costs in the Rider. For a more detailed explanation of these issues, see Section 7.0.

1.7. Transition of existing or suspended programs to new programs.

The Companies' goal is to reactivate the programs from the Previous EE/PDR Portfolio Plans that were suspended in the Amended EE/PDR Portfolio Plans, to continue the programs from the Amended EE/PDR Portfolio Plans and to leverage in these Plans the lessons learned through the implementation of those programs. Additionally, as the Plans will be introducing new offerings, the Companies are requesting timely Commission approval in order to complete the necessary contracting and program start-up activities to support program implementation in early 2017. The Plans assume approval in a time frame that allows the Companies to seamlessly transition from the Amended EE/PDR Portfolio Plans to these Plans. Assuming timely approval, the Companies intend to generally run existing programs as they currently have while

2.0 PROGRAM SUMMARIES

EE/PDR Program Plans

pursuing the start-up activities for the suspended and new programs supporting program implementation in early 2017.

2.0 ENERGY EFFICIENCY PORTFOLIO – PROGRAM SUMMARIES

2.1. *Residential program summaries – indicate which programs are new or continuing*

The Companies will reactivate programs from the Previous EE/PDR Portfolio Plans and continue programs from the Amended EE/PDR Portfolio Plans that are targeted for residential customers, with certain changes as outlined below. These programs are more fully described in Section 3.2:

- **Appliance Turn-In Program** – a reactivation of the program from the Previous EE/PDR Portfolio Plans with the following change:
 - Added dehumidifiers
- **Energy Efficient Homes Program** - a reactivation of the “Home Performance Program” from the Previous EE/PDR Portfolio Plans with the following changes:
 - Prioritized LEDs and removed standard CFLs for both EE Kits and School Education;
 - Added a smart thermostat sub-program that will deploy advanced smart thermostats to optimize operation of customer HVAC equipment;
 - Removed the New Homes sub-program;
 - Revised the Behavioral sub-program to provide customized energy usage reports to low-income customers
 - Expanded the Audits sub-program to target multi-family residences and manufactured homes; and
 - Expanded the implementation strategy to include an integrated multifamily offering that will leverage this program and the C&I Energy Solutions for Business Program - Small to target both basic and comprehensive services for both individually metered and master metered multifamily properties.
- **Energy Efficient Products Program** - a reactivation of the program from the Previous EE/PDR Portfolio Plans with the following changes:
 - Added efficient clothes dryers to the Appliances sub-program;
 - Added imaging equipment and emerging home technologies to the Consumer Electronics sub-program;
 - Replaced standard CFLs with LEDs and added lighting controls to the Lighting sub-program; and
 - Added packaged terminal heat pumps (PTHP), air conditioners (PTAC), circulation pumps and smart thermostats to the HVAC sub-program. Advanced Smart Thermostats will be deployed to optimize operation of customer HVAC equipment.

- Added a mid-stream or upstream program approach for residential heat-pump water heaters, select EnergyStar certified products (e.g., freezers, room air-conditioners), and for circulation pumps.
- **Customer Action Program (CAP)** – a continuation of the existing program. CAP captures energy savings and peak demand reductions achieved through actions taken by customers outside of utility-administered programs pursuant to R.C. 4928.662.
- **Direct Load Control Program.** – a continuation of the existing program which controls residential customers’ air conditioning by cycling usage during peak demand periods.

2.2. Residential Low-Income program summaries – indicate which programs are new or continuing.

In addition to the Residential Programs described above in which all Residential Low-Income customers can participate, the Companies will offer through this Plan a continuation and expansion of the existing program that specifically targets and is available to qualified Residential Low-Income customers. This program is more fully described in Section 3.2.1:

- **Low Income Energy Efficiency Program** - an expansion of the “Low Income Program” from the Amended EE/PDR Portfolio Plans to include two sub-programs as follows:
 - Continuation and expansion of the Community Connections program as a sub-program that will be administered by the Ohio Partners for Affordable Energy (OPAE), as included in Stipulated ESP IV; and
 - Added a Low-Income New Homes sub-program to encourage the construction of new energy efficient housing or major rehabilitation of existing housing in the low-income sector through the application of building shell, installed measures, and other related building improvement.

2.3. Small Enterprise program summaries –indicate which programs are new or continuing.

The Companies will reactivate and consolidate programs from the Previous EE/PDR Portfolio Plans and continue programs from the Amended EE/PDR Portfolio Plans, with certain changes outlined below. These programs specifically target the small business sector, which is comprised of customers taking service under rate schedule GS (Small Enterprise), and are more fully described in Section 3.3:

- **C&I Energy Solutions for Business Program -Small** - a reactivation and consolidation of the C&I Energy Efficient Equipment Program - Small and the C&I Energy Efficient Buildings Program – Small. The following changes to the previous programs have been made:
 - Added circulation pumps to the HVAC sub-program, with a midstream or upstream program approach;
 - Expanded program offering to include Smart Thermostats;
 - Replaced standard CFLs with LEDs in the Lighting sub-program;

- Added beverage machines to the Food Service sub-program;
 - Added dehumidifiers to the Appliance Turn-In sub-program;
 - Added efficient clothes dryers to the Appliances sub-program;
 - Added Consumer Electronics sub-program with new measures;
 - Added new sub-program and measures for Agricultural customers;
 - Added dedicated sub-program for the Data Center customer sector and for Retro – Commissioning;
 - Expanded audit offerings to include audits with direct install measures and multifamily audits; and
 - Expanded services provided under the Audits & Education sub-program to include energy manager, benchmarking, and behavioral offerings to increase energy education and awareness.
 - Expanded services provided under the Audits & Education sub-program to allow for targeted energy analyses and audits of individual processes or systems
 - Expanded the implementation strategy to include an integrated multifamily program offering that will leverage this program and the Energy Efficient Homes Program to target both basic and comprehensive services for both individually metered and master metered multifamily properties.
- **Customer Action Program (CAP)** – a continuation of the existing program. CAP captures energy savings and peak demand reductions achieved through actions taken by customers outside of utility-administered programs pursuant to R.C. 4928.662.

2.4. *Mercantile-Utility program summaries – indicate which programs are new or continuing.*

The Companies will reactivate and consolidate programs from the Previous EE/PDR Portfolio Plans and continue programs from the Amended EE/PDR Portfolio Plans, with certain changes outlined below. These programs specifically target the mercantile-utility sector, which is comprised of customers taking service under rate schedule GP, GSU and GT, and are more fully described in Section 3.4 of this Plan:

- **C&I Energy Solutions for Business Program -Large** - a reactivation and consolidation of the C&I Energy Efficient Equipment Program - Large and the C&I Energy Efficient Buildings Program – Large. The following changes to the previous programs have been made:
 - Added packaged terminal heat pumps (PTHP) and air conditioners (PTAC) to the HVAC sub-program;
 - Replaced standard CFLs with LEDs in the Lighting sub-program;

- Added dedicated sub-program for the Data Center customer sector and for Retro – Commissioning; and
- Expanded services provided under the Audits & Education sub-program to include energy manager, and benchmarking offerings to increase energy education and awareness.
- Expanded services provided under the Audits & Education sub-program to allow for targeted energy analyses and audits of individual processes or systems
- Added eligibility for Combined Heat and Power (CHP) projects.
- **Demand Reduction Program** – a continuation of the existing program which captures demand reduction resulting from the Companies’ Rider ELR as included in the Companies’ Stipulated ESP IV and from PJM participating demand resources.¹³
- **Customer Action Program (CAP)** – a continuation of the existing program. CAP captures energy savings and peak demand reductions achieved through actions taken by customers outside of utility-administered programs pursuant to R.C. 4928.662.

2.5. Governmental program summaries – indicate which programs are new or continuing.

The Companies will reactivate the Government Tariff Lighting Program from the Previous EE/PDR Plans, which includes LED Traffic Signals and Street & Area Lighting, and a continuation from the Amended EE/PDR Portfolio Plans of the Companies’ Experimental Company Owned LED Lighting Tariff, as approved by the Commission¹⁴. The Companies have specific rate codes that enable identification of municipal lighting accounts that qualify for this program. This program is more fully described in Section 3.5.

In addition to this program, which is specifically targeted to certain government entities, government customers qualify for measures and services of the other programs for non-residential customers (such as the C&I Energy Solutions for Business Programs – Small and Large), subject to each program’s eligibility rules.

2.6. Other program summaries – indicate which programs are new or continuing.

The Companies have four other programs, three of which are addressed in separate dockets and are summarized in Section 3.6 of the Plan:

¹³ R.C. 4928.662 (A) “...including resources associated with such savings or reduction that are recognized as capacity resources by the regional transmission organization operating in Ohio...shall count toward compliance with the energy efficiency and peak demand reduction requirements.”

¹⁴ Case No. 16-0470-EL-ATA filed on February 29, 2016, approved on October 12, 2016

- **Mercantile Customer Program (Continuing)**

The Companies' existing Mercantile Customer Program is continuing in these Plans with reactivation of the rebate option. This program targets mercantile customer energy efficiency projects implemented from January 1, 2014 through the end of this Plan period, incenting customers to either commit projects that have already been completed, or incenting customers to invest in new energy efficiency projects. Applications for approval of mercantile sited programs are separately filed with the Commission in individual dockets, in accordance with the application and approval process determined in Case No. 10-834-EL-POR¹⁵ with any incentives paid to customers (and recovered by the Companies through Rider DSE2) approved in those individual dockets. Customers may also apply for Combined Heat and Power and Waste Energy Recovery projects under this program and will be provided incentives consistent with Commission directives. Although the budgets included in these Plans do not include any costs associated with the incentives paid to customers or administrator payments, the budgets do include costs associated with the administration and evaluation of this program.

- **Transmission & Distribution Upgrades (Continuing)**

The Companies' existing T&D Program is continuing in these Plans, but under the new name – Transmission & Distribution Upgrades Program, which accumulates the savings achieved through various T&D projects. These projects involve various system improvements that, when made, reduce line losses, which results in a more efficient delivery system. Examples of the types of efficiency projects in the T&D program may include, but are not limited to (i) reconductoring of lines; (ii) substation improvements; (iii) the addition of capacitor banks; and (iv) the replacement or installation of voltage regulators. These projects are selected through a comprehensive project evaluation process that includes among other things, assessment of capital requirements and constraints, projected results, and financial paybacks. The Companies seek approval for inclusion of the savings associated with these projects through separate dockets. The budgets set forth in the Plans do not include any costs for undertaking these projects, but do include costs associated with the administration of this program.

- **Smart Grid Modernization Initiative (Continuing)**

The Smart Grid Modernization Initiative Program was approved in Case No. 09-1820-EL-ATA et al and was part of the Department of Energy Smart Grid Investment Grant Program. The pilot program is studying the impact of smart grid technologies on the distribution system and includes Distribution Automation (DA), Integrated Volt Var Controls (IVVC) and an Advanced Metering Infrastructure (AMI) deployment in a 36-circuit area located in The Cleveland Electric Illuminating Company's territory.

As part of Stipulated ESP IV, the Companies committed to filing a Grid Modernization Business Plan that included various scenarios of additional AMI, DA and IVVC. Should the Companies receive approval for additional deployment of the smart grid technology, energy efficiency and peak demand reduction savings from that deployment would be included in this program. Information on the Grid

¹⁵ Case No. 10-834-EL-POR In the matter of the Mercantile Customer Pilot Program for Integration of Customer Energy Efficiency or Peak-Demand Reduction Programs, Finding and Order, July 17, 2013.

Modernization Business Plan can be found in Case No 16-0481-EL-UNC. No costs associated with this program are included in the budget set forth in the Plans.

- **Energy Special Improvement District (New)**

This new program captures energy improvements made by Ohio township and municipality constituents. Energy Special Improvement Districts (ESID) offer constituents Property-Assessed Clean Energy (PACE) financing to install qualified energy improvements, pursuant to R.C. 1710.061. The Companies will seek approval for inclusion of the savings associated with these projects through separate dockets. No costs associated with this program are included in the budgets set forth in the Plans.

3.0 PROGRAM DESCRIPTIONS

3.1 *Discussion of criteria and process used for selection of programs:*

The program selection process included the following activities, with several activities encompassing the program development timeline and being performed coincidentally or iteratively:

1. The Companies performed a review of programs and measures, including stakeholder suggestions as well as other program ideas and best practices from utility peers in Ohio and nationally, based on feedback from: (i) the Collaborative Group; (ii) implementation experience; (iii) evaluation, measurement and verification (“EM&V”) experience; (iv) a review of the programs and measures currently being offered through the Previous EE/PDR Portfolio Plans; (v) a review of EE/PDR programs implemented by other utilities, including the Companies’ sister utilities in other jurisdictions, and (vi) various energy efficiency industry reports and awards including ACEEE, AESPMEEA, and E Source.
2. Technologies were grouped by sectors, such as: (i) residential and C&I; (ii) end uses, such as lighting, appliances and HVAC; and (iii) program types, such as efficient homes and efficient products.
3. The potential programs and measures underwent a screening process, which included among other things assessment of the anticipated participation, implementation requirements and savings impacts. Potential programs and measures were reviewed with the Collaborative Group.
4. Consumer research was conducted to identify the likelihood of customer participation/technology adoption, barriers to adoption and potential interest in specific services for overcoming those barriers. Research included gathering data on customers’ current conservation practices, appliance saturation and demographic information.
5. Program cost characteristics were developed at the sub-program or measure level, including, for example, incentive levels; marketing, administration and vendor costs; and incremental measure costs. The value of benefits was developed from savings estimates or formulas that were included in the Ohio TRM and from other industry sources, including TRMs from other states.
6. The economic modeling was completed on an iterative basis and TRC values were determined for each program. The TRC results for each of the programs included in these Plans can be found in PUCO Tables 7A through 7G in Appendix C-4.
7. Program designs were then finalized and evaluated based on whether each:
 - Promotes cost effective EE/PDR results;
 - Involves proven delivery strategies; as well as best practices based on peer and industry review and stakeholder input, with particular consideration given to hard-to-reach markets;
 - Includes programs that address prescriptive and custom measures as well as data analytics;
 - Leverages existing delivery channels that have proven to be successful and best practice approaches; and
 - Achieves positive customer satisfaction evaluations.
8. The results from the 2016 Market Potential Study, included as Appendix D, were used to finalize and to confirm that the final program designs and assumptions were consistent with market potential.

9. Once all programs were designed and modeled, the Plans were evaluated to balance results and costs to ensure plan reasonableness and compliance in a cost-effective manner. These results were reviewed with the Collaborative Group, incorporating, when appropriate, suggestions for improvement from these groups.

The Companies have designed a suite of programs that move from the general to the specific, from providing customers with generic information about saving energy to customized information and services that will help them make energy efficiency changes in their own homes and facilities.

Through program implementation, customers will be encouraged to have an energy audit to help identify the opportunities that are available for increasing energy efficiency and lowering energy costs. These audits will serve a dual purpose of providing important “as-found” characteristics of homes and equipment before the installation of measures, and will offer the Companies and its implementation vendor’s important information about the age of equipment being replaced. Audits for the residential sector will be accessed either through the Comprehensive Home Audit, online through the Companies’ Online Audit tool previously approved by the Commission¹⁶, or through OPAE who will implement the Companies’ Community Connections sub-program for low-income customers.¹⁷ To help identify prescriptive measures for commercial and industrial customers, participants can receive incentives for a comprehensive audit.

To facilitate implementation of recommended measures, the Companies will offer a suite of fixed rebates and calculated incentives. Customers are also given incentives for removing refrigerators, freezers, old inefficient room air conditioners, and dehumidifiers from the system, and for replacing inefficient HVAC systems, appliances (such as central air conditioners and heat pumps) and equipment with newer qualifying energy efficient models.

3.1.1. Describe portfolio design criteria, overall program objectives and logistics and metrics that define program success.

The portfolio design criteria and overall objectives are discussed in Sections 1.2 and 3.1 above. General metrics for each program are discussed below, with individual program metrics set forth in Appendices B and C.

Fundamental metrics for program performance are the number of participants, kWh savings, kW peak load reductions, dollars spent, dollars per kWh saved, and dollars per kW of peak load reduction. Individual program metrics follow the three main metric designations: Immediate (Near Term) Metrics which are generally numeric counts, Intermediate Metrics, which generally involve a calculation or data collection through surveys or other means, and Long-Term Metrics, which generally focus on accomplishment of broader range goals over longer periods of time.

3.1.2. Describe how programs were constructed for each portfolio to provide market coverage sufficient to reach overall energy and demand savings goals. Describe analyses and/or research that were performed (e.g., market, best-practices, market modeling).

¹⁶ See PUCO Case No. 09-0580-EL-EEC *et seq.*

¹⁷ See PUCO Case No. 14-1297-EL-SSO, Third Supplemental Stipulation and Recommendation at 17.

The EE/PDR Program Portfolio was finalized based on the market penetration and other market research results set forth in the Market Potential Study included in Appendix D. The following steps were taken to develop the program portfolio included in the Plans:

1. The first step was to select the potential programs and measures, with the programs included in the Prior Plans being considered first. Virtually all of the programs and measures included in the Prior Plans are included as the cornerstone of these Plans. Additional measures and programs, including stakeholder suggestions as well as other program ideas and best practices from utility peers in Ohio and nationally, were then reviewed to supplement and enhance this core group of programs.
2. Once selected, programs and measures were evaluated to ensure the portfolio of programs passed the TRC test and could meet the savings goals.
3. The final step was to ensure that the portfolio represented a robust and comprehensive range of programs and services that addressed the needs of each major customer group (e.g., low income, large C&I, Governmental) and incorporated all of the major customer end-uses (e.g., appliances, lighting, HVAC).
4. The results from the Market Potential Study was used to finalize and verify that the final modeling inputs used to create the portfolio of programs were reasonable.

3.1.3. Describe available results for programs currently operated by the utility (continuing programs) and/or for similar programs operated by other program administrators in similar markets.

The Companies currently provide eight EE or PDR programs through their Amended EE/PDR Plans¹⁸. These programs are ongoing and appear as part of these Plans, having been consolidated in these Plans. In the Previous EE/PDR Plans, comprehensive Results of the implemented programs through 2014 were reported in the Companies' Portfolio Status Reports filed with the Commission on May 15, 2015 in Case No. 15-0900-EL-EEC et al. For the convenience of the reader, certain summary tables are provided in Appendix A: Results of Prior Plans.

3.1.4. Indicate number of customers and baseline kW and kWh consumption in each sector:

- 3.1.4.1. Residential: See Table 5 in Section 1.1*
- 3.1.4.2. Residential Low-Income: See Table 5 in Section 1.1*
- 3.1.4.3. Small Enterprise: See Table 5 in Section 1.1*
- 3.1.4.4. Mercantile-Utility: See Table 5 in Section 1.1*
- 3.1.4.5. Governmental: See Table 5 in Section 1.1*
- 3.1.4.6. Other: See Table 5 in Section 1.1*

¹⁸ See Amended EE/PDR Portfolio Plans at 6, Paragraph 17 for more detail.

3.1.5. Describe Stakeholder processes used for program development

In accordance with the Stipulation entered into in Case No. 08-0935-EL-SSO (“ESP I Stipulation”), the Companies created the Collaborative Group, which is comprised of interested stakeholders who represent various customer groups and industry interests, to consider the EE/PDR opportunities within the Companies’ service territories and to share knowledge and viewpoints on EE/PDR issues from their perspective.

The Collaborative Group was formed in May 2009, along with two subcommittees: (i) Residential/Low-Income; and, (ii) Commercial / Industrial & Demand Response. The Collaborative Group and the related subcommittees formally meet on an ongoing basis to discuss program performance and operations, best practices, and other energy efficiency and peak demand reduction matters.

When developing the Plans, the Companies solicited input from the Collaborative Group and related subcommittees on potential measures and programs to be included in these Plans on several occasions beginning in late 2015 and continuing through early 2016 up to the plan filing date. The Companies held Collaborative meetings during three phases of the plan development: 1) in December, at the onset of the plan development, 2) in early February, the Companies presented concept plan and programs and 3) in mid-March, as the plan was further developed, the Companies presented detail plan and program information. Company personnel also held multiple conference calls and exchanged communications with interested Collaborative Group member organizations throughout the plan development process. These Plans incorporate many of the Collaborative members’ suggestions. The Companies will continue to work with the Collaborative during the implementation of the Plan. For example, the Companies will participate in select conferences and conduct energy efficiency educational outreach and outreach events in conjunction with Collaborative members.

3.1.6. Describe alignment with other utility and non-utility programs

When practical, the Companies strive to coordinate their EE/PDR program designs with other utilities and in developing this plan included programs identified from utility peers in Ohio and nationally. The Companies have also designed the Plans so that there is commonality among program offerings, program participation requirements and EM&V protocols within the FirstEnergy Ohio footprint. Additionally, the Companies review the other Ohio utilities EE/PDR plans and programs to determine if adopting some of these utilities’ ideas may improve FirstEnergy programs. The Companies have very good working relationships with their counterparts at the other Ohio investor owned utilities and engage them to discuss program implementation, EM&V and design challenges, and do not hesitate to discuss specific concerns or problems with their counterparts in these organizations as needed. The Companies have actively participated in Commission-sponsored workshops in the past addressing alternative financing and comprehensive home energy audits and other whole home solutions, and expect to continue to participate in these and other workshops that address EE/PDR program issues that are state-wide or involve policies better resolved at the state level.

The Companies’ Community Connections sub-program partners with OPAE who uses the funds from this program to leverage other state funded programs through various agencies within the State of Ohio. The Companies’ proposed Energy Efficient Homes Program includes a school education program that is modeled to be consistent with school programs offered by other Ohio utilities. Additionally, the Companies’ implementation team works closely with industry groups, trade allies and program allies and considers opportunities to leverage funding sources where possible to support program operations. The Companies also participate in the OPAE-sponsored Weatherize Ohio Conference, also attended by other utilities and state program administrators and agencies.

Portfolio Overview

A comprehensive portfolio of programs is listed in Tables 6 and 7 below. These programs provide customers with a full range of services – from customized information identifying energy saving opportunities for their homes and facilities, to significant incentives for reducing the cost of implementing certain of these recommendations. Low income customers can obtain certain measures and services at no additional cost, and small enterprise customers similarly receive selected services at a significantly reduced cost. Comprehensive audits are also available to both residential and non-residential customers. The programs are described in detail in Sections 3.2 through 3.6.

Many of the programs set forth below have their genesis in the programs implemented under Prior Plans, enhanced and streamlined by combining programs with similar operational characteristics or offerings and supplementing or expanding them with additional programs or measures including stakeholder suggestions as well as other program ideas and best practices from utility peers in Ohio and nationally.

Many of the programs being proposed in these Plans contemplate the use of rebates to incent the installation of efficient equipment by customers. Appendix C-3 lists all rebate schedules for each technology included in these Plans.

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3.2. Residential Programs

Table 6

Prior Program Name	New Program Name	Program Description
Appliance Turn-In Program	Appliance Turn In Program	This program provides rebates and removal and recycle services to consumers for turning in working appliances.
Home Performance Program	Energy Efficient Homes Program	This program provides customers with energy efficiency education and awareness along with measures and incentives to improve energy efficiency of homes.
Energy Efficient Products Program	Energy Efficient Products Program	This program promotes the purchase of energy efficient products, such as HVAC equipment, appliances, lighting, home electronics and other energy saving home products, through consumer rebates or incentives and support to retailers and manufacturers.
Direct Load Control Program	Residential Demand Response Program	The program consists of a customer having their central air conditioning compressor cycled during summer peak load periods.
Customer Action Program	Customer Action Program - Res	The program captures energy savings and peak demand reductions achieved through actions taken by customers outside of utility-administered programs pursuant to R.C. 4928.662
Low Income Program	Low Income Energy Efficiency Program	The low-income program provides weatherization services, home audits and installation of energy efficiency measures for low-income customers under the Community Connections sub-program. The program also provides incentives for the construction of new energy efficient housing or major rehabilitation of existing housing for low-income customers.

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The table below details each measure that is offered in the programs listed in Table 6 and whether it is a previous or new measure:

Table 7: Proposed Residential Portfolio

Proposed Residential Portfolio				
Sector	Program	Sub-Program	Measure	Status
Residential	Appliance Turn In Program	Appliance Turn In	Refrigerator Recycling	Prior
			Freezer Recycling	Prior
			Room Air Conditioner Recycling	Prior
			Dehumidifier Recycling	New
	Energy Efficient Homes Program	School Education	School Education	Prior
		EE Kits	Energy Efficiency Measures	Prior
		Audits & Education	Comprehensive Audit	Prior
			On-Line Audit	Prior
		Behavioral	Behavioral	Prior
		Smart Thermostat	Smart Thermostat	New
	Energy Efficient Products Program	Appliances	Clothes Washer	Prior
			Clothes Dryer - (Elec w Moisture Sensor)	New
			Freezers	Prior
			Refrigerators	Prior
			Dehumidifiers	Prior
			Water Heater - Heat Pump	Prior
		Consumer Electronics	Home Technology & Automation	New
			Monitors	Prior
			Computers	Prior
			Imaging	New
			TVs	Prior
		Lighting	CFL Lamps	Prior
			CFL Fixtures	Prior
			LED Fixtures	Prior
			LED Lamps	Prior
			Residential Lighting Controls	New
		HVAC	Heat Pump	Prior
			Central Air Conditioner	Prior
			Room Air Conditioner	Prior
			Ductless Mini-Split Heat Pump	Prior
			PTAC - Multi Family	New
			PTHP - Multi Family	New
			Heat Pump - Water & GeoT	Prior
			HVAC - Maintenance	Prior
			Furnace Fans	Prior
			Circulation Pumps	New
			Programmable / SMART Thermostat	New
	Customer Action Program - Res	Customer Action Program - Res	Customer Action Program - Res	Prior
	Residential Demand Response Program	Direct Load Control	Res Direct Load Control	Prior
	Low Income Energy Efficiency Program	Community Connections	Community Connections	Prior
		LI - New Homes	LI New Construction	New

Below is a summary of all of this sector's programs being proposed in these Plans:

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Program Title and Program years during which program will be implemented	1. Direct Load Control 2017 – 2019
Objective(s) and program metrics	<p>This program will leverage the installed base of programmable thermostats with one-way radio communications capability at participating residential customer homes to cycle the compressors in the central air conditioners using an algorithmic cycling strategy through control signals initiated by the Companies. This program provides the Companies with the capability to reduce loads during the peak demand periods in the summer operating season. Participating customers can also program the thermostat for their preferred day, night, and seasonal settings in order to achieve electric and gas energy savings throughout the year.</p> <p>Relevant metrics are provided in Appendices B and C.</p>
Target market (including participation requirements)	The target market for this program is residential homeowners who reside in a location that supports the communication strategy and has a working central air conditioner or heat pump.
Program approach, rationale and description	This existing program began in the summer of 2007 and has been continued in the Prior Plans and these Plans.
Implementation strategy (including expected changes that may occur in different program years)	<p>Total administration of the program, including installation of thermostat, marketing, call center, and general administration is provided by a third-party vendor.</p> <p>During summer peak periods, the Companies can curtail air conditioning usage during a critical peak day. Customers have the ability to override (i.e., opt out of) a curtailment event.</p>
Program issues and risks and risk management strategy	Technology is rapidly developing in this market, and the Companies will remain flexible about testing and revising the type of equipment used for this program over time.
Ramp-Up strategy	This is a continuation of the Companies' existing program. The Companies anticipate a seamless transition and implementation in early 2017.
Marketing strategy	This program will be launched with existing participants and expanded on an as needed basis.
Market Transformation Strategy (if applicable)	This program affords customers the opportunity to gain experience with energy management technology, which can also be used if advanced metering infrastructure becomes available.

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Eligible measures and incentive strategy, include tables for each year of program, as appropriate showing financial incentives & rebate levels (e.g., \$ per measure, \$ per kWh or MW saved)	<p>The program leverages programmable thermostat installed at participating customers that can be used to achieve year-round electric savings for those with electric heat and/or central air cooling.</p> <p>See Appendix C-3 for rebate/incentive amounts.</p>
Non-Energy Benefits	<p>Increased consumer control over household energy consumption. Experience with technology that lends itself to advanced metering infrastructure. In addition, energy savings may result in reduced greenhouse gas emissions.</p>
Other information deemed appropriate	<p>None.</p>

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Program Title and Program years during which program will be implemented	2. Appliance Turn-In Program 2017 – 2019
Objective(s) and program metrics	<p>The program is a reactivation of the previous Appliance Turn-In program with the objective to remove older inefficient operating appliances from residences by offering customers an incentive and pick-up and recycle services at no additional cost.</p> <p>Relevant metrics are provided in Appendices B and C.</p>
Target market (including participation requirements)	<p>The target market for this program is existing multi-family and single-family households, renters and home owners. Customers must have working eligible appliance(s) at the time of pick up.</p>
Program approach, rationale and description	<p>This program provides customers an incentive, pick-up, and recycle services for turning in qualifying, inefficient, operating appliances. Qualifying appliances will be picked up at the customer's residence. In order to qualify for appliance, turn in, equipment must be working at the time of pick up. In addition, periodic events may be offered at centralized drop-off locations where customers can drop off smaller inefficient operating appliances.</p>
Implementation strategy (including expected changes that may occur in different program years)	<p>The Companies will outsource implementation of this program to a Program Implementation Vendor ("Vendor") who will be responsible for marketing, scheduling appointments, picking up / recycling of qualified working appliances, processing rebates and handling customer inquiries.</p> <p>The Companies plan to select the vendor in a timeframe that supports program reactivation in early 2017.</p>
Program issues and risks and risk management strategy	<p>The risks associated with this program primarily involve obtaining sufficient customers to participate in the program. Well established marketing techniques will be used to promote the participation in this program. The Companies will monitor the program performance and adjust marketing, outreach and/or incentives where applicable to mitigate this risk.</p> <p>Another risk is that appliances will be turned in that were not being used. Customers will be asked to verify that the appliance is in working order when they register for pick up.</p>
Ramp-Up strategy	<p>This is a reactivation of the Companies' prior program. The Companies anticipate a timely implementation in early 2017.</p>

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Marketing strategy	Customers will be alerted to this service through various media and marketing channels to facilitate targeted roll-out of the program, and efficient collection in targeted areas. Marketing will target customer awareness including introduction of the program and the need for consumers to take energy efficiency actions. Marketing channels may include bill inserts, newspaper, television and radio spots, search engine optimization and e-mail. The program is also cross-marketed through retailers and other residential programs, such as energy usage reports or audits.
Market Transformation Strategy (if applicable)	Appliance removal programs help to accelerate market transformation by encouraging customers to remove older inefficient appliances, thereby making them aware of the higher consumption of these older units.
Eligible measures and incentive strategy, include tables for each year of program, as appropriate showing financial incentives & rebate levels (e.g., \$ per measure, \$ per kWh or MW saved)	The customer receives an incentive following pick up or turn in of qualifying appliances. Eligible program measures and incentive strategy are included in Appendix C-3. Smaller appliances (room air-conditioners and dehumidifiers) will only qualify for the program if they are picked up in conjunction with a major appliance (refrigerator or freezer).
Non-Energy Benefits	The removal of the appliances may result in avoided carbon emissions. Customer bills may also be lower as a result of lower energy consumption. The program also promotes responsible disposal of hazardous materials.
Other information deemed appropriate	None.

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Program Title and Program years during which program will be implemented	3. Energy Efficient Products Program 2017 – 2019
Objective(s) and program metrics	<p>The Energy Efficient Products Program is a reactivation of the previous program. The objective of the program is to promote the installation of energy efficient appliances, lighting, consumer electronics and HVAC equipment. The program provides rebates to consumers and/or “midstream” or “upstream” financial incentives and support to manufacturers, distributors, and retailers that sell energy efficient products, such as ENERGY STAR® qualified appliances, high efficiency lighting, and other energy saving products. The program includes promotional support, point-of-sale materials, training, promotional events and rebates for select measures.</p> <p>This program includes the following sub-programs:</p> <ul style="list-style-type: none"> ➤ HVAC ➤ Appliances ➤ Consumer Electronics ➤ Lighting <p>Relevant metrics are provided in Appendices B and C.</p>
Target market (including participation requirements)	Residential customers of the Companies that purchase high-efficiency appliances or other qualifying products.
Program approach, rationale and description	<p>The approach to this program is to provide an avenue for customers to take advantage of the information gained from energy efficiency messages and energy audits and make the changes recommended. A key barrier to implementation of energy efficiency measures remains their higher first cost over less efficient models. This program involves consumer education and incentives for selling ENERGY STAR® qualified appliances and other qualifying energy efficient equipment and measures. The HVAC subprogram will target the installation of Smart Thermostat technology to control and optimize a customer’s HVAC equipment and result in lower electric energy usage.</p> <p>The program will use strategies including, but not limited to, giveaways, and/or special promotional events to encourage sales of high efficiency products.</p>
Implementation strategy (including expected changes that may occur in different program years)	The Companies will outsource the implementation of this program to a Program Implementation Vendor (“Vendor”) who will be responsible for marketing, application processing and process documentation regarding purchased products and mail-

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	<p>in rebates. A separate activity will involve implementation of the retailer program. The Companies will promote heat pump water heaters, select EnergyStar certified products (e.g., freezers, room air-conditioners) and circulation pumps through a mid-stream approach, and for other measures will offer mail in rebates, work with manufacturers and retailers for point of purchase rebates, mid-stream or up-stream buy-downs and consider other methods for providing rebates and other rebate application processes. Additionally, the program implementation vendor will provide support and assistance to retailers to support identification and promotion of qualifying energy efficient products. For contractor-installed products such as HVAC, the Companies will work with contractors supporting their marketing and installation of energy efficient products and participation in the program.</p> <p>The Companies plan to select the vendor in a timeframe that supports program implementation in early 2017.</p>
Program issues and risks and risk management strategy	<p>The risks associated with this program primarily involve obtaining sufficient customers to participate in the program. Well established marketing techniques will be used to promote the participation in this program. A key barrier of energy efficiency measures remains their higher purchase price as compared to less efficient models. Educational materials will need to highlight the lower operating costs of high efficiency equipment and the quick payback customers will enjoy from making the higher efficiency choice. Evaluations will monitor the extent of uptake on each product and determine whether rebate levels need to be adjusted. The Companies will monitor the program performance and adjust marketing, outreach and/or incentives where applicable to mitigate this risk. For the Smart Thermostat offering, the Companies will participate in industry research on smart thermostat technology to benefit from lessons learned from peer utility programs and will conduct a detailed evaluation, measurement, and verification study to help inform the effectiveness of the program and future program designs.</p>
Ramp-Up strategy	<p>This is a reactivation of the Companies' prior program. The Companies anticipate a timely implementation in early 2017.</p>
Marketing strategy	<p>The program will use strategies including, but not limited to, giveaways, and/or special promotional events to encourage sales of high efficiency products. The program will be marketed, where practical, in conjunction with the audits and education program as the "next step" toward achievement of the identified energy savings. Mass marketing will target this program as a cornerstone of the various other programs and</p>

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	<p>services available to residential customers under the overall portfolio.</p> <p>For the Smart Thermostat offering, the Companies will take advantage of cross-marketing opportunities across other residential programs to further promote and implement this technology; distribute educational materials to help customers take advantage of all smart thermostat capabilities in an effort to maximize their effectiveness and will contact local gas distribution companies regarding the potential to coordinate marketing and rebate offerings.</p>
Market Transformation Strategy (if applicable)	<p>The objective of the program is to promote the installation of energy efficient equipment which will increase market demand for those measures, thereby increasing availability and lowering prices.</p>
Eligible measures and incentive strategy, include tables for each year of program, as appropriate showing financial incentives & rebate levels (e.g., \$ per measure, \$ per kWh or MW saved)	<p>For the proposed program measures, the minimum qualifying efficiency ratings are based on meeting either ENERGYSTAR® requirements or other requirements that exceed the current Federal Standard. For the lighting sub-program, only Specialty CFLs are eligible under the CFL Lamps measure. New measures or eligibility requirements have been added to support emerging technologies including Home Controls (e.g. Home Energy Management Systems and other in-home devices) and connected appliances.</p> <p>This program has been designed based on applying established efficient conditions for certain applicable measures. Given the potential of changing standards and specifications for the eligible products under the program during the term of this Plan, to maintain program continuity and implement timely on-going energy efficiency improvements, the Companies may implement tier level or incentive changes for certain applicable measures in conjunction with future specification changes.</p> <p>Eligible program measures and incentive strategy are included in Appendix C-3.</p>
Non-Energy Benefits	<p>The installation of high efficiency measures may result in lower carbon emissions. The impact evaluation will quantify the avoided emissions. In addition, program energy savings may result in reduced greenhouse gas emissions.</p>
Other information deemed appropriate	<p>This program focuses on electric energy using equipment within a residence. Weatherization and building shell type measures are covered under the Energy Efficient Homes Program. The Companies have included gas savings in its cost-effectiveness testing of Smart Thermostats.</p>

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Program Title and Program years during which program will be implemented	4. Energy Efficient Homes Program 2017 – 2019
Objective(s) and program metrics	<p>The program is a reactivation of the previous Home Performance Program with the addition of a Smart Thermostat sub-program. The primary objective of this program is to educate customers on energy efficiency and energy usage, and to encourage customers to retrofit existing or implement new end use technologies and to adopt energy efficiency behaviors to conserve energy in their homes. The program is broken into the following sub-programs:</p> <ul style="list-style-type: none"> ➤ Audits and Education ➤ Energy Efficiency Kits ➤ School Education ➤ Behavioral ➤ Smart Thermostat (new) <p>Relevant metrics are provided in Appendices B and C.</p>
Target market (including participation requirements)	The target market for this program is residential customers.
Program approach, rationale and description	<p><u>Audits and Education</u></p> <p>Audit - this sub-program measure offers residential customers, including multi-family residences and manufactured homes, an in-home energy audit for improving the overall energy efficiency of the home. It also examines appliance efficiency, lighting and HVAC systems. The cost of the audit is subsidized by the Companies, with the customer paying a discounted fee. After completing a home energy audit, customers are provided with a list of energy savings projects and measures applicable to their home and the associated energy savings impacts. Customers who implement eligible energy savings measures are entitled to additional rebates from the Companies. The Companies will also pursue opportunities to coordinate providing these services to qualified customers with Natural Gas Distribution Companies (NGDC) including providing program referrals and/or leveraging common contractors.</p> <p><u>On-Line Audit</u></p> <p>The On-line Audit measure is a Home Energy Audit software program that provides customers with information and education to lower their energy usage</p>

and costs through energy efficiency program participation and other actions. Customers without internet access can verbally record via telephone their responses to the computerized questions through one of the Companies' customer services representatives. This tool provides an approach that increases the efficiency and effectiveness of the Companies' customer service by helping residential customers better understand and manage their bills. The tool converts the customers' input of their energy usage characteristics into information customers can understand and act upon, including such things as the cost of heating and cooling their homes, a usage comparison graph, tips on how to save energy and other energy efficiency program opportunities available to them.

Energy Efficiency Kits

This sub-program will include a variety of items meant to introduce customer segments to energy efficient technologies that can be easily installed in the home, and serve as a gateway for broader home energy efficiency education. The Companies will target low-income customers and communities for participation in this sub-program. Provided items may include, but not be limited to: Educational Materials, Specialty CFLs, LEDs, Faucet Aerators, Low Flow Shower Heads, Furnace Whistles, etc. EE Kit contents may also be customized to target specific customer end-uses (e.g. electric water heating).

School Education

This sub-program provides a customized education program that is delivered by contracted performers and/or educators to elementary school children and teachers. The education materials may include: handout materials, homework assignments, contests and/or presentations that are designed to educate students on energy efficiency and conservation. A "take home" or "opt-in" kits will be utilized to introduce simple retrofit measures that the student can work with at home with their parent's involvement. Provided items may include, but not be limited to: Educational Materials, Specialty CFLs, LEDs, Faucet Aerators, Furnace Whistles, etc.

Behavioral

This sub-program provides customized energy usage reports to both general residential and low-income customers with specific information about each customer's energy usage as well as analysis regarding

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	<p>their usage over time, with specific tips for conserving energy and other energy efficiency program opportunities that are available to them.</p> <p><u>Smart Thermostat</u></p> <p>This new sub-program will deploy Smart Thermostat technology to control and optimize a customer's HVAC equipment and result in lower electric energy usage. The program will incorporate direct install and customer installed options. Once deployed and operational, the program will also investigate the capability of the system to perform as a demand response resource.</p>
Implementation strategy (including expected changes that may occur in different program years)	<p>The Companies will outsource the implementation of this program to Program Implementation Vendors ("Vendors") who will be responsible for marketing, outreach, enrollment, fulfillment of the program services and rebate processing, where applicable.</p> <p>As part of this program and the C&I Energy Solutions for Business Program - Small, the Companies will implement an integrated multifamily program offering to target both basic and comprehensive services for both individually metered and master metered multifamily properties.</p> <p>The Companies plan to select the vendors in a timeframe that supports program implementation in early 2017.</p>
Program issues and risks and risk management strategy	<p>The risks associated with this program primarily involve obtaining sufficient customers to participate in the program. Well established marketing techniques will be used to promote the participation in this program. The Companies will monitor the program performance and adjust marketing, outreach and/or incentives where applicable to mitigate this risk.</p>
Ramp-Up strategy	<p>The Companies anticipate a timely implementation upon Commission approval of the program. It is anticipated that it will take at least three months to start up the program to launch after program approval.</p>
Marketing strategy	<p>Marketing and outreach activities will target eligible customers to inform them of the program. Mass marketing will target this program as a cornerstone for the other programs and services available to residential customers under the overall portfolio.</p> <p>Marketing channels may include but are not limited to: bill inserts, newspaper, television and radio spots, search engine optimization, and e-mail. The online audit, EE Kits and energy usage reports will also serve as a portal to other program opportunities available to the customer.</p>

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	<p>The Companies will target their marketing materials for EE Kits to residential customers who, according to the Companies' records, did not receive EE Kits during the Prior Plans. The Companies will provide an EE Kit to any customer who submits a request, limited to one EE Kit per residential customer for the Plan period.</p> <p>The Companies will hold outreach activities for their multifamily program annually across their service territories.</p>
Market Transformation Strategy (if applicable)	<p>This program's objective of the transformation of markets toward higher market share of efficient electric appliances, products, and homes will be achieved by educating customers about energy efficiency and offering them incentives to purchase energy efficient products.</p>
Eligible measures and incentive strategy, include tables for each year of program, as appropriate showing financial incentives & rebate levels (e.g., \$ per measure, \$ per kWh or MW saved)	<p>The program includes the following sub-programs:</p> <ul style="list-style-type: none">➤ Audits and Education➤ Energy Efficiency Kits➤ School Education➤ Behavioral➤ Smart Thermostat (new) <p>Please see Appendix C-3 for a list of measures available within each sub-program listed above along with their eligibility and rebate/incentive amounts.</p>
Non-Energy Benefits	<p>Lower operating costs, improved condition of housing stock, improved homeowner comfort, improved capacity of the local contractor base to deliver comprehensive services, improved customer service and reduced greenhouse gas emissions.</p>
Other information deemed appropriate	<p>The Companies have included gas savings in its cost-effectiveness testing of Smart Thermostats.</p>

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Program Title and Program years during which program will be implemented	5. Low Income Energy Efficiency Program 2017 - 2019
Objective(s) and program metrics	<p>The primary objectives of this program are to provide energy efficiency and whole building measures; educate low-income customers about energy efficiency and conservation, about their home's energy use and ways to save energy and to target the construction of new energy efficient low-income housing. The program is a continuation of the existing Community Connections Program as a sub-program, with the addition of a Low Income New Homes sub-program.</p> <p>Relevant metrics are provided in Appendices B and C.</p>
Target market (including participation requirements)	<p>Community Connections: The target beneficiaries of this program are residential customers and landlords of residents eligible for one of the following: (i) the Ohio Home Weatherization Assistance Program (HWAP); (ii) Percent of Income Payment Plan (PIPP); or (iii) Home Energy Assistance Program (HEAP).</p> <p>Low Income New Homes: The target market for this program are builders and developers of housing for customers who are income-qualified up to 200% of the Federal Poverty Income Guideline (FPIG).</p>
Program approach, rationale and description	<p>This program provides various levels of energy efficiency and whole building measures, energy efficiency and conservation education and targets the construction of new energy efficient low-income housing. This program includes the following sub-programs:</p> <p><u>Community Connections:</u></p> <p>This sub-program is administered by OPAE who works with community-based agencies and subcontractors. Under this sub-program, OPAE subcontracts to community-based agencies to provide electric energy conservation measures and energy education to the Companies' low-income residential customers. All work is completed pursuant to appropriate government permits and inspected as required. Due care is used to assure that all services, materials and supplies are of good quality, reasonably priced, and installed in a professional manner and all contractors are duly qualified to complete the work they have been assigned. Energy conservation services are to be performed throughout the Companies' service territories.</p>

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	<p><u>Low-Income New Homes:</u></p> <p>This new sub-program encourages the construction of new energy efficient housing or major rehabilitation of existing housing in the low-income sector through the application of building shell, installed measures, and other related building improvements. Under this sub-program homes must be constructed to exceed the current adopted building code or meet the requirements for the applicable ENERGY STAR® standard.</p>
Implementation strategy (including expected changes that may occur in different program years)	<p>For the Community Connections sub-program, the services will be delivered by OPAE and subcontracted to community-based agencies. Participation by low-income customers in other programs will be tracked or estimated to support reporting and evaluation.</p> <p>For the Low Income New Homes sub-program, implementation will be outsourced to a Program Implementation Vendor (“Vendor”) who will be responsible for the marketing, outreach, enrollment and program services.</p> <p>The Companies plan to select the vendor in a timeframe that supports program implementation in early 2017.</p>
Program issues and risks and risk management strategy	<p>The Companies expect minimal risks for the Community Connections sub-program as the sub-program is already operational. OPAE will monitor program performance to mitigate emerging risks.</p> <p>For the Low Income New Home sub-program, the Companies expect some challenges with identifying income-qualified customers and recruiting and training contractors that construct low-income housing.</p>
Ramp-Up strategy	<p>For the Community Connections sub-program, the Companies anticipate a seamless transition and implementation upon Commission approval of the program. For the New Homes sub-program, it is anticipated that it will take at least three months to start up the program to launch after program approval.</p>
Marketing strategy	<p>Information regarding the Community Connections sub-program will be communicated both through OPAE and its related community-based agencies and the Companies’ call center and website.</p> <p>Marketing and outreach activities will target income-eligible customers and developers of low income housing to inform them of the Low Income New Homes program. Marketing activities will be coordinated with the Companies’ other programs and other state low-income programs.</p>

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Market Transformation Strategy (if applicable)	This program's strategy to transform the market toward higher market share of efficient electric appliances, products, and homes will be achieved through direct installation of efficient products and materials, efficient home construction and by educating customers about energy efficiency.
Eligible measures and incentive strategy, include tables for each year of program, as appropriate showing financial incentives & rebate levels (e.g., \$ per measure, \$ per kWh or MW saved)	<p>Electric energy conservation measures and client education include but are not limited to: Home energy audits, installation of CFLs, blower door tests, air sealing (such as weather stripping, caulking, foam), appliance replacement, insulation, cooling load reducing measures, electric hot water heat reducing measures, such as energy-saving shower heads and faucet aerators and limited health and safety measures. Qualified customers will receive, at no additional cost, electric energy conservation measures and customer energy education. Landlords of qualified low-income residential customers will receive similar measures at 50 percent of the cost. These improvements will result in more efficient electricity usage which will result in less electric consumption.</p> <p>For the New Homes sub-program, please see Appendix C-3 for the available rebate/incentive amount.</p>
Non-Energy Benefits	The installation of high efficiency measures may result in lower carbon and other greenhouse gas emissions, and lower societal costs through reduced energy bills.
Other information deemed appropriate	Energy efficiency measures must meet the State of Ohio Weatherization Program standards, must satisfy the TRC test or its equivalent as well as necessary EM&V requirements and/or be included in the Ohio TRM.

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Program Title and Program years during which program will be implemented	6. Customer Action Program (CAP) - Residential 2017 - 2019
Objective(s) and program metrics	CAP captures energy savings and peak demand reductions achieved through actions taken by customers outside of utility-administered programs pursuant to R.C. 4928.662. This will be accomplished by employing a variety of approaches to capture customer and market information, which may include, but are not limited to, surveying efforts; market research; reports from retailers and trade allies; site verification visits; and other evaluation, measurement and verification activities.
Target market (including participation requirements)	The target market for this program is residential customers who take actions outside of utility incentives to reduce energy usage.
Program approach, rationale and description	The Companies will work with the Evaluation, Measurement and Verification (EM&V) Consultant to employ a variety of EM&V approaches that will be used depending on the specific measure to support claimed savings. CAP savings may be supported by independent evaluator surveys to obtain data supporting verified energy savings. The survey would collect information such as customer demographics, customer building characteristics including, heating and cooling systems, lighting, 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 visits may also be conducted for a sample of customers to collect information regarding the characteristics of the building structure (e.g., insulation levels) and of space conditioning equipment, and for installed conservation measures. Market data on the distribution of energy efficient products may be 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 in the Companies' service territories.
Implementation strategy (including expected changes that may occur in different program years)	A qualified EM&V Consultant will conduct market research to a statistical confidence level in order to extrapolate findings to the population of residential customers in the Companies' service territories.
Program issues and risks and risk management strategy	Risks associated with this program primarily relate to the availability of market data.
Ramp-Up strategy	The Companies intend to direct their EM&V Consultant to begin collecting market data from customers, and other applicable resources during the first quarter of 2017.

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Marketing strategy	Not applicable.
Market Transformation Strategy (if applicable)	Not applicable.
Eligible measures and incentive strategy, include tables for each year of program, as appropriate showing financial incentives & rebate levels (e.g., \$ per measure, \$ per kWh or MW saved)	<p>Measures that produce energy savings and peak demand reductions achieved through actions taken by customers outside of utility-administered programs pursuant to R.C. 4928.662 are eligible for CAP.</p> <p>Incentives will not be paid for this program; however, commitment payments may be made to customers, and other applicable entities for the procurement of market data.</p>
Non-Energy Benefits	Reduced possible future expenses for customers with the ability to count savings towards benchmarks that are occurring in the future.
Other information deemed appropriate	None.

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3.3. *Small Enterprise Programs*

Table 8

Prior Program Name	New Program Name	Program Description
C&I Energy Efficient Equipment Program - Small	C&I Energy Solutions for Business Program - Small	This program provides measures and financial incentives (prescriptive & performance) to small commercial and industrial customers, including small government and institutional customers, to purchase qualifying high efficiency measures, recycle inefficient appliances, retrofit specialized processes, applications or end uses to higher efficiency processes, applications and end-uses, complete qualifying high efficiency building shell or system improvements, to complete an audit with qualifying audit installations or recommendations and to achieve energy savings by adapting energy saving behaviors through energy management strategies.
C&I Energy Efficient Buildings Program - Small		
N/A	Customer Action Program - SCI	The program captures energy savings and peak demand reductions achieved through actions taken by customers outside of utility-administered programs pursuant to R.C. 4928.662

The table below details each measure that is offered in the programs listed in Table 9 and whether it is a previous or new measure:

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Table 9: Proposed C/I Small Enterprise Portfolio

Sector	Program Name	Sub-Program	Measure Name	Status
Small Enterprise	C&I Energy Solutions for Business Program - Small	HVAC - SCI	Room Air Conditioner - SCI	Prior
			Air Conditioning - <=5.4 Tn - SCI	Prior
			Air Conditioning - >5.4 < 20 Tn - SCI	Prior
			Air Conditioning - >=20 Tn - SCI	Prior
			Chiller - Water Cld w Full Load - SCI	Prior
			Heat Pump - <=5.4 Tn - SCI	Prior
			Heat Pumps - >5.4 Tn - SCI	Prior
			Heat Pumps - Water & GeoT - SCI	Prior
			HVAC - Maintenance - SCI	Prior
			Circulation Pumps - SCI	New
			Ductless Mini-Split HP - SCI	Prior
			PTAC - SCI	Prior
			PTHP - SCI	Prior
		Lighting - SCI	CFL Fixtures - SCI	Prior
			CFL Lamps - SCI	Prior
			Lighting Controls (Daylight & Occupancy) - SCI	Prior
			Linear Fluorescent T8 / T5 - SCI	Prior
			LED Linear - SCI	Prior
			LED Channel Signage - SCI	Prior
			Exit Signs - SCI	Prior
			LED Fixtures External - SCI	Prior
			LED Fixtures Internal - SCI	Prior
			LED Lamps - SCI	Prior
			LED Reach in Refrigerator / Freezer Lights - SCI	Prior
			Street & Area Lighting (Customer Owned) - SCI	Prior
		Food Service	Refrigerators - Reach In - SCI	Prior
			Freezers - Reach In - SCI	Prior
			Ice Machines - SCI	Prior
			Refrigerated Case Cover - SCI	Prior
			Strip Curtains - SCI	Prior
			Anti Sweat Heater Controls - SCI	Prior
			Beverage Vending Machine - Controls - SCI	Prior
			Beverage Vending Machine - New EE- SCI	New
			Combination Oven - SCI	Prior
			Convection Oven - SCI	Prior
			Steam Cookers - SCI	Prior
			Fryers - SCI	Prior
			Griddles - SCI	Prior
			Hot Food Holding Cabinet - SCI	Prior
		Appliance Turn In - SCI	Refrigerator Recycling - SCI	Prior
			Freezer Recycling - SCI	Prior
			Room Air Conditioner Recycling - SCI	Prior
			Dehumidifiers Recycling - SCI	New
		Appliances - SCI	Clothes Washer - SCI	Prior
			Clothes Dryer (Elec w Moisture Sensor) - SCI	New
			Refrigerators - SCI	Prior
			Water Heater - Heat Pump - SCI	Prior
			Freezers - SCI	Prior
			Pre-Rinse Sprayers - SCI	Prior

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Sector	Program Name	Sub-Program	Measure Name	Status
Small Enterprise	C&I Energy Solutions for Business Program - Small	Consumer Electronics - SCI	Uninterruptible Power Supply - SCI	New
			Monitors - SCI	New
			Computers - SCI	New
			Imaging - SCI	New
			Small Network - SCI	New
		Agricultural	Efficient Dairy Equipment - SCI	New
			High Efficiency Fans - SCI	New
		Data Centers - SCI	DC - Custom Servers- SCI	Prior
			DC - Custom HVAC - SCI	Prior
			DC - Audit - SCI	Prior
		Custom - SCI	Custom - Process Improvement - SCI	Prior
			Custom - HVAC & Chillers - SCI	Prior
			Custom - Compressed Air - SCI	Prior
			Custom - VFDs < 10HP - SCI	Prior
			Custom - VFDs > 10 HP - SCI	Prior
			Custom-Motors - Three Phase - SCI	Prior
			Custom - Refrigeration - SCI	Prior
		Retro - Commissioning - SCI	Custom Retrocommissioning - SCI	Prior
		Custom Buildings - SCI	Custom - Building Improvements - SCI	Prior
			Custom - Energy Management - SCI	Prior
		Audits & Education - SCI	Energy Manager - SCI	New
			Energy Efficiency Measures - SCI	Prior
			Multi Family Audit - SCI	New
			Benchmarking - SCI	New
			Audit - SCI	Prior
			Audits w Direct Install - SCI	New
			Behavioral - SCI	New
	Customer Action Program - SCI	Customer Action Program - SCI	Customer Action Program - SCI	Prior

Below is a summary of all of this sector's programs being proposed in these Plans:

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Program Title and Program years during which program will be implemented	7. C&I Energy Solutions for Business Program - Small 2017 - 2019
Objective(s) and program metrics	<p>The program is a reactivation and consolidation of the previous C&I Energy Efficient Equipment Program – Small and the Energy Efficient Building Program – Small. In addition, the program contains new sub-programs for the Agricultural and Data Center customer sectors and end uses, and for Consumer Electronics and Retro-Commissioning.</p> <p>The primary objective of the program is to accelerate the adoption and increase the market share of high efficiency equipment and to increase the efficiency of buildings among commercial and industrial customers by reducing the first cost of high efficiency equipment or building improvements. This program includes the following sub-programs:</p> <ul style="list-style-type: none"> ➤ HVAC ➤ Lighting ➤ Food Service ➤ Appliance Turn-In ➤ Appliances ➤ Consumer Electronics (New) ➤ Agriculture (New) ➤ Data Centers (New) ➤ Custom ➤ Retro-Commissioning (New) ➤ Custom Buildings ➤ Audits and Education <p>Relevant metrics are provided in Appendices B and C.</p>
Target market (including participation requirements)	Commercial, industrial, and municipal customers in the Companies' service territories.
Program approach, rationale and description	This program will provide incentives to the small commercial and industrial customer who implements qualifying high efficiency measures, recycles inefficient appliances or retrofits specialized processes and applications to higher efficiency process and applications, implements qualifying high efficiency building shell or systems improvements, completes an energy efficiency audit or

utilizes energy management services. Prescriptive and performance incentives are intended to reduce the customer's investment for qualifying high efficiency measures thereby encouraging the adoption of higher efficiency equipment and buildings.

This program includes the following sub-programs:

HVAC

HVAC measures are intended to encourage customers to maintain or install more efficient HVAC equipment in an effort to reduce both energy consumption and demand in the HVAC end use category. The Plan proposes traditional and newer efficiency measures within this grouping as listed in the table above. Prescriptive or performance based incentives will be provided to encourage customers to perform maintenance on existing units to ensure baseline performance levels are being met, to upgrade less efficient HVAC equipment to higher efficiency units, and to install HVAC system controls, in order to improve system operation and decrease system run hours. These program measures are selected and designed to encourage the customer to retrofit existing systems, implement controls and install newer energy efficiency measures.

Lighting

Lighting measures are intended to encourage customers to install more efficient lighting equipment in an effort to reduce both energy consumption and demand in the lighting end use category. The Plan proposes measures within this grouping as listed in the table above. Only Specialty CFLs are eligible under the CFL Lamps measure. Prescriptive and performance based incentives will be provided to customers for upgrading less efficient lighting systems to higher efficiency lighting and controls. Prescriptive incentives may be offered for individual lighting applications and smaller retrofit projects employing standard efficient lighting technologies. Performance based incentives will be offered for higher efficient technologies as well as larger projects and retrofits, based on kWh savings. These program measures are designed to encourage customer renovation of existing lighting systems and to install newer energy efficiency measures by not limiting the reward to standard efficient lighting technologies. This offering will allow for future market development that can bring even greater energy savings without modification of the program design.

Food Service

Food service / commercial kitchens measures within the C&I Energy Solutions for Business Program - Small are intended to

encourage customers to install more efficient food service equipment in an effort to reduce both energy consumption and demand in the food service sector. The Plans propose traditional, ENERGYSTAR® rated or other efficient equipment, and newer efficiency measures within this grouping as listed in the table above. Prescriptive incentives will be offered for retrofits of existing, and for the installation of new, energy efficient systems and equipment. These program measures are designed to encourage customers to retrofit existing food service equipment, implement equipment controllers or to install newer energy efficiency measures.

Appliance Turn-In

Appliance recycling measures within the C&I Energy Solutions for Business Program - Small are intended to encourage customers to recycle inefficient refrigerators, freezers, room air conditioners and dehumidifiers.

Appliances

Prescriptive-based incentives will be provided to consumers and financial incentives and support to retailers that sell energy efficient products, such as ENERGY STAR® qualified appliances. Water Heating measures within the Appliance sub-program are intended to encourage customers to install more efficient water heating equipment in an effort to reduce both energy consumption and demand in the water heating end use. Prescriptive based incentives will be provided to customers for upgrading less efficient Domestic Hot Water (DHW) equipment.

Consumer Electronics (New)

Prescriptive based incentives will be provided to consumers and financial incentives and support to retailers that sell energy efficient consumer electrics, such as ENERGY STAR® qualified electronics.

Agriculture (New)

The new agriculture sub-program consists of end-use measures that are intended to encourage agriculture customers to install energy efficient equipment in an effort to reduce both energy consumption and demand in the agricultural customer sector. Prescriptive based incentives will be provided to end users and support will be provided to retailers that sell energy efficient equipment related to the milking, cooling, ventilation and water systems on farms.

Data Centers (New)

This is a new targeted sub-program that will increase focus on customers with data center facilities and related equipment, including assessments or audits to identify opportunities for energy efficiency improvements. Prescriptive and performance based incentives will be provided to customers for upgrading less efficient specialized processes and applications (e.g. servers, UPS systems, HVAC equipment, etc.) to high efficiency specialized processes and applications.

Custom

Custom measures within the C&I Energy Efficient Equipment Program - Small are intended to encourage customers to retrofit or install more efficient specialized processes and applications in an effort to reduce both energy consumption and demand. Calculated or performance based incentives will be provided to customers for upgrading less efficient specialized processes and applications (e.g., combined heat and power, variable frequency drives, motors, compressed air leakage reduction, equipment replacement, process change, etc.) to high efficiency specialized processes and applications.

Retro-Commissioning (New)

The Retro-Commissioning sub-program within the Energy Efficient Buildings Program - Small is intended to encourage customers to gain and utilize certified building system operation training and energy management systems to reduce energy consumption by improving building energy performance. A systematic process will be used to identify less-than-optimal performance in the facility's equipment, lighting and control systems and make the necessary adjustments to restore the equipment to optimal performance.

Custom Buildings

The Custom Buildings sub-program is intended to encourage customers to install specialized building shell improvements to reduce energy consumption and demand by improved building energy performance.

This program provides financial support through incentives for the implementation of cost effective, high efficiency measures to improve building energy performance by commercial and industrial customers. Performance incentives will be provided to customers for installing highly specialized custom building shell improvements.

Audits and Education

The measures within this sub-program consists of multiple paths for a participating customer to receive an energy audit

and analytics that focuses on the energy usage of the building and the end use equipment, with the overall goal of installing more efficient end-use equipment and providing customers with energy usage analytics that will help implement energy management type strategies.

The measures included in the sub-program are:

Audits: The audit measure is intended to encourage customers to complete a detailed third party energy efficiency audit for commercial and industrial operational or manufacturing processes, building shell/envelope or building systems, or for targeted energy analysis and audits of individual processes or systems. This program will provide financial support through incentives toward the customer's cost of the audit and implementation of qualifying audit recommended energy efficiency improvements.

Audits with Direct Install (DI) Measures: The audit with DI measures is intended to provide an energy audit/assessment with technical assistance provided to document the building's existing equipment and efficiency opportunities prior to installation of efficiency measures. The direct installation of qualified energy efficiency measures will be provided with additional incentive for comprehensive retrofits.

Energy Manager Services: This service consists of providing an Energy Management professional that will work directly with small commercial and industrial customers to assess energy usage and identify low cost or no cost solutions. This is commonly referred to "Track and Tune" because it will focus on implementing improvements with little capital expenditures.

Benchmarking Services: This service will provide building owners and property managers with a quantitative analysis for their building's energy performance. Benchmarking is normally done to peer buildings to compare performance metrics. The program will utilize EnergyStar® or similar benchmarking tools for the analysis. Remote audits may also be utilized to provide benchmarking type analyses.

Behavioral: The Behavioral measure is designed to engage and provide customers with specific information about their energy usage as well as analysis regarding their usage over time and benchmarking, including development of specific recommendations for conserving energy, energy

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	<p>efficiency and other energy efficiency program opportunities that are available to them.</p> <p><u>Energy Efficiency Kits:</u> The Energy Efficiency Kits sub-program is intended to educate customers on the benefits of simple energy efficiency measures and other opportunities to accelerate the adoption and increase the market share of high efficiency equipment in the small business sector, including non-residential metered multifamily buildings, to improve building energy performance in an effort to reduce both energy consumption and demand. Provided items may include, but not be limited to: Educational Materials, Specialty CFLs, LEDs, and Faucet Aerators. EE Kit contents may also be customized to target specific customer end-uses (e.g. electric water heating, refrigeration). This sub-program provides cost effective measures and promotes customer participation and adoption of more comprehensive measures.</p> <p>Potential enhancements to this program include working with customers, manufacturers, allies, wholesalers and retailers including mid/up-stream incentives on select measures, other methods for providing incentives and other rebate application processes based on market considerations and opportunities that are identified during program implementation.</p>
<p>Implementation strategy (including expected changes that may occur in different program years)</p>	<p>The Companies will outsource implementation of this program and sub-programs to one or more qualified Program Implementation Vendors (“Vendors”) who will be responsible for providing program services, marketing, outreach, application processing and documentation regarding purchased products and rebate fulfillment.</p> <p>As part of this program and the Residential Energy Efficient Homes Program, the Companies will implement an integrated multifamily program offering to target both basic and comprehensive services for both individually metered and master metered multifamily properties.</p> <p>The Companies will encourage Vendors who target specific customer segments or end uses (e.g. agriculture, food service) to respond to request-for-proposals, where applicable. The Companies intend to contract on a performance basis to insure creativity and motivation toward obtaining participation and meeting the program goals.</p> <p>The Companies plan to select the Vendors in a timeframe that supports program implementation in early 2017.</p>
<p>Program issues and risks and risk management strategy</p>	<p>The risks associated with this program primarily involve obtaining sufficient customers to participate in the program. Well established and innovative marketing and outreach techniques will be used to</p>

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	<p>promote the participation in the program. The Companies will monitor the program performance and adjust marketing, outreach and/or incentive levels or approaches where applicable to mitigate this risk. Business climate may require customer fees or contributions to be reduced or waived in order to encourage participation.</p>
Ramp-Up strategy	<p>The Companies anticipate a timely implementation in early 2017.</p>
Marketing strategy	<p>The objective of the program is to promote the installation of energy efficient equipment and to improve the energy efficiency of buildings which will increase the market demand for those measures, thereby increasing customer awareness, measure availability and lower prices for energy efficiency measures. Marketing activities will target eligible customers to inform them of the program changes and the new measure, its components, and the associated benefits through bill inserts, direct mail, website, trade shows, the business customer newsletter, and key account managers. The Companies will hold outreach activities for their multifamily program annually across their service territories and will work with distributors and contractors to market eligible higher efficiency equipment.</p> <p>Additionally, company resources will be utilized to conduct outreach to their constituents regarding program availability. Company personnel (e.g. Area Managers and Customer Support Representatives) will be charged with providing first line contacts to eligible customers within target market segments. The Program Implementation Providers and/or Program Managers will be responsible for ultimate program marketing. The Companies will contract with experienced Program Implementation Providers and/or Program Managers on a performance basis to insure creativity and motivation in marketing strategies toward obtaining the program's participation and energy saving goals.</p>
Market Transformation Strategy (if applicable)	<p>The objective of the program is to promote the installation of energy efficient equipment which will increase market demand for those measures, thereby increasing customer awareness, EE product availability and lowering EE product prices.</p>
Eligible measures and incentive strategy, include tables for each year of program, as appropriate showing financial incentives & rebate levels (e.g., \$ per measure, \$ per kWh or MW saved)	<p>This program has been designed based on applying established efficient conditions for certain applicable measures. Given the potential of changing standards and specifications for the eligible products under the program during the term of this Plan, to maintain program continuity and implement timely on-going energy efficiency improvements, the Companies may implement tier level or incentive changes for certain applicable measures in conjunction with future specification changes.</p>

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	<p>Proposed measures with their eligibility and rebate strategy can be found in Appendix C-3.</p> <p>The Companies will promote and incent CHP projects under the Custom subprogram. Details, requirements, and incentive structure for CHP projects will be clearly established and updated as necessary, however incentives will not be reduced less than the floor established, subject to budget constraints and/or program requirements.</p> <p>The Companies will promote heat pump water heaters and circulation pumps through a mid-stream or upstream approach, and for other measures will provide incentives after customers have installed qualified energy efficient measures. The Companies may provide mid-stream or up-stream incentive strategies to enhance program delivery for other measures, with such rebates and program costs within the approved incentive ranges and program budgets.</p>
Non-Energy Benefits	<p>Due to the longer life of some high efficiency equipment, customers do not need to maintain or replace consumables as often thus reducing the customers operation and maintenance costs.</p>
Other information deemed appropriate	<p>None.</p>

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Program Title and Program years during which program will be implemented	8. Customer Action Program (CAP) – Small C/I 2017 - 2019
Objective(s) and program metrics	CAP captures energy savings and peak demand reductions achieved through actions taken by customers outside of utility-administered programs pursuant to R.C. 4928.662. This will be accomplished by employing a variety of approaches to capture customer and market information, which may include, but are not limited to, surveying efforts; market research; reports from administrators and trade allies; site verification visits; and other evaluation, measurement and verification activities.
Target market (including participation requirements)	The target market for this program is C&I customers who take actions outside of utility incentives to reduce energy usage.
Program approach, rationale and description	The Companies will work with the Evaluation, Measurement and Verification (EM&V) Consultant to employ a variety of EM&V approaches that will be used depending on the specific measure to support claimed savings. Customer Action Program savings may be supported by independent evaluator surveys to obtain data supporting verified energy savings. The survey would collect information such as customer demographics, customer building characteristics including, heating and cooling systems, lighting and controls, 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. The Companies and independent evaluators may also work with retailers, administrators and trade allies to obtain project specific information. On-site visits may also be conducted for a sample of customers to collect information regarding the characteristics of the building structure (e.g., insulation levels) and of space conditioning equipment, and for installed conservation measures.
Implementation strategy (including expected changes that may occur in different program years)	A qualified EM&V Consultant will conduct market research to a statistical confidence level in order to extrapolate findings to the population of C&I customers in the Companies' service territories.
Program issues and risks and risk management strategy	Risks associated with this program primarily relate to the availability of market data.
Ramp-Up strategy	The Companies intend to direct their EM&V Consultant to begin collecting market data from customers, trade allies, administrators and other applicable resources during the first quarter of 2017.
Marketing strategy	Not applicable.

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Market Transformation Strategy (if applicable)	Not applicable.
Eligible measures and incentive strategy, include tables for each year of program, as appropriate showing financial incentives & rebate levels (e.g., \$ per measure, \$ per kWh or MW saved)	<p>Measures that produce energy savings and peak demand reductions achieved through actions taken by customers outside of utility-administered programs pursuant to R.C. 4928.662 are eligible for CAP.</p> <p>Incentives will not be paid for this program; however, commitment payments may be made to customers, trade allies, administrators and other applicable entities for the procurement of market data.</p>
Non-Energy Benefits	Reduced possible future expenses for customers with the ability to count savings towards benchmarks that are occurring in the future.
Other information deemed appropriate	None.

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3.4. *Mercantile-Utility Programs (Large Enterprise) program summaries – indicate which programs are new or continuing.*

Table 10

Prior Program Name	New Program Name	Program Description
C&I Energy Efficient Equipment Program - Large	C&I Energy Solutions for Business Program - Large	This program provides measures and financial incentives (prescriptive & performance) to small commercial and industrial customers, including small government and institutional customers, to purchase qualifying high efficiency measures, recycle inefficient appliances, retrofit specialized equipment, processes, applications or end uses to higher efficiency equipment, processes, applications and end-uses, complete qualifying high efficiency building shell or system improvements, to complete an audit with qualifying audit installations or recommendations and to achieve energy savings by adapting energy saving behaviors through energy management strategies.
C&I Energy Efficient Buildings Program - Large		
Demand Reduction Program	C&I Demand Response Program - Large	The program captures load curtailment and curtailable capacity from the Companies' Interruptible Load Program (Economic Load Response Rider) and from additional demand resources including resources participating in the PJM market or through contracts for demand response attributes with customers or PJM CSPs.
Customer Action Program	Customer Action Program - LCI	The program captures energy savings and peak demand reductions achieved through actions taken by customers outside of utility-administered programs pursuant to R.C. 4928.662

The table below details each measure that is offered in the programs listed in Table 11 and whether it is a previous or new measure:

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Table 11: C/I Large Enterprise Portfolio

Sector	Program Name	Sub-Program	Measure Name	Status
Large Enterprise (Mercantile Utility)	C&I Energy Solutions for Business Program - Large	HVAC - LCI	Air Conditioning - <=5.4 Tn - LCI	Prior
			Chiller - Water Cld w Full Load - LCI	Prior
			Air Conditioning - >5.4 < 20 Tn - LCI	Prior
			Air Conditioning - >=20 Tn - LCI	Prior
			Heat Pump - <=5.4 Tn - LCI	Prior
			Heat Pumps - >5.4 Tn - LCI	Prior
			Heat Pumps - Water & GeoT - LCI	Prior
			Ductless Mini-Split HP - LCI	Prior
			PTAC - LCI	New
			PTHP - LCI	New
		Lighting - LCI	CFL Fixtures - LCI	Prior
			CFL Lamps - LCI	Prior
			Lighting Controls (Daylight & Occupancy) - LCI	Prior
			Linear Fluorscent T8 / T5 - LCI	Prior
			LED Linear - LCI	Prior
			LED Channel Signage - LCI	Prior
			Exit Signs - LCI	Prior
			LED Fixtures External - LCI	Prior
			LED Fixtures Internal - LCI	Prior
			LED Lamps - LCI	Prior
		Street & Area Lighting (Customer Owned) - LCI	Prior	
		Data Centers - LCI	DC - Custom HVAC - LCI	Prior
			DC - Custom Servers - LCI	Prior
			DC - Audit - LCI	Prior
		Custom - LCI	Custom - Process Improvement - LCI	Prior
			Custom - HVAC & Chillers - LCI	Prior
			Custom - Compressed Air - LCI	Prior
			Custom - VFDs < 10HP - LCI	Prior
			Custom - VFDs > 10 HP - LCI	Prior
			Custom-Motors - Three Phase - LCI	Prior
			Custom - Refrigeration - LCI	Prior
		Retro - Commissioning - LCI	Custom Retrocommissioning - LCI	Prior
		Custom Buildings - LCI	Custom - Building Improvements - LCI	Prior
	Custom - Energy Management - LCI		Prior	
	Audits & Education - LCI	Audit - LCI	Prior	
		Energy Manager - LCI	New	
		Benchmarking - LCI	New	
C&I Demand Response Program - Large	Demand Response - LCI	LC&I Contracted DR - PJM	Prior	
ELR Interruptible Tariff		Prior		
Customer Action Program - LCI	Customer Action Program - LCI	Customer Action Program - LCI	Prior	

Below is a summary of all of this sector's program summaries being proposed in these Plans:

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Program Title and Program years during which program will be implemented	9. C&I Energy Solutions for Business Program - Large 2017 - 2019
Objective(s) and program metrics	<p>The program is a reactivation and consolidation of the previous Energy Efficient Equipment Program – Large and the Energy Efficient Buildings Program – Large. In addition, the program contains a new targeted sub-program for the Data Center customer sector.</p> <p>The primary objective of the program is to accelerate the adoption and increase the market share of high efficiency equipment and to increase the efficiency of industrial processes and buildings among commercial and industrial customers by reducing the first cost of high efficiency equipment, processes and systems, or building improvements. This program includes the following sub-programs:</p> <ul style="list-style-type: none"> ➤ HVAC ➤ Lighting ➤ Data Centers (New) ➤ Custom ➤ Retro-Commissioning ➤ Custom Buildings ➤ Audits and Education <p>Relevant metrics are provided in Appendices B and C.</p>
Target market (including participation requirements)	Commercial, industrial, and municipal customers in the Companies’ service territories.
Program approach, rationale and description	<p>This program will provide financial support through incentives to the commercial and industrial customer who implements qualifying high efficiency measures, retrofits specialized processes and applications to higher efficiency processes and applications, implements qualifying high efficiency building shell or systems improvements, completes an energy efficiency audit or utilizes energy management services. Prescriptive and performance incentives are intended to reduce customer’s investment for qualifying high efficiency measures thereby encouraging the adoption of higher efficiency equipment, processes, systems and buildings.</p> <p>This Program includes the following sub-programs:</p>

HVAC

HVAC measures within the C&I Energy Efficient Solutions for Business Program – Large are intended to encourage customers to install more efficient HVAC equipment in an effort to reduce both energy consumption and demand in the HVAC end use category. The Plans propose traditional and newer efficiency measures within this grouping as listed in the table above. Prescriptive or performance based incentives will be provided to encourage customers to perform maintenance on existing units to ensure baseline performance levels are being met, to upgrade less efficient HVAC equipment to higher efficiency units, and to install HVAC system controls, in order to improve system operation and decrease system run hours. These program measures are selected and designed to encourage the customer to retrofit existing systems, implement controls and install newer energy efficiency measures.

Lighting

Lighting measures within the C&I Energy Solutions for Business Program - Large are intended to encourage customers to install more efficient lighting equipment in an effort to reduce both energy consumption and demand in the lighting end use category. The Plan proposes measures within this grouping as listed in the table above. Only Specialty CFLs are eligible under the CFL Lamps measure. Prescriptive and performance based incentives will be provided to customers for upgrading less efficient lighting systems to higher efficiency lighting and controls. Prescriptive incentives may be offered for individual lighting applications and smaller retrofit projects employing standard efficient lighting technologies. Performance based incentives will be offered for higher efficient technologies as well as larger projects and retrofits, based on kWh savings. These program measures are designed to encourage customer renovation of existing lighting systems and to install newer energy efficiency measures by not limiting the reward to standard efficient lighting technologies. This offering will allow for future market development that can bring even greater energy savings without modification of the program design.

Data Centers (New)

This is a new targeted sub-program within the C&I Energy Solutions for Business Program - Large that will increase focus on customers that have data center facilities and related equipment, including assessments or audits to identify opportunities. Prescriptive and performance based incentives will be provided to customers for upgrading less efficient specialized processes and applications (e.g. servers, UPS

systems, HVAC equipment, etc.) to high efficiency specialized processes and applications.

Custom

Custom measures are intended to encourage customers to retrofit to or install more efficient specialized processes and applications (e.g., combined heat and power, variable frequency drives, motors, compressed air leakage reduction, equipment replacement, process change, etc.) in an effort to reduce both energy consumption and demand. Performance based incentives will be provided to customers for upgrading less efficient specialized processes and applications to high efficiency specialized processes and applications.

Retro-Commissioning

This sub-program is intended to encourage customers to gain and utilize certified building system operation training and energy management systems to reduce energy consumption by improving building energy performance. A systematic process will be used to identify less-than-optimal performance in the facility's equipment, lighting and control systems and make the necessary adjustments to restore the equipment to optimal performance.

Custom Buildings

The Custom Buildings sub-program is intended to encourage customers to install specialized building shell improvements to reduce energy consumption and demand by improved building energy performance.

This program provides financial support through incentives for the implementation of cost effective, high efficiency measures to improve building energy performance by commercial and industrial customers. Performance incentives will be provided to customers for installing highly specialized custom building shell improvements.

Audits and Education

The audit measures within this sub-program consists of multiple paths for a participating customer to receive an energy audit and analytics that focuses on the energy usage of the building and the end use equipment, with the overall goal of installing more efficient end-use equipment and providing customers with energy usage analytics that will help implement energy management type strategies.

The measures included in the sub-program are:

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	<p><u>Audits:</u> The audit measure is intended to encourage customers to complete a detailed third party energy efficiency audit for commercial and industrial operational or manufacturing processes, building shell/envelope or building systems, or for targeted energy analysis and audits of individual processes or systems. Customers served at or above the primary voltage level may apply for up to two targeted energy audits per building, not to exceed four targeted energy audits per site. This program will provide financial support through incentives toward the customer's cost of the audit and implementation of qualifying audit recommended energy efficiency improvements.</p> <p><u>Energy Manager Services:</u> This service consists of providing an Energy Management professional that will work directly with commercial and industrial customers to assess energy usage and identify low cost or no cost solutions. This is commonly referred to "Track and Tune" type analysis because it will focus on implementing improvements with little capital expenditures.</p> <p><u>Benchmarking Services:</u> This service will provide building owners and property managers with a quantitative analysis of their building's energy performance. Benchmarking is normally applied to buildings with similar customer sectors (e.g. Hospitals, lodging, etc.) to compare energy usage performance metrics. The program will utilize EnergyStar® or similar benchmarking tools for the analysis. Remote audits may also be utilized to provide benchmarking type analyses.</p> <p>Potential enhancements to this program include working with customers, manufacturers, allies, wholesalers and retailers including mid/up-stream incentives on select measures, other methods for providing incentives and other rebate application processes based on market considerations and opportunities that are identified during program implementation.</p>
Implementation strategy (including expected changes that may occur in different program years)	<p>The Companies will outsource implementation of this program and sub-programs to one or more qualified Program Implementation Vendors ("Vendors") who will be responsible for providing program services, marketing, outreach, application processing and documenting details regard purchased products and fulfilling rebate requests.</p> <p>The Companies will encourage Vendors who target specific customer segments or end uses (e.g. Data Centers, Retro-Commissioning) to respond to request-for-proposals, where applicable. The Companies intend to contract on a performance</p>

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	<p>basis to insure creativity and motivation toward obtaining participation and meeting the program goals.</p> <p>The Companies plan to select the Vendors in a timeframe that supports program implementation in early 2017.</p>
Program issues and risks and risk management strategy	<p>The risks associated with this program primarily involve obtaining sufficient customers to participate in the program. Well established and innovative marketing and outreach techniques will be used to promote the participation in the program. The Companies will monitor the program performance and adjust marketing, outreach and/or incentive levels or approaches where applicable to mitigate this risk. Business climate may require customer fees or contributions to be reduced or waived in order to encourage participation.</p>
Ramp-Up strategy	<p>The Companies anticipate a timely implementation in early 2017.</p>
Marketing strategy	<p>The objective of the program is to promote the installation of energy efficient equipment and to improve the energy efficiency of buildings and industrial processes which will increase the market demand for those measures, thereby increasing customer awareness, measure availability and lower prices for energy efficiency measures. Marketing activities will target eligible customers to inform them of the program changes and the new measure, its components, and the associated benefits through bill inserts, direct mail, website, trade shows, the business customer newsletter, and key account managers. The Companies will work with distributors and contractors to market eligible higher efficiency equipment.</p> <p>Additionally, company resources will be utilized to conduct outreach to their constituents regarding program availability. Company personnel (e.g. Area Managers and Customer Support Representatives) will be charged with providing first line contacts to eligible customers within target market segments. The Program Implementation Providers and/or Program Managers will be responsible for ultimate program marketing. The Companies will contract with experienced Program Implementation Providers and/or Program Managers on a performance basis to insure creativity and innovation in marketing strategies toward obtaining the program's participation and energy saving goals.</p>
Market Transformation Strategy (if applicable)	<p>The objective of the program is to promote the installation of energy efficient equipment which will increase market demand for those measures, thereby increasing customer awareness, EE product availability and lowering EE product prices.</p>
Eligible measures and incentive strategy, include tables for each year of program, as appropriate showing	<p>This program has been designed based on applying established efficient conditions for certain applicable measures. Given the potential of changing standards and specifications for the eligible</p>

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financial incentives & rebate levels (e.g., \$ per measure, \$ per kWh or MW saved)	<p>products under the program during the term of this Plan, to maintain program continuity and implement timely on-going energy efficiency improvements, the Companies may implement tier level or incentive changes for certain applicable measures in conjunction with future specification changes.</p> <p>Proposed measures with their eligibility and rebate strategy can be found in Appendix C-3.</p> <p>The Companies will promote and incent CHP projects under the Custom subprogram. Details, requirements, and incentive structure for CHP projects will be clearly established and updated as necessary, however incentives will not be reduced less than the floor established, subject to budget constraints and/or program requirements.</p> <p>In addition to providing incentives after customers have installed qualified energy efficient measures, the Companies may provide mid-stream or up-stream incentive strategies to enhance program delivery for select measures, with such rebates and program costs within the approved incentive ranges and program budgets.</p>
Non-Energy Benefits	<p>Due to the longer life of some high efficiency equipment, customers do not need to maintain or replace consumables as often thus reducing the customers operation and maintenance costs.</p>
Other information deemed appropriate	<p>None.</p>

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Program Title and Program years during which program will be implemented	10. Demand Reduction Program 2017 - 2019
Objective(s) and program metrics	<p>This is a continuation of the Companies' existing program including the demand response resources participating in the PJM market for the applicable delivery year. The program includes the existing Economic Load Response Program Rider (ELR) and Contracted Demand Resources measures.</p> <p>The primary objective of this program is obtaining demand response resources including load curtailment, resources participating in the PJM market or contracts for demand response attributes with customers or PJM Curtailment Service Providers (CSPs). This program provides financial support through the Companies' Tariffs and incentives to Commercial and Industrial customers who contract for the ability to curtail with the Companies or their Vendor.</p> <p>Relevant metrics are provided in Appendices B and C.</p>
Target market (including participation requirements)	<p><u>Interruptible Tariff</u></p> <p>Customers taking service under the Companies' Economic Load Response Program Rider (ELR).</p> <p><u>Contracted Demand Resources</u></p> <p>Customers taking service under Companies Rate Schedules GS, GP, GSU, or GT.</p>
Program approach, rationale and description	<p><u>Interruptible Tariff</u></p> <p>Please refer to the Companies' Riders ELR in their Electric Service Tariff for program description and rationale.</p> <p><u>Contracted Demand Resources</u></p> <p>The Companies will count demand response resources participating in the PJM market for the applicable delivery year through PJM CSPs. The Companies also have the ability to contract with customers or PJM CSPs for demand response attributes to supplement the resources participating in the PJM market when required. PJM CSPs will provide services to register customer curtailable load resources in the PJM markets and Company programs. The PJM CSPs will structure individual contracts with customers to participate in the PJM markets. Customer participation in the program and incentives will be according to the contracts established between the Companies or PJM CSP and the customer.</p>

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Implementation strategy (including expected changes that may occur in different program years)	This program is a continuation of the Companies' existing C&I Interruptible Load Program. The Companies' Economic Load Response Program Rider (ELR) is currently approved through May 31, 2024.
Program issues and risks and risk management strategy	To the extent that this program relies on individual contracted resources, the Companies are exposed to performance risk associated with an individual contracted resource's ability to curtail should an event or test event be called. If applicable, the Companies plan to mitigate this risk through targeting customers of sufficient size and technical knowledge to fully understand program commitments, as well as incorporating the demand response resources that are participating in the PJM markets.
Ramp-Up strategy	Not applicable.
Marketing strategy	<u>Interruptible Tariff</u> – N/A <u>Contracted Demand Resources</u> This program will utilize the marketing efforts of PJM CSPs, and Company Account Managers to provide customers with information on the Contracted Demand Resources measure and PJM programs that are available to them.
Market Transformation Strategy (if applicable)	Not applicable.
Eligible measures and incentive strategy, include tables for each year of program, as appropriate showing financial incentives & rebate levels (e.g., \$ per measure, \$ per kWh or MW saved)	Proposed measures with their eligibility and rebate strategy can be found in Appendix C-3.
Non-Energy Benefits	Reduces the need to build additional generating capacity which, in turn, may benefit the environment.
Other information deemed appropriate	None.

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Program Title and Program years during which program will be implemented	11. Customer Action Program (CAP) – Large C/I 2017 - 2019
Objective(s) and program metrics	CAP captures energy savings and peak demand reductions achieved through actions taken by customers outside of utility-administered programs pursuant to R.C. 4928.662. This will be accomplished by employing a variety of approaches to capture customer and market information, which may include, but are not limited to, surveying efforts; market research; administrators and trade allies; site verification visits; and other evaluation, measurement and verification activities.
Target market (including participation requirements)	The target market for this program is non-residential customers who take actions outside of utility incentives to reduce energy usage.
Program approach, rationale and description	The Companies will work with the Evaluation, Measurement and Verification (EM&V) Consultant to employ a variety of EM&V approaches that will be used depending on the specific measure to support claimed savings. Customer Action Program savings may be supported by independent evaluator surveys to obtain data supporting verified energy savings. The survey would collect information such as customer demographics, customer building characteristics including, heating and cooling systems, lighting and controls, 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. The Companies and independent evaluators may also work with administrators and trade allies to obtain project specific information. On-site visits may also be conducted for a sample of customers to collect information regarding the characteristics of the building structure (e.g., insulation levels) and of space conditioning equipment, and for installed conservation measures.
Implementation strategy (including expected changes that may occur in different program years)	A qualified EM&V Consultant will conduct market research to a statistical confidence level in order to extrapolate findings to the population of customers in the Companies' service territories.
Program issues and risks and risk management strategy	Risks associated with this program primarily relate to the availability of market data.
Ramp-Up strategy	The Companies intend to direct their EM&V Consultant to begin collecting market data from customers, trade allies, administrators and other applicable resources during the first quarter of 2017.
Marketing strategy	Not applicable.

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Market Transformation Strategy (if applicable)	Not applicable.
Eligible measures and incentive strategy, include tables for each year of program, as appropriate showing financial incentives & rebate levels (e.g., \$ per measure, \$ per kWh or MW saved)	<p>Measures that produce energy savings and peak demand reductions achieved through actions taken by customers outside of utility-administered programs pursuant to R.C. 4928.662 are eligible for CAP.</p> <p>Incentives will not be paid for this program; however, commitment payments may be made to customers, trade allies, administrators and other applicable entities for the procurement of market data.</p>
Non-Energy Benefits	Reduced possible future expenses for customers with the ability to count savings towards benchmarks that are occurring in the future.
Other information deemed appropriate	None.

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3.5. *Governmental program summaries – indicate which programs are new or continuing.*

For purposes of these Plans, the Companies included as their Government sectors all customers taking service under the rate schedules Street Lighting (“STL”) and Traffic Lighting (“TRF”) rate schedules STL and TRF.

Table 12

Prior Program Name	New Program Name	Program Description
Government Tariff Lighting Program	Government Tariff Lighting Program	The program provides financial incentives and support to customers for implementing energy efficient street lighting or traffic lighting technologies on customer owned and maintained installations.

The table below details each measure that is offered in the programs listed in Table 13 and whether it is a previous or new measure:

Table 13: Government Portfolio

Sector	Program Name	Sub-Program	Measure Name	Status
Government	Government Tariff Lighting Program	Government Tariff Lighting	LED - Traffic Signals - Gov	Prior
			Street & Area Lighting (Tariff / Utility Owned) - Gov	Prior
			Street & Area Lighting (Tariff / Customer Owned) - Gov	Prior

The Companies’ program for government sector customers focuses on customer owned Street Lighting and Traffic/Pedestrian Lighting technology. The opportunities are focused on retrofitting of older standard technology to new, more efficient lighting fixtures.

The Companies’ existing Government Lighting Program is being renamed the Government Tariff Lighting Program. While this program is specifically targeted to the government entities served on the Companies’ street and traffic lighting rate schedules, government facilities qualify for measures and services of other programs for non-residential customers, subject to each program’s eligibility rules.

Below is a summary of the Government program being proposed in these Plans:

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Program Title and Program years during which program will be implemented	12. Government Tariff Lighting Program 2017 – 2019
Objective(s) and program metrics	<p>The primary objective of this program is to accelerate the adoption and increase the energy efficiency of traffic or pedestrian signals and street or area lighting systems.</p> <p>Relevant metrics are provided in Appendices B and C.</p>
Target market (including participation requirements)	Government customers with traffic and public safety signals served under rate schedule TRF, and/or customers with street and area lighting systems served under the Customer Owned provision of rate schedule STL.
Program approach, rationale and description	<p>This program provides financial support through incentives for the implementation of customer owned and maintained, high efficiency measures to improve traffic and public safety, and/or street and area lighting by Government / Municipal customers. Incentives are intended to reduce customer's capital investment for selected high efficiency equipment and operations.</p> <p>The LED Traffic Signal Measure is targeted at local governments. This component of the program will seek to convert traffic control or public safety signals to LED technology.</p> <p>The Street and Area Lighting (tariff/customer owned) measure is offered to municipalities who convert or replace the lights with a higher efficient technology.</p> <p>Prescriptive incentives will be provided to customers for installing customer owned and maintained higher efficient lighting technologies.</p> <p>The Program also includes the Experimental Company Owned LED Lighting Tariff offering municipalities an option to upgrade to more efficient LED street and area lighting. On February 29, 2016, the Companies filed an application in Case No. 16-0470-EL-ATA requesting approval to extend the Experimental Company Owned LED Lighting Tariff through December 31, 2019, which the Commission approved on October 12, 2016. This program will continue to be offered on an experimental basis, to municipalities and governmental authorities that elect to take service from Company Owned LED lights for the lighting of streets, sidewalks, parks, and other public grounds. Program costs are not included in this Plan and will be recovered through Rate STL.</p>

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Implementation strategy (including expected changes that may occur in different program years)	<p>The Companies will contract with a qualified Program Implementation Vendor (“Vendor”) who will conduct the marketing and rebate fulfillment aspects of this program. Company resources will also be utilized to conduct outreach to their constituents regarding program availability. All existing measures will continue as implemented from the Previous EE/EDR Portfolio Plans into the 2017-2019 Plan.</p> <p>The Companies plan to select the vendor in a timeframe that supports program implementation in early 2017.</p>
Program issues and risks and risk management strategy	<p>Ramp-up may be slower than otherwise expected, due to, the long lead-in time needed for governmental budgeting processes. A customer education campaign that informs customers about the benefits of energy efficiency in general, as well as the specific benefits regarding energy efficiency will be utilized to accelerate ramp-up.</p>
Ramp-Up strategy	<p>The Companies anticipate a timely implementation in early 2017.</p>
Marketing strategy	<p>Marketing activities will target eligible customers to inform them of the program and measures, its components, and the associated benefits. Additionally, company resources will be utilized to conduct outreach to their constituents regarding program availability. Company personnel (e.g. Area Managers and Customer Support Representatives) will be charged with providing first line contacts to eligible customers within target market segments.</p>
Market Transformation Strategy (if applicable)	<p>The objective of the program is to promote the installation of energy efficient equipment which will increase market demand for those measures, thereby increasing customer awareness, EE product availability and lowering EE product prices.</p>
Eligible measures and incentive strategy, include tables for each year of program, as appropriate showing financial incentives & rebate levels (e.g., \$ per measure, \$ per kWh or MW saved)	<p>Proposed measures with their eligibility and rebate strategy can be found in Appendix C-3.</p>
Non-Energy Benefits	<p>Reduced operations and maintenance costs associated with traffic, street, and area lighting systems for local governments.</p>
Other information deemed appropriate	<p>None.</p>

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3.6. *Other program summaries – indicate which programs are new or continuing.*

For purposes of this Plan the Companies included all customers taking service under all rate schedules.

Table 14

Prior Program Name	New Program Name	Program Description
Mercantile Customer Program	Mercantile Customer Program	Captures energy efficiency and peak demand reduction projects committed to the Company by Mercantile customers as provided for by O.R.C. 4928.01 and 4928.66
T&D Improvements	Transmission & Distribution Upgrades	Capture savings achieved through various T&D projects that reduce line losses, which in turn results in a more efficient delivery system.
Smart Grid Modernization Initiative	Smart Grid Modernization Initiative	Captures energy savings from the project to produce an integrated system of protection, performance, efficiency and economy that extends across the energy delivery system.
N/A	Energy Special Improvement District	Incorporation of State Legislation that permits Ohio townships and municipalities to create Energy Special Improvement Districts offering constituents Property Assessed Clean Energy (PACE) financing for qualifying energy efficiency projects.

The table below details each measure that is offered in the programs listed in Table 15 and whether it is a previous or new measure:

Table 15: Other Portfolio

Sector	Program Name	Sub-Program	Measure Name	Status
Mercantile	Mercantile Customer Program	Mercantile	Mercantile Customer Projects	Prior
Other	Transmission & Distribution Upgrades	T&D Upgrades	Transmission & Distribution Upgrades	Prior
	Smart Grid Modernization Initiative	Smart Grid	Smart Grid Modernization Initiative	Prior
	Energy Special Improvement District	Energy Special Improvement District	Energy Special Improvement District	New

Below is a summary of the Other programs proposed in these Plans:

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Program Title and Program years during which program will be implemented	13. Mercantile Customer Program 2017 - 2019
Objective(s) and program metrics	<p>To obtain a commitment from mercantile customers that will allow the Companies to include EE/PDR savings from the customer's EE/PDR projects.</p> <p>Relevant metrics are provided in Appendices B and C.</p> <p>Project Description</p> <p>Eligible customers who have achieved EE/PDR savings independent of utility programs or incentives may file joint applications with the Companies to the Commission for commitment of these savings to the Companies and a request to exempt the customer from paying certain charges included in the Companies' Rider DSE or opt for a cash rebate.</p> <p>Project justification as an allowable efficiency activity</p> <p>R.C. § 4928.66, Section (A) (2) (c) allows for "including the effects of all demand-response programs for mercantile customers of the subject electric distribution utility, all waste energy recovery systems and all combined heat and power systems, and all such mercantile customer-sited energy efficiency and peak demand reduction programs, adjusted upward by the appropriate loss factors."</p>
Target market (including participation requirements)	All customers that meet the definition of "mercantile customer", as defined in R.C. § 4928.01 (A) (19) are eligible for this program.
Program approach, rationale and description	Customers must comply with the rules as dictated by the Commission's Mercantile Program, Case No. 10-834-EL-POR.
Marketing and Implementation Strategy	<p>The Companies use Administrators, who are trained periodically on the latest interpretation of Commission orders and rules, process changes, and general updates. See Section 5.1.1 for a listing of the current Administrators. The role of Administrators includes, but is not limited to, the following:</p> <ol style="list-style-type: none"> 1. Educating customers about the program. This step includes providing customers with background on S.B. 310 EE & PDR requirements for utilities, explaining the two incentive options available. 2. Identifying for the Companies' customers who 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.

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	<ol style="list-style-type: none"> 3. Providing estimates of potential EE and PDR savings. 4. Screening potential customer project(s) to determine if the project(s) appear to qualify under Commission Rules and Company rate schedules. 5. 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. <p>The Companies also engage the regional customer service representatives, who are trained and educated on the details of the various program offerings. These representatives meet with a select group of customers to communicate program details. Alternatively, customers can access similar information on the Companies' energy efficiency website, energysaveohio.com, where program literature and application forms can be downloaded.</p>
Program issues and risks and risk management strategy	Risks associated with this program primarily relate to verification documentation. The Companies review the documentation to make sure that it meets all requirements in order to minimize this risk.
Ramp-Up Strategy	This is a continuation of the existing program.
Eligible measures and incentive strategy, include tables for each year of program, as appropriate showing financial incentives & rebate levels (e.g., \$ per measure, \$ per kWh or MW saved)	<p>Incentives will be consistent with Commission directive under either the Mercantile Pilot Program, Docket 10-834-EL-POR, or other relevant proceeding and may include Rider DSE2 exemptions, or cash rebates. Customers will have a choice between two options for program incentives. The Mercantile Customer program and associated incentives are subject to change at the discretion of the Companies and/or the Commission.</p> <ul style="list-style-type: none"> ➤ Option 1 - Cash Rebate: The cash rebate under the Mercantile Customer Program is 75% of what the project would qualify for under the new FirstEnergy Utilities Incentive Programs. These rebates are capped at the lower of 50% of the total project cost or \$250,000 per project. Note that this option was suspended for the Amended Plan period, it will be again available as part of this Plan. ➤ Option 2 -DSE2 Rider Exemption: To receive the exemption from the rider, a customer's project savings as compared to its baseline energy usage must meet or exceed the utility's statutory benchmark. The customer is eligible to receive the exemption for as long as the project meets those standards. Customers are required to

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	<p>submit annual reports documenting updated energy and demand savings, which are reviewed by the Companies and by the Commission Staff.</p> <p>➤ CHP projects processed under this Program will be rebated per the Commission's direction on a case-by-case basis in response to applications filed on the Commission's docket and will not be subject to the \$250,000 per project rebate cap as discussed above.</p>
Non-Energy Benefits	Rewards customers that took a proactive approach to energy efficiency, thus encouraging more such actions in the future.
Other Information deemed appropriate	This program includes costs for marketing assistance through outside third parties. Costs associated with the rebates paid under Option 1 above are not included in the program budgets set forth in Appendices B. Rather, these costs are separately submitted as part of the individual filings that are submitted to the Commission for approval. Upon approval the costs are recovered through the Companies' Rider DSE.

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Program Title and Program years during which program will be implemented	14. Transmission & Distribution Upgrades Program 2017 - 2019
Objective(s) and program metrics	<p>The Companies' existing Transmission & Distribution Program has been renamed to the Transmission & Distribution (T&D) Upgrades Program and is included as part of these Plans. The Companies have developed the T&D Upgrades program that accumulates the savings achieved through various energy efficiency T&D projects completed by the Companies. These projects involve various system improvements that, when made, reduce the amount of line losses, which in turn results in a more efficient delivery system.</p> <p>Relevant metrics are provided in Appendices B and C.</p>
Program approach, rationale and description	<p>This program will contain projects such as, but not limited to, the following that will serve to reduce system line losses, or improve system operation efficiency:</p> <ul style="list-style-type: none"> a. Projects involving the replacement of existing transmission or distribution lines. b. Substation projects including tying together previously unconnected transmission or distribution lines, and/or the addition or upgrade of transformers and circuits in new or existing locations. c. Transmission capacitor bank projects include the addition or expansion of large capacitor banks at a substation location. Distribution capacitor bank projects include the addition of capacitor banks, or a series of banks, in parallel at a substation location or on distribution poles along the circuit. d. Distribution voltage regulation projects involve the replacement of existing equipment with larger and/or more efficient equipment. <p>These projects are selected through a comprehensive project evaluation process that includes among other things, capital requirements and constraints, projected results, and financial paybacks.</p> <p>Project justification as an allowable efficiency activity</p> <p>R.C. 4928.66(A)(2)(d) permits a utility to include, for purposes of compliance with statutory EE/PDR benchmarks, "transmission and distribution infrastructure improvements that reduce line losses".</p>

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Market Transformation Strategy (if applicable)	None.
Eligible measures and incentive strategy, include tables for each year of program, as appropriate showing financial incentives & rebate levels (e.g., \$ per measure, \$ per kWh or MW saved)	None.
Non-Energy Benefits	None.
Other information deemed appropriate	Economic benefit from energy savings Less generation will be required to be purchased, thus reducing total generation costs that would be passed on to customers.

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Program Title and Program years during which program will be implemented	15. Energy Special Improvement District 2017 - 2019
Objective(s) and program metrics	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. Energy Special Improvement District allows any efficiency savings or reduction in demand produced by a special energy improvement project located in its certified territory pursuant to R.C. 4928.66 This program is a new program that captures energy savings from such improvements.
Target market (including participation requirements)	Ohio Townships and Municipalities.
Program approach, rationale and description	Ohio Townships and Municipalities that have created Energy Special Improvement Districts, and achieved EE/PDR savings independent of utility programs shall submit a quarterly report to the electric distribution utility.
Implementation strategy (including expected changes that may occur in different program years)	As part of this program, the Companies will be developing a process with the Commission for constituents to submit their energy improvement projects.

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Program Title and Program years during which program will be implemented	16. Smart Grid Modernization Initiative 2017 - 2019
Objective(s) and program metrics	<p>The intent of the Smart Grid Modernization Initiative (SGMI) is to study the impact of an integrated system of Distribution Automation (“DA”), Integrated Volt VAR controls (“IVVC”) and Automated Meters (“AMI”) on the energy delivery system. Through this program, the Companies seek to analyze and capture any savings achieved by the installation of the smart grid technologies. As part of this project, the Companies are studying the impact of IVVC on the circuits within the pilot footprint to determine the potential savings that can be achieved using this technology. The installation of smart devices such as capacitors can be used to flatten and fine tune voltage on these circuits and provides an opportunity to reduce KWh and KW on the distribution lines. The Companies are also offering residential customers a simple time of use rate with up to 15 critical peak price events to up to 250 non-shopping customers in the pilot footprint. Full project objectives and relevant metrics can be found in the Companies’ filings in Case No 09-1820-EL-ATA et al.</p>
Target market (including participation requirements)	<p>The Ohio site deployment is within a Cleveland suburban area serving residential & commercial customers on distribution circuits, representing a demand of over 200 MVA.</p>
Program Approach Rationale and Description	<p>As part of the economic stimulus package known as the American Recovery and Reinvestment Act of 2009 (“ARRA”), the Department of Energy (“DOE”) solicited applications for approximately \$3.4 billion of investment grants for the deployment of smart grid technologies. FirstEnergy proposed investing \$114 million to evaluate “smart grid” technologies in three states. The costs associated with the Ohio portion of this experimental program are being recovered through Rider AMI. Although the DOE grant period has expired, the Companies continue to collect information in support of a five year study period ending in May 2019.</p> <p>AMI supports the offering of Rider RCP within the pilot footprint. The rate is designed to provide incentive for customers to use less during on-peak and critical peak periods by shifting their usage to off-peak.</p> <p>The Companies are studying IVVC within the pilot footprint. Adding equipment such as capacitors to the distribution circuit allows the Companies to levelize and get finer control of voltage</p>

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	<p>along the circuit providing opportunities to reduce both KWh and KW usage along the lines.</p> <p>Other information associated with the Companies' SGMI program can be found in Docket No 09-1820-EL-ATA et al.</p>
Other information deemed appropriate	<p>As part of Stipulated ESP IV, the Companies committed to filing a Grid Modernization Business Plan that included various scenarios of additional AMI, DA and IVVC. Should the Companies receive approval for additional deployment of the smart grid technology, energy efficiency and peak demand reduction savings from that deployment would be included in this program. Information on the Grid Modernization Business Plan can be found in Case No.16-0481-EL-UNC.</p>

3.7. *Program Budgets and Data Tables*

The Companies have included program budgets and additional data tables (by Company) as Appendices to these Plans as follows:

- Number of participants are shown in Appendix C-2;
- The measures included in this Plan are shown in Appendix C-1;
- Dollar incentives are shown in Appendices B1 and B3;
- kWh savings are shown in PUCO Tables 2 and 7A-7G in Appendix C-4;
- kW peak-demand reduced are shown in PUCO Tables 2 and 7A-7G in Appendix C-4;
- Estimated program budgets (total) by year are shown in Appendices B-1;
- Savings targets, including tables with MWh and MW goals per year and cumulative tables that document key assumptions of savings per measure or projects are shown in Appendix A;
- Cost-effectiveness, including TRC test results for each program with values for each benefit and cost component of TRC calculation are shown in PUCO Tables 7A-7G in Appendix C-4; and
- Anticipated costs to participating customers are shown in Appendix C-1.

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4.0 PLANNING, REPORTING AND TRACKING SYSTEMS

4.1. *Program Planning:*

As previously discussed, the cornerstone of the Plans is to reactivate and continue the programs from the Prior Plans and to expand the program offerings to include best practice and other ideas identified through benchmarking and stakeholder input as described in Section 3.1.

4.1.1. *Define schedule for updating plans and for reporting such updates to Commission*

Each year, the Companies, as required by the Commission's Rules, file a portfolio status report, which addresses the performance of all approved EE/PDR programs included in the then current approved plan.¹⁹ Included in the filing will be a recommendation on whether each program should be continued, modified, or eliminated. The Companies may propose alternative programs to replace eliminated programs, taking into account the overall balance of programming in their three year plans.²⁰

Implemented programs are regularly monitored with results reported to Company personnel by program managers as more fully discussed in Section 4.2.1 below. Throughout the Plan Period, the Companies will track program results and the progress being made towards achieving the Companies' targets, sharing this information with the Collaborative Group as appropriate. Notification to the Commission of any changes to the Plans as approved by the Commission will be provided as required by the Commission's Rules.²¹

4.2. *Project Management Tracking Systems:*

4.2.1. *Provide brief overview of the utility data tracking system for managing and reporting measures, project program and portfolio activities, status and performance as well as utility performance and expenditures*

The Companies utilize a comprehensive system to track and report activities and results associated with the EE/PDR programs across the FirstEnergy system. The tracking and reporting system has the ability to track a customer through program-specific stages as well as provide standard status reports for individual participants and overall programs. Expenditures are tracked and verified on a monthly basis using the Companies' enterprise-wide financial system. Budget vs. actual reports are monitored to ensure program budgets stay within those approved in the Plans.

The Companies regularly work with third-party program managers and the Companies' EM&V consultant to verify the accuracy of data transferred from implementation contractor databases to the tracking and reporting system.

4.2.2. *Describe how the Utility will coordinate with the Commission on data tracking and transfer. Provide examples of data fields captured*

¹⁹ See generally § 4901:1-39-05(C)(2)(c), Ohio Admin. Code.

²⁰ See generally § 4901:1-39-05(C)(2)(c), Ohio Admin. Code.

²¹ Id.

The tracking and reporting system is a web-based application, allowing for access from any internet connection with the proper security authorizations. The system is capable of interfacing with both internal and external source systems to gather detailed data and then summarize it for reporting purposes. The system receives program information from third-party program managers on a routine (daily, weekly or monthly) basis. Data integrity is ensured through a routine reconciliation process. This not only reduces paperwork, but helps maintain quality control over data entry as well as allowing for quick evaluation of program performance, and progress towards goal attainment. In addition to standard and customer reports the system has the ability to perform ad-hoc reporting.

The following are examples of data fields captured across various programs:

- Customer name;
- Customer contact information (address, e-mail, phone);
- Customer type;
- Account number;
- Project/Program name;
- Contractor/Retailer;
- Measure;
- Service address;
- Job status;
- Completion date;
- Heating system type;
- kWh/kW savings;
- Incentive; and
- Measures implemented

4.3. Annual report to be posted on PUCO website:

As discussed in Section 4.2, the Companies' tracking and reporting system will be used to monitor progress of the programs included in these Plans. Reports will be provided as required by the Commission.

4.3.1. List reports that would be provided to the Commission, the schedule for their delivery, and the intended contents. The focus should be on metrics identified in Section 3.1.1

- An annual portfolio status report is required to be filed with the Commission each year.²² The Companies' report will be filed consistent with the deadlines established by the Commission; the format and content of the report will be consistent with that defined by the Commission.

4.3.2. Describe data that would be available (including format and timeframe of availability) for Commission review and audit

As indicated in Section 4.2.2, the system will have the ability to provide reports as reasonably required by the Commission. Any data included within the system would be made available to Commission Staff through normal data request procedures. This information would also be available for Commission review and audit.

²² See generally § 4901:1-39-05, Ohio Admin. Code.

5.0 PORTFOLIO MANAGEMENT AND IMPLEMENTATION STRATEGIES

5.1. *Overview of Utility Management and Implementation Strategies:*

5.1.1. *Describe the types of services to be provided by the utility as well as by any third-party providers, such as consultants and trade allies. Indicate which organizations will provide which services and the basis for such allocation*

Generally, the Companies will continue overall administration and oversight of the Plans, and utilize third party vendors to perform various program implementation and support duties. Specific activities that the Companies will oversee include the execution of marketing campaigns; Quality Assurance/Quality Control activities and tracking and reporting activities. The Companies will use contractors to provide many program implementation services, including assistance with program implementation, EM&V and the installation of the tracking and reporting tool.

The Companies may also use Administrators that have been approved by the Commission, for specific programs, class of customers or to accomplish the goals of a given program. Each of these Administrators is expected to commit to a reasonable level of efficiency and peak demand reductions on behalf of their members; to agree to a reasonable administration fee; and to agree to track and provide documentation evidencing the incremental energy reduction and actual kWh savings achieved from certain programs. The current Administrators are listed below:

1. Council of Smaller Enterprises (“COSE”)
2. Ohio Manufacturer’s Association
3. Industrial Energy Users
4. Association of Independent Colleges and Universities of Ohio
5. County Commissioners Association of Ohio Service Corporation (CCAOSC)

Unless otherwise expressly stated in these Plans, the compensation paid to these Administrators is as approved by the Commission in Case No. 09-0553-EL-EEC and/or the Companies’ Stipulated ESP IV.

5.1.2. *Describe risks to program performance and any risk management strategies that will be employed to mitigate those risks. Examples of risks that can cause a program to not deliver expected savings including program design flaws, technologies targeted by a program failing to deliver the savings expected (or failing to prove that they have delivered the savings), and customers or other key market players (e.g. contractors) choosing not to participate in a program*

There are various risks associated with the implementation of these Plans, the more significant of which are described below:

1. Performance Risk is the risk that the program does not deliver expected savings.

While modeling assumptions yielded results that support program success within budget, the Companies note the conditions under which these programs will be implemented during the Plan Period. Below is a list of some of the more material risks the Companies will face:

- The timing of the regulatory process and related uncertainty while the Plans are under consideration delays the Companies' ability to enter into contracts with implementation vendors and begin large scale execution of program support and implementation activities prior to approval of this Plan. These Plans and projections are based on an assumption that it will be approved in a timely manner;
- Changing economic conditions over the plan lives could result in customers not supporting the pace of investment estimated, and slow the pace of mass market penetration;
- Newly introduced programs and measures included in this Plan will not have a historical basis for participation rates or experience. As a result, installation rates may be higher or lower than modeled, particularly in the early years;
- Targeted participants rates and energy/demand savings may not be achieved due to a variety of factors such as changing technology, market trends or incentives that are not high enough to encourage desired energy efficiency investment. The ability to make mid-stream adjustments on a timely basis to program measures or incentive levels is of paramount importance for the Companies to meet their targets and allows the Companies to proactively address rapidly evolving technology and market trends.
- Customers choosing to opt out of the opportunity to participate in the Companies' portfolio plans may reduce the energy savings potential across all C&I customer classes.²³ As certain programs may be affected more than others; the Companies will closely monitor and track the opt-out customers' usage so that program potential may be assessed. Readjustment of resources may be required to address the reduction in potential across programs.

The Companies have taken steps to identify and manage risks as well as to prepare for contingencies that may be necessary during the Plans' implementation period. Those steps are as follows:

- The Companies will continue throughout the Plan Period open discussions with stakeholders, seeking input from the Collaborative Group and their Administrator Group.
- The Companies will continue to consult with their program implementation vendors to modify program implementation strategies and suggest program designs changes as indicated by participation and savings results.
- The Companies will continue to perform EM&V of their EE/PDR programs in order to ensure that all programs are reasonable in terms of dollars spent, participation rates achieved and kWh and kW savings realized.
- The Companies have developed their incentive strategy in a way that allows timely response to market trends. By employing incentive ranges as opposed to fixed points, the Companies have the ability to quickly adjust incentive levels within the approved range to maximize program participation with appropriate incentive levels.
- The Companies will continue to address issues and remain committed to resolve: (i) important programmatic change requirements; (ii) potential additions that are found to be necessary and/or desirable as the Companies, the Collaborative Group and the Administrator Group collects and assesses key program performance metrics over the course of each program's deployment and operation; and (iii) unforeseen events that may arise over the next several years.

²³ R.C. 4928.6611

Given the investment required to meet the EE/PDR targets, the Companies believe that it is both prudent and necessary to have a robust evaluation process in place from the date of each program's inception, as well as the financial capability to make those changes that are either indicated by the program process evaluations and/or general economic conditions as they change over time.

The Companies believe that their Plans contain the right mixture of incentives and measure offerings to meet the prescribed targets. Further, the Companies' risk management strategies, as designed, should provide the flexibility necessary to maximize the potential for success.

2. Technology Risk is the risk that program technologies fail to deliver the savings expected.

These Plans incorporate virtually all of the programs included in the Prior Plans. Therefore, this risk is minimized because of the known historic results for majority of the technologies. However, this risk is heightened for those new measures or existing measures that have been modified since incorporated through the Prior Plans. The Companies have attempted to manage this risk by relying on their expert consultants, their experience with similar measures used by their sister utilities in other jurisdictions and industry research. Further, these Plans incorporate a comprehensive suite of programs that will have an immediate impact on energy use and, in the long run, should help transform the market into one where customers seek energy efficient options on a regular basis.

3. Marketing Risk is the risk that customers, or other key market players, such as contractors, are not aware of available programs, or choose to not participate in a program.

The Companies will continue to carefully evaluate various approaches to building and enhancing awareness through communications in order to minimize market risk. They plan to further raise customers' awareness of the benefits of energy efficiency and conservation, as well as the existence of their programs offered through the Plans through a wide-reaching educational campaign, and community level outreach. In addition to a Company developed media campaign, the Companies intend to utilize the relationships that their Administrator Group has with various target markets, providing them with educational tools as well. Further, each program implementation vendor will also support and supplement such efforts with program specific marketing activities.

Marketing risk will be assessed through program tracking and periodic surveys to gauge awareness of the programs and, for those not participating, barriers to participation. Marketing risk will also be assessed through periodic process evaluations. This will enable the Companies to identify issues related to market risk and implement mid-course corrections to enable the programs to stay on track.

4. Evaluation Risk is the risk that independent EM&V will, based on different measurement methodologies and assumptions, support different levels of savings than those estimated in these Plans. The Companies minimize this risk through their ongoing work with their EM&V consultant, an expert in EE/PDR program design and evaluation, insights gained through the Companies' experiences in other jurisdictions, and by utilizing the Ohio TRM and other industry TRMs and guidelines to estimate program savings. The Companies and their EM&V consultant will also work with the Commission Staff and/or the Commission's statewide Independent Program Evaluator, as appropriate, in an effort to perform EM&V activities consistent with Commission directives and the laws of the State of Ohio in a sufficiently robust manner so as to reliably capture all applicable program-related savings.

5.1.2.1. Describe the utility's approach and process for shifting goals and funds, as needed between programs and adding new measures/and or programs

If it is found that one or more programs are not meeting expectations, the Companies will take one or more of the following actions:

1. Shift the focus of underperforming programs to measures that have a higher adoption rate. The Companies' Plans utilize over 170 measures that are rolled up into programs. This large number of measures incorporated into the programs allows flexibility to shift emphasis to incorporate successful measures as are required to achieve program energy savings goals.
2. Expand program measures to include emerging technology that shows the potential to produce cost effective savings that may not have been well known, tested, accepted by the market, or produced in sufficient quantities at the time these Plans were designed. The Companies will continue to monitor technologies reviewed but not incorporated into these Plans throughout the Plan Period, discussing potential for such technologies with the Collaborative Group as appropriate. To the extent that new measures show promise for inclusion in the Companies' Portfolios, such measures will be discussed in the annual status report that is filed with the Commission.
3. Alter the program delivery processes utilized in order to enhance market penetration. Options here may include having Vendors add field staff to handle more inquiries or shorten response times, eliminating or adjusting project requirements if bottlenecks appear to be stalling progress, or other adjustments such as those identified through process evaluations. Any changes made will take care not to compromise data tracking for evaluation purposes.
4. Investigate issues that customers have with problem programs and modify delivery based upon the results of these surveys.
5. Shift program delivery to more aggressively promoted and perhaps rebated versions.
6. In extreme cases, abandon non-performing programs or measures and replace them with other programs or measures that show the potential for greater success.
7. Shift resources to higher performing programs. The Plans assume customer participation based on current experience of the Companies and their consultants. These are based, among other things, on customer participation in existing programs, and market survey results. To the extent actual customer participation significantly differs from these assumptions, the Plans' resources may need to be rebalanced among programs or Sectors to ensure the overall objectives of the Plan are met.
8. Add delivery or incentive channels.
9. Shift resources among sectors as needed to address demand.
10. Alter rebate levels on a temporary or long-term basis to affect market response.

The Companies expect to have the ability to shift resources among programs and/or among customer sectors within the portfolios as needed to meet the goals, consistent with Commission rules.

What mid-course corrections could be implemented? In addition to the steps previously identified, the Companies believe that certain programs may be ramped up through enhanced marketing efforts to achieve kWh and kW impacts greater than anticipated under the Companies'

Plans. This may require a re-balancing of program goals and budgets. Notwithstanding, the EE/PDR program tracking system will provide guidance for making such mid-course decisions and adjustments with enough time for such corrections to take effect. The Companies have infrastructure in place for analysis of such information and the development and resolution of recommendations arising from such analysis.

What would be communicated to regulators and others? In addition to the regular annual status reports submitted each year, the Companies will make available to the Commission any pertinent information related to these Plans upon request. Additionally, the Companies intend to apprise the Collaborative Group of progress towards achieving the goals throughout the Plan Period during their regularly scheduled or, if need be, *ad hoc* meetings and subcommittee meetings.

How will the appropriate mid-course corrections be identified? The Companies anticipate using process evaluations to determine progress and identify any necessary corrective actions. Process evaluations will be performed using a combination of participant satisfaction and key customer perception surveys -- all performed using statistically significant samples along with a kWh/kW impact/cost analysis in which each program's performance are compared with Plan expectations. On a monthly basis, the Companies conduct an internal evaluation that reviews the progress of each program from both an energy savings and budget perspective. The Companies will also meet periodically with the Collaborative Group and their Administrator Group, gathering intelligence learned from either of them.

5.1.2.2. *Describe the process for collecting and addressing participating customers, contractor and trade ally feedback (e.g. suggestions and complaints)*

During the design phase of the programs, the Companies sought and obtained feedback on potential improvements to the programs included in the Prior Plans and on new programs and measures being contemplated from stakeholders through a variety of methods. Viewpoints of all customer segments were incorporated into the EE/PDR program design. Collaborative Group meetings on different aspects of the EE/PDR program design were also held. To the extent practical, responses from these Collaborative Group members have been factored into the various program designs.

While implementing the approved Plans, the Companies will gain additional direct input from various sources, including (i) Vendors that perform program management and implementation services; (ii) Collaborative Group members; (iii) results from other utilities; (iv) the Commission or its statewide Independent Program Evaluator for insights into the evolution of the EM&V process; and (v) any continuation of the rulemaking process, where the Companies intend to actively participate in the development of solutions to issues as they arise. Customers will be surveyed to measure satisfaction with the programs and related services, and the efficiency of the EE/PDR measures being implemented. Further, the Companies will investigate program and measure complaints and suggestions from customers, and intend to continue to participate in industry working groups. The Companies' EM&V consultant will assist with program assessments and make recommendations for improvement. Program results and changes will be shared with the Collaborative Group and/or the Administrator Group as appropriate.

5.1.2.3. *Describe the procedures for measurement and project installation verification, quality assurance and control, and savings documentation*

The Companies will pursue evaluations of each of the programs that will include features such as:

- Verification of equipment installation and operation;
- Verification and review of documentation supporting energy savings and demand; reductions claimed along with the methodologies, data and assumptions used in their development;
- Performance of logging and metering studies as appropriate;
- Process reviews supporting quality assurance and informing vendor performance of program services; and
- Coordination and communications related to EM&V activities with Commission Staff or the statewide Independent Program Evaluator as appropriate.

As more fully discussed in Section 5.2, FirstEnergy has a dedicated department focused on energy efficiency. Among other things, this group oversees activities of an independent EM&V consultant who assists the Companies in their EM&V efforts related to each program.

The Companies have included evaluation plans in Section 6.4, which address each program as outlined in the program summaries included in Sections 3.2 through 3.6 of the Plan. The Companies recognize that such evaluations will also be influenced by the Commission Staff or the statewide Independent Program Evaluator who may articulate the Commission's EM&V expectations. The Companies' EM&V team will address questions about their evaluation approach and findings, and assist the Commission Staff in their role as advisors to the Commission.

The Companies will continue to rely on TRM values, as updated in Case No. 09-512-GE-UNC, July 31, 2013 Order, as they apply to counting provisions in S.B. 310²⁴.

5.1.2.4. Describe any “early warning systems” that will be utilized to indicate a lack of progress towards the benchmarks and whether they are likely to be met

The Companies leverage tracking and reporting processes to monitor progress of each program toward its goals and for the portfolios toward benchmarks on a monthly basis, identifying performance issues, gaps and opportunities for improvement. Review meetings are performed at least monthly. Evaluation activities will also inform how well the programs are moving toward the achievement of goals, and will form the basis upon which any recommendations for adjustments to programs are made. The vast majority of this evaluation work will be done by the EM&V consultant hired by the Companies.

5.1.2.5. Provide individual program implementation schedules with milestones in the form of Gantt charts or similar format. Chart should differentiate activities and include dates for the launch, close, and major milestones for the three following years for all seven programs

Section 1.4 describes the Companies' current roll out plans for the various programs proposed in this Plan.

The Gantt chart below details the Plans' anticipated implementation schedule. Note that the chart is provided for illustrative purposes and was developed based on a Plan approval date of September 30, 2016. The implementation schedule and activities may be adjusted from those indicated.

²⁴ R.C. § 4928.662 (A) and (B)

5.0 PORTFOLIO MANAGEMENT & IMPLEMENTATION STRATEGIES

EE/PDR Program Plans

Figure 2: Sub-program Implementation Schedule

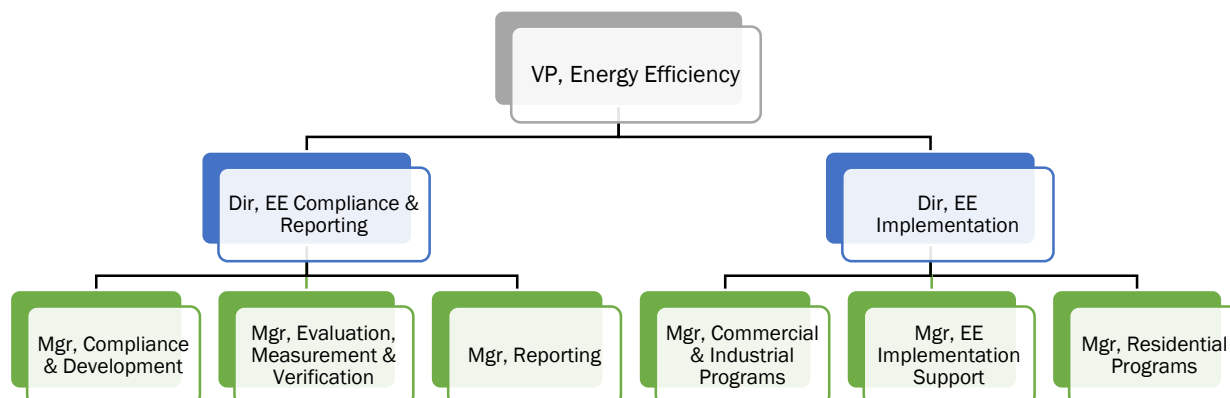
Figure 2: Gas Program Implementation Schedule														
Program Name	Sub-Program Name	June	July	August	September	October	November	December	Plan Year 2017				Plan Year 2018	Plan Year 2019
									1	2	3	4		
Residential Programs														
Appliance Turn In Program	Appliance Turn In													
Energy Efficient Homes Program	School Education													
	EE Kits													
	Audits & Education													
	Behavioral													
	Smart Thermostat													
	New Homes													
Energy Efficient Products Program	Appliances													
	Consumer Electronics													
	Lighting													
	HVAC													
Customer Action Program - Res	Customer Action Program - Res													
Residential Demand Response Program	Direct Load Control													
Residential Low-Income Programs														
Low Income Energy Efficiency Program	Community Connections													
	LI - New Homes													
Small Commercial & Industrial Programs														
C&I Energy Solutions for Business Program - Small	HVAC - SCI													
	Lighting - SCI													
	Food Service													
	Appliance Turn In - SCI													
	Appliances - SCI													
	Consumer Electronics - SCI													
	Agricultural													
	Data Centers - SCI													
	Custom - SCI													
	Retro - Commissioning - SCI													
	Custom Buildings - SCI													
	Audits & Education - SCI													
	Customer Action Program - SCI	Customer Action Program - SCI												
Large Commercial & Industrial Programs														
C&I Energy Solutions for Business Program - Large	HVAC - LCI													
	Lighting - LCI													
	Data Centers - LCI													
	Custom - LCI													
	Retro - Commissioning - LCI													
	Custom Buildings - LCI													
	Audits & Education - LCI													
C&I Demand Response Program - Large	Smart Thermostat - SCI													
	Demand Response - LCI													
Customer Action Program - LCI	Customer Action Program - LCI													
Governmental/Educational/Non-Profit Programs														
Government Tariff Lighting Program	Government Tariff Lighting													
Other														
Mercantile Customer Program	Mercantile													
Transmission & Distribution Upgrades	T&D Upgrades													
Smart Grid Modernization Initiative	Smart Grid													
Energy Special Improvement District	Energy Special Improvement District													
Key														
Develop and Issue RFP														
Select Program Implementation Provider														
Award Program Contract														
Program Set-Up Activities														
Program Launch and Implementation per PUCO Approval														

5.2. Executive Management Structure:

5.2.1. Describe Utility management structure for efficiency programs and include Utility organization chart for management team responsible for implementing this plan

The Energy Efficiency Group is entrusted with ensuring that the Companies comply with all statutory EE/PDR requirements and that the approved programs are successfully implemented. The group reports to the Vice President, Energy Efficiency. This group also has responsibility for similar activities for FirstEnergy's other Ohio utilities, as well as its Maryland, New Jersey, Pennsylvania, and West Virginia utility subsidiaries. The organization chart set forth below depicts the management team and their primary areas of responsibility as they currently exist.

Figure 3: Organization Chart



The Companies believe that it is particularly important for senior management to be visible in its oversight role and corporate-wide support for the EE/PDR initiatives. As a result, FirstEnergy has created a steering committee that is comprised of senior management members from across the organization, including FE Utilities, Customer Service, Legal, Rates and Regulatory Affairs, Information Technology (IT), Marketing and Branding, External Affairs, Strategy, Supply Chain and Corporate Risk. The steering committee's primary purpose is to:

- Define strategies and provide governance over initiatives relating to EE/PDR; and
- Assure initiatives support corporate objectives integrating customer solutions with operational efficiencies.

The Energy Efficiency Implementation group is organized based on program management responsibilities across customer classes. Key activities include planning and executing marketing campaigns and acquiring and managing the program implementation vendors to ensure quality control and assurance over program implementation. The Energy Efficiency Compliance and Reporting group is organized based on support functions that are common to all programs such as plan development; program evaluation, measurement and verification; and compliance tracking and reporting. Members from this group also coordinate Collaborative

Group activities and manage the Administrator Group, both of which provide input and recommendations on program design and implementation, including customer communication/education.

5.2.2. *Describe administrative budget (i.e. those costs other than incentive payments to customers)*

Explanation of Program Cost Elements: The model used for developing the EE/PDR programs involves a build-up of direct costs based on program or sub-program fixed costs and variable costs based on participation at the measure level, both of which are then aggregated to the program level. Common costs are estimated at the State or Company level and allocated to each program. The following terms are used in the Budget Tables located throughout the plan.

Operations includes all program operating expenses, including dedicated Utility Labor, Marketing, EM&V, Program Administration, Tracking and Reporting and All Other Costs.

Incentives include costs for rebates paid to customers as well as costs associated with providing services or measures directly to customers or midstream or upstream payments to program allies where applicable (other than those paid through the Mercantile Customer Program).

See PUCO Table 6A, in Appendix C- 4 for further description and detail on these cost elements, their make-up and development of the Plan budgets.

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6.0 UTILITY EVALUATION, MEASUREMENT AND VERIFICATION ACTIVITIES**6.1 *Describe market evaluations and how results will be used to improve programs and update expected progress toward meeting the electric utility's benchmarks.***

The Companies engaged Harbourfront Group, Inc. to perform market evaluations informing program plans and projections for each of the Companies' five customer sectors. That market evaluation assesses existing and future practices supporting identification of program savings opportunities. The general objective of market evaluation processes is to estimate program impacts based on the behavior of customers and others, including contractors, developers, equipment distributors and retailers. The results of this study are included in the Market Potential Study which is included in Appendix D.

To update expected progress toward meeting benchmarks, the Companies will continue to engage their EM&V Consultant, who will review existing studies, and develop specific evaluation plans that document existing practices and support program impacts. In addition, the EM&V Consultant will continue to utilize established measurement and verification processes to support program improvements, verify program reports, and ascertain whether the programs included in this Plan have achieved the desired energy savings and demand reduction impacts. The EM&V Consultant will also verify and submit the results achieved from completed programs to the Companies for inclusion in any reports to the Commission. For a description of the program assessment activities to be performed by the EM&V Consultant, see the discussion in Sections 5.1.2.1 and 5.1.2.4 above, and Section 6.2 through 6.4 below.

6.2 *Describe process evaluations and how results will be used to improve programs.*

For purposes of these Plans, *process evaluation* is viewed as providing the explanatory depth to improve program processes, better understand market barriers and opportunities, and support identification of opportunities for improving program implementation, including marketing and promotion, delivery, tracking and verification. *Impact evaluations* quantify and validate the extent of energy saved and demand reduced as a result of a program. Thus, impact evaluation identifies how much of an impact a program has, while process evaluation tells you why.

There is a feedback loop among program design and implementation, impact evaluation, and process evaluation. Program design and implementation, and evaluation are elements in a cyclical feedback process. Initial program design is informed by prior baseline and market potential studies. Ongoing impact evaluation quantifies whether a program is meeting its goals and may raise questions related to program processes and design. Process evaluation tells the story behind how the impact was achieved, and points the way toward improving program impacts by providing insight into program operations. Thus, the three elements work together to create a better, more effective program.

6.3 *Describe strategy for coordinating with the statewide Independent Program Evaluator.*

The Companies and EM&V Consultant will engage with the Commission Staff and/or the selected statewide Independent Program Evaluator as appropriate during the Plan period. Representatives from the Companies' evaluation team, as well as the EM&V Consultant will attend scheduled meetings with the Commission Staff and/or statewide Independent Program Evaluator to ensure compliance with statewide EM&V directives, share ideas and suggestions regarding the approach being taken at the Companies, and otherwise assist the Companies in shaping and performing a prudent and effective evaluation strategy in coordination with the Commission Staff and/or the statewide Independent Program Evaluator directives.

Additionally, the EM&V Consultant will conduct evaluations on each program included in the approved Plans while coordinating efforts with Commission Staff and/or the statewide Independent Program Evaluator

to minimize duplication of work. Documentation required by Commission Staff and/or the statewide Independent Program Evaluator to fulfill its responsibilities will be provided as requested.

The EM&V planning process will also include Commission Staff and/or the statewide Independent Program Evaluator to enable its advice and consent to enhance EM&V efforts, as appropriate. The EM&V Consultant will facilitate ongoing Company communications with Commission Staff and/or the statewide Independent Program Evaluator to ensure the highest practicable level of coordination, particularly for EM&V field activities and other time-sensitive EM&V tasks and processes.

6.4 *Describe program-by-program utility evaluation, measurement and verification activities.*

Overview

This section presents the outline for EM&V plans for the Companies' EE/PDR programs that are being proposed in these Plans. EM&V efforts evolve over time and change as programs move from initial roll-out with few participants to full-scale implementation. The Companies have and will continue to also include a detailed EM&V report with their annual EE/PDR status reports that outlines in more detail the EM&V process followed for each approved program.

The Companies will continue to engage their EM&V Consultant who will develop and implement EM&V processes and procedures. While EM&V plans are written on a program-by-program basis, the Companies will utilize synergies among programs and between Companies to reduce redundant work. EM&V plans may be refined over time to include best practices and lessons learned. The EM&V Consultant will utilize the format required by Commission Staff and/or the statewide Independent Program Evaluator for evaluation plans and will include the following topics:

Introduction and Program Background

Includes program description, measures covered, markets targeted, program implementation activities, applicable budgets and expected program participation.

Evaluation Objectives

The overall objective for the impact evaluation is to quantify and validate the extent of ex post energy saved and demand reduced as a result of a program. Process evaluation is viewed as providing the explanatory depth to improve program processes, better understand market barriers and opportunities, and support identification of opportunities for improving program implementation, including marketing and promotion, delivery, tracking and verification. Thus, impact evaluation identifies how much of an impact a program has, while process evaluation tells you why.

Additionally, EM&V will identify participation and savings from low income customers in the residential programs. The Companies will consider the results of this evaluation in the ongoing implementation and marketing of their programs to further promote low income participation in the Companies' Plan.

Overall Evaluation Approach

- **Impact Evaluation**

Programs include documentation requirements supporting documentation of expected ("ex-ante") impact estimates that reside in tracking and reporting databases. Samples of participant applications are selected for EM&V. After the samples of projects are selected, and the program implementation contractor provides documentation pertaining to the projects, the first step in the EM&V effort is to review the documentation. Documentation that is reviewed for sampled projects may include program forms, databases, reports, billing data, logger data, weather data, and any other potentially useful data.

Program-level gross ex post savings are calculated by applying achieved savings realization rates calculated for the analysis sample to program-level data for reported savings. Realization rates describe the relationship between verified savings and program expected savings estimates. The realization rates are calculated as the ratio of the EM&V Consultants' calculated measure savings to the ex-ante reported savings.

- **Process Evaluation**

As an initial step in the process evaluation, the EM&V Consultant will review program documentation pertaining to program development and implementation, marketing materials, program procedures, program websites, and other program documentation as it becomes available. This includes any application forms, databases, and tracking systems to verify relevant information needed for process interviews is collected.

Additionally, where applicable the EM&V Consultant may also incorporate program manager interviews, participant (and in some cases non-participant) customer surveys, and trade ally surveys. Program manager interviews explore researchable issues and help inform the customer survey design. The interviews identify stated program goals and objectives, assess the effectiveness of the programs' operations relative to the defined program goals and objectives, capture program processes and flows, and explore potential ways to implement the programs more cost-effectively. Surveys are used to gather data on decision-making criteria and on the attitudes and behavior of decision-makers. Participants are questioned regarding their knowledge of the program, their level of interest in the program, and their reasons for participating, while non-participant surveys identify market barriers that could be addressed in program design. The survey of trade allies also allows the EM&V Consultant to gather information on the size of the market for energy efficiency measures that can be used in the assessment of market potential for the Companies' programs.

Sampling Plan

- **Residential Programs**

Sampling of program participants (and in some cases non-participants) will vary among the programs according to participants, measures, and methods of installation. Where appropriate, the sample will be stratified by measure using proportional stratification. The advantage of a proportionally stratified random sample is that greater precision can be achieved than a simple random sample of the same size. Additionally, proportional stratification guards against an underrepresentation of any one particular measure. Sample stratification is particularly useful when there are clear differences in energy savings between each stratum, and when each stratum is relatively homogenous.

- **Commercial & Industrial Programs**

EM&V sampling will occur concurrently with program implementation. Projects are added to the program tracking system as they are submitted and accumulate over time. As a result, sample selection is spread over the entire program year.

Stratified sampling is performed to account for skewed distributions of savings and to reduce the sample sizes required to satisfy the desired precision requirements. By developing strata such that the projects within each stratum are relatively homogeneous with respect to expected kWh savings, a smaller sample is required from each stratum in order to arrive at desired precision estimates. When performing sampling for a skewed population, stratified sampling methods are preferred because a group of projects with less variance in expected savings requires a relatively smaller sample size in order to reach a given precision and level of confidence.

Projects with high kWh savings contribute significantly to the variance in expected savings and are included in the sample with certainty. The EM&V Consultant will select a site-level ex ante kWh

threshold above which all projects at a site will be selected for the sample with certainty. The remaining projects will then be assigned to a kWh stratum according to the level of the expected site-level kWh savings and are chosen at random within each stratum.

- **Customer Action Program**

The EM&V Consultant will employ a variety of EM&V approaches that will be used depending on the specific measure to support claimed savings. Customer Action Program savings may be supported by independent evaluator surveys to obtain data supporting verified energy savings. The surveys will collect information such as customer demographics, customer building 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. The Companies and independent evaluators may also work with retailers, administrators and trade allies to obtain project specific information, particularly for commercial and industrial markets. On-site visits may also be conducted for a sample of customers to collect information regarding the characteristics of the building structure (e.g., insulation levels) and of space conditioning equipment, and for installed conservation measures. Market data on the distribution of energy efficient products may be acquired through organizations such as EnergyStar, the Air-Conditioning, Heating & Refrigeration Institute and the Association of Home Appliance Manufacturers to support the total number of units of each measure type in the Companies' service territories.

Market research completed using the methods described will be to a statistical confidence level in order to extrapolate findings to the population of customers in the Companies' service territories.

Reporting

The EM&V Consultant will facilitate ongoing communication with Commission Staff and/or the statewide Independent Program Evaluator to ensure the highest practicable level of coordination. As required, program evaluations will be submitted in conjunction with the Annual Portfolio Status Report.

Evaluation Schedule

The timing of EM&V activities and reporting can have a significant effect on the accuracy and usefulness of findings. Where applicable, EM&V sampling will occur concurrently with program implementation providing for early feedback to program implementers. This approach requires the EM&V and implementation staff to work closely together to develop methods to collect data as part of the standard program implementation practices. While evaluation activities are ongoing, evaluation reports will be included in the Annual Portfolio Status Report.

Evaluation elements that will vary with each program are discussed below.

- **Process Interviews**: involve a form of qualitative research in which a group of people are asked about their attitude towards a product, service, or concept.
- **Surveys**: (phone, mail or web-based) involve qualitative or quantitative research in which information is obtained from a sample of a population. References to surveys of "non-participants" will generally be based on market surveys related to program awareness that may include participants and non-participants.
- **Billing Histories or Metered Data Analysis**: involve use of historic energy usage as an input for energy savings or peak load reduction impacts, analysis of interval metered data or installation of data loggers to support estimates.

- File Reviews: involve processes associated with the collection and validation of application forms created by the Companies and their program contractors in consultation with their EM&V Consultant for use by customers and their agents to document the energy efficiency measures performed in each program. Program applications document specific information required to estimate and verify program energy savings and peak demand reduction impacts.
- On-Site Verification: involves verification inspection processes (generally of samples of participants) to validate application information. Direct installation programs, in which a company contractor delivers services, includes “on-site verification” by definition.

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7.0 COST RECOVERY- MECHANISM

7.1 *Provide and describe tariffs and a cost recovery mechanism.*

Except for certain costs incurred through the Companies' T&D Improvements Program, Companies' ELR Rider, and Smart Grid Modernization Initiative, the Companies will continue to collect costs associated with demand side management, energy efficiency and peak demand reduction including lost distribution revenue through their current Demand Side Management and Energy Efficiency Rider (Rider DSE), which has already been approved by the Commission. As ordered by the Commission on November 21, 2017, for each year of the 2017-2019 Portfolio Plan, costs associated with Companies' EE/PDR Programs, offset by the PJM RPM auction revenues credited back to customers through the Companies' EE/PDR riders, and any before-tax shared savings resulting from these programs will not exceed \$106,799,401, which is 4% of the Companies' revenue for 2015, as reported on 2015 FERC Form 1, page 300, line 10, sales to ultimate customers.

As previously ordered by the Commission in Case No. 12-2190-EL-POR, *et al.*, the Companies are proposing to continue to offer capacity resources associated with installed energy efficiency and peak demand reduction resources into future PJM Capacity Auctions and to continue the 80%/20% revenue sharing mechanism between the customers and the Companies. Additionally, the Companies will offer an appropriate percentage of eligible planned efficiency resources, which meet PJM offering requirements, into the PJM capacity auctions, subject to the same 80%/20% revenue sharing mechanism. The Companies will also recover from ratepayers the prudently incurred costs of any steps taken to eliminate shortfalls, and/or any penalties as a result of such auction participation. Also, as previously ordered by the Commission in Case No. 12-2190-EL-POR, *et al.*, the Companies, as a condition of participating in the EE/PDR Programs, will require participating customers to tender ownership of any energy credits owned by the customers, absent a change in policy approved by the Commission. Projects from customers who participate in the Mercantile Customer Program will be exempt from this requirement.

The Plans also continue a shared savings mechanism that encourages the Companies, through financial incentives, to exceed their statutorily mandated EE/PDR goals ("Shared Savings Mechanism"). The amount of the shared savings, as calculated below, will be recovered through the Companies' Rider DSE2 as set forth in the Rider. The Shared Savings Mechanism is the same as approved by the Commission in the Companies' Previous EE/PDR Portfolio Plans except for the changes approved by the Commission in Stipulated ESP IV²⁵, or as listed below. The following are the key features:

The Shared Savings Mechanism would be triggered only if the Companies exceed both their Annual and Cumulative energy saving targets as set forth in R.C. 4928.66(A)(1)(a) in any given year.

- The Shared Savings Mechanism will be calculated annually on an individual EDU basis, consistent with information presented in each EDU's annual compliance report.
 - The Shared Savings Mechanism will be determined based upon discounted net lifetime benefits as calculated by the Utility Cost Test ("UCT") with the same avoided cost rates and discount rates as utilized in the Companies' Plans. The EDU will receive a percentage of Total Discounted Net Lifetime UCT

²⁵ In the event the EE/PDR determinations in ESP IV are modified, altered, stayed, and/or reversed on further rehearing, appeal, and/or remand, a request to amend the Plan may be filed with the Commission.

7.0 COST-RECOVERY MECHANISM

Benefits based upon the amount of over compliance achieved by the Companies, as shown in the following table:

Incentive Tier	Compliance Percentage	Incentive Percentage
1	<= 100%	0.0%
2	>100-105%	5.0%
3	>105-110%	7.5%
4	>110-115%	10.0%
5	>115%	13.0%

- The savings of all programs will count towards the Companies' compliance with their statutory EE/PDR requirements.²⁶
- For purposes of determining the Companies' eligibility to receive shared savings and the applicable shared savings tier, the Companies shall not include energy savings achieved under the Customer Action Program.
- The Total Discounted Net Lifetime Benefits of all cost-effective energy efficiency programs (as determined by the UCT) are eligible for shared savings; however, the Companies may not receive shared savings for the energy savings under the Customer Action Program or the historic Mercantile Customer Program. Moreover, the Companies' T&D Upgrades Program and projects that receive any funding from the Universal Service Fund as established in RC §4928.51 shall be excluded from the Total Discounted Net Lifetime Benefits calculation, even if cost-effective, and will not be included in the Portfolio's Adjusted Net Benefits.²⁷
- For purposes of determining if the Annual energy targets in this Shared Savings Mechanism have been met, the Companies may include only Annual savings that are reflected in the Companies' Portfolio Status Reports for the year in which the Shared Savings Mechanism is being calculated, and not banked energy efficiency savings from previous years. This Shared Savings Mechanism shall in no way preclude the Companies from applying banked energy efficiency savings from previous years towards the goals established in R.C. 4928.66(A)(1)(a).

The amount of the shared savings will be calculated consistent with the methodology outlined above and Stipulated ESP IV, including the after-tax per year cap in total across the Companies.

²⁶ See R.C. 4928.662(A).

²⁷ See, RC § 4928.66 (A)(2)(d)(i)(IV) and (V).

8.0 COST EFFECTIVENESS

8.1. *Explain and demonstrate how the proposed portfolio will be cost effective as defined by the Total Resource Cost Test (TRC) under Rule 4901:1-39-01(Y).*

The savings generated through these Plans are based upon the requirements and guidance of the TRM as approved by the Commission in Case No. 09-512-GE-UNC and other public sources, which have been used in developing the key inputs to the analysis of the EE/PDR technologies or measures proposed in this Plan.

The costs calculated in the TRC test include the sum of costs incurred by both the Companies and any participating customers. The benefits calculated in the TRC test include the avoided supply costs, including generation, transmission and distribution capacity costs; avoided energy supply costs; and avoided operation and maintenance costs.

The avoided generation capacity and energy supply costs are based on the Companies' forecast of generation capacity and energy prices in the ATSI region of PJM. The avoided transmission and distribution capacity costs are based on the Avoided T&D Study²⁸ undertaken by the Companies. The natural gas avoided costs are based on the historical natural gas citygate price in Ohio escalated annually by the forecasted natural gas spot price at Henry Hub, each as reported by the U.S. Energy Information Administration.

The benefits were then calculated using the measure kWh and kW savings multiplied by the assumed number of measure units and the avoided capacity and energy costs. Similarly, avoided operation and maintenance costs were assessed for certain measures and multiplied by the assumed number of measure units. Annual benefits over the measure life-time were discounted using the Companies' overall post-tax weighted average cost of capital ("WACC") of 8.48 percent.

The costs were calculated by adding the costs of the various programs incurred by the Companies and the participating customers, including, incremental cost, implementation and program delivery, and administrative costs. Costs are assembled at the plan, program or sub-program level and assigned to all measures within the program and/or sub-program. Annual costs over the plan period were also discounted using the Companies' overall post-tax WACC.

Additional costs were included in the cost effectiveness testing that, while not included in the Plans or program budgets, arise from provisions in Stipulated ESP IV. These costs will encourage energy efficiency across various customer segments, and have been allocated at that level for the purposes of the TRC calculation.

As a result, these Plans are cost-effective based on the TRC test as described above, and using the formula set forth in § 4901:1-39-01(Y). The results of the TRC test are presented in PUCO Table 1, which can be found in Appendix C-4 of this Plan, and are expressed as both a net present value and a benefit-cost ratio.

8.2. *Provide background and describe the development and results contained in PUCO Tables 7A through 7G.*

²⁸ Avoided T&D Study, performed by Harbourfront Group, Inc., dated April, 2016.

8.0 COST EFFECTIVENESS

EE/PDR Program Plans

PUCO Tables 7A through 7G summarize TRC test results for each of the five customer segments on an individual program basis, plus the Mercantile Customer Program and the Companies' T&D Improvements Program. These tables are available in Appendix C-4.

9.0 PLAN COMPLIANCE INFORMATION AND OTHER KEY ISSUES

9.1. *Summarize how programs in the portfolio meet the following design criteria (sub-sections may reference other chapters of the plan as they may restate what was included elsewhere in the plan, and are collected here only for convenience of review):*

9.1.1. *Potential for broad participation within the targeted customer class*

The portfolio of EE/PDR programs offers comprehensive participation opportunities to the customers and communities within the Companies' service territories. While the basis of the Plans include the Companies' prior EE/PDR program portfolios, many of the programs have been expanded, providing enhanced opportunities for additional customer participation and savings opportunities.

The residential customer base can be segmented into four program groups including 1) General Service customers 2) Electric Heat and/or Central Air Conditioning customers 4) Low Income customers and 5) New Residential Construction. Each of these residential segments is targeted through the proposed suite of EE/PDR programs.

These programs contain measures designed for either the collective Residential customer base, or specific segments. As an example, all residential customers can participate in the Energy Efficient Products program and the Appliance Turn-In Program subject to program requirements, while Electric Heat and/or Central Air Conditioning customers are targeted for the Comprehensive Audit measure in the Energy Efficient Homes Program or the Direct Load Control Program. Low Income residential customers can participate in any of the above, plus the Low Income Program, which is specifically designed for income constrained customers. In addition, the residential construction segment is targeted by the Energy Efficient Homes Program.

The business and government sectors have programs covering a broad range of energy efficiency opportunities. The Energy Solutions for Business Program for both the Small and Large Enterprise sectors includes various sub-programs targeting both energy efficient buildings, equipment and operations. There is also a Government Tariff Lighting Program, with various lighting measures targeting government entities.

9.1.2. *Cost-effectiveness on a portfolio basis*

The Plan for each company is cost-effective on a portfolio basis. Details are presented in PUCO Table 1 in Appendix C-4.

9.1.3. *Benefit to all members of a customer class, including non-participants*

Benefits to all members of the customer class are outlined in Section 9.1.1.

Non-participants in all classes will also benefit by the educational services and marketing concerning the value of energy efficiency technologies and actions. Regardless of their level of program participation, community members will be made aware of the Companies' programs. This awareness will help even non-participants to make more informed decisions regarding their energy usage.

9.1.4. *Likely magnitude of aggregate energy savings or peak-demand reduction*

The magnitude of aggregate energy savings and peak-demand reduction is presented in PUCO Table 2, Table Summary of Portfolio Energy and Demand Savings, which can be found in Appendix C-4.

9.1.5. *Non-energy benefits*

Residential and C&I customers receive a number of non-energy benefits through these Plans. Residential benefits may include:

- Increased comfort, both in businesses and in the home;
- Improved quality of the housing stock;
- Lower proportion of household income that is devoted to energy costs; and
- Increased ability to pay bills, both in terms of overall amount and timeliness.

C&I non-energy benefits may include:

- Reduced operating costs;
- Improved quality of building stock;
- Increased knowledge about how to control energy costs;
- Improved property values;
- Ability to claim green status; and
- Increased employee satisfaction.

Broader non-energy benefits to the service territory may include:

- Increased public safety and decreased community maintenance costs through the implementation of energy efficient technology;
- Increased employment benefits through the potential creation of “green” jobs; and
- Societal benefits resulting from reduced air emissions.

9.1.6. *Equity among customer classes*

PUCO Table 5, Rate Class Budget and Parity Analysis, included in Appendix C-4 demonstrates equity among customer classes.

9.2. ***Describe relative advantages or disadvantages of energy efficiency and peak-demand reduction programs for the construction of new facilities, replacement of retiring capital stock, or retrofitting existing capital stock.***

In theory, energy efficiency and peak demand reduction programs can potentially postpone the construction of new generation. However, these programs will not become a substitute for such construction, especially since certain customers can opt out of, or override, a program. As generating stations age and the country’s appetite for electricity grows, new generating stations and transmission facilities will still need to be constructed. In order to maximize the period in which EE/PDR programs postpone such construction, the Commission should encourage programs that are, in essence, a reliable substitution for the generation they displace.

The MW and MWh reductions associated with the substitution of older, less efficient appliances and end uses with newer, more efficient appliances and end uses for both the residential and C&I sectors are the most reliable and enduring. This is so because the replacement of old, less efficient, electric consuming devices with new, more efficient ones requires only one act by the consumer. The programs that foster such technology upgrades not only produce enduring energy savings over the measures’ lives but they also contribute to peak-related savings since, often, this more efficient equipment generally has a lower system-

coincident peak contribution than the equipment it replaces. The Plan demonstrates this dual benefit feature of energy efficiency programs.

Conversely, programs in which a customer can choose whether to actively participate are less predictable substitutions for the generation they displace. For example, if a customer has the option of over-riding a peak reduction device, the utility cannot rely on the program as a total substitution for the generation it is intended to replace. This ability to over-ride the program also makes it more difficult to accurately determine the actual amount of generation the program displaces and makes planning for resources more difficult.

9.3. *Describe potential to integrate the proposed programs with similar programs offered by other utilities, if such integration produces the most cost-effective results and is in the public interest.*

While the Companies are not opposed to working with the other Ohio utilities to develop cost effective statewide EE/PDR programs, the Companies believe that any such initiative must be coordinated through the Commission. Periodically the Companies participate in joint calls with the other Ohio utilities to discuss pertinent issues related to either the implementation of current programs or future portfolio filings. As part of the Companies review of best practice programs, a review was conducted of programs offered in the other utilities current portfolio plans to coordinate program designs where possible.

9.4. *Describe the degree to which measures may be bundled within a program so as to avoid lost opportunities to attain energy savings or peak reductions that would not be cost-effective or would be less cost-effective if installed individually.*

A wide range of measures were considered or evaluated for potential inclusion in this portfolio, with those showing acceptable potential appearing in final program designs. These Plans incorporate all of the cost effective measures and programs from that analysis, as well as other measures and programs that may have been less cost effective on their own but were included to provide contributions to the program or portfolio of programs. There are several reasons why it is important to include a wide range of measure options for consumers and businesses when designing programs:

- Many less cost effective measures still produce sizeable energy savings and provide value to customers and the Companies;
- Less cost effective measures can become more cost effective when bundled with others, by sharing the administrative and program operations costs across many measures; and
- Several of the individually less cost effective measures can be obtained through lower cost program options, such as energy efficiency kits, thus keeping their cost benefit ratios as high as possible.

The Companies also revised the program portfolios which included the bundling of programs and measures, and leveraging common program costs to maximize program opportunities and cost-effectiveness. As an example, the new Energy Solutions for Business Programs – Small and Large, includes measures previously provided under the Energy Efficient Equipment and Energy Efficient Buildings programs. By combining these programs, administrative costs and program oversight costs should be reduced while streamlining program processes and simplifying customer participation in the programs.

9.5. *Describe the degree to which the program designs engage the energy efficiency supply chain and leverage partners in program delivery.*

The Companies will continue to coordinate programs with trade allies, community based organizations, and other local market participants through outreach, training and potential co-marketing to ensure that these partners are aware of the Companies' programs, are able to articulate program features and benefits to potential customers and can support customers in their decision to undertake energy efficiency actions. The Companies' implementation strategy relies on a broad range of contractors, partners, trade allies, community agencies, and other entities engaged in energy efficiency to promote, deliver, and support the effective deployment of programs. The Companies will continue to use outside vendors to deliver services in support of many of their programs, with some vendors operating as turnkey program delivery contractors, and others providing specific functions across multiple programs. In addition, many of the Companies' programs depend on trade allies and other market partners to engage customers, promote programs, evaluate projects, and install energy efficient equipment. The Companies may be offering contractors incentives for select measures in exchange for providing end use customers education and awareness of efficient products. The Companies' objective is to strike a reasonable balance of costs, customer value, customer choice, quality of service, and energy savings.

The Companies' Supply Chain Group will be involved with external entities by utilizing bids and/or negotiating contract awards and extensions, as most appropriate, given the situation and the partner(s) involved. Supply Chain creates Purchase Orders, Contracts, or other written agreements with EE/PDR suppliers to ensure a control process is in place for appropriate financial terms, legal safeguards, compliance with FirstEnergy procurement and contracting policies and procedures, and management of these outside suppliers. This group deals with suppliers in a fair and impartial way so that no supplier is given an improper competitive advantage over another. Offers for goods and services are objectively evaluated, with buying decisions based on the best interests of FirstEnergy and its customers. In addition to cost, these decisions are based on terms that include:

- fair and equitable to buyer and seller;
- competitive to the maximum extent practicable;
- founded on a sound business basis; and
- appropriate financial terms and legal safeguards.

The Companies will continue to leverage their relationships throughout FirstEnergy's service territory when possible, in an effort to minimize costs by creating economies of scale and efficiencies through consistency. For example, ADM Associates Inc. which is the Companies' independent evaluation contractor for Ohio and Pennsylvania at the time of this filing, also assisted FirstEnergy's Maryland and Pennsylvania utilities with the development of EE/PDR Plans and programs during 2014 and 2015. Much of this work, including program design, measure projections and modeling was leveraged in the development of this Plan, thus providing the opportunity to leverage certain tasks and avoid the costs of duplicate efforts. FirstEnergy has also developed systems, such as its tracking and reporting system that it plans to utilize in all states in which its utilities operate energy efficiency programs. Where applicable, costs for such systems are spread over larger customer bases across multiple jurisdictions, thus reducing costs for all on an individual customer basis.

9.0 PLAN COMPLIANCE INFORMATION AND OTHER KEY ISSUES

EE/PDR Program Plans

9.6. *Describe the degree to which the programs successfully address market barriers or market failures.*

The programs in the Companies' EE/PDR Plans address several barriers that face both consumers and businesses regarding energy efficiency actions they can take. The most common barriers are addressed below:

- **Lack of adequate information about energy efficiency options** – The Plans address the potential for a lack of information in the Companies' service territories through both broad-based marketing campaigns, and program-specific marketing elements. The Plans also include a behavior program where the Companies will provide Energy Usage Reports to residential customers including information about energy efficiency opportunities that are available to them. Additionally, both Residential and C&I customers will have access to energy efficiency audits and other educational based programs enabling customers to obtain customized information about their homes or businesses, energy efficiency and conservation information and available incentives for participating in company programs.
- **Higher first cost of energy efficient equipment, appliances and building upgrades** - Several programs provide incentives that bring the first cost of equipment and projects down by covering some of the incremental costs over standard options. For low income customers, many measures and services are offered without any additional up-front costs.
- **No comprehensive service to identify all savings opportunities in a home or building** - The Portfolio includes comprehensive programs for Residential and C&I customers through various energy audit and education options.
- **Lack of experience with high efficiency technologies** – The Companies' proposed programs include energy efficiency kits designed to introduce Residential and Small Enterprise customers to common efficiency measures. These kits include information such as technology highlights, instructions for proper use of kit contents, and information on how to take advantage of the Companies' suite of EE/PDR programs. Small Enterprise customers will also be targeted with an audit with direct install measures providing similar customer engagement, education and information.
- **Limited discretionary funds in low income households** - In recognition of this barrier, residential programs include either waiver of fees, significant rebates, and/or direct installation of measures to ensure that low income households can fully benefit from the portfolio of programs being offered.
- **High disposal cost and lack of knowledge of proper appliance disposal** - The Appliance Turn-In Program addresses the concerns of customers with outdated energy intensive appliances through: 1) incentives for relinquishing the unit(s); 2) lowered energy bills; 3) knowledge that the unit(s) are disposed of in an environmentally friendly manner; and 4) a program design that does not require the purchase of a new appliance to participate in this program.

9.7. *Describe the degree to which the programs leverage knowledge gained from existing programs successes and failures.*

There has been experience in the delivery of basic energy efficiency programs nationally for at least two decades, and a wide body of literature exists with findings related to successful implementation strategies and best practices for achieving results. The Companies have reviewed key energy efficiency industry reports

documenting best practices, along with industry awards and other utility offerings that have demonstrated proven results. This well-documented experience from elsewhere is augmented with the experience that the Companies have gained from implementing their programs since 2009, all of which is embedded in the Plans, and the experience of the Companies' affiliates from implementing programs over the same timeframe in both Ohio and other jurisdictions. The final set of programs recommended in these Plans represents a combination of tried-and-true delivery approaches of commercially available technologies that have a high probability of being accepted by consumers and business customers during the Plan Period, and to a lesser degree, newer and innovative programs and delivery approaches that expand the opportunities and savings of the portfolio to target additional customers and end uses.

The Companies' experience through their own and their affiliates' program implementation activities across four states has revealed important lessons regarding implementation vendor expectations, consumer marketing and education, and the importance of gaining the support of local contractors and other program allies. The provisions established in Stipulated ESP IV necessitate effective consumer marketing and education campaigns that engage local trade allies and contractors. These lessons are factored into the Companies' EE/PDR Plan implementation activities. While many programs from the Companies' Prior Plans are included in the Plans, the Companies will learn additional lessons from process evaluations as the portfolio of programs and measures are launched and additional experience is gained. Importantly, the portfolios rely on a solid foundation of established program designs and vendor experiences spanning many years across many jurisdictions. The portfolios build off of existing successes, while newly introduced programs provide incremental savings opportunities.

9.8. *Describe the degree to which the programs promote market transformation.*

Market transformation occurs when the overall market for a product, such as high efficiency LED light bulbs, becomes the new standard model, rather than the outlier. The primary ways in which the programs in this portfolio address market transformation are: 1) by providing customers with unbiased customized information about the opportunities that exist in their homes and the specific types of products they can buy to achieve those savings; 2) by promoting the products that customers can easily obtain so that customers can immediately experience the quality, hassle free nature of the products and test their claims for lowering utility bills; 3) by providing customers with audits and other educational approaches enabling them to understand what opportunities are available to them and technology upgrades that promote energy savings; 4) by helping customers to understand how bill savings will offset initial incremental investment; and 5) increased standards applicable to certain technologies promote energy efficiency supply chain improvements as manufacturers and distributors will discontinue lesser efficient technologies over time. As customers experience these benefits, the demand for the offered products should increase until the higher efficient technology becomes the norm.

10.0 LIST OF APPENDICES

Separate Appendices A – C are provided for OE, CEI, and TE as follows:

- Appendix A: Results of Prior Plans and Projections
- Appendix B: Portfolio Budget and Savings Detail
 - Appendix B-1: Budgets by Cost Category by Year and Total
 - Appendix B-2: Savings by Sub-program by Year and Total
 - Appendix B-3: Plan Budget Cost Categories
- Appendix C: Program Assumptions & PUCO Tables
 - Appendix C-1: EE&C / DR Program Measure Assumptions
 - Appendix C-2: Forecasted Number of Units
 - Appendix C-3: Portfolio Rebate and Measure Eligibility Table
 - Appendix C-4:
 - PUCO 1: Portfolio Summary of Lifetime Costs and Benefits
 - PUCO 2: Summary of Portfolio Energy and Demand Savings
 - PUCO 3: Summary of Portfolio Costs
 - PUCO 4: Program Summaries
 - PUCO 5: Budget and Parity Analysis Summary
 - PUCO 5A: Energy Savings and Parity Analysis Summary
 - PUCO 6A: Portfolio-Specific Assignment of EE&C Costs
 - PUCO 6B: Allocation of Common Costs to Applicable Customer Sector
 - PUCO 6C: Summary of Portfolio EE&C Costs
 - PUCO 7A-7G: TRC Benefits Table
- Appendix D: Market Potential Study

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Ohio Edison - Appendix A: Results of Existing Plan

Appendix A-1 Summary Annualized Energy and Demand Portfolio Impacts, 2009 - 2015

Cumulative 2009 - 2015 Energy Efficiency and Peak Demand Reduction Results		
Utility	Energy Savings, MWh^{1, 2}	Coincident Peak Demand Reductions, MW^{1, 2, 3}
OE	1,741,966	287
CEI	1,504,135	221
TE	702,081	119
TOTAL	3,948,182	627
<p>¹ Includes preliminary estimate of cumulative 2013-2015 Portfolio Results plus results of the Companies' 2009-2012 Portfolio progress. Also includes projects pending PUCO approval 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.</p> <p>² 2015 values are based on preliminary estimates. Values shown through 2014 are based on the Companies' Annual Compliance Filings.</p> <p>³ Includes coincident peak demand reductions for energy efficiency and excludes interruptible demand reductions.</p>		

Appendix A-2 Summary Annualized Energy and Demand Portfolio Impacts

2016 Projection Energy Efficiency and Incremental Coincident Peak Demand Reduction Results		
Utility	Energy Savings, MWh ¹	Coincident Peak Demand Reductions, MW ^{1, 2}
OE	126,329	21
CEI	85,256	12
TE	44,976	7
TOTAL	256,561	39
¹ Values shown are preliminary estimates and include projections for the Companies existing Low Income Program, Mercantile Customer Program, Transmission and Distribution Savings and Customer Action Program. ² Includes coincident peak demand reductions for energy efficiency and excludes interruptible demand reductions.		

Cumulative EOY 2016 Estimated Energy Efficiency and Coincident Peak Demand Reduction Results ¹		
Utility	Energy Savings, MWh	Coincident Peak Demand Reductions, MW ²
OE	1,868,294	308
CEI	1,589,391	233
TE	747,057	126
TOTAL	4,204,743	666
¹ Sum of Appendix A-1 and 2016 Projection ² Includes coincident peak demand reductions for energy efficiency and excludes interruptible demand reductions.		

Ohio Edison - Appendix B: Portfolio Budget Detail

Appendix B-1: Program Cost by Program Year

Ohio Edison - Program Year 2017					
Sector	Program	Sub-Program	Operations	Incentives	Total
Residential	Appliance Turn In Program	Appliance Turn In	\$2,251,656	\$620,300	\$2,871,955
		Sub-Total	\$2,251,656	\$620,300	\$2,871,955
	Energy Efficient Homes Program	School Education	\$680,320	\$415,976	\$1,096,296
		EE Kits	\$762,856	\$3,078,010	\$3,840,866
		Audits & Education	\$1,046,727	\$658,673	\$1,705,400
		Behavioral	\$1,315,587	\$0	\$1,315,587
		Smart Thermostat	\$170,806	\$497,200	\$668,006
		Sub-Total	\$3,976,296	\$4,649,858	\$8,626,155
	Energy Efficient Products Program	Appliances	\$106,403	\$632,035	\$738,438
		Consumer Electronics	\$53,528	\$135,750	\$189,278
		Lighting	\$1,434,534	\$1,237,353	\$2,671,887
		HVAC	\$353,079	\$1,596,006	\$1,949,085
	Sub-Total	\$1,947,543	\$3,601,144	\$5,548,687	
	Customer Action Program - Res	Customer Action Program - Res	\$259,882	\$0	\$259,882
		Sub-Total	\$259,882	\$0	\$259,882
	Residential Demand Response Program	Direct Load Control	\$342,927	\$0	\$342,927
		Sub-Total	\$342,927	\$0	\$342,927
	Low Income Energy Efficiency Program	Community Connections	\$241,462	\$0	\$241,462
		LI - New Homes	\$102,228	\$6,899	\$109,127
		Sub-Total	\$343,691	\$6,899	\$350,590
Residential Total			\$9,121,995	\$8,878,201	\$18,000,196
Small Enterprise	C&I Energy Solutions for Business Program - Small	HVAC - SCI	\$179,002	\$424,774	\$603,776
		Lighting - SCI	\$944,321	\$2,009,963	\$2,954,285
		Food Service	\$68,583	\$146,466	\$215,049
		Appliance Turn In - SCI	\$53,177	\$11,263	\$64,440
		Appliances - SCI	\$72,127	\$29,729	\$101,856
		Consumer Electronics - SCI	\$58,680	\$14,196	\$72,877
		Agricultural	\$105,372	\$43,063	\$148,435
		Data Centers - SCI	\$265,500	\$141,050	\$406,550
		Custom - SCI	\$825,325	\$1,527,867	\$2,353,192
		Retro - Commissioning - SCI	\$336,496	\$387,176	\$723,672
		Custom Buildings - SCI	\$453,422	\$606,420	\$1,059,841
		Audits & Education - SCI	\$3,068,218	\$3,336,495	\$6,404,713
		Sub-Total	\$6,430,223	\$8,678,463	\$15,108,686
	Customer Action Program - SCI	Customer Action Program - SCI	\$270,815	\$0	\$270,815
		Sub-Total	\$270,815	\$0	\$270,815
		Small C&I Total			\$6,701,038
Large Enterprise (Mercantile Utility)	C&I Energy Solutions for Business Program - Large	HVAC - LCI	\$249,440	\$335,569	\$585,010
		Lighting - LCI	\$408,173	\$578,774	\$986,947
		Data Centers - LCI	\$393,272	\$230,003	\$623,275
		Custom - LCI	\$2,130,548	\$3,138,385	\$5,268,933
		Retro - Commissioning - LCI	\$163,272	\$119,131	\$282,403
		Custom Buildings - LCI	\$572,661	\$661,860	\$1,234,521
		Audits & Education - LCI	\$415,564	\$211,200	\$626,764
		Sub-Total	\$4,332,931	\$5,274,923	\$9,607,854
	C&I Demand Response Program - Large	Demand Response - LCI	\$5,200	\$0	\$5,200
		Sub-Total	\$5,200	\$0	\$5,200
	Customer Action Program - LCI	Customer Action Program - LCI	\$105,977	\$0	\$105,977
Sub-Total		\$105,977	\$0	\$105,977	
Large C&I Total			\$4,444,107	\$5,274,923	\$9,719,030
Government	Government Tariff Lighting Program	Government Tariff Lighting	\$54,922	\$31,750	\$86,672
		Sub-Total	\$54,922	\$31,750	\$86,672
Non - Residential Total			\$11,200,067	\$13,985,136	\$25,185,203
Mercantile	Mercantile Customer Program	Mercantile	\$211,294	\$0	\$211,294
		Sub-Total	\$211,294	\$0	\$211,294
Mercantile Total			\$211,294	\$0	\$211,294
Other	Transmission & Distribution Upgrades	T&D Upgrades	\$5,000	\$0	\$5,000
		Sub-Total	\$5,000	\$0	\$5,000
	Smart Grid Modernization Initiative	Smart Grid	\$0	\$0	\$0
		Sub-Total	\$0	\$0	\$0
	Energy Special Improvement District	Energy Special Improvement District	\$0	\$0	\$0
Sub-Total			\$0	\$0	\$0
Other Total			\$5,000	\$0	\$5,000
Total			\$20,538,355	\$22,863,337	\$43,401,693

Appendix B-1: Program Cost by Program Year

Ohio Edison - Program Year 2018						
Sector	Program	Sub-Program	Operations	Incentives	Total	
Residential	Appliance Turn In Program	Appliance Turn In	\$2,156,231	\$620,300	\$2,776,531	
		Sub-Total	\$2,156,231	\$620,300	\$2,776,531	
	Energy Efficient Homes Program	School Education	\$540,354	\$415,976	\$956,330	
		EE Kits	\$586,825	\$3,078,010	\$3,664,836	
		Audits & Education	\$902,513	\$658,673	\$1,561,185	
		Behavioral	\$1,166,857	\$0	\$1,166,857	
		Smart Thermostat	\$158,413	\$497,200	\$655,613	
		Sub-Total	\$3,354,962	\$4,649,858	\$8,004,820	
	Energy Efficient Products Program	Appliances	\$84,857	\$632,035	\$716,892	
		Consumer Electronics	\$44,320	\$135,750	\$180,070	
		Lighting	\$1,120,638	\$1,532,986	\$2,653,624	
		HVAC	\$330,991	\$1,596,006	\$1,926,997	
	Sub-Total	\$1,580,807	\$3,896,776	\$5,477,583		
	Customer Action Program - Res	Customer Action Program - Res	\$258,383	\$0	\$258,383	
		Sub-Total	\$258,383	\$0	\$258,383	
	Residential Demand Response Program	Direct Load Control	\$337,397	\$0	\$337,397	
		Sub-Total	\$337,397	\$0	\$337,397	
	Low Income Energy Efficiency Program	Community Connections	\$228,581	\$0	\$228,581	
		LI - New Homes	\$57,589	\$6,899	\$64,488	
		Sub-Total	\$286,170	\$6,899	\$293,069	
Residential Total			\$7,973,949	\$9,173,833	\$17,147,782	
Small Enterprise	C&I Energy Solutions for Business Program - Small	HVAC - SCI	\$155,776	\$428,470	\$584,246	
		Lighting - SCI	\$971,948	\$2,223,122	\$3,195,070	
		Food Service	\$50,643	\$159,978	\$210,622	
		Appliance Turn In - SCI	\$42,798	\$12,415	\$55,213	
		Appliances - SCI	\$54,295	\$32,817	\$87,113	
		Consumer Electronics - SCI	\$40,197	\$15,953	\$56,150	
		Agricultural	\$89,098	\$47,526	\$136,624	
		Data Centers - SCI	\$268,941	\$152,065	\$421,007	
		Custom - SCI	\$847,768	\$1,687,014	\$2,534,782	
		Retro - Commissioning - SCI	\$337,968	\$416,958	\$754,926	
		Custom Buildings - SCI	\$472,438	\$674,128	\$1,146,566	
		Audits & Education - SCI	\$2,932,680	\$3,704,684	\$6,637,363	
		Sub-Total	\$6,264,551	\$9,555,131	\$15,819,682	
	Customer Action Program - SCI	Customer Action Program - SCI	\$269,243	\$0	\$269,243	
		Sub-Total	\$269,243	\$0	\$269,243	
	Small C&I Total			\$6,533,794	\$9,555,131	\$16,088,925
	Large Enterprise (Mercantile Utility)	C&I Energy Solutions for Business Program - Large	HVAC - LCI	\$192,334	\$340,610	\$532,944
Lighting - LCI			\$377,321	\$672,524	\$1,049,846	
Data Centers - LCI			\$353,551	\$230,321	\$583,871	
Custom - LCI			\$1,733,441	\$3,303,985	\$5,037,426	
Retro - Commissioning - LCI			\$136,333	\$129,059	\$265,392	
Custom Buildings - LCI			\$546,963	\$708,922	\$1,255,884	
Audits & Education - LCI			\$327,831	\$220,800	\$548,631	
Sub-Total			\$3,667,774	\$5,606,221	\$9,273,995	
C&I Demand Response Program - Large		Demand Response - LCI	\$5,200	\$0	\$5,200	
		Sub-Total	\$5,200	\$0	\$5,200	
Customer Action Program - LCI		Customer Action Program - LCI	\$104,071	\$0	\$104,071	
		Sub-Total	\$104,071	\$0	\$104,071	
Large C&I Total			\$3,777,045	\$5,606,221	\$9,383,266	
Government	Government Tariff Lighting Program	Government Tariff Lighting	\$42,954	\$52,375	\$95,329	
		Sub-Total	\$42,954	\$52,375	\$95,329	
Non - Residential Total			\$10,353,793	\$15,213,727	\$25,567,520	
Mercantile	Mercantile Customer Program	Mercantile	\$123,481	\$0	\$123,481	
		Sub-Total	\$123,481	\$0	\$123,481	
Mercantile Total			\$123,481	\$0	\$123,481	
Other	Transmission & Distribution Upgrades	T&D Upgrades	\$5,000	\$0	\$5,000	
		Sub-Total	\$5,000	\$0	\$5,000	
	Smart Grid Modernization Initiative	Smart Grid	\$0	\$0	\$0	
		Sub-Total	\$0	\$0	\$0	
	Energy Special Improvement District	Energy Special Improvement District	\$0	\$0	\$0	
Sub-Total	\$0	\$0	\$0			
Other Total			\$5,000	\$0	\$5,000	
Total			\$18,456,223	\$24,387,560	\$42,843,783	

Appendix B-1: Program Cost by Program Year

Ohio Edison - Program Year 2019						
Sector	Program	Sub-Program	Operations	Incentives	Total	
Residential	Appliance Turn In Program	Appliance Turn In	\$2,313,308	\$670,928	\$2,984,236	
		Sub-Total	\$2,313,308	\$670,928	\$2,984,236	
	Energy Efficient Homes Program	School Education	\$551,090	\$415,976	\$967,065	
		EE Kits	\$627,443	\$3,345,099	\$3,972,542	
		Audits & Education	\$966,772	\$724,475	\$1,691,247	
		Behavioral	\$1,162,583	\$0	\$1,162,583	
		Smart Thermostat	\$157,259	\$497,200	\$654,459	
		Sub-Total	\$3,465,147	\$4,982,750	\$8,447,897	
	Energy Efficient Products Program	Appliances	\$86,999	\$651,670	\$738,669	
		Consumer Electronics	\$44,443	\$135,750	\$180,193	
		Lighting	\$1,135,886	\$1,522,560	\$2,658,446	
		HVAC	\$338,676	\$1,702,161	\$2,040,837	
	Sub-Total	\$1,606,004	\$4,012,141	\$5,618,145		
	Customer Action Program - Res	Customer Action Program - Res	\$259,442	\$0	\$259,442	
		Sub-Total	\$259,442	\$0	\$259,442	
	Residential Demand Response Program	Direct Load Control	\$344,313	\$0	\$344,313	
		Sub-Total	\$344,313	\$0	\$344,313	
	Low Income Energy Efficiency Program	Community Connections	\$228,887	\$0	\$228,887	
LI - New Homes		\$58,754	\$6,899	\$65,653		
Sub-Total		\$287,640	\$6,899	\$294,539		
Residential Total			\$8,275,855	\$9,672,718	\$17,948,573	
Small Enterprise	C&I Energy Solutions for Business Program - Small	HVAC - SCI	\$158,061	\$434,398	\$592,459	
		Lighting - SCI	\$975,021	\$2,236,810	\$3,211,831	
		Food Service	\$51,510	\$159,978	\$211,489	
		Appliance Turn In - SCI	\$47,022	\$13,628	\$60,650	
		Appliances - SCI	\$56,433	\$34,379	\$90,812	
		Consumer Electronics - SCI	\$41,396	\$17,281	\$58,677	
		Agricultural	\$89,956	\$47,526	\$137,482	
		Data Centers - SCI	\$269,199	\$152,065	\$421,265	
		Custom - SCI	\$858,385	\$1,707,609	\$2,565,994	
		Retro - Commissioning - SCI	\$338,213	\$416,958	\$755,172	
		Custom Buildings - SCI	\$472,657	\$674,128	\$1,146,785	
		Audits & Education - SCI	\$2,966,844	\$3,704,684	\$6,671,528	
		Sub-Total	\$6,324,699	\$9,599,445	\$15,924,143	
	Customer Action Program - SCI	Customer Action Program - SCI	\$270,354	\$0	\$270,354	
		Sub-Total	\$270,354	\$0	\$270,354	
		Small C&I Total			\$6,595,053	\$9,599,445
	Large Enterprise (Mercantile Utility)	C&I Energy Solutions for Business Program - Large	HVAC - LCI	\$200,092	\$357,170	\$557,262
Lighting - LCI			\$408,109	\$752,203	\$1,160,312	
Data Centers - LCI			\$365,003	\$243,468	\$608,471	
Custom - LCI			\$1,837,317	\$3,539,775	\$5,377,092	
Retro - Commissioning - LCI			\$143,163	\$138,986	\$282,149	
Custom Buildings - LCI			\$581,699	\$763,730	\$1,345,429	
Audits & Education - LCI			\$334,069	\$259,200	\$593,269	
Sub-Total			\$3,869,453	\$6,054,531	\$9,923,984	
C&I Demand Response Program - Large		Demand Response - LCI	\$5,200	\$0	\$5,200	
		Sub-Total	\$5,200	\$0	\$5,200	
Customer Action Program - LCI		Customer Action Program - LCI	\$105,417	\$0	\$105,417	
		Sub-Total	\$105,417	\$0	\$105,417	
	Large C&I Total			\$3,980,070	\$6,054,531	\$10,034,602
Government	Government Tariff Lighting Program	Government Tariff Lighting	\$43,521	\$52,375	\$95,896	
		Sub-Total	\$43,521	\$52,375	\$95,896	
Non - Residential Total			\$10,618,644	\$15,706,351	\$26,324,995	
Mercantile	Mercantile Customer Program	Mercantile	\$124,145	\$0	\$124,145	
		Sub-Total	\$124,145	\$0	\$124,145	
Mercantile Total			\$124,145	\$0	\$124,145	
Other	Transmission & Distribution Upgrades	T&D Upgrades	\$5,000	\$0	\$5,000	
		Sub-Total	\$5,000	\$0	\$5,000	
	Smart Grid Modernization Initiative	Smart Grid	\$0	\$0	\$0	
		Sub-Total	\$0	\$0	\$0	
	Energy Special Improvement District	Energy Special Improvement District	\$0	\$0	\$0	
		Sub-Total	\$0	\$0	\$0	
Other Total			\$5,000	\$0	\$5,000	
Total			\$19,023,643	\$25,379,069	\$44,402,713	

Appendix B-1: Program Cost by Program Year

Ohio Edison - Program Year 2017 - 2019						
Sector	Program	Sub-Program	Operations	Incentives	Total	
Residential	Appliance Turn In Program	Appliance Turn In	\$6,721,194	\$1,911,527	\$8,632,722	
		Sub-Total	\$6,721,194	\$1,911,527	\$8,632,722	
	Energy Efficient Homes Program	School Education	\$1,771,764	\$1,247,927	\$3,019,691	
		EE Kits	\$1,977,125	\$9,501,120	\$11,478,244	
		Audits & Education	\$2,916,011	\$2,041,821	\$4,957,832	
		Behavioral	\$3,645,027	\$0	\$3,645,027	
		Smart Thermostat	\$486,478	\$1,491,600	\$1,978,078	
		Sub-Total	\$10,796,405	\$14,282,467	\$25,078,872	
	Energy Efficient Products Program	Appliances	\$278,260	\$1,915,739	\$2,193,998	
		Consumer Electronics	\$142,291	\$407,250	\$549,541	
		Lighting	\$3,691,058	\$4,292,899	\$7,983,956	
		HVAC	\$1,022,745	\$4,894,173	\$5,916,919	
	Sub-Total	\$5,134,354	\$11,510,061	\$16,644,415		
	Customer Action Program - Res	Customer Action Program - Res	\$777,708	\$0	\$777,708	
		Sub-Total	\$777,708	\$0	\$777,708	
	Residential Demand Response Program	Direct Load Control	\$1,024,638	\$0	\$1,024,638	
		Sub-Total	\$1,024,638	\$0	\$1,024,638	
	Low Income Energy Efficiency Program	Community Connections	\$698,930	\$0	\$698,930	
		LI - New Homes	\$218,571	\$20,697	\$239,268	
		Sub-Total	\$917,501	\$20,697	\$938,198	
Residential Total			\$25,371,799	\$27,724,752	\$53,096,551	
Small Enterprise	C&I Energy Solutions for Business Program - Small	HVAC - SCI	\$492,840	\$1,287,642	\$1,780,482	
		Lighting - SCI	\$2,891,290	\$6,469,895	\$9,361,185	
		Food Service	\$170,737	\$466,423	\$637,160	
		Appliance Turn In - SCI	\$142,997	\$37,307	\$180,303	
		Appliances - SCI	\$182,856	\$96,926	\$279,781	
		Consumer Electronics - SCI	\$140,273	\$47,431	\$187,704	
		Agricultural	\$284,426	\$138,114	\$422,540	
		Data Centers - SCI	\$803,641	\$445,181	\$1,248,821	
		Custom - SCI	\$2,531,478	\$4,922,490	\$7,453,968	
		Retro - Commissioning - SCI	\$1,012,677	\$1,221,092	\$2,233,770	
		Custom Buildings - SCI	\$1,398,517	\$1,954,675	\$3,353,192	
		Audits & Education - SCI	\$8,967,742	\$10,745,862	\$19,713,604	
		Sub-Total	\$19,019,473	\$27,833,039	\$46,852,511	
	Customer Action Program - SCI	Customer Action Program - SCI	\$810,413	\$0	\$810,413	
		Sub-Total	\$810,413	\$0	\$810,413	
	Small C&I Total			\$19,829,886	\$27,833,039	\$47,662,924
	Large Enterprise (Mercantile Utility)	C&I Energy Solutions for Business Program - Large	HVAC - LCI	\$641,866	\$1,033,349	\$1,675,216
Lighting - LCI			\$1,193,603	\$2,003,501	\$3,197,104	
Data Centers - LCI			\$1,111,826	\$703,792	\$1,815,618	
Custom - LCI			\$5,701,306	\$9,982,146	\$15,683,451	
Retro - Commissioning - LCI			\$442,769	\$387,176	\$829,944	
Custom Buildings - LCI			\$1,701,323	\$2,134,512	\$3,835,835	
Audits & Education - LCI			\$1,077,465	\$691,200	\$1,768,665	
Sub-Total			\$11,870,158	\$16,935,675	\$28,805,833	
C&I Demand Response Program - Large		Demand Response - LCI	\$15,600	\$0	\$15,600	
		Sub-Total	\$15,600	\$0	\$15,600	
Customer Action Program - LCI		Customer Action Program - LCI	\$315,465	\$0	\$315,465	
		Sub-Total	\$315,465	\$0	\$315,465	
Large C&I Total			\$12,201,222	\$16,935,675	\$29,136,898	
Government	Government Tariff Lighting Program	Government Tariff Lighting	\$141,396	\$136,500	\$277,896	
		Sub-Total	\$141,396	\$136,500	\$277,896	
Non - Residential Total			\$32,172,504	\$44,905,214	\$77,077,718	
Mercantile	Mercantile Customer Program	Mercantile	\$458,919	\$0	\$458,919	
		Sub-Total	\$458,919	\$0	\$458,919	
Mercantile Total			\$458,919	\$0	\$458,919	
Other	Transmission & Distribution Upgrades	T&D Upgrades	\$15,000	\$0	\$15,000	
		Sub-Total	\$15,000	\$0	\$15,000	
	Smart Grid Modernization Initiative	Smart Grid	\$0	\$0	\$0	
		Sub-Total	\$0	\$0	\$0	
	Energy Special Improvement District	Energy Special Improvement District	\$0	\$0	\$0	
Sub-Total			\$0	\$0	\$0	
Other Total			\$15,000	\$0	\$15,000	
Total			\$58,018,222	\$72,629,966	\$130,648,188	

Appendix B-2: Program Savings by Program Year

Ohio Edison			2017		2018		2019		Total		
Sector	Program	Sub-Program	kWh	kW	kWh	kW	kWh	kW	kWh	kW	
Residential	Appliance Turn In Program	Appliance Turn In	13,040,800	2,984	13,040,800	2,984	14,105,048	3,228	40,186,648	9,197	
		Sub-Total	13,040,800	2,984	13,040,800	2,984	14,105,048	3,228	40,186,648	9,197	
	Energy Efficient Homes Program	School Education	3,216,202	390	3,216,202	390	3,216,202	390	9,648,607	1,170	
		EE Kits	23,557,911	2,924	23,557,911	2,924	25,602,109	3,178	72,717,931	9,027	
		Audits & Education	3,516,402	662	3,516,402	662	3,867,969	729	10,900,773	2,053	
		Behavioral	16,970,897	3,042	25,182,148	4,025	26,058,602	4,135	68,211,648	11,201	
		Smart Thermostat	816,576	93	816,576	93	816,576	93	2,449,729	280	
		Sub-Total	48,077,989	7,112	56,289,240	8,095	59,561,459	8,525	163,928,688	23,731	
	Energy Efficient Products Program	Appliances	3,541,572	497	3,541,572	497	3,641,205	508	10,724,349	1,502	
		Consumer Electronics	2,822,659	428	2,822,659	428	2,822,659	428	8,467,976	1,283	
		Lighting	15,569,079	1,647	19,239,304	2,035	19,091,397	2,019	53,899,780	5,701	
		HVAC	4,715,736	1,032	4,715,736	1,032	5,094,493	1,124	14,525,964	3,188	
	Sub-Total	26,649,046	3,603	30,319,271	3,991	30,649,753	4,079	87,618,070	11,673		
	Customer Action Program - Res	Customer Action Program - Res	4,038,072	461	2,202,585	251	1,101,292	126	7,341,949	838	
		Sub-Total	4,038,072	461	2,202,585	251	1,101,292	126	7,341,949	838	
	Residential Demand Response Program	Direct Load Control	0	5,081	0	5,031	0	4,980	0	5,031	
		Sub-Total	0	5,081	0	5,031	0	4,980	0	5,031	
Low Income Energy Efficiency Program	Community Connections	2,487,347	284	2,487,347	284	2,487,347	284	7,462,041	852		
	LI - New Homes	22,228	11	22,228	11	22,228	11	66,683	32		
	Sub-Total	2,509,575	295	2,509,575	295	2,509,575	295	7,528,724	884		
Residential Total			94,315,481	19,536	104,361,469	20,647	107,927,128	21,232	306,604,078	51,353	
Small Enterprise	C&I Energy Solutions for Business Program - Small	HVAC - SCI	2,894,257	2,186	2,915,315	2,202	2,949,494	2,221	8,759,065	6,609	
		Lighting - SCI	28,516,767	5,319	31,417,544	5,880	31,485,696	5,876	91,420,007	17,075	
		Food Service	1,688,940	216	1,845,035	236	1,845,035	236	5,379,010	688	
		Appliance Turn In - SCI	225,652	41	249,023	45	273,292	49	747,967	135	
		Appliances - SCI	472,446	50	522,723	56	560,288	59	1,555,458	165	
		Consumer Electronics - SCI	94,340	9	106,208	10	114,862	10	315,410	29	
		Agricultural	110,009	18	121,823	20	121,823	20	353,656	58	
		Data Centers - SCI	1,136,476	130	1,226,155	140	1,226,155	140	3,588,786	410	
		Custom - SCI	20,910,770	2,468	23,088,897	2,722	23,370,768	2,763	67,370,435	7,952	
		Retro - Commissioning - SCI	5,298,983	605	5,706,597	651	5,706,597	651	16,712,177	1,908	
		Custom Buildings - SCI	8,299,613	947	9,226,281	1,053	9,226,281	1,053	26,752,176	3,054	
		Audits & Education - SCI	13,413,478	1,513	15,095,596	1,702	15,095,596	1,702	43,604,670	4,916	
	Sub-Total	83,061,730	13,501	91,521,199	14,716	91,975,889	14,781	266,558,817	42,998		
	Customer Action Program - SCI	Customer Action Program - SCI	1,184,272	135	645,967	74	322,983	37	2,153,222	246	
		Sub-Total	1,184,272	135	645,967	74	322,983	37	2,153,222	246	
	Small C&I Total			84,246,002	13,636	92,167,165	14,790	92,298,872	14,818	268,712,040	43,244
	Large Enterprise (Mercantile Utility)	C&I Energy Solutions for Business Program - Large	HVAC - LCI	2,407,724	1,265	2,461,399	1,313	2,637,596	1,470	7,506,718	4,048
Lighting - LCI			7,844,568	1,525	9,005,963	1,758	9,988,672	1,949	26,839,202	5,232	
Data Centers - LCI			2,238,425	256	2,242,544	256	2,247,694	257	6,728,663	768	
Custom - LCI			40,694,659	4,660	42,841,953	4,905	45,899,375	5,264	129,435,988	14,828	
Retro - Commissioning - LCI			1,544,742	176	1,673,470	191	1,802,199	206	5,020,410	573	
Custom Buildings - LCI			8,582,177	980	9,192,411	1,049	9,903,093	1,130	27,677,681	3,160	
Audits & Education - LCI			491,542	56	518,850	59	546,158	62	1,556,551	178	
Sub-Total		63,803,837	8,917	67,936,591	9,531	73,024,786	10,338	204,765,214	28,786		
C&I Demand Response Program - Large		Demand Response - LCI	0	288,360	0	288,360	0	288,360	0	288,360	
		Sub-Total	0	288,360	0	288,360	0	288,360	0	288,360	
Customer Action Program - LCI	Customer Action Program - LCI	611,313	70	333,443	38	166,722	19	1,111,477	127		
	Sub-Total	611,313	70	333,443	38	166,722	19	1,111,477	127		
	Large C&I Total			64,415,150	297,347	68,270,034	297,929	73,191,508	298,717	205,876,692	317,273
Government	Government Tariff Lighting Program	Government Tariff Lighting	134,936	11	205,558	11	205,558	11	546,051	34	
		Sub-Total	134,936	11	205,558	11	205,558	11	546,051	34	
Non - Residential Total			148,796,089	310,994	160,642,757	312,730	165,695,937	313,546	475,134,783	360,551	
Mercantile	Mercantile Customer Program	Mercantile	26,164,465	3,186	13,082,764	1,593	13,082,764	1,593	52,329,993	6,372	
		Sub-Total	26,164,465	3,186	13,082,764	1,593	13,082,764	1,593	52,329,993	6,372	
Mercantile Total			26,164,465	3,186	13,082,764	1,593	13,082,764	1,593	52,329,993	6,372	
Other	Transmission & Distribution Upgrades	T&D Upgrades	0	0	6,400,000	731	6,400,000	731	12,800,000	1,461	
		Sub-Total	0	0	6,400,000	731	6,400,000	731	12,800,000	1,461	
	Smart Grid Modernization Initiative	Smart Grid	0	0	0	0	0	0	0	0	
		Sub-Total	0	0	0	0	0	0	0	0	
	Energy Special Improvement District	Energy Special Improvement District	0	0	0	0	0	0	0	0	
Sub-Total		0	0	0	0	0	0	0	0		
Other Total			0	0	6,400,000	731	6,400,000	731	12,800,000	1,461	
Total			269,276,034	333,716	284,486,991	335,700	293,105,829	337,102	846,868,854	419,738	

1. kWh savings represents incremental annual savings achieved per year and in total for 2017-2019

2. kW savings represents incremental annual coincident peak demand savings from EEC measures and average annual demand savings from DR measures, per year and in total for 2017 - 2019

Appendix B-3: Costs Elements

Ohio Edison - Cost Assumptions		
<p>The model used for developing the programs involves a build-up of direct costs based on program or subprogram fixed costs and variable costs based on participation at the measure level. Common costs are estimated at the State or Company level and allocated to each program. Program cost elements of this plan include Operations costs and Incentive costs. Operations costs include Utility Administration costs associated with portfolio management and plan development, Program Administration costs associated with program management and implementation, Marketing, Evaluation, Measurement and Verification (EMV) costs associated with EMV of the programs, Tracking and Reporting costs for tracking and reporting of the program results, and Other costs associated with the development and implementation of the Plan. The following details the assumptions for the program cost elements included in this plan:</p>		
Cost Elements	Component Detail	Description
Operations	Utility Administration	Includes costs incurred by the utility for dedicated employee labor for plan development, to oversee and manage the portfolio, and to perform duties associated with activities such as regulatory reporting or meetings to support the plan. Utility administration costs were based on Company estimated EE&C portfolio administration costs, allocated to each subprogram based on subprogram administration and marketing costs, and summed to the program level.
	Program Administration	Includes utility and program implementation provider costs associated with the implementation and ongoing management of the programs including staffing, contractors, website(s), call centers, quality assurance and control processes, vendor tracking systems and other program specific activities supporting successful program implementation. Program administration costs were informed by experience for similar programs operated by FirstEnergy. Program Administration costs were identified by two components, (1) fixed sub-program costs, and (2) variable measure unit costs. These costs were estimated for each subprogram, based on measure participation where applicable, and summed to the subprogram and program level.
	Marketing	Includes costs associated with developing and providing marketing for plan and program messaging and education of the plan and programs. Marketing costs were identified by two components, (1) fixed sub-program costs, and (2) variable measure unit costs. These costs were estimated for each subprogram, based on measure participation where applicable, and summed to the subprogram and program level.
	EM&V	Includes costs for evaluation, measurement and verification activities performed by the Companies and the Companies' independent evaluator, such as surveys, M&V processes, data transfer and evaluation meetings. The EMV costs were based on 4% of the subprogram cost, and summed to the program level.
	Tracking and Reporting	Includes the costs to develop and maintain a data collection, tracking and reporting system, to develop and generate standard reports, and provide the functionality for program management ad hoc reporting. These costs were informed by existing contracts and Company estimates, allocated to each subprogram based on subprogram administration and marketing costs, and summed to the program level.
	Other	Other costs includes other common costs associated with the development and implementation of the plan, including research and development such as participation in research projects, pilots or demonstrations, completing market potential or other studies, consulting and legal fees, modeling software fees, and employee expenses. Other costs were informed by existing contracts or Company estimates, allocated to each subprogram based on subprogram administration and marketing costs, and summed to the program level.
Incentives	Incentives	Incentives include rebates paid to customers as well as costs associated with providing services or measures directly to customers, or mid-stream or upstream payments to program allies where applicable. Incentives were calculated based on measure level incentive and participation assumptions, and summed to the subprogram and program level.

Ohio Edison - Appendix C: Program Assumptions & PUCO Tables

Appendix C-1: Measure Assumptions

Ohio Edison											
Sector	Program	Sub-Program	Measure	Msre Life	kWh	kW	Incremental Cost	Modeled Rebate	O&M Benefit (\$/Yr)	Savings Source	Incremental Cost Source
Residential	Appliance Turn In Program	Appliance Turn In	Refrigerator Recycling	8	1,020	0.16	0	50	0	Evaluation	DEER
			Freezer Recycling	8	849	0.14	0	50	0	Evaluation	DEER
			Room Air Conditioner Recycling	3	122	1.07	0	30	0	Ohio TRM - Adjusted	DEER
			Dehumidifier Recycling	3	1,075	0.17	0	30	0	Co Assumption	Co Assumption
	Energy Efficient Homes Program	School Education	School Education	7	318	0.04	39	45	0	PA TRM	Co Assumption
		EE Kits	Energy Efficiency Measures	7	324	0.04	40	46	0	PA TRM	Co Assumption
		Audits & Education	Comprehensive Audit	12	693	0.15	727	325	0	Co Assumption	Co Assumption
			On-Line Audit	3	142	0.02	0	0	0	Co Assumption	N/A
		Behavioral	Behavioral	1	139	0.02	0	0	0	Co Assumption	N/A
			Behavioral 18	1	206	0.03	0	0	0	Co Assumption	N/A
			Behavioral 19	1	213	0.03	0	0	0	Co Assumption	N/A
		Smart Thermostat	Smart Thermostat	11	150	0.02	200	100	0	PA TRM - Adjusted	Co Assumption
	Energy Efficient Products Program	Appliances	Clothes Washer	11	233	0.02	50	50	0	Ohio TRM	PA Incremental Cost DB
			Clothes Dryer - (Elec w Moisture Sensor)	16	152	0.02	112	50	0	Co Assumption	PA Incremental Cost DB
			Freezers	14	133	0.02	7	10	0	Co Assumption	PA Incremental Cost DB
			Refrigerators	14	150	0.03	25	25	0	Ohio TRM	PA Incremental Cost DB
			Dehumidifiers	12	182	0.03	20	20	0	Ohio TRM	PA Incremental Cost DB
			Water Heater - Heat Pump	10	1,688	0.23	605	375	0	Ohio TRM	DEER
		Consumer Electronics	Home Technology & Automation	8	420	0.20	200	100	0	Co Assumption	Co Assumption
			Monitors	4	15	0.00	20	1	0	PA TRM	Co Assumption
			Computers	4	133	0.02	30	3	0	PA TRM	Co Assumption
			Imaging	5	73	0.01	25	2	0	PA TRM	Co Assumption
			TVs	6	74	0.01	20	4	0	PA TRM	Co Assumption

Appendix C-1: Measure Assumptions

Ohio Edison												
Sector	Program	Sub-Program	Measure	Msre Life	kWh	kW	Incremental Cost	Modeled Rebate	O&M Benefit (\$/Yr)	Savings Source	Incremental Cost Source	
Residential	Energy Efficient Products Program	Lighting	CFL Lamps	7	34	0.00	2	1	0	Ohio TRM	PA Incremental Cost DB	
			CFL Fixtures	10	68	0.01	32	5	0	Co Assumption	PA Incremental Cost DB	
			LED Fixtures	15	74	0.01	36	7	0	Co Assumption	DEER	
			LED Lamps	15	37	0.00	7	3	0	Ohio TRM - Adjusted	Co Assumption	
			Residential Lighting Controls	10	38	0.00	40	5	0	Co Assumption	PA Incremental Cost DB	
		HVAC	Heat Pump	18	906	0.14	471	313	0	Ohio TRM	DEER	
			Central Air Conditioner	18	176	0.14	880	125	0	Ohio TRM	DEER	
			Room Air Conditioner	12	27	0.03	50	36	0	Ohio TRM	PA Incremental Cost DB	
			Ductless Mini-Split Heat Pump	15	938	0.16	448	125	0	Ohio TRM - Adjusted	PA Incremental Cost DB	
			PTAC - Multi Family	15	103	0.12	84	50	0	Ohio TRM - Adjusted	PA Incremental Cost DB	
			PTHP - Multi Family	15	309	0.05	255	125	0	Ohio TRM - Adjusted	Co Assumption	
			Heat Pump - Water & GeoT	18	3,596	0.28	10,897	300	0	Ohio TRM	PA Incremental Cost DB	
			HVAC - Maintenance	5	86	0.04	100	50	0	Ohio TRM	PA Incremental Cost DB	
			Furnace Fans	14	446	0.11	360	180	0	PA TRM	PA Incremental Cost DB	
			Circulation Pumps	10	158	0.02	62	40	0	Co Assumption	Co Assumption	
			Programmable / SMART Thermostat	11	150	0.02	200	100	0	PA TRM - Adjusted	Co Assumption	
	Customer Action Program - Res	Customer Action Program - Res	Customer Action Program - Res	9	1	0.0001	0.05	0	0	Co Assumption	Co Assumption	
	Residential Demand Response Program	Direct Load Control	Res Direct Load Control	1	0	0.36	0	0	0	Co Assumption	Co Assumption	
	Low Income Energy Efficiency Program	Community Connections	Community Connections	8	1,672	0.19	0	0	0	Co Assumption	N/A	
		LI - New Homes	LI New Construction	15	923	0.44	778	314	0	Co Assumption	Co Assumption	

Appendix C-1: Measure Assumptions

Ohio Edison												
Sector	Program	Sub-Program	Measure	Msre Life	kWh	kW	Incremental Cost	Modeled Rebate	O&M Benefit (\$/Yr)	Savings Source	Incremental Cost Source	
Small Enterprise	C&I Energy Solutions for Business Program - Small	HVAC - SCI	Room Air Conditioner - SCI	12	296	0.20	50	21	0	Ohio TRM	PA Incremental Cost DB	
			Air Conditioning - <=5.4 Tn - SCI	15	939	0.93	1,960	197	0	Ohio TRM	PA Incremental Cost DB	
			Air Conditioning - >5.4 < 20 Tn - SCI	15	3,249	3.00	1,680	328	0	Ohio TRM	PA Incremental Cost DB	
			Air Conditioning - >=20 Tn - SCI	15	6,978	6.45	2,500	394	0	Ohio TRM	PA Incremental Cost DB	
			Chiller - Water Cld w Full Load - SCI	20	14,098	3.26	6,500	2,625	0	PA TRM - Adjusted	PA Incremental Cost DB	
			Heat Pump - <=5.4 Tn - SCI	15	2,432	1.44	1,285	197	0	Ohio TRM	PA Incremental Cost DB	
			Heat Pumps - >5.4 Tn - SCI	15	3,257	3.00	1,935	328	0	Ohio TRM	PA Incremental Cost DB	
			Heat Pumps - Water & GeoT - SCI	15	1,748	1.61	5,870	328	0	Ohio TRM	PA Incremental Cost DB	
			HVAC - Maintenance - SCI	5	47	0.05	150	53	0	Ohio TRM	Co Assumption	
			Circulation Pumps - SCI	10	174	0.02	62	42	0	Co Assumption	Co Assumption	
			Ductless Mini-Split HP - SCI	15	825	0.42	448	492	0	Ohio TRM - Adjusted	PA Incremental Cost DB	
			PTAC - SCI	15	173	0.29	84	53	0	Ohio TRM - Adjusted	PA Incremental Cost DB	
			PTHP - SCI	15	586	0.29	255	53	0	Ohio TRM - Adjusted	PA Incremental Cost DB	
		Lighting - SCI	CFL Fixtures - SCI	15	174	0.04	30	14	4	Co Assumption	PA Incremental Cost DB	
			CFL Lamps - SCI	3	116	0.02	2	7	0	Ohio TRM	PA Incremental Cost DB	
			Lighting Controls (Daylight & Occupancy) - SCI	8	200	0.04	58	16	0	Co Assumption	PA Incremental Cost DB	
			Linear Fluorscent T8 / T5 - SCI	15	66	0.01	8	4	0	Co Assumption	PA Incremental Cost DB	
			LED Linear - SCI	15	142	0.03	75	11	0	Co Assumption	Co Assumption	
			LED Channel Signage - SCI	15	506	0.10	22	41	0	Co Assumption	Co Assumption	
			Exit Signs - SCI	16	83	0.01	30	5	13	Ohio TRM	PA Incremental Cost DB	
			LED Fixtures External - SCI	15	191	0.04	343	15	11	Co Assumption	PA Incremental Cost DB	
			LED Fixtures Internal - SCI	15	191	0.04	129	15	11	Co Assumption	Co Assumption	
			LED Lamps - SCI	15	127	0.03	7	10	11	Ohio TRM - Adjusted	Co Assumption	
			LED Reach in Refrigerator / Freezer Lights - SCI	8	345	0.04	266	28	4	Ohio TRM	PA Incremental Cost DB	
			Street & Area Lighting (Customer Owned) - SCI	10	430	0.05	337	34	13	PA TRM	PA Incremental Cost DB	

Appendix C-1: Measure Assumptions

Ohio Edison											
Sector	Program	Sub-Program	Measure	Msre Life	kWh	kW	Incremental Cost	Modeled Rebate	O&M Benefit (\$/Yr)	Savings Source	Incremental Cost Source
Small Enterprise	C&I Energy Solutions for Business Program - Small	Food Service	Refrigerators - Reach In - SCI	12	883	0.10	430	158	0	Energy Star / Ohio TRM	PA Incremental Cost DB
			Freezers - Reach In - SCI	12	4,709	0.54	430	368	0	Energy Star / Ohio TRM	PA Incremental Cost DB
			Ice Machines - SCI	9	1,218	0.21	981	263	0	Energy Star / Ohio TRM	PA Incremental Cost DB
			Refrigerated Case Cover - SCI	5	44	0.00	38	12	0	PA TRM	PA Incremental Cost DB
			Strip Curtains - SCI	6	129	0.01	4	1	0	PA TRM	PA Incremental Cost DB
			Anti Sweat Heater Controls - SCI	12	1,298	0.03	70	37	0	PA TRM	PA Incremental Cost DB
			Beverage Vending Machine - Controls - SCI	5	1,633	0.00	180	95	0	PA TRM	PA Incremental Cost DB
			Beverage Vending Machine - New EE- SCI	14	125	0.00	180	95	0	PA TRM	PA Incremental Cost DB
			Combination Oven - SCI	12	6,368	1.22	1,584	788	0	Energy Star / Ohio TRM	DEER
			Convection Oven - SCI	12	1,937	0.37	1,007	525	0	Energy Star / Ohio TRM	DEER
			Steam Cookers - SCI	12	9,967	1.91	630	368	0	Energy Star / Ohio TRM	Energy Star
			Fryers - SCI	12	1,744	0.33	105	105	0	Energy Star / Ohio TRM	Energy Star
			Griddles - SCI	12	1,909	0.37	774	368	0	Energy Star / Ohio TRM	DEER
			Hot Food Holding Cabinet - SCI	12	1,730	0.33	1,110	525	0	Energy Star / Ohio TRM	Ohio TRM
		Appliance Turn In - SCI	Refrigerator Recycling - SCI	8	1,020	0.16	0	53	0	Evaluation	DEER
			Freezer Recycling - SCI	8	849	0.14	0	53	0	Evaluation	DEER
			Room Air Conditioner Recycling - SCI	3	121	0.26	0	32	0	Ohio TRM	DEER
			Dehumidifiers Recycling - SCI	3	1,075	0.17	0	32	0	Co Assumption	Co Assumption
		Appliances - SCI	Clothes Washer - SCI	10	542	0.00	150	79	0	Ohio TRM	PA Incremental Cost DB
			Clothes Dryer (Elec w Moisture Sensor) - SCI	10	352	0.00	112	58	0	Co Assumption	PA Incremental Cost DB
			Refrigerators - SCI	12	818	0.09	25	26	0	Energy Star / Ohio TRM	PA Incremental Cost DB
			Water Heater - Heat Pump - SCI	10	3,377	0.46	945	394	0	Ohio TRM	PA Incremental Cost DB
			Freezers - SCI	12	2,128	0.24	6	26	0	Energy Star / Ohio TRM	PA Incremental Cost DB
			Pre-Rinse Sprayers - SCI	5	25	0.00	23	53	0	Ohio TRM	DEER

Appendix C-1: Measure Assumptions

Ohio Edison											
Sector	Program	Sub-Program	Measure	Msre Life	kWh	kW	Incremental Cost	Modeled Rebate	O&M Benefit (\$/Yr)	Savings Source	Incremental Cost Source
Small Enterprise	C&I Energy Solutions for Business Program - Small	Consumer Electronics - SCI	Uninterruptible Power Supply - SCI	4	3,488	0.40	3,926	525	0	Co Assumption	Co Assumption
			Monitors - SCI	4	15	0.00	10	7	0	PA TRM	PA Incremental Cost DB
			Computers - SCI	4	133	0.00	12	7	0	PA TRM	PA Incremental Cost DB
			Imaging - SCI	5	104	0.00	20	13	0	PA TRM	PA Incremental Cost DB
			Small Network - SCI	4	20	0.00	15	13	0	Co Assumption	Co Assumption
		Agricultural	Efficient Dairy Equipment - SCI	15	2,053	0.29	1,000	656	0	Co Assumption	Co Assumption
			High Efficiency Fans - SCI	10	896	0.18	500	525	0	Co Assumption	Co Assumption
		Data Centers - SCI	DC - Custom Servers- SCI	8	584	0.07	80	47	0	Co Assumption	Co Assumption
			DC - Custom HVAC - SCI	15	43,800	5.00	13,140	3,504	0	Co Assumption	Co Assumption
			DC - Audit - SCI	0	0	0.00	0	5,250	0	N/A	N/A
		Custom - SCI	Custom - Process Improvement - SCI	15	56,484	6.45	16,945	4,519	0	Co Assumption	Co Assumption
			Custom - HVAC & Chillers - SCI	20	28,195	6.51	13,000	2,256	0	PA TRM - Adjusted	PA Incremental Cost DB
			Custom - Compressed Air - SCI	10	55,000	6.00	6,651	4,400	0	Co Assumption	Co Assumption
			Custom - VFDs < 10HP - SCI	15	11,623	1.33	2,150	930	0	PA TRM	PA Incremental Cost DB
			Custom - VFDs > 10 HP - SCI	15	56,240	6.42	10,748	4,499	0	PA TRM	PA Incremental Cost DB
			Custom-Motors - Three Phase - SCI	16	3,851	0.33	233	308	0	PA TRM	PA Incremental Cost DB
			Custom - Refrigeration - SCI	15	2,000	0.20	250	160	0	Co Assumption	PA Incremental Cost DB
		Retro - Commissioning - SCI	Custom Retrocommissioning - SCI	5	145,994	16.67	15,000	11,680	0	Co Assumption	Co Assumption
		Custom Buildings - SCI	Custom - Building Improvements - SCI	15	56,484	6.45	16,945	4,519	0	Co Assumption	Co Assumption
			Custom - Energy Management - SCI	10	35,478	4.05	10,643	2,838	0	Co Assumption	Co Assumption
		Audits & Education - SCI	Energy Manager - SCI	1	16,453	1.88	0	0	0	Co Assumption	N/A
			Energy Efficiency Measures - SCI	5	302	0.04	39	39	0	PA TRM	Co Assumption
			Multi Family Audit - SCI	7	324	0.04	40	46	0	Co Assumption	Co Assumption
			Benchmarking - SCI	0	0	0.00	0	0	0	Co Assumption	N/A
			Audit - SCI	0	0	0.00	0	7,875	0	N/A	N/A
			Audits w Direct Install - SCI	12	10,291	1.17	4,116	3,293	0	Co Assumption	Co Assumption
			Behavioral - SCI	1	368	0.04	0	0	0	Co Assumption	Co Assumption
	Customer Action Program - SCI	Customer Action Program - SCI	Customer Action Program - SCI	13	1	0.0001	0	0	0	Co Assumption	Co Assumption

Appendix C-1: Measure Assumptions

Ohio Edison											
Sector	Program	Sub-Program	Measure	Msre Life	kWh	kW	Incremental Cost	Modeled Rebate	O&M Benefit (\$/Yr)	Savings Source	Incremental Cost Source
Large Enterprise (Mercantile Utility)	C&I Energy Solutions for Business Program - Large	HVAC - LCI	Air Conditioning - <=5.4 Tn - LCI	15	939	0.93	1,960	188	0	Ohio TRM	PA Incremental Cost DB
			Chiller - Water Cld w Full Load - LCI	20	42,293	9.77	19,500	7,500	0	PA TRM - Adjusted	PA Incremental Cost DB
			Air Conditioning - >5.4 < 20 Tn - LCI	15	3,249	3.00	1,680	313	0	Ohio TRM	PA Incremental Cost DB
			Air Conditioning - >=20 Tn - LCI	15	6,978	6.45	2,500	375	0	Ohio TRM	PA Incremental Cost DB
			Heat Pump - <=5.4 Tn - LCI	15	2,432	1.44	1,285	188	0	Ohio TRM	PA Incremental Cost DB
			Heat Pumps - >5.4 Tn - LCI	15	3,257	3.00	1,680	313	0	Ohio TRM	PA Incremental Cost DB
			Heat Pumps - Water & GeoT - LCI	15	1,748	1.61	5,870	313	0	Ohio TRM	PA Incremental Cost DB
			Ductless Mini-Split HP - LCI	15	825	0.42	448	300	0	Ohio TRM - Adjusted	PA Incremental Cost DB
			PTAC - LCI	15	173	0.29	84	50	0	Ohio TRM - Adjusted	PA Incremental Cost DB
			PTHP - LCI	15	586	0.29	255	80	0	Ohio TRM - Adjusted	PA Incremental Cost DB
		Lighting - LCI	CFL Fixtures - LCI	15	174	0.04	30	10	4	Co Assumption	PA Incremental Cost DB
			CFL Lamps - LCI	3	116	0.02	2	7	0	Ohio TRM	PA Incremental Cost DB
			Lighting Controls (Daylight & Occupancy) - LCI	8	200	0.04	58	16	0	Co Assumption	PA Incremental Cost DB
			Linear Fluorescent T8 / T5 - LCI	15	66	0.01	8	4	0	Co Assumption	PA Incremental Cost DB
			LED Linear - LCI	15	142	0.03	75	11	0	Co Assumption	Co Assumption
			LED Channel Signage - LCI	15	506	0.10	35	41	0	Co Assumption	PA Incremental Cost DB
			Exit Signs - LCI	16	83	0.01	30	5	13	Ohio TRM	PA Incremental Cost DB
			LED Fixtures External - LCI	15	191	0.04	343	15	11	Co Assumption	PA Incremental Cost DB
			LED Fixtures Internal - LCI	15	191	0.04	129	15	11	Co Assumption	Co Assumption
			LED Lamps - LCI	15	127	0.03	7	10	11	Ohio TRM - Adjusted	Co Assumption
			Street & Area Lighting (Customer Owned) - LCI	10	430	0.00	337	34	13	PA TRM	PA Incremental Cost DB
		Data Centers - LCI	DC - Custom HVAC - LCI	15	350,400	40.00	105,120	28,032	0	Co Assumption	Co Assumption
			DC - Custom Servers - LCI	8	584	0.07	80	47	0	Co Assumption	Co Assumption
			DC - Audit - LCI	0	0	0.00	0	7,500	0	N/A	N/A

Appendix C-1: Measure Assumptions

Ohio Edison											
Sector	Program	Sub-Program	Measure	Msre Life	kWh	kW	Incremental Cost	Modeled Rebate	O&M Benefit (\$/Yr)	Savings Source	Incremental Cost Source
Large Enterprise (Mercantile Utility)	C&I Energy Solutions for Business Program - Large	Custom - LCI	Custom - Process Improvement - LCI	15	403,000	46.00	120,900	32,240	0	Co Assumption	Co Assumption
			Custom - HVAC & Chillers - LCI	20	28,195	6.51	13,000	2,256	0	PA TRM - Adjusted	PA Incremental Cost DB
			Custom - Compressed Air - LCI	10	55,000	6.00	6,651	4,400	0	Co Assumption	Co Assumption
			Custom - VFDs < 10HP - LCI	15	11,623	1.33	2,150	930	0	PA TRM	PA Incremental Cost DB
			Custom - VFDs > 10 HP - LCI	15	56,240	6.42	10,748	4,499	0	PA TRM	PA Incremental Cost DB
			Custom-Motors - Three Phase - LCI	16	3,851	0.33	233	308	0	PA TRM	PA Incremental Cost DB
			Custom - Refrigeration - LCI	15	2,000	0.20	250	160	0	Co Assumption	PA Incremental Cost DB
		Retro - Commissioning - LCI	Custom Retrocommissioning - LCI	5	145,994	16.67	15,000	11,680	0	Co Assumption	Co Assumption
		Custom Buildings - LCI	Custom - Building Improvements - LCI	15	403,000	46.00	120,900	32,240	0	Co Assumption	Co Assumption
			Custom - Energy Management - LCI	10	289,080	33.00	100,000	23,126	0	Co Assumption	Co Assumption
		Audits & Education LCI	Audit - LCI	0	0	0.00	0	12,000	0	N/A	N/A
			Energy Manager - LCI	1	32,906	3.76	0	0	0	Co Assumption	Co Assumption
			Benchmarking - LCI	0	0	0.00	0	0	0	Co Assumption	Co Assumption
	C&I Demand Response Program - Large	Demand Response LCI	LC&I Contracted DR - PJM	1	0	1,000.00	N/A	N/A	N/A	Co Assumption	Co Assumption
			ELR Interruptible Tariff	1	0	1.00	N/A	N/A	N/A	Co Assumption	Co Assumption
	Customer Action Program - LCI	Customer Action Program - LCI	Customer Action Program - LCI	13	1	0.0001	0	0	0	Co Assumption	Co Assumption

Appendix C-1: Measure Assumptions

Ohio Edison												
Sector	Program	Sub-Program	Measure	Msre Life	kWh	kW	Incremental Cost	Modeled Rebate	O&M Benefit (\$/Yr)	Savings Source	Incremental Cost Source	
Government	Government Tariff Lighting Program	Government Tariff Lighting	LED - Traffic Signals - Gov	10	400	0.05	170	90	189	Ohio TRM	PA Incremental Cost DB	
			Street & Area Lighting (Tariff / Utility Owned) - Gov	10	241	0.00	0	0	15	Ohio TRM	Co Assumption	
			Street & Area Lighting (Tariff / Customer Owned) -	10	430	0.00	337	138	15	PA TRM	PA Incremental Cost DB	

Appendix C-1: Measure Assumptions

Ohio Edison												
Sector	Program	Sub-Program	Measure	Msre Life	kWh	kW	Incremental Cost	Modeled Rebate	O&M Benefit (\$/Yr)	Savings Source	Incremental Cost Source	
Mercantile	Mercantile Customer Program	Mercantile	Mercantile Customer Projects	10	1	0.00	0	0	0	Co Assumption	Co Assumption	
Other	Transmission & Distribution Upgrades	T&D Upgrades	Transmission & Distribution Upgrades	15	1	0.00	N/A	N/A	N/A	Co Assumption	Co Assumption	
	Smart Grid Modernization Initiative	Smart Grid	Smart Grid Modernization Initiative	N/A	N/A	N/A	N/A	N/A	N/A	Co Assumption	Co Assumption	
	Energy Special Improvement District	Energy Special Improvement District	Energy Special Improvement District	N/A	N/A	N/A	N/A	N/A	N/A	Co Assumption	Co Assumption	

Appendix C-2: Number of Units

Ohio Edison						
Sector	Program	Sub-Program	Measure	2017 Units	2018 Units	2019 Units
Residential	Appliance Turn In Program	Appliance Turn In	Refrigerator Recycling	9,555	9,555	10,335
			Freezer Recycling	2,224	2,224	2,405
			Room Air Conditioner Recycling	779	779	842
			Dehumidifier Recycling	169	169	183
	Energy Efficient Homes Program	School Education	School Education	9,245	9,245	9,245
		EE Kits	Energy Efficiency Measures	66,365	66,365	72,124
		Audits & Education	Comprehensive Audit	2,027	2,027	2,229
			On-Line Audit	12,745	12,745	14,020
		Behavioral	Behavioral	111,800	0	0
			Behavioral 18	0	111,800	0
			Behavioral 19	0	0	111,800
		Smart Thermostat	Smart Thermostat	4,972	4,972	4,972
	Energy Efficient Products Program	Appliances	Clothes Washer	3,288	3,288	3,617
			Clothes Dryer - (Elec w Moisture Sensor)	838	838	838
			Freezers	1,299	1,299	1,299
			Refrigerators	5,158	5,158	5,158
			Dehumidifiers	1,281	1,281	1,281
			Water Heater - Heat Pump	689	689	697
		Consumer Electronics	Home Technology & Automation	1	1	1
			Monitors	3,179	3,179	3,179
			Computers	819	819	819
			Imaging	69	69	69
			TVs	32,473	32,473	32,473

Appendix C-2: Number of Units

Ohio Edison						
Sector	Program	Sub-Program	Measure	2017 Units	2018 Units	2019 Units
Residential	Energy Efficient Products Program	Lighting	CFL Lamps	3,783	2,513	1,867
			CFL Fixtures	0	0	0
			LED Fixtures	97	114	126
			LED Lamps	378,285	469,603	466,462
			Residential Lighting Controls	693	693	762
		HVAC	Heat Pump	1,262	1,262	1,388
			Central Air Conditioner	1,734	1,734	1,907
			Room Air Conditioner	3,023	3,023	3,325
			Ductless Mini-Split Heat Pump	904	904	994
			PTAC - Multi Family	74	74	82
			PTHP - Multi Family	88	88	97
			Heat Pump - Water & GeoT	220	220	242
			HVAC - Maintenance	2,855	2,855	3,141
			Furnace Fans	32	32	36
			Circulation Pumps	460	460	460
			Programmable / SMART Thermostat	5,145	5,145	5,145
	Customer Action Program - Res	Customer Action Program - Res	Customer Action Program - Res	3,688,074	2,011,676	1,005,838
	Residential Demand Response Program	Direct Load Control	Res Direct Load Control	13,000	12,870	12,741
	Low Income Energy Efficiency Program	Community Connections	Community Connections	1,359	1,359	1,359
		LI - New Homes	LI New Construction	22	22	22

Appendix C-2: Number of Units

Ohio Edison						
Sector	Program	Sub-Program	Measure	2017 Units	2018 Units	2019 Units
Small Enterprise	C&I Energy Solutions for Business Program - Small	HVAC - SCI	Room Air Conditioner - SCI	342	349	355
			Air Conditioning - <=5.4 Tn - SCI	466	466	466
			Air Conditioning - >5.4 < 20 Tn - SCI	137	137	137
			Air Conditioning - >=20 Tn - SCI	46	47	48
			Chiller - Water Cld w Full Load - SCI	15	15	16
			Heat Pump - <=5.4 Tn - SCI	123	123	123
			Heat Pumps - >5.4 Tn - SCI	51	51	51
			Heat Pumps - Water & GeoT - SCI	38	39	40
			HVAC - Maintenance - SCI	21	21	21
			Circulation Pumps - SCI	530	530	530
			Ductless Mini-Split HP - SCI	207	212	216
			PTAC - SCI	389	397	405
			PTHP - SCI	444	452	461
		Lighting - SCI	CFL Fixtures - SCI	0	0	0
			CFL Lamps - SCI	365	161	100
			Lighting Controls (Daylight & Occupancy) - SCI	22,064	22,974	23,951
			Linear Fluorescent T8 / T5 - SCI	52,862	52,017	45,375
			LED Linear - SCI	48,669	57,679	61,333
			LED Channel Signage - SCI	300	312	326
			Exit Signs - SCI	2,011	2,235	2,332
			LED Fixtures External - SCI	10,249	11,389	11,886
			LED Fixtures Internal - SCI	904	1,003	1,047
			LED Lamps - SCI	41,744	48,504	44,736
			LED Reach in Refrigerator / Freezer Lights - SCI	5,715	5,953	6,205
			Street & Area Lighting (Customer Owned) - SCI	3,376	3,516	3,665

Appendix C-2: Number of Units

Ohio Edison						
Sector	Program	Sub-Program	Measure	2017 Units	2018 Units	2019 Units
Small Enterprise	C&I Energy Solutions for Business Program - Small	Food Service	Refrigerators - Reach In - SCI	22	24	24
			Freezers - Reach In - SCI	87	97	97
			Ice Machines - SCI	39	43	43
			Refrigerated Case Cover - SCI	945	1,044	1,044
			Strip Curtains - SCI	1,365	1,505	1,505
			Anti Sweat Heater Controls - SCI	119	131	131
			Beverage Vending Machine - Controls - SCI	42	42	42
			Beverage Vending Machine - New EE- SCI	146	160	160
			Combination Oven - SCI	22	24	24
			Convection Oven - SCI	17	19	19
			Steam Cookers - SCI	27	29	29
			Fryers - SCI	36	41	41
			Griddles - SCI	24	27	27
			Hot Food Holding Cabinet - SCI	32	34	34
		Appliance Turn In - SCI	Refrigerator Recycling - SCI	167	184	203
			Freezer Recycling - SCI	35	38	42
			Room Air Conditioner Recycling - SCI	17	19	20
			Dehumidifiers Recycling - SCI	3	4	4
		Appliances - SCI	Clothes Washer - SCI	34	39	43
			Clothes Dryer (Elec w Moisture Sensor) - SCI	87	97	105
			Refrigerators - SCI	245	270	298
			Water Heater - Heat Pump - SCI	32	36	36
			Freezers - SCI	34	37	41
			Pre-Rinse Sprayers - SCI	38	38	38

Appendix C-2: Number of Units

Ohio Edison						
Sector	Program	Sub-Program	Measure	2017 Units	2018 Units	2019 Units
Small Enterprise	C&I Energy Solutions for Business Program - Small	Consumer Electronics - SCI	Uninterruptible Power Supply - SCI	20	22	24
			Monitors - SCI	145	161	177
			Computers - SCI	54	60	66
			Imaging - SCI	54	60	66
			Small Network - SCI	145	161	177
		Agricultural	Efficient Dairy Equipment - SCI	29	32	32
			High Efficiency Fans - SCI	46	50	50
		Data Centers - SCI	DC - Custom Servers - SCI	120	133	133
			DC - Custom HVAC - SCI	22	24	24
			DC - Audit - SCI	11	12	12
		Custom - SCI	Custom - Process Improvement - SCI	271	298	298
			Custom - HVAC & Chillers - SCI	26	28	30
			Custom - Compressed Air - SCI	24	27	29
			Custom - VFDs < 10HP - SCI	41	45	45
			Custom - VFDs > 10 HP - SCI	20	23	23
			Custom-Motors - Three Phase - SCI	35	39	43
			Custom - Refrigeration - SCI	22	24	27
		Retro - Commissioning - SCI	Custom Retrocommissioning - SCI	33	36	36
		Custom Buildings - SCI	Custom - Building Improvements - SCI	133	147	147
			Custom - Energy Management - SCI	3	3	3
		Audits & Education - SCI	Energy Manager - SCI	42	46	46
			Energy Efficiency Measures - SCI	958	1,058	1,058
			Multi Family Audit - SCI	2,100	2,100	2,100
			Benchmarking - SCI	42	46	46
			Audit - SCI	168	176	176
			Audits w Direct Install - SCI	571	662	662
			Behavioral - SCI	12,840	14,160	14,160
	Customer Action Program - SCI	Customer Action Program - SCI	Customer Action Program - SCI	1,081,626	589,978	294,989

Appendix C-2: Number of Units

Ohio Edison						
Sector	Program	Sub-Program	Measure	2017 Units	2018 Units	2019 Units
Large Enterprise (Mercantile Utility)	C&I Energy Solutions for Business Program - Large	HVAC - LCI	Air Conditioning - <=5.4 Tn - LCI	32	34	40
			Chiller - Water Cld w Full Load - LCI	31	31	31
			Air Conditioning - >5.4 < 20 Tn - LCI	30	31	37
			Air Conditioning - >=20 Tn - LCI	65	69	81
			Heat Pump - <=5.4 Tn - LCI	77	82	95
			Heat Pumps - >5.4 Tn - LCI	10	11	13
			Heat Pumps - Water & GeoT - LCI	43	43	43
			Ductless Mini-Split HP - LCI	16	17	20
			PTAC - LCI	452	476	556
			PTHP - LCI	94	99	115
		Lighting - LCI	CFL Fixtures - LCI	0	0	0
			CFL Lamps - LCI	96	52	31
			Lighting Controls (Daylight & Occupancy) - LCI	8,854	9,328	10,893
			Linear Fluorescent T8 / T5 - LCI	18,675	15,509	12,390
			LED Linear - LCI	11,671	15,509	19,825
			LED Channel Signage - LCI	43	45	48
			Exit Signs - LCI	868	915	1,068
			LED Fixtures External - LCI	7,218	8,060	9,916
			LED Fixtures Internal - LCI	45	50	61
			LED Lamps - LCI	9,989	14,108	12,925
			Street & Area Lighting (Customer Owned) - LCI	323	323	340
		Data Centers - LCI	DC - Custom HVAC - LCI	6	6	6
			DC - Custom Servers - LCI	125	132	140
			DC - Audit - LCI	8	8	9

Appendix C-2: Number of Units

Ohio Edison						
Sector	Program	Sub-Program	Measure	2017 Units	2018 Units	2019 Units
Large Enterprise (Mercantile Utility)	C&I Energy Solutions for Business Program - Large	Custom - LCI	Custom - Process Improvement - LCI	89	94	100
			Custom - HVAC & Chillers - LCI	6	6	9
			Custom - Compressed Air - LCI	19	20	21
			Custom - VFDs < 10HP - LCI	23	23	27
			Custom - VFDs > 10 HP - LCI	33	33	39
			Custom-Motors - Three Phase - LCI	4	4	5
			Custom - Refrigeration - LCI	5	5	6
		Retro - Commissioning - LCI	Custom Retrocommissioning - LCI	10	11	12
		Custom Buildings - LCI	Custom - Building Improvements - LCI	19	20	21
			Custom - Energy Management - LCI	3	3	3
		Audits & Education - LCI	Audit - LCI	18	18	22
			Energy Manager - LCI	14	15	16
			Benchmarking - LCI	14	15	16
	C&I Demand Response Program - Large	Demand Response - LCI	LC&I Contracted DR - PJM	1	1	1
			ELR Interruptible Tariff	288,360	288,360	288,360
	Customer Action Program - LCI	Customer Action Program - LCI	Customer Action Program - LCI	589,308	321,441	160,720

Appendix C-2: Number of Units

Ohio Edison						
Sector	Program	Sub-Program	Measure	2017 Units	2018 Units	2019 Units
Government	Government Tariff Lighting Program	Government Tariff Lighting	LED - Traffic Signals - Gov	200	200	200
			Street & Area Lighting (Tariff / Utility Owned) - Gov	1	1	1
			Street & Area Lighting (Tariff / Customer Owned) - Gov	100	250	250

Appendix C-2: Number of Units

Ohio Edison						
Sector	Program	Sub-Program	Measure	2017 Units	2018 Units	2019 Units
Mercantile	Mercantile Customer Program	Mercantile	Mercantile Customer Projects	24,605,000	12,303,000	12,303,000
Other	Transmission & Distribution Upgrades	T&D Upgrades	Transmission & Distribution Upgrades	0	6,400,000	6,400,000
	Smart Grid Modernization Initiative	Smart Grid	Smart Grid Modernization Initiative	1	1	1
Other	Energy Special Improvement District	Energy Special Improvement District	Energy Special Improvement District	1	1	1

Appendix C-3: Calculation Methods and Assumptions - Rebate Strategy

Ohio Edison						
Sector	Program	Sub-Program	Measure	Eligibility / Description	Rebate Strategy (All values are "up to" values) ^{1,2,3,4}	Qualifiers
Residential	Appliance Turn In Program	Appliance Turn In	Refrigerator Recycling	Removal of an existing inefficient unit prior to end of useful life via recycling	\$75	per unit
			Freezer Recycling	Removal of an existing inefficient unit prior to end of useful life via recycling	\$75	per unit
			Room Air Conditioner Recycling	Removal of an existing inefficient unit prior to end of useful life via recycling	\$38	per unit
			Dehumidifier Recycling	Removal of an existing inefficient unit prior to end of useful life via recycling	\$38	per unit
	Energy Efficient Homes Program	School Education	School Education	Adoption of an energy efficiency school curriculum or other engagement which encourages efficient practices & installation of energy efficiency measures at home. Student families are offered an energy efficiency kit to introduce simple retrofit measures.	NA	
		EE Kits	Energy Efficiency Measures	Opt In Kit with low cost energy efficiency measures mailed at the customers request.	NA	
		Audits & Education	Comprehensive Audit	Provides a Customized Home Energy Report for single or multi-family residence. Comprehensive measures that are eligible for incentives, as a result of diagnostics and testing include, but are not limited to: Windows, Duct Sealing, and Wall & Attic Insulation, etc. Manufactured homes are also eligible.	Audit - Up to \$500 for the cost of the audit direct install measures, plus up to \$500 for audit recommended measures and additional incentives	
			On-Line Audit	Energy education and awareness supporting installation of measures and behaviors that reduce consumption of energy and demand.	NA	
		Behavioral	Behavioral	Reports containing energy usage comparisons, recommendations and education emphasizing key points, general conservation tips and information on tools and resources supporting implementation of measures and efficiencies behaviors that reduces consumption of energy and demand.	NA	

1. The Company may provide tiered rebate amounts within the incentive ranges listed above for qualifying products that have varying characteristics (e.g. size, features, etc.).

2. The Company may provide prescriptive rebates in lieu of the performance incentives listed above for certain measures and/or applications where the prescriptive value is within the equivalent performance incentive range.

3. The Company may establish incentive tiers and/or incentive block structures within the performance incentives listed above for different end use technology or sub-measures (lighting, HVAC, etc).

4. Unless otherwise stated, rebates will be limited by the project or equipment cost, where applicable.

Appendix C-3: Calculation Methods and Assumptions - Rebate Strategy

Ohio Edison						
Sector	Program	Sub-Program	Measure	Eligibility / Description	Rebate Strategy (All values are "up to" values) ^{1,2,3,4}	Qualifiers
Residential	Energy Efficient Homes Program	Smart Thermostat	Smart Thermostat	Deployment of a program specific smart thermostat to residential customers with either of the following HVAC systems: central air conditioning, heat pumps, electric resistance furnace or geothermal heat pump.	\$100	per unit
	Energy Efficient Products Program	Appliances	Clothes Washer	Purchase and installation of an Energy Star or CEE Tier 1 (or higher) clothes washer, including appliances that can be interconnected to home energy management systems.	\$100	per unit
			Clothes Dryer - (Elec w Moisture Sensor)	Purchase and installation of an Energy Star rated Clothes Dryer with moisture sensor or Heat Pump Clothes Dryer	\$600	per unit
			Freezers	Purchase and installation of a new unit meeting either Energy Star or greater efficiency level.	\$40	per unit
			Refrigerators	Purchase and installation of a new unit meeting Energy Star or CEE Tier 1 (or higher).	\$150	per unit
			Dehumidifiers	Purchase and installation of a new Energy Star rated unit	\$25	per unit
			Water Heater - Heat Pump	Purchase and installation of a heat pump water heater with EF>2.0 or a solar water heater with SEF >= 1.8 for electric backup.	\$700	per unit
		Consumer Electronics	Home Technology & Automation	Purchase and installation of emerging technologies related to the control of in-home appliances, lighting, HVAC equipment, etc.	75% of equipment cost	per unit
			Monitors	Purchase and installation of an Energy Star rated unit	\$8	per unit
			Computers	Purchase and installation of an Energy Star rated unit	\$8	per unit

1. The Company may provide tiered rebate amounts within the incentive ranges listed above for qualifying products that have varying characteristics (e.g. size, features, etc.).

2. The Company may provide prescriptive rebates in lieu of the performance incentives listed above for certain measures and/or applications where the prescriptive value is within the equivalent performance incentive range.

3. The Company may establish incentive tiers and/or incentive block structures within the performance incentives listed above for different end use technology or sub-measures (lighting, HVAC, etc.).

4. Unless otherwise stated, rebates will be limited by the project or equipment cost, where applicable.

Appendix C-3: Calculation Methods and Assumptions - Rebate Strategy

Ohio Edison						
Sector	Program	Sub-Program	Measure	Eligibility / Description	Rebate Strategy (All values are "up to" values) ^{1,2,3,4}	Qualifiers
Residential	Energy Efficient Products Program	Consumer Electronics	Imaging	Purchase and installation of an Energy Star rated unit	\$8	per unit
			TVs	Purchase and installation of an Energy Star V7.0 rated Television	\$8	per unit
		Lighting	CFL Lamps	Purchase and installation of an energy efficient specialty compact fluorescent light bulb (CFL) at participating retailers.	\$3	NTE Cost of Lamp
			CFL Fixtures	Purchase and installation of an energy efficient lighting fixture wired for exclusive use with pin-based (including the GU-24 base) compact fluorescent lamp(s) that is installed in an interior or exterior residential setting.	\$20	per fixture
			LED Fixtures	Purchase and installation of an energy efficient luminaire with integral LED lamp.	\$50	per fixture
			LED Lamps	Purchase and installation of an energy efficient LED lamp at participating retailers.	\$5	NTE Cost of Lamp
			Residential Lighting Controls	The purchase and installation of an occupancy sensor, dimmers or other energy saving controllers inside the home	\$25	per unit
		HVAC	Heat Pump	Replacement of ducted split central units prior to end of life or installation of a new energy efficient unit w/ SEER ratings > or = 14.5 or 12 EER or 8.5 HSPF. Includes variable refrigerant flow (VRF) systems.	\$1,000	per unit
			Central Air Conditioner	Replacement of ducted split central units prior to end of life or installation of a new energy efficient unit w/ SEER ratings > or = 14.5 or 12 EER. Includes variable flow (VRF) systems.	\$800	per unit
			Room Air Conditioner	Purchase and installation of new unit meeting Energy Star standard V4.0.	\$100	per unit
			Ductless Mini-Split Heat Pump	Replacement of ductless mini-split unit prior to end of life or installation of a new energy efficient unit w/ SEER >= 15, EER >=12.5 or HSPF >= 8.5	\$400	per unit
			PTAC - Multi Family	Replacement of a packaged terminal unit prior to end of life or installation of a new energy efficient unit exceeding efficiency ratings of IECC 2012 by 10%. Includes variable flow (VRF) systems.	\$200	per unit

1. The Company may provide tiered rebate amounts within the incentive ranges listed above for qualifying products that have varying characteristics (e.g. size, features, etc.).

2. The Company may provide prescriptive rebates in lieu of the performance incentives listed above for certain measures and/or applications where the prescriptive value is within the equivalent performance incentive range.

3. The Company may establish incentive tiers and/or incentive block structures within the performance incentives listed above for different end use technology or sub-measures (lighting, HVAC, etc.).

4. Unless otherwise stated, rebates will be limited by the project or equipment cost, where applicable.

Appendix C-3: Calculation Methods and Assumptions - Rebate Strategy

Ohio Edison						
Sector	Program	Sub-Program	Measure	Eligibility / Description	Rebate Strategy (All values are "up to" values) ^{1,2,3,4}	Qualifiers
Residential	Energy Efficient Products Program	HVAC	PTHP - Multi Family	Replacement of a packaged terminal unit prior to end of life or a installation of a new energy efficient unit exceeding efficiency ratings of IECC 2012 by 10%. Includes variable flow (VRF) systems.	\$200	per unit
			Heat Pump - Water & GeoT	New installation of Ground & Water Source Heat Pumps: The following retrofit scenarios are eligible: • Ground source heat pumps for existing or new HVAC applications <135,000 BTU/hr, EER >13.1, COP> 3.1 • Groundwater source heat pumps for existing or new HVAC applications <135,000 BTU/hr, EER >16.2, COP> 3.6 • Water source heat pumps for existing or new HVAC applications <65,000 BTU/hr, EER >12.0, COP> 4.2	\$1,500	per unit
			HVAC - Maintenance	Eligibility items covered during maintenance on existing central air conditioner or air source heat pumps: • Check refrigerant charge level and correct as necessary. • Clean filters as needed • Inspect and lubricate bearings • Inspect and clean condenser and, if accessible, evaporator coil and Check refrigerant levels and air flow across coils for CAC and HP units using standard industry tools with correction of any problems found and post-treatment re-measurement.	\$85	per unit
			Furnace Fans	Replacement of an existing fan with a brushless permanent magnet (BPM) or electrically commutated motor (ECM) at the time of an HVAC tune-up or installation of a new CAC or HP. Purchase of a new gas furnace with a BPM or ECM motor is also eligible.	\$150	per unit
			Circulation Pumps	Replacement of existing single speed circulation pump or new circulation pump with variable speed motor and/or controls to automatically change pump speed to produce flow rates that match system heating requirements.	\$100	
			Programmable / SMART Thermostat	New installation of smart thermostat or smart thermostat with advanced features. Advanced features on a smart thermostat must consist of three of the following: fan delays, free cooling, occupancy sensing, heat pump resistance element lock-out, humidity control, compressor optimization or behavioral "coaching" features. Thermostat must control HVAC systems with either of the following: central air conditioning, heat pumps, electric resistance furnace or geothermal heat pump.	Up to 75% of thermostat cost	per unit
	Customer Action Program - Res	Customer Action Program - Res	Customer Action Program - Res	NA	NA	
	Residential Demand Response Program	Direct Load Control	Res Direct Load Control	Residential customers that have split system Central Air Conditioning.	\$50	per year (participation)
	Low Income Energy Efficiency Program	Community Connections	Community Connections	Residential customers and landlords of residents eligible for one of the following programs: (i) the Ohio Home Weatherization Assistance Program (HWAP); (ii) Percent of Income Payment Plan (PIPP); or (iii) Home Energy Assistance Program (HEAP).	NA	
		LI - New Homes	LI New Construction	New construction of low-income housing to be constructed in accordance applicable Energy Star standard or built at a higher efficiency level than the current adopted building code. Modular homes to be designed, manufactured and installed meet the applicable Energy Star standard for Modular Homes, or built at a higher efficiency level than the current adopted building code. Manufactured homes to be designed and built by certified Energy Star manufacturing plant.	\$1,875	per unit
Small Enterprise	C&I Energy Solutions for Business Program - Small	HVAC - SCI	Room Air Conditioner - SCI	Purchase and installation of new unit meeting Energy Star standard V4.0.	\$100	per unit
			Air Conditioning - <=5.4 Tn - SCI	Replacement of a Single Package or Split System central units prior to end of life or installation of a new energy efficient unit exceeding IECC 2012 efficiency ratings by at least 10%. Includes variable flow (VRF) systems.	\$200	per ton

1. The Company may provide tiered rebate amounts within the incentive ranges listed above for qualifying products that have varying characteristics (e.g. size, features, etc.).
2. The Company may provide prescriptive rebates in lieu of the performance incentives listed above for certain measures and/or applications where the prescriptive value is within the equivalent performance incentive range.
3. The Company may establish incentive tiers and/or incentive block structures within the performance incentives listed above for different end use technology or sub-measures (lighting, HVAC, etc).
4. Unless otherwise stated, rebates will be limited by the project or equipment cost, where applicable.

Appendix C-3: Calculation Methods and Assumptions - Rebate Strategy

Ohio Edison						
Sector	Program	Sub-Program	Measure	Eligibility / Description	Rebate Strategy (All values are "up to" values) ^{1,2,3,4}	Qualifiers
Small Enterprise	C&I Energy Solutions for Business Program - Small	HVAC - SCI	Air Conditioning - >5.4 < 20 Tn - SCI	Replacement of a Single Package or Split System central units prior to end of life or installation of a new energy efficient unit exceeding IECC 2012 efficiency ratings by at least 10%. Includes variable flow (VRF) systems.	\$150	per ton
			Air Conditioning - >=20 Tn - SCI	Replacement of a Single Package or Split System central units prior to end of life or installation of a new energy efficient unit exceeding IECC 2012 efficiency ratings by at least 10%. Includes variable flow (VRF) systems.	\$120	per ton
			Chiller - Water Cld w Full Load - SCI	Replacement or new installation of electric chiller w/efficiency exceeding baselines in IECC, 2012, Table 503.2.3(7) by at least 10%. VFD retrofits of existing existing chiller is not included in this measure.	\$45 / Ton	NTE 50% of PC
			Heat Pump - <=5.4 Tn - SCI	Replacement of a Single Package or Split System central unit prior to end of life or installation of a new energy efficient unit exceeding IECC 2012 efficiency ratings by at least 10%. Includes variable flow (VRF) systems.	\$200	per ton
			Heat Pumps - >5.4 Tn - SCI	Replacement of a Single Package or Split System central unit prior to end of life or installation of a new energy efficient unit exceeding IECC 2012 efficiency ratings by at least 10%. Includes variable flow (VRF) systems.	\$150	per ton
			Heat Pumps - Water & GeoT - SCI	New installation of Ground & Water Source Heat Pumps: The following retrofit scenarios are eligible: • Ground source heat pumps for existing or new HVAC applications <135,000 BTU/hr, EER >13.1, COP> 3.1 • Groundwater source heat pumps for existing or new HVAC applications <135,000 BTU/hr, EER >16.2, COP> 3.6 • Water source heat pumps for existing or new HVAC applications <65,000 BTU/hr, EER >12.0, COP> 4.2	\$300	per ton
			HVAC - Maintenance - SCI	Eligibility items covered during maintenance on existing central air conditioner or air source heat pumps: • Check refrigerant charge level and correct as necessary. • Clean filters as needed • Inspect and lubricate bearings • Inspect and clean condenser and, if accessible, evaporator coil, • Check refrigerant levels and air flow across coils for CAC and HP units using standard industry tools with correction of any problems found and post-treatment re-measurement, and installation of smart thermostat or smart thermostat with advanced features.	\$50	per ton
			Circulation Pumps - SCI	Replacement of existing single speed circulation pump or installation of a new circulation pump with variable speed motor and/or controls to automatically change pump speed to produce flow rates that match system heating requirements.	\$100	per unit
			Ductless Mini-Split HP - SCI	Replacement of ductless mini-split unit prior to end of life or installation of a new energy efficient unit w/ SEER >= 15, EER >=12.5 or HSPF >= 8.5.	\$300	per ton
			PTAC - SCI	Replacement of a packaged terminal unit prior to end of life or a new unit exceeding efficiency ratings of IECC 2012 by 10%. Includes variable flow (VRF) systems.	\$150	per ton
			PTHP - SCI	Replacement of a packaged terminal unit prior to end of life or a new unit exceeding efficiency ratings exceeding efficiency ratings of IECC 2012 by 10%. Includes variable flow (VRF) systems.	\$150	per ton
		Lighting - SCI	CFL Fixtures - SCI	Purchase and installation of a new energy efficient lighting fixture wired for exclusive use with pin-based (including the GU-24 base) compact fluorescent lamp(s) that is installed in an interior or exterior residential setting.	\$20	per fixture

1. The Company may provide tiered rebate amounts within the incentive ranges listed above for qualifying products that have varying characteristics (e.g. size, features, etc.).

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Appendix C-3: Calculation Methods and Assumptions - Rebate Strategy

Ohio Edison						
Sector	Program	Sub-Program	Measure	Eligibility / Description	Rebate Strategy (All values are "up to" values) ^{1,2,3,4}	Qualifiers
Small Enterprise	C&I Energy Solutions for Business Program - Small	Lighting - SCI	CFL Lamps - SCI	Purchase and installation of an energy efficient specialty compact fluorescent light bulb (CFL).	\$3	NTE Cost of Lamp
			Lighting Controls (Daylight & Occupancy) - SCI	Purchase and installation of new lighting controls, including but not limited to: daylight On/Off & dimming, occupancy sensors (wall plate, remote & fixture mounted), time clocks and switching controls.	\$0.10 per kWh saved	
			Linear Fluorescent T8 / T5 - SCI	Replacement of existing linear fluorescent lamps or new installations with high performance T8 or T5 lamps.	\$0.10 per kWh saved	
			LED Linear - SCI	Replacement or new installation of linear LED lighting equipment to a higher efficiency than existing or designed.	\$0.10 per kWh saved	
			LED Channel Signage - SCI	Replacement, retrofit or new installation of channel letter signs w/ LED technology.	\$3	per linear foot
			Exit Signs - SCI	Replacement or retrofit of incandescent or fluorescent exit signs w/ LED type exit sign or photoluminescent sign.	\$23	per sign
			LED Fixtures External - SCI	Replacement or new installation of a lighting fixture wired for exclusive use with LED lamps that is installed in an exterior setting.	\$55	per fixture
			LED Fixtures Internal - SCI	Replacement or new installation of a lighting fixture wired for exclusive use with LED lamps that is installed in an interior setting.	\$55	per fixture
			LED Lamps - SCI	Purchase and installation of an energy efficient LED lamp.	\$20	NTE Cost of Lamp
			LED Reach in Refrigerator / Freezer Lights - SCI	Replacement of linear fluorescent refrigerator, cooler or freezer lights lighting with LED lighting.	\$75	per door
			Street & Area Lighting (Customer Owned) - SCI	Replacement or new installation of Street and Area lighting equipment to a greater efficiency than existing or designed.	\$220	per fixture
		Food Service	Refrigerators - Reach In - SCI	Purchase and installation of new ENERGY STAR, commercial, solid or glass door reach-in refrigerator.	\$165	per unit

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Appendix C-3: Calculation Methods and Assumptions - Rebate Strategy

Ohio Edison						
Sector	Program	Sub-Program	Measure	Eligibility / Description	Rebate Strategy (All values are "up to" values) ^{1,2,3,4}	Qualifiers
Small Enterprise	C&I Energy Solutions for Business Program - Small	Food Service	Freezers - Reach In - SCI	Purchase and installation of new ENERGY STAR, commercial, solid or glass door reach-in freezer.	\$165	per unit
			Ice Machines - SCI	Replacement of inefficient ice machine prior to end of life or new unit that is Energy Star rated.	\$590 0-500 lbs \$980 501-1000 lbs \$1100 over 1000 lbs	per unit
			Refrigerated Case Cover - SCI	Replacement or new installation of refrigerated case covers.	\$32	per linear foot
			Strip Curtains - SCI	Replacement or new installation of polyethylene strip curtains on walk in freezers and coolers covering the entire door frame. Eligible units must be open a least 2.5 hrs/day.	\$3	per square-ft
			Anti Sweat Heater Controls - SCI	New installation of door heater controls on glass doors for refrigerators, coolers or freezers.	\$60	per door
			Beverage Vending Machine - Controls - SCI	Retrofit controls for a non Energy Star rated vending machine.	\$115	per unit
			Beverage Vending Machine - New EE-SCI	Purchase and installation of new Energy Star rated vending machine.	\$130	per unit
			Combination Oven - SCI	Replacement or new installation of Energy Star qualified electric units.	\$1,380	per unit
			Convection Oven - SCI	Replacement or new installation of Energy Star qualified electric units.	\$700	per unit
			Steam Cookers - SCI	Replacement or new installation of Energy Star qualified electric units with 3-6 pans. A qualifying steam cooker must meet a minimum cooking efficiency of 50 percent and meet idle energy rates specified by pan capacity.	\$250 - 3 pan \$375 - 4 pan \$500 - 5 pan \$600 - 6 pan	per unit
			Fryers - SCI	Replacement or new installation of Energy Star qualified electric units.	\$325	per unit
			Griddles - SCI	Replacement or new installation of Energy Star qualified electric units.	\$500	per unit

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Appendix C-3: Calculation Methods and Assumptions - Rebate Strategy

Ohio Edison						
Sector	Program	Sub-Program	Measure	Eligibility / Description	Rebate Strategy (All values are "up to" values) ^{1,2,3,4}	Qualifiers
Small Enterprise	C&I Energy Solutions for Business Program - Small	Food Service	Hot Food Holding Cabinet - SCI	Replacement or new installation of full, three quarter and half sized ENERGY STAR qualified units with idle energy rate of 0.04 kW/CF.	\$500 - full size \$375 - 3/4 size \$225 - 1/2 size	per unit
		Appliance Turn In - SCI	Refrigerator Recycling - SCI	Removal of an existing inefficient unit from service prior to end of useful life thru recycling.	\$75	per unit
			Freezer Recycling - SCI	Removal of an existing inefficient unit from service prior to end of useful life thru recycling.	\$75	per unit
			Room Air Conditioner Recycling - SCI	Removal of an existing inefficient unit from service prior to end of useful life thru recycling.	\$38	per unit
			Dehumidifiers Recycling - SCI	Removal of an existing inefficient unit from service prior to end of useful life thru recycling.	\$38	per unit
		Appliances - SCI	Clothes Washer - SCI	Purchase and installation of an Energy Star or CEE Tier 1 (or higher) clothes washer. Commercial clothes washers and "coin op" units are also eligible.	\$100	per unit
			Clothes Dryer (Elec w Moisture Sensor) - SCI	Purchase and installation of an Energy Star rated Clothes Dryer with moisture sensor or Heat Pump Clothes Dryer. Commercial and "coin op" unit are also eligible.	\$600	per unit
			Refrigerators - SCI	Purchase and installation of a new unit meeting Energy Star or CEE Tier 1 (or higher).	\$150	per unit
			Water Heater - Heat Pump - SCI	Purchase and installation of a heat pump water heater with EF>2.0 or a solar water heater with SEF >= 1.8 for electric backup.	\$700	per unit
			Freezers - SCI	Purchase and installation of a new unit meeting either Energy Star or greater efficiency level.	\$40	per unit
			Pre-Rinse Sprayers - SCI	Replacement of existing sprayer with new unit that use 1.6 GPM or less, on/off squeeze lever, and cleaning of performance of at least 26 seconds. Electric water heating only.	\$55	per unit
		Consumer Electronics - SCI	Uninterruptible Power Supply - SCI	Replacement or new installation of a UPS (less than 12 kW) that exceeds the minimum average efficiency standard as determined by Table 1 of the Energy Star UPS standard. Table 2 of the standard shall be used in calculating the loading of the UPS.	\$220	per kW

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Appendix C-3: Calculation Methods and Assumptions - Rebate Strategy

Ohio Edison						
Sector	Program	Sub-Program	Measure	Eligibility / Description	Rebate Strategy (All values are "up to" values) ^{1,2,3,4}	Qualifiers
Small Enterprise	C&I Energy Solutions for Business Program - Small	Consumer Electronics - SCI	Monitors - SCI	Purchase and installation of Energy Star rated unit.	\$15	per unit
			Computers - SCI	Purchase and installation of an Energy Star rated unit.	\$15	per unit
			Imaging - SCI	Purchase and installation of Energy Star rated imaging equipment including but not limited to: scanners, copier, printers, fax machines and multi-function machines.	\$30	per unit
			Small Network - SCI	Purchase and installation of network level software that controls desktop computers and monitors power settings with the network. Software must be capable of measuring and managing power consumption of each individual PC. Laptops are not eligible.	\$15	per PC
		Agricultural	Efficient Dairy Equipment - SCI	Purchase and installation of more efficient electric driven equipment in retrofit applications.	\$0.10 per kWh saved	
			High Efficiency Fans - SCI	Purchase and installation of a new high efficiency ventilation fans in retrofit applications.	\$0.10 per kWh saved	
		Data Centers - SCI	DC - Custom Servers- SCI	Replacement of existing server equipment or installation of new energy efficient server equipment meeting Energy Star or other energy efficiency requirements.	\$40	
			DC - Custom HVAC - SCI	Replacement of a HVAC or electric water chilling units prior to end of life or installation of a new unit exceeding IECC 2012 efficiency ratings by at least 10%. Includes variable flow (VRF) units.	\$0.10 per kWh saved.	NTE 50% of PC
			DC - Audit - SCI	Comprehensive Energy Audit for data center facility recommending installation of efficient equipment, such as: high efficiency server and storage devices, high efficiency computer room air conditioning (CRAC) and HVAC equipment, server virtualization, high efficiency power supplies, high efficiency dehumidification systems, economizers, airflow management and controls that improve systems cooling.	Up to 50% of the audit cost or \$5000 (whichever is less) plus upto remaining 50% of audit cost if audit recommended measures are installed.	
		Custom - SCI	Custom - Process Improvement - SCI	Replacement or retrofit of existing equipment or process changes or enhancements that results in electric energy savings.	\$0.10 per kWh saved.	NTE 50% of PC
			Custom - HVAC & Chillers - SCI	Replacement of a HVAC or electric water chilling units prior to end of life or installation of a new unit exceeding IECC 2012 efficiency ratings by at least 10%, and includes variable flow (VRF) units.	\$0.10 per kWh saved.	NTE 50% of PC
			Custom - Compressed Air - SCI	Replacement or retrofit of existing air compressor systems, including but no limited to: new compressors, air dryers, or increased storage capacity. Other efficiency measures such as: leak repair, controls, high efficiency nozzles, piping enhancements, and no loss drains are also eligible.	\$0.10 per kWh saved.	NTE 50% of PC

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Appendix C-3: Calculation Methods and Assumptions - Rebate Strategy

Ohio Edison						
Sector	Program	Sub-Program	Measure	Eligibility / Description	Rebate Strategy (All values are "up to" values) ^{1,2,3,4}	Qualifiers
Small Enterprise	C&I Energy Solutions for Business Program - Small	Custom - SCI	Custom - VFDs < 10HP - SCI	Purchase and installation of a new VFD for an existing motor (less than 10 hp) driving fans, pumps and other suitable applications.	\$130	per hp
			Custom - VFDs > 10 HP - SCI	Purchase and installation of a new VFD for an existing motor (greater than 10 hp) driving fans, pumps and other suitable applications.	\$100	per hp
			Custom-Motors - Three Phase - SCI	Purchase and installation of a new premium efficiency motor in lieu of rewinding an existing motor.	\$35	per hp
			Custom - Refrigeration - SCI	Retrofit of small commercial walk-in refrigeration and coolers, including, but not limited to: high efficiency fan motors, evaporator fan controllers, floating head pressure controls, evaporator coil defrost controls and variable speed compressor motors.	\$0.10 per kWh saved.	
		Retro - Commissioning - SCI	Custom Retrocommissioning - SCI	Adjustment of Electrical, Electric Mechanical, & Control System set points to improve system performance to existing building conditions and use, including the implementation of energy savings measures identified through building operations training.	\$0.10 per kWh saved.	NTE 50% of PC
		Custom Buildings - SCI	Custom - Building Improvements - SCI	Retrofit of existing building shell, electrical & electric mechanical retrofits to greater efficiency components and processes, including but not limited to wall and ceiling insulation, windows, reduction of conditioned cubic feet (CF) with the square feet (SF) of floor space remaining the same, reduction in window size w/ improved R value.	\$0.10 per kWh saved.	NTE 50% of PC
			Custom - Energy Management - SCI	Installation of new energy management system to control lighting, hvac and other building systems. New installation of smart thermostat or smart thermostat with advanced features. Advanced features on a smart thermostat must consist of three of the following: fan delays, free cooling, occupancy sensing, heat pump resistance element lock-out, humidity control, compressor optimization or behavioral "coaching" features. Thermostat must control electric heating and/or cooling systems.	\$0.10 per kWh saved. Up to 75% of thermostat cost.	
		Audits & Education - SCI	Energy Manager - SCI	Shared resource to provide energy consultative services to assess energy usage and to identify and promote low cost/no cost energy saving improvements and program opportunities.	NA	
			Energy Efficiency Measures - SCI	Opt In Kit with energy efficiency measures mailed at the customers request.	NA	
			Multi Family Audit - SCI	Provides a Customized Home Energy Report to multi-family residences served under a commercial rate tariff. Comprehensive measures eligible for incentive based on applicable diagnostics and testing includes, but are not limited to: Windows, Duct Sealing, and Wall & Attic Insulation, etc.	Audit - Up to \$500 for the cost of the audit direct install measures, plus up to \$500 for audit recommended measures and additional incentives	
			Benchmarking - SCI	Provides building owners and property managers with a quantitative analysis of their building's energy performance.	NA	
			Audit - SCI	Comprehensive Energy Audit for commercial/industrial facilities or manufacturing processes recommending installation of efficient equipment, building shell/envelop improvements, manufacturing process changes, building operating changes, or other energy efficiency improvements. Audit must meet minimum audit requirements for buildings or for process equipment.	Up to 50% of the audit cost or \$5000 (whichever is less) plus upto remaining 50% of audit cost if audit recommended measures are installed. Up to 50% of the cost of comprehensive measures installed.	

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Appendix C-3: Calculation Methods and Assumptions - Rebate Strategy

Ohio Edison						
Sector	Program	Sub-Program	Measure	Eligibility / Description	Rebate Strategy (All values are "up to" values) ^{1,2,3,4}	Qualifiers
Small Enterprise	C&I Energy Solutions for Business Program - Small	Audits & Education - SCI	Audits w Direct Install - SCI	Provides an audit with the direct installation (DI) of qualified energy efficiency measures. New installation of smart thermostat or smart thermostat with advanced features. Advanced features on a smart thermostat must consist of three of the following: fan delays, free cooling, occupancy sensing, heat pump resistance element lock-out, humidity control, compressor optimization or behavioral "coaching" features. Thermostat must control electric heating and/or cooling systems.	80% of the cost of the DI measures NTE \$6,000	
			Behavioral - SCI	Energy Intelligence Software tool that provides reporting containing energy usage comparisons, recommendations and education emphasizing key points, general conservation tips and information on tools and resources supporting implementation of energy efficiency measures and behaviors that reduces consumption of energy and demand.	NA	
	Customer Action Program - SCI	Customer Action Program - SCI	Customer Action Program - SCI	NA	NA	
Large Enterprise (Mercantile Utility)	C&I Energy Solutions for Business Program - Large	HVAC - LCI	Air Conditioning - <=5.4 Tn - LCI	Replacement of a Single Package or Split System central units prior to end of life or installation of a new energy efficient unit exceeding IECC 2012 efficiency ratings by at least 10%. Includes variable flow (VRF) systems.	\$200	per ton
			Chiller - Water Cld w Full Load - LCI	Replacement or new installation of electric chiller w/efficiency exceeding baselines in IECC, 2012, Table 503.2.3(7) by at least 10%. VFD retrofits of existing existing chiller is NOT included in this measure.	\$45 / Ton	NTE 50% of PC
			Air Conditioning - >5.4 < 20 Tn - LCI	Replacement of a Single Package or Split System central units prior to end of life or installation of a new energy efficient unit exceeding IECC 2012 efficiency ratings by at least 10%. Includes variable flow (VRF) systems.	\$150	per ton
			Heat Pump - <=5.4 Tn - LCI	Replacement of a Single Package or Split System central unit prior to end of life or installation of a new energy efficient unit exceeding IECC 2012 efficiency ratings by at least 10%. Includes variable flow (VRF) systems.	\$200	per ton
			Heat Pumps - >5.4 Tn - LCI	Replacement of a Single Package or Split System central unit prior to end of life or installation of a new energy efficient unit exceeding IECC 2012 efficiency ratings by at least 10%. Includes variable flow (VRF) systems.	\$150	per ton
			Heat Pumps - Water & GeoT - LCI	New installation of Ground & Water Source Heat Pumps: The following retrofit scenarios are eligible: • Ground source heat pumps for existing or new HVAC applications <135,000 BTU/hr, EER >13.1, COP> 3.1 • Groundwater source heat pumps for existing or new HVAC applications <135,000 BTU/hr, EER >16.2, COP> 3.6 • Water source heat pumps for existing or new HVAC applications <65,000 BTU/hr, EER >12.0, COP> 4.2	\$300	per ton
			Ductless Mini-Split HP - LCI	Replacement of ductless mini-split unit prior to end of life or installation of a new energy efficient w/ SEER >= 15, EER >=12.5 or HSPF >= 8.5.	\$300	per ton
			PTAC - LCI	Replacement of a packaged terminal unit prior to end of life or installation of a new energy efficient unit exceeding IECC 2012 efficiency ratings by at least 10%. Includes variable flow (VRF) systems.	\$150	per ton
			PTHP - LCI	Replacement of a packaged terminal unit prior to end of life or installation of a new energy efficient unit exceeding IECC 2012 efficiency ratings by at least 10%. Includes variable flow (VRF) systems.	\$150	per ton

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Appendix C-3: Calculation Methods and Assumptions - Rebate Strategy

Ohio Edison						
Sector	Program	Sub-Program	Measure	Eligibility / Description	Rebate Strategy (All values are "up to" values) ^{1,2,3,4}	Qualifiers
Large Enterprise (Mercantile Utility)	C&I Energy Solutions for Business Program - Large	HVAC - LCI	Air Conditioning - >=20 Tn - LCI	Replacement of a Single Package or Split System central units prior to end of life or installation of a new energy efficient unit exceeding IECC 2012 efficiency ratings by at least 10%. Includes variable flow (VRF) systems.	\$120	per ton
		Lighting - LCI	CFL Fixtures - LCI	Purchase and installation of an energy efficient lighting fixture wired for exclusive use with pin-based (including the GU-24 base) compact fluorescent lamp(s).	\$20	per fixture
			CFL Lamps - LCI	Purchase and installation of an energy efficient specialty compact fluorescent light bulb (CFL).	\$3	NTE Cost of Lamp
			Lighting Controls (Daylight & Occupancy) - LCI	Purchase and installation of new lighting controls, including but not limited to: daylight On/Off & dimming, occupancy sensors (wall plate, remote & fixture mounted), time clocks and switching controls.	\$0.10 per kWh saved	
			Linear Fluorescent T8 / T5 - LCI	Replacement of existing linear fluorescent lamps or new installations with high performance T8 or T5 lamps.	\$0.10 per kWh saved	
			LED Linear - LCI	Replacement or new installation of linear LED lighting equipment to a higher efficiency than existing or designed.	\$0.10 per kWh saved	
			LED Channel Signage - LCI	Replacement, retrofit or new installation of channel letter signs w/ LED technology.	\$3	per linear foot
			Exit Signs - LCI	Replacement or retrofit of incandescent or fluorescent exit signs w/ LED or photoluminescent exit sign.	\$23	per sign
			LED Fixtures External - LCI	Replacement or new installation of a lighting fixture wired for exclusive use with LED lamps that is installed in an exterior setting.	\$55	per fixture
			LED Fixtures Internal - LCI	Replacement or new installation of a lighting fixture wired for exclusive use with LED lamps that is installed in an interior setting.	\$55	per fixture
			LED Lamps - LCI	Purchase and installation of an energy efficient LED lamp.	\$20	NTE Cost of Lamp
			Street & Area Lighting (Customer Owned) - LCI	Replacement or new installation of Street and Area lighting equipment to a greater efficiency than existing or designed.	\$220	per fixture

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Ohio Edison

Sector	Program	Sub-Program	Measure	Eligibility / Description	Rebate Strategy (All values are "up to" values) ^{1,2,3,4}	Qualifiers
Large Enterprise (Mercantile Utility)	C&I Energy Solutions for Business Program - Large	Data Centers - LCI	DC - Custom HVAC - LCI	Replacement of a HVAC or electric water chilling units prior to end of life or installation of a new unit exceeding IECC 2012 efficiency ratings by at least 10%. Includes variable flow (VRF) units.	\$0.10 per kWh saved.	NTE 50% of PC
			DC - Custom Servers - LCI	Replacement or retrofit of existing data center equipment including, but not limited to: high efficiency server and storage devices, high efficiency computer room air conditioning (CRAC) and HVAC equipment, server virtualization, high efficiency power supplies, high efficiency dehumidification systems, economizers, airflow management and controls that improve systems cooling, and UPS efficiency upgrades.	\$0.10 per kWh saved.	
			DC - Audit - LCI	Comprehensive Energy Audit for data center facilities recommending installation of efficient equipment, building shell/envelop improvements, building operating changes, or other energy efficiency improvements.	Up to 50% of the audit cost plus up to remaining 50% of audit cost if audit recommended measures are installed.	
		Custom - LCI	Custom - Process Improvement - LCI	Replacement or retrofit of existing equipment or process changes or enhancements that results in electric energy savings.	\$0.10 per kWh saved.	NTE 50% of PC
			Custom - HVAC & Chillers - LCI	Replacement of a HVAC or electric water chilling units prior to end of life or installation of a new unit exceeding IECC 2012 efficiency ratings by at least 10%. Includes variable flow (VRF) units.	\$0.10 per kWh saved.	NTE 50% of PC
			Custom - Compressed Air - LCI	Replacement or retrofit of existing air compressor systems, including but not limited to: new compressors, air dryers, or increased storage capacity. Other efficiency measures such as: leak repair, controls, high efficiency nozzles, piping enhancements, and no loss drains are also eligible.	\$0.10 per kWh saved.	NTE 50% of PC
			Custom - VFDs < 10HP - LCI	Purchase and installation of a new VFD for an existing motor (less than 10 hp) driving fans, pumps and other suitable applications.	\$130	per hp
			Custom - VFDs > 10 HP - LCI	Purchase and installation of a new VFD for an existing motor (greater than 10 hp) driving fans, pumps and other suitable applications.	\$100	per hp
			Custom-Motors - Three Phase - LCI	Purchase and installation of a new premium efficiency motor in lieu of rewinding an existing motor.	\$35	per hp
			Custom - Refrigeration - LCI	Retrofit of small commercial walk-in refrigeration and coolers, including, but not limited to: high efficiency fan motors, evaporator fan controllers, floating head pressure controls, evaporator coil defrost controls and variable speed compressor motors.	\$0.10 per kWh saved.	
		Retro - Commissioning - LCI	Custom Retrocommissioning - LCI	Adjust Electrical, Electric Mechanical, & Control System set points to improve system performance to existing building conditions and use, including the implementation of energy savings measures identified through building operations training.	\$0.10 per kWh saved.	NTE 50% of PC
		Custom Buildings - LCI	Custom - Building Improvements - LCI	Retrofit of existing building shell, electrical & electric mechanical retrofits to greater efficiency components and processes, including but not limited to wall and ceiling insulation, windows, reduction of conditioned cubic feet (CF) with square feet (SF) of floor space remaining the same, reduction in window size w/ improved R value.	\$0.10 per kWh saved.	NTE 50% of PC

1. The Company may provide tiered rebate amounts within the incentive ranges listed above for qualifying products that have varying characteristics (e.g. size, features, etc.).

2. The Company may provide prescriptive rebates in lieu of the performance incentives listed above for certain measures and/or applications where the prescriptive value is within the equivalent performance incentive range.

3. The Company may establish incentive tiers and/or incentive block structures within the performance incentives listed above for different end use technology or sub-measures (lighting, HVAC, etc).

4. Unless otherwise stated, rebates will be limited by the project or equipment cost, where applicable.

Appendix C-3: Calculation Methods and Assumptions - Rebate Strategy

Ohio Edison						
Sector	Program	Sub-Program	Measure	Eligibility / Description	Rebate Strategy (All values are "up to" values) ^{1,2,3,4}	Qualifiers
Large Enterprise (Mercantile Utility)	C&I Energy Solutions for Business Program - Large	Custom Buildings - LCI	Custom - Energy Management - LCI	Installation of new energy management system in buildings to control lighting, hvac and other building systems.	\$0.10 per kWh saved.	
		Audits & Education - LCI	Audit - LCI	Comprehensive Energy Audit for commercial/industrial facilities or manufacturing processes recommending installation of efficient equipment, building shell/envelop improvements, manufacturing process changes, building operating changes, or other energy efficiency improvements. Audit must meet minimum audit requirements for buildings or for process equipment.	Up to 50% of Audit Cost plus up to remaining 50% of Audit Cost if audit recommended measures are installed	
			Energy Manager - LCI	Shared resource to provide energy consultative services to assess energy usage and to identify and promote low cost/no cost energy saving improvements and program opportunities.	NA	
			Benchmarking - LCI	Provides building owners and property managers with a quantitative analysis of their building's energy performance.	NA	
	C&I Demand Response Program - Large	Demand Response - LCI	LC&I Contracted DR - PJM	Large commercial, industrial and government customers participating in PJM programs and/or contracted curtailment attributes w/ curtailment providers and/or individual customers.	NA	
			ELR Interruptible Tariff	Large commercial, industrial and governmental customers on the Companies ELR tariff.	NA	
	Customer Action Program - LCI	Customer Action Program - LCI	Customer Action Program - LCI	NA	NA	
Government	Government Tariff Lighting Program	Government Tariff Lighting	LED - Traffic Signals - Gov	Replacement of incandescent traffic & pedestrian signals with LED signals.	\$90	per signal
			Street & Area Lighting (Tariff / Utility Owned) - Gov	Replacement or new installation of Street and Area lighting equipment to a greater efficiency than existing or designed.	NA	
			Street & Area Lighting (Tariff / Customer Owned) - Gov	Replacement or new installation of Street and Area lighting equipment to a greater efficiency than existing or designed.	\$220	per fixture
Mercantile	Mercantile Customer Program	Mercantile	Mercantile Customer Projects	Self directed projects completed by large commercial and industrial mercantile customers.	NA	

1. The Company may provide tiered rebate amounts within the incentive ranges listed above for qualifying products that have varying characteristics (e.g. size, features, etc.).
2. The Company may provide prescriptive rebates in lieu of the performance incentives listed above for certain measures and/or applications where the prescriptive value is within the equivalent performance incentive range.
3. The Company may establish incentive tiers and/or incentive block structures within the performance incentives listed above for different end use technology or sub-measures (lighting, HVAC, etc).
4. Unless otherwise stated, rebates will be limited by the project or equipment cost, where applicable.

Appendix C-3: Calculation Methods and Assumptions - Rebate Strategy

Ohio Edison						
Sector	Program	Sub-Program	Measure	Eligibility / Description	Rebate Strategy (All values are "up to" values) ^{1,2,3,4}	Qualifiers
Other	Transmission & Distribution Upgrades	T&D Upgrades	Transmission & Distribution Upgrades	Transmission and distribution system improvements that results in electric energy savings.	NA	
	Smart Grid Modernization Initiative	Smart Grid	Smart Grid Modernization Initiative	Smart Grid Modernization initiatives that results in electric energy savings.	NA	
	Energy Special Improvement District	Energy Special Improvement District	Energy Special Improvement District	Electric energy savings resulting from projects completed as part of an Energy Special Improvement District.	NA	

1. The Company may provide tiered rebate amounts within the incentive ranges listed above for qualifying products that have varying characteristics (e.g. size, features, etc.).
2. The Company may provide prescriptive rebates in lieu of the performance incentives listed above for certain measures and/or applications where the prescriptive value is within the equivalent performance incentive range.
3. The Company may establish incentive tiers and/or incentive block structures within the performance incentives listed above for different end use technology or sub-measures (lighting, HVAC, etc.).
4. Unless otherwise stated, rebates will be limited by the project or equipment cost, where applicable.

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PUCO 1: Portfolio Summary of Lifetime Costs and Benefits

Ohio Edison Portfolio Summary of Lifetime Costs and Benefits Net Lifetime Benefits, and TRC per the California Standard Practice Manual					
Portfolio	Discount Rate	Total Discounted Lifetime Costs (\$000) ¹	Total Discounted Lifetime Benefits (\$000)	Total Discounted Net Lifetime Benefits (\$000)	Cost- Benefit Ratio (TRC)
Residential (inclusive of Low-Income)	8.48%	78,229	99,047	20,818	1.3
Small Enterprise	8.48%	94,893	143,956	49,063	1.5
Mercantile	8.48%	431	19,624	19,193	45.6
Mercantile-Utility (Large Enterprise)	8.48%	72,130	111,048	38,918	1.5
Governmental	8.48%	409	976	567	2.4
Other	8.48%	14	-	(14)	N/A
Total	8.48%	246,105	374,650	128,545	1.5

1. Includes certain costs outside of Plan budgets according to the Stipulated ESPIV.

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PUCO 2: Summary of Portfolio Energy and Demand Savings

Ohio Edison Summary of Portfolio Energy and Demand Savings						
MWh Saved for Consumption Reductions kW Saved for Peak Load Reductions	Program Year 2017		Program Year 2018		Program Year 2019	
	MWh Saved	KW Saved ¹	MWh Saved	KW Saved ¹	MWh Saved	KW Saved ¹
Residential Sector (inclusive of Low- Income) - Cumulative Projected Portfolio Savings	94,315	19,536	198,677	35,101	306,604	51,303
Small Enterprise - Cumulative Projected Portfolio Savings	84,246	13,636	176,413	28,426	268,712	43,244
Mercantile - Cumulative Projected Portfolio Savings	26,164	3,186	39,247	4,779	52,330	6,372
Mercantile-Utility (Large Enterprise) - Cumulative Projected Portfolio Savings	64,415	297,347	132,685	306,916	205,877	317,273
Government Sector - Cumulative Projected Portfolio Savings	135	11	340	22	546	34
Other - Cumulative Projected Portfolio Savings	0	0	6,400	731	12,800	1,461
Portfolio Plan Total - Cumulative Projected Savings	269,276	333,716	553,763	375,975	846,869	419,687
Cumulative Results projected through 2016 (Appendix A-2)	1,868,294	307,676	1,868,294	307,676	1,868,294	307,676
Total Cumulative Projected Savings	2,137,570	641,392	2,422,057	683,651	2,715,163	727,363
SB 310 Target (Table 3)	1,254,420	275,900	1,461,877	317,000	1,678,363	353,700
% (Over / Under)	170%	232%	166%	216%	162%	206%

1. Includes coincident peak demand reductions for energy efficiency and excludes interruptible demand reductions achieved in previous years.

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PUCO 3: Summary of Portfolio Costs

Ohio Edison Summary of Portfolio Costs			
	Program Year 2017	Program Year 2018	Program Year 2019
	Portfolio Budget (\$)	Portfolio Budget (\$)	Portfolio Budget (\$)
Residential Portfolio (inclusive of Low-Income) Annual Budget	18,000,196	17,147,782	17,948,573
Small Enterprise Portfolio Annual Budget	15,379,502	16,088,925	16,194,498
Mercantile Portfolio Annual Budget	211,294	123,481	124,145
Mercantile-Utility (Large Enterprise) Portfolio Annual Budget	9,719,030	9,383,266	10,034,602
Government Portfolio Annual Budget	86,672	95,329	95,896
Other Portfolio Annual Budget	5,000	5,000	5,000
Total Portfolio Annual Budget	43,401,693	42,843,783	44,402,713

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PUCO 4: Program Summaries

Ohio Edison Program Summaries								
	EE Program (check box)	PDR Program (check box)	Program Name	Program Market	Program Two Sentence Summary	Net Lifetime MWh Savings	Net Peak Demand kW Savings	Percentage of Portfolio and Total Lifetime MWh savings %
Residential Portfolio Programs (inclusive of Low Income)		X	Residential Demand Response Program	Res	The program consists of a customer having their central air conditioning compressor cycled during summer peak load periods.	-	15,092	0.0%
	X		Appliance Turn In Program	Res	This program provides rebates and removal and recycle services to consumers for turning in working appliances.	316,826	59,078	13.3%
	X		Energy Efficient Products Program	Res	This program promotes the purchase of energy efficient products, such as HVAC equipment, appliances, lighting, home electronics and other energy saving home products, through consumer rebates or incentives and support to retailers and manufacturers.	1,201,841	157,079	50.6%
	X		Energy Efficient Homes Program	Res	This program provides customers with energy efficiency education and awareness along with measures and incentives to improve energy efficiency of homes.	730,222	99,077	30.7%
	X		Low Income Energy Efficiency Program	LI Res	The low-income program provides weatherization services, home audits and installation of energy efficiency measures for low-income customers under the Community Connections sub-program. The program also provides incentives for the construction of new energy efficient housing or major rehabilitation of existing housing for low-income customers.	60,697	7,294	2.6%
	X		Customer Action Program - Res	Res	The program captures energy savings and peak demand reductions achieved through actions taken by customers outside of utility-administered programs pursuant to R.C. 4928.662	66,078	7,543	2.8%
	Total for Plan					2,375,662	345,163	25.5%

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PUCO 4: Program Summaries

Ohio Edison Program Summaries								
	EE Program (check box)	PDR Program (check box)	Program Name	Program Market	Program Two Sentence Summary	Net Lifetime MWh Savings	Net Peak Demand kW Savings	Percentage of Portfolio and Total Lifetime MWh savings %
Small Enterprise	X		C&I Energy Solutions for Business Program - Small	Small C&I	This program provides measures and financial incentives (prescriptive & performance) to small commercial and industrial customers, including small government and institutional customers, to purchase qualifying high efficiency measures, recycle inefficient appliances, retrofit specialized processes, applications or end uses to higher efficiency processes, applications and end-uses, complete qualifying high efficiency building shell or system improvements, to complete an audit with qualifying audit installations or recommendations and to achieve energy savings by adapting energy saving behaviors through energy management strategies.	3,243,191	551,741	99.1%
	X		Customer Action Program - SCI	Small C&I	The program captures energy savings and peak demand reductions achieved through actions taken by customers outside of utility-administered programs pursuant to R.C. 4928.662	27,992	3,195	0.9%
	Total for Plan					3,271,183	554,936	35.1%

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PUCO 4: Program Summaries

Ohio Edison Program Summaries								
	EE Program (check box)	PDR Program (check box)	Program Name	Program Market	Program Two Sentence Summary	Net Lifetime MWh Savings	Net Peak Demand kW Savings	Percentage of Portfolio and Total Lifetime MWh savings %
Mercantile	X		Mercantile Customer Program	Large C&I	Captures energy efficiency and peak demand reduction projects committed to the Company by Mercantile customers as provided for by O.R.C. 4928.01 and 4928.66	523,300	63,724	100.0%
	Total for Plan					523,300	63,724	5.6%
Mercantile-Utility (Large Enterprise)		X	C&I Demand Response Program - Large	Large C&I	The program captures load curtailment and curtailable capacity from the Companies' Interruptible Load Program (Economic Load Response Rider) and from additional demand resources including resources participating in the PJM market or through contracts for demand response attributes with customers or PJM CSPs.	0	865,080	0.0%
	X		C&I Energy Solutions for Business Program - Large	Large C&I	This program provides measures and financial incentives (prescriptive & performance) to small commercial and industrial customers, including small government and institutional customers, to purchase qualifying high efficiency measures, recycle inefficient appliances, retrofit specialized equipment, processes, applications or end uses to higher efficiency equipment, processes, applications and end-uses, complete qualifying high efficiency building shell or system improvements, to complete an audit with qualifying audit installations or recommendations and to achieve energy savings by adapting energy saving behaviors through energy management strategies.	2,945,494	416,815	99.5%
	X		Customer Action Program - LCI	Large C&I	The program captures energy savings and peak demand reductions achieved through actions taken by customers outside of utility-administered programs pursuant to R.C. 4928.662	14,449	1,649	0.5%
	Total for Plan					2,959,943	1,283,544	31.7%

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PUCO 4: Program Summaries

Ohio Edison Program Summaries								
	EE Program (check box)	PDR Program (check box)	Program Name	Program Market	Program Two Sentence Summary	Net Lifetime MWh Savings	Net Peak Demand kW Savings	Percentage of Portfolio and Total Lifetime MWh savings %
Government Portfolio Programs	X		Government Tariff Lighting Program	Gov't	The program provides financial incentives and support to customers for implementing energy efficient street lighting or traffic lighting technologies on customer owned and maintained installations.	5,461	335	100.0%
	Total for Plan					5,461	335	0.1%
Other	X		Transmission & Distribution Upgrades	T&D	Capture savings achieved through various T&D projects that reduce line losses, which in turn results in a more efficient delivery system.	192,000	21,918	100.0%
	X		Smart Grid Modernization Initiative	T&D	Captures energy savings from the project to produce an integrated system of protection, performance, efficiency and economy that extends across the energy delivery system.	-	-	0.0%
	X		Energy Special Improvement District	T&D	Incorporation of State Legislation that permits Ohio townships and municipalities to create Energy Special Improvement Districts offering constituents Property Assessed Clean Energy (PACE) financing for qualifying energy efficiency projects.	-	-	0.0%
	Total for Plan					192,000	21,918	2.1%

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PUCO 5: Budget and Parity Analysis Summary

Ohio Edison						
Customer Class	3 Year Budget	% of Total EDC Budget	% of Total Budget of Customer Programs	2015 Revenue by Customer Class	% of Total Customer Revenue	Difference
Residential <i>(inclusive of Low-Income)</i>	53,096,551					
Residential Subtotal	53,096,551	40.6%	40.6%	728,148,411	57.3%	-17%
Small Enterprise	47,662,924					
Small Enterprise Total	47,662,924	36.5%	36.5%	354,706,509	27.9%	9%
Mercantile-Utility (Large Enterprise)	29,136,898					
Mercantile	458,919					
Mercantile Subtotal	29,595,816	22.7%	22.7%	173,626,130	13.7%	9%
Government	277,896	0.2%	0.2%	14,446,554	1.1%	-1%
Other	15,000	0.0%	0.0%			
EDC TOTAL	130,648,188	100%	100%	1,270,927,604	100%	

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PUCO 5A: Energy Savings and Parity Analysis Summary

Ohio Edison						
Customer Class	3 Year Cumulative Energy Savings (MWh)	% of Total EDC Energy Savings	% of Total Energy Savings of Customer Programs	2015 Sales by Customer Class (MWh)	% of Total Customer Sales	Difference
Residential	306,604	36.2%				
Residential Subtotal	306,604	36.2%	36.2%	9,221,743	38.0%	-2%
Small Enterprise	268,712	31.7%				
Small Enterprise Total	268,712	31.7%	31.7%	6,662,100	27.4%	4%
Mercantile-Utility (Large Enterprise)	205,877	24.3%				
Mercantile	52,330	6.2%				
Mercantile Subtotal	258,207	30.5%	30.5%	8,265,885	34.0%	-4%
Government	546	0.1%	0.1%	141,923	0.6%	-1%
Other	12,800	1.5%	1.5%			
EDC TOTAL	846,869	100%	100%	24,291,651	100%	

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PUCO 6A: Portfolio-Specific Assignment of EE-C Costs

Ohio Edison Residential Portfolio (including Low-Income)			
EE&C Program	Cost Elements (\$)		
	<i>Total Incentives</i>	<i>Operations Costs</i>	<i>Total Budget (2017-2019)</i>
Peak Demand Reduction Programs			
Residential Demand Response Program	0	907,113	907,113
Peak Demand Reduction Program Subtotal	0	907,113	907,113
Energy Efficiency Programs			
Appliance Turn In Program	1,911,527	5,959,121	7,870,648
Energy Efficient Products Program	11,510,061	4,589,776	16,099,837
Energy Efficient Homes Program	14,282,467	9,547,785	23,830,253
Low Income Energy Efficiency Program	20,697	647,099	667,796
Customer Action Program - Res	0	644,083	644,083
EE Program Subtotal	27,724,752	21,387,865	49,112,617
Totals	27,724,752	22,294,978	50,019,730

Ohio Edison Small Enterprise			
EE&C Program	Cost Elements (\$)		
	<i>Total Incentives</i>	<i>Operations Costs</i>	<i>Total Budget (2017-2019)</i>
C&I Energy Solutions for Business Program - Small	27,833,039	17,198,778	45,031,817
Customer Action Program - SCI	0	670,326	670,326
Totals	27,833,039	17,869,104	45,702,143

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PUCO 6A: Portfolio-Specific Assignment of EE-C Costs

Ohio Edison Mercantile			
EE&C Program	Cost Elements (\$)		
	<i>Total Incentives</i>	<i>Operations Costs</i>	<i>Total Budget (2017-2019)</i>
Mercantile Customer Program	0	212,653	212,653
Totals	0	212,653	212,653

Ohio Edison Mercantile Utility (Large Enterprise)			
EE&C Program	Cost Elements (\$)		
	<i>Total Incentives</i>	<i>Operations Costs</i>	<i>Total Budget (2017-2019)</i>
Peak Demand Reduction Programs			
C&I Demand Response Program - Large	0	600	600
Peak Demand Reduction Program Subtotal	0	600	600
Energy Efficiency Programs			
C&I Energy Solutions for Business Program - Large	16,935,675	9,773,333	26,709,008
Customer Action Program - LCI	0	145,636	145,636
EE Program Subtotal	16,935,675	9,918,969	26,854,644
Totals	16,935,675	9,919,569	26,855,244

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PUCO 6A: Portfolio-Specific Assignment of EE-C Costs

Ohio Edison Government			
EE&C Program	Cost Elements (\$)		
	<i>Total Incentives</i>	<i>Operations Costs</i>	<i>Total Budget (2017-2019)</i>
Government Tariff Lighting Program	136,500	99,988	236,488
Totals	136,500	99,988	236,488

Ohio Edison Other			
EE&C Program	Cost Elements (\$)		
	<i>Total Incentives</i>	<i>Operations Costs</i>	<i>Total Budget (2017-2019)</i>
Transmission & Distribution Upgrades	0	0	0
Smart Grid Modernization Initiative	0	0	0
Energy Special Improvement District	0	0	0
Totals	0	0	0

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PUCO 6B: Allocation of Common Costs to Applicable Customer Sector

Ohio Edison										
Common Cost Element	EE Program (check box)	PDR Program (check box)	Total Cost (\$)	Basis for Cost Allocation	Class Cost Allocaton (\$)					
					Residential (Including Low-Income)	Small Enterprise (Small C&I)	Mercantile	Mercantile-Utility (Large C&I)	Other	Government
Utility Administration	X	X	\$3,771,714	FERC Form 1 Sales	\$1,562,125	\$946,532	\$118,881	\$1,109,187	\$15,000	\$19,989
Tracking and Reporting	X	X	\$1,746,299	FERC Form 1 Sales	\$696,902	\$455,723	\$57,237	\$526,813	\$0	\$9,624
Other	X	X	\$2,103,918	FERC Form 1 Sales	\$817,794	\$558,526	\$70,149	\$645,654	\$0	\$11,795
Totals			\$7,621,930		\$3,076,821	\$1,960,781	\$246,266	\$2,281,654	\$15,000	\$41,408

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PUCO 6C: Summary of Portfolio EE&C Costs

Ohio Edison	Total Sector Portfolio-specific Costs	Total Common Costs	Total of All Costs
Residential (Including Low-Income)	\$50,019,730	\$3,076,821	\$53,096,551
Small Enterprise	\$45,702,143	\$1,960,781	\$47,662,924
Mercantile	\$212,653	\$246,266	\$458,919
Mercantile-Utility (Large Enterprise)	\$26,855,244	\$2,281,654	\$29,136,898
Other	\$0	\$15,000	\$15,000
Government	\$236,488	\$41,408	\$277,896
Totals	\$123,026,258	\$7,621,930	\$130,648,188

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PUCO 7A-B: TRC Benefits Table - Residential

Residential (inclusive of Low- Income)	Ohio Edison TRC Benefits By Program Per Year (\$000)									
	Program Year	TRC	Program Costs	Program Benefits	Capacity Benefits	Energy Benefits	Load Reductions in kW		MWh Saved	
							Annual	Lifetime	Annual	Lifetime
Residential Demand Response Program	2017		343	363			5,081		0	
	2018		337	458			5,031		0	
	2019		344	547			4,980		0	
	Total	1.3	947	1,250	1,250	-		15,092		0
Appliance Turn In Program	2017		2,252	739			2,984		13,041	
	2018		2,156	1,606			5,969		26,082	
	2019		2,313	2,678			9,197		40,187	
	Total	2.3	6,205	14,576	4,929	9,647		59,078		316,826
Energy Efficient Products Program	2017		12,758	1,419			3,603		26,649	
	2018		13,049	3,205			7,594		56,968	
	2019		13,616	5,235			11,673		87,618	
	Total	1.2	36,358	44,309	11,077	30,589		157,079		1,201,841
Energy Efficient Homes Program	2017		9,485	2,532			7,112		48,078	
	2018		8,864	4,857			15,206		104,367	
	2019		9,354	7,194			23,731		163,929	
	Total	1.3	25,605	33,929	8,250	23,125		99,077		730,222
Low Income Energy Efficiency Program	2017		2,850	122			295		2,510	
	2018		2,793	258			589		5,019	
	2019		2,794	410			884		7,529	
	Total ³	0.3	7,799	2,440	597	1,843		7,294		60,697
Customer Action Program - Res	2017		444	192			461		4,038	
	2018		359	311			712		6,241	
	2019		310	385			838		7,342	
	Total	2.4	1,038	2,543	538	2,005		7,543		66,078
Total⁴										
1: Generation, Transmission and Distribution Capacity costs are combined in a sum of avoided capacity costs. 2: The on and off peak energy costs are combined in a sum of avoided energy costs. 3: Includes cost for the OPAE Community Connections program according to the Stipulated ESPIV. 4: Includes cost for the City of Akron Energy Efficiency Program according to the Stipulated ESPIV.										

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PUCO 7C: TRC Benefits Table - Small Enterprise

Small Enterprise	Ohio Edison TRC Benefits By Program Per Year (\$000)																				
Program	Program Year	TRC	Program Costs	Program Benefits	Capacity Benefits	Energy Benefits	Load Reductions in kW		MWh Saved												
							Annual	Lifetime	Annual	Lifetime											
C&I Energy Solutions for Business Program - Small	2017		31,808	5,051			13,501		83,062												
	2018		34,252	10,948			28,217		174,583												
	2019		34,947	17,482			42,998		266,559												
	Total	1.5	93,497	142,979	39,395	85,179		551,741		3,243,191											
Customer Action Program - SCI	2017		271	57			135		1,184												
	2018		269	92			209		1,830												
	2019		270	114			246		2,153												
	Total	1.3	749	977	208	769		3,195		27,992											
Total ³							1.5		94,893		143,956		39,603		85,948		554,936		3,271,183		
<div>1: Generation, Transmission and Distribution Capacity costs are combined in a sum of avoided capacity costs.</div> <div>2: The on and off peak energy costs are combined in a sum of avoided energy costs.</div> <div>3: Includes cost for the COSE Ohio Energy Efficiency Program and Administrator payments, and the AICUO Efficiency Resource Program and Administrator payments according to the Stipulated ESPIV.</div>																					

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PUCO 7D: TRC Benefits Table - Mercantile

Mercantile	Ohio Edison TRC Benefits By Program Per Year (\$000)									
Program	Program Year	TRC	Program Costs	Program Benefits	Capacity Benefits	Energy Benefits	Load Reductions in kW		MWh Saved	
							Annual	Lifetime	Annual	Lifetime
Mercantile Customer Program	2017		211	1,256			3,186		26,164	
	2018		123	1,976			4,779		39,247	
	2019		124	2,772			6,372		52,330	
	Total	45.6	431	19,624	4,147	15,477	63,724	523,300		
Total	45.6	431	19,624	4,147	15,477	63,724	523,300			
1: Generation, Transmission and Distribution Capacity costs are combined in a sum of avoided capacity costs.										
2: The on and off peak energy costs are combined in a sum of avoided energy costs.										

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PUCO 7E: TRC Benefits Table - Mercantile Utility (Large Enterprise)

Mercantile Utility (Large Enterprise)	Ohio Edison TRC Benefits By Program Per Year (\$000)									
Program	Program Year	TRC	Program Costs	Program Benefits	Capacity Benefits	Energy Benefits	Load Reductions in kW		MWh Saved	
							Annual	Lifetime	Annual	Lifetime
C&I Demand Response Program - Large	2017		5				288,360		0	
	2018		5				288,360		0	
	2019		5				288,360		0	
	Total	N/A	14				865,080		0	
C&I Energy Solutions for Business Program - Large	2017		24,541	3,456			8,917		63,804	
	2018		25,325	7,571			18,448		131,740	
	2019		27,704	12,471			28,786		204,765	
	Total	1.5	71,429	110,544	29,180	75,038	416,815		2,945,494	
Customer Action Program - LCI	2017		212	29			70		611	
	2018		162	48			108		945	
	2019		134	59			127		1,111	
	Total	1.1	475	504	107	397	1,649		14,449	
Total ³		1.5	72,130	111,048	29,287	75,435	1,283,544		2,959,943	
1: Generation, Transmission and Distribution Capacity costs are combined in a sum of avoided capacity costs.										
2: The on and off peak energy costs are combined in a sum of avoided energy costs.										
3: Includes cost for the AICUO Efficiency Resource Program and Administrator payments according to the Stipulated ESPIV.										

Appendix C-4

PUCO 7F: TRC Benefits Table - Government

Government	Ohio Edison TRC Benefits By Program Per Year (\$000)									
Program	Program Year	TRC	Program Costs	Program Benefits	Capacity Benefits	Energy Benefits	Load Reductions in		MWh Saved	
							Annual	Lifetime	Annual	Lifetime
Government Tariff Lighting Program	2017		123	45			11		135	
	2018		161	96			22		340	
	2019		162	147			34		546	
	Total	2.4	409	976	26	143	335	5,461		
Total		2.4	409	976	26	143	335		5,461	
1: Generation, Transmission and Distribution Capacity costs are combined in a sum of avoided capacity costs.										
2: The on and off peak energy costs are combined in a sum of avoided energy costs.										

Appendix C-4

PUCO 7G: TRC Benefits Table - Other

Other	Ohio Edison									
TRC Benefits By Program Per Year (\$000)										
Program	Program Year	TRC	Program Costs	Program Benefits	Capacity Benefits	Energy Benefits	Load Reductions in kW		MWh Saved	
							Annual	Lifetime	Annual	Lifetime
Transmission & Distribution Upgrades	2017		5				0		0	
	2018		5				731		6,400	
	2019		5				1,461		12,800	
	Total	N/A	14					21,918		192,000
Smart Grid Modernization Initiative	2017		-	-			0		0	
	2018		-	-			0		0	
	2019		-	-			0		0	
	Total	N/A	-	-	-	-		0		0
Energy Special Improvement District	2017		-	-			0		0	
	2018		-	-			0		0	
	2019		-	-			0		0	
	Total	N/A	-	-	-	-		0		0
Total			14	-	-	-	21,918		192,000	
1: Generation, Transmission and Distribution Capacity costs are combined in a sum of avoided capacity costs.										
2: The on and off peak energy costs are combined in a sum of avoided energy costs.										

**Cleveland Electric Illuminating
- Appendix A:
Results of Existing Plan**

Appendix A-1 Summary Annualized Energy and Demand Portfolio Impacts, 2009 - 2015

Cumulative 2009 - 2015 Energy Efficiency and Peak Demand Reduction Results		
Utility	Energy Savings, MWh^{1, 2}	Coincident Peak Demand Reductions, MW^{1, 2, 3}
OE	1,741,966	287
CEI	1,504,135	221
TE	702,081	119
TOTAL	3,948,182	627
<p>¹ Includes preliminary estimate of cumulative 2013-2015 Portfolio Results plus results of the Companies' 2009-2012 Portfolio progress. Also includes projects pending PUCO approval 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.</p> <p>² 2015 values are based on preliminary estimates. Values shown through 2014 are based on the Companies' Annual Compliance Filings.</p> <p>³ Includes coincident peak demand reductions for energy efficiency and excludes interruptible demand reductions.</p>		

Appendix A-2 Summary Annualized Energy and Demand Portfolio Impacts

2016 Projection Energy Efficiency and Incremental Coincident Peak Demand Reduction Results		
Utility	Energy Savings, MWh ¹	Coincident Peak Demand Reductions, MW ^{1, 2}
OE	126,329	21
CEI	85,256	12
TE	44,976	7
TOTAL	256,561	39
¹ Values shown are preliminary estimates and include projections for the Companies existing Low Income Program, Mercantile Customer Program, Transmission and Distribution Savings and Customer Action Program. ² Includes coincident peak demand reductions for energy efficiency and excludes interruptible demand reductions.		

Cumulative EOY 2016 Estimated Energy Efficiency and Coincident Peak Demand Reduction Results ¹		
Utility	Energy Savings, MWh	Coincident Peak Demand Reductions, MW ²
OE	1,868,294	308
CEI	1,589,391	233
TE	747,057	126
TOTAL	4,204,743	666
¹ Sum of Appendix A-1 and 2016 Projection ² Includes coincident peak demand reductions for energy efficiency and excludes interruptible demand reductions.		

**Cleveland Electric Illuminating
- Appendix B:
Portfolio Budget Detail**

Appendix B-1: Program Cost by Program Year

Cleveland Electric Illuminating - Program Year 2017						
Sector	Program	Sub-Program	Operations	Incentives	Total	
Residential	Appliance Turn In Program	Appliance Turn In	\$1,627,707	\$445,064	\$2,072,771	
		Sub-Total	\$1,627,707	\$445,064	\$2,072,771	
	Energy Efficient Homes Program	School Education	\$345,242	\$311,813	\$657,055	
		EE Kits	\$474,760	\$2,208,068	\$2,682,829	
		Audits & Education	\$746,321	\$472,232	\$1,218,553	
		Behavioral	\$835,272	\$0	\$835,272	
		Smart Thermostat	\$174,395	\$356,600	\$530,995	
		Sub-Total	\$2,575,991	\$3,348,713	\$5,924,704	
	Energy Efficient Products Program	Appliances	\$68,719	\$453,284	\$522,003	
		Consumer Electronics	\$42,821	\$118,071	\$160,892	
		Lighting	\$643,289	\$993,379	\$1,636,668	
		HVAC	\$242,740	\$1,145,991	\$1,388,731	
	Sub-Total	\$997,570	\$2,710,724	\$3,708,294		
	Customer Action Program - Res	Customer Action Program - Res	\$121,754	\$0	\$121,754	
		Sub-Total	\$121,754	\$0	\$121,754	
	Residential Demand Response Program	Direct Load Control	\$202,415	\$0	\$202,415	
		Sub-Total	\$202,415	\$0	\$202,415	
	Low Income Energy Efficiency Program	Community Connections	\$182,611	\$0	\$182,611	
		LI - New Homes	\$74,564	\$5,645	\$80,208	
		Sub-Total	\$257,174	\$5,645	\$262,819	
Residential Total			\$5,782,611	\$6,510,146	\$12,292,756	
Small Enterprise	C&I Energy Solutions for Business Program - Small	HVAC - SCI	\$146,187	\$319,042	\$465,229	
		Lighting - SCI	\$742,875	\$1,518,381	\$2,261,257	
		Food Service	\$59,156	\$110,826	\$169,982	
		Appliance Turn In - SCI	\$44,248	\$8,381	\$52,629	
		Appliances - SCI	\$62,173	\$22,884	\$85,057	
		Consumer Electronics - SCI	\$51,498	\$10,532	\$62,029	
		Agricultural	\$87,238	\$31,907	\$119,144	
		Data Centers - SCI	\$231,827	\$145,587	\$377,414	
		Custom - SCI	\$646,090	\$1,146,440	\$1,792,529	
		Retro - Commissioning - SCI	\$299,762	\$317,683	\$617,444	
		Custom Buildings - SCI	\$369,693	\$458,053	\$827,745	
		Audits & Education - SCI	\$2,477,617	\$2,345,004	\$4,822,621	
		Sub-Total	\$5,218,363	\$6,434,718	\$11,653,080	
	Customer Action Program - SCI	Customer Action Program - SCI	\$255,122	\$0	\$255,122	
		Sub-Total	\$255,122	\$0	\$255,122	
	Small C&I Total			\$5,473,485	\$6,434,718	\$11,908,203
	Large Enterprise (Mercantile Utility)	C&I Energy Solutions for Business Program - Large	HVAC - LCI	\$147,021	\$159,494	\$306,515
Lighting - LCI			\$225,301	\$284,601	\$509,902	
Data Centers - LCI			\$233,932	\$99,801	\$333,733	
Custom - LCI			\$1,092,456	\$1,428,178	\$2,520,633	
Retro - Commissioning - LCI			\$125,067	\$49,638	\$174,705	
Custom Buildings - LCI			\$343,866	\$340,759	\$684,625	
Audits & Education - LCI			\$424,410	\$105,600	\$530,010	
Sub-Total			\$2,592,052	\$2,468,071	\$5,060,123	
C&I Demand Response Program - Large		Demand Response - LCI	\$5,200	\$0	\$5,200	
		Sub-Total	\$5,200	\$0	\$5,200	
Customer Action Program - LCI		Customer Action Program - LCI	\$162,845	\$0	\$162,845	
		Sub-Total	\$162,845	\$0	\$162,845	
Large C&I Total			\$2,760,097	\$2,468,071	\$5,228,168	
Government	Government Tariff Lighting Program	Government Tariff Lighting	\$56,692	\$77,750	\$134,442	
		Sub-Total	\$56,692	\$77,750	\$134,442	
Non - Residential Total			\$8,290,274	\$8,980,539	\$17,270,813	
Mercantile	Mercantile Customer Program	Mercantile	\$353,291	\$0	\$353,291	
		Sub-Total	\$353,291	\$0	\$353,291	
Mercantile Total			\$353,291	\$0	\$353,291	
Other	Transmission & Distribution Upgrades	T&D Upgrades	\$5,000	\$0	\$5,000	
		Sub-Total	\$5,000	\$0	\$5,000	
	Smart Grid Modernization Initiative	Smart Grid	\$0	\$0	\$0	
		Sub-Total	\$0	\$0	\$0	
	Energy Special Improvement District	Energy Special Improvement District	\$0	\$0	\$0	
		Sub-Total	\$0	\$0	\$0	
Other Total			\$5,000	\$0	\$5,000	
Total			\$14,431,176	\$15,490,685	\$29,921,860	

Appendix B-1: Program Cost by Program Year

Cleveland Electric Illuminating - Program Year 2018						
Sector	Program	Sub-Program	Operations	Incentives	Total	
Residential	Appliance Turn In Program	Appliance Turn In	\$1,557,219	\$445,064	\$2,002,283	
		Sub-Total	\$1,557,219	\$445,064	\$2,002,283	
	Energy Efficient Homes Program	School Education	\$275,965	\$311,813	\$587,778	
		EE Kits	\$386,128	\$2,208,068	\$2,594,196	
		Audits & Education	\$646,134	\$472,232	\$1,118,365	
		Behavioral	\$706,822	\$0	\$706,822	
		Smart Thermostat	\$159,039	\$356,600	\$515,639	
		Sub-Total	\$2,174,088	\$3,348,713	\$5,522,801	
	Energy Efficient Products Program	Appliances	\$59,642	\$453,284	\$512,926	
		Consumer Electronics	\$37,804	\$118,071	\$155,875	
		Lighting	\$544,694	\$1,331,115	\$1,875,809	
		HVAC	\$230,483	\$1,145,991	\$1,376,474	
	Sub-Total	\$872,624	\$3,048,461	\$3,921,085		
	Customer Action Program - Res	Customer Action Program - Res	\$121,122	\$0	\$121,122	
		Sub-Total	\$121,122	\$0	\$121,122	
	Residential Demand Response Program	Direct Load Control	\$199,315	\$0	\$199,315	
		Sub-Total	\$199,315	\$0	\$199,315	
	Low Income Energy Efficiency Program	Community Connections	\$169,842	\$0	\$169,842	
		LI - New Homes	\$42,928	\$5,645	\$48,573	
		Sub-Total	\$212,770	\$5,645	\$218,415	
Residential Total			\$5,137,136	\$6,847,883	\$11,985,019	
Small Enterprise	C&I Energy Solutions for Business Program - Small	HVAC - SCI	\$124,160	\$323,856	\$448,016	
		Lighting - SCI	\$747,861	\$1,674,060	\$2,421,921	
		Food Service	\$41,855	\$119,972	\$161,827	
		Appliance Turn In - SCI	\$32,457	\$9,237	\$41,694	
		Appliances - SCI	\$44,909	\$25,320	\$70,230	
		Consumer Electronics - SCI	\$33,894	\$11,742	\$45,636	
		Agricultural	\$69,812	\$34,361	\$104,174	
		Data Centers - SCI	\$227,412	\$160,905	\$388,317	
		Custom - SCI	\$650,647	\$1,266,009	\$1,916,656	
		Retro - Commissioning - SCI	\$295,324	\$347,465	\$642,790	
		Custom Buildings - SCI	\$369,377	\$504,144	\$873,520	
		Audits & Education - SCI	\$2,621,347	\$2,636,328	\$5,257,675	
		Sub-Total	\$5,259,055	\$7,113,400	\$12,372,455	
	Customer Action Program - SCI	Customer Action Program - SCI	\$253,974	\$0	\$253,974	
		Sub-Total	\$253,974	\$0	\$253,974	
	Small C&I Total			\$5,513,029	\$7,113,400	\$12,626,429
	Large Enterprise (Mercantile Utility)	C&I Energy Solutions for Business Program - Large	HVAC - LCI	\$109,589	\$159,781	\$269,370
Lighting - LCI			\$204,605	\$333,119	\$537,724	
Data Centers - LCI			\$194,811	\$99,841	\$294,652	
Custom - LCI			\$795,828	\$1,460,418	\$2,256,246	
Retro - Commissioning - LCI			\$97,068	\$59,565	\$156,633	
Custom Buildings - LCI			\$298,824	\$340,759	\$639,583	
Audits & Education - LCI			\$336,447	\$105,600	\$442,047	
Sub-Total			\$2,037,172	\$2,559,083	\$4,596,255	
C&I Demand Response Program - Large		Demand Response - LCI	\$5,200	\$0	\$5,200	
		Sub-Total	\$5,200	\$0	\$5,200	
Customer Action Program - LCI		Customer Action Program - LCI	\$161,745	\$0	\$161,745	
		Sub-Total	\$161,745	\$0	\$161,745	
Large C&I Total			\$2,204,117	\$2,559,083	\$4,763,201	
Government	Government Tariff Lighting Program	Government Tariff Lighting	\$56,981	\$146,500	\$203,481	
		Sub-Total	\$56,981	\$146,500	\$203,481	
Non - Residential Total			\$7,774,127	\$9,818,983	\$17,593,110	
Mercantile	Mercantile Customer Program	Mercantile	\$212,458	\$0	\$212,458	
		Sub-Total	\$212,458	\$0	\$212,458	
Mercantile Total			\$212,458	\$0	\$212,458	
Other	Transmission & Distribution Upgrades	T&D Upgrades	\$5,000	\$0	\$5,000	
		Sub-Total	\$5,000	\$0	\$5,000	
	Smart Grid Modernization Initiative	Smart Grid	\$0	\$0	\$0	
		Sub-Total	\$0	\$0	\$0	
	Energy Special Improvement District	Energy Special Improvement District	\$0	\$0	\$0	
		Sub-Total	\$0	\$0	\$0	
Other Total			\$5,000	\$0	\$5,000	
Total			\$13,128,721	\$16,666,866	\$29,795,587	

Appendix B-1: Program Cost by Program Year

Cleveland Electric Illuminating - Program Year 2019					
Sector	Program	Sub-Program	Operations	Incentives	Total
Residential	Appliance Turn In Program	Appliance Turn In	\$1,669,846	\$481,430	\$2,151,276
		Sub-Total	\$1,669,846	\$481,430	\$2,151,276
	Energy Efficient Homes Program	School Education	\$281,397	\$311,813	\$593,210
		EE Kits	\$414,484	\$2,399,663	\$2,814,147
		Audits & Education	\$692,553	\$519,971	\$1,212,524
		Behavioral	\$704,312	\$0	\$704,312
		Smart Thermostat	\$157,642	\$356,600	\$514,242
		Sub-Total	\$2,250,388	\$3,588,047	\$5,838,435
	Energy Efficient Products Program	Appliances	\$62,640	\$484,266	\$546,907
		Consumer Electronics	\$40,777	\$129,872	\$170,649
		Lighting	\$537,965	\$1,252,518	\$1,790,483
		HVAC	\$235,773	\$1,221,984	\$1,457,757
	Sub-Total	\$877,155	\$3,088,640	\$3,965,795	
	Customer Action Program - Res	Customer Action Program - Res	\$121,568	\$0	\$121,568
		Sub-Total	\$121,568	\$0	\$121,568
	Residential Demand Response Program	Direct Load Control	\$203,423	\$0	\$203,423
		Sub-Total	\$203,423	\$0	\$203,423
	Low Income Energy Efficiency Program	Community Connections	\$170,147	\$0	\$170,147
		LI - New Homes	\$43,800	\$5,645	\$49,445
		Sub-Total	\$213,948	\$5,645	\$219,592
Residential Total			\$5,336,328	\$7,163,761	\$12,500,090
Small Enterprise	C&I Energy Solutions for Business Program - Small	HVAC - SCI	\$125,673	\$326,937	\$452,611
		Lighting - SCI	\$749,999	\$1,684,000	\$2,433,999
		Food Service	\$42,591	\$119,972	\$162,563
		Appliance Turn In - SCI	\$35,770	\$10,183	\$45,954
		Appliances - SCI	\$46,732	\$26,704	\$73,436
		Consumer Electronics - SCI	\$34,944	\$12,952	\$47,897
		Agricultural	\$72,279	\$36,035	\$108,314
		Data Centers - SCI	\$227,814	\$160,905	\$388,719
		Custom - SCI	\$658,017	\$1,279,938	\$1,937,955
		Retro - Commissioning - SCI	\$295,707	\$347,465	\$643,172
		Custom Buildings - SCI	\$369,737	\$504,144	\$873,881
		Audits & Education - SCI	\$2,655,127	\$2,636,328	\$5,291,455
	Sub-Total	\$5,314,392	\$7,145,563	\$12,459,955	
	Customer Action Program - SCI	Customer Action Program - SCI	\$254,785	\$0	\$254,785
		Sub-Total	\$254,785	\$0	\$254,785
Small C&I Total			\$5,569,177	\$7,145,563	\$12,714,740
Large Enterprise (Mercantile Utility)	C&I Energy Solutions for Business Program - Large	HVAC - LCI	\$113,645	\$167,820	\$281,465
		Lighting - LCI	\$214,021	\$358,876	\$572,898
		Data Centers - LCI	\$219,002	\$130,242	\$349,243
		Custom - LCI	\$851,351	\$1,583,863	\$2,435,215
		Retro - Commissioning - LCI	\$97,385	\$59,565	\$156,950
		Custom Buildings - LCI	\$316,624	\$368,163	\$684,787
		Audits & Education - LCI	\$341,725	\$124,800	\$466,525
		Sub-Total	\$2,153,753	\$2,793,330	\$4,947,083
	C&I Demand Response Program - Large	Demand Response - LCI	\$5,200	\$0	\$5,200
		Sub-Total	\$5,200	\$0	\$5,200
	Customer Action Program - LCI	Customer Action Program - LCI	\$162,522	\$0	\$162,522
		Sub-Total	\$162,522	\$0	\$162,522
Large C&I Total			\$2,321,475	\$2,793,330	\$5,114,805
Government	Government Tariff Lighting Program	Government Tariff Lighting	\$57,435	\$146,500	\$203,935
		Sub-Total	\$57,435	\$146,500	\$203,935
Non - Residential Total			\$7,948,087	\$10,085,393	\$18,033,480
Mercantile	Mercantile Customer Program	Mercantile	\$213,791	\$0	\$213,791
		Sub-Total	\$213,791	\$0	\$213,791
Mercantile Total			\$213,791	\$0	\$213,791
Other	Transmission & Distribution Upgrades	T&D Upgrades	\$5,000	\$0	\$5,000
		Sub-Total	\$5,000	\$0	\$5,000
	Smart Grid Modernization Initiative	Smart Grid	\$0	\$0	\$0
		Sub-Total	\$0	\$0	\$0
	Energy Special Improvement District	Energy Special Improvement District	\$0	\$0	\$0
		Sub-Total	\$0	\$0	\$0
Other Total			\$5,000	\$0	\$5,000
Total			\$13,503,206	\$17,249,154	\$30,752,360

Appendix B-1: Program Cost by Program Year

Cleveland Electric Illuminating - Program Year 2017 - 2019						
Sector	Program	Sub-Program	Operations	Incentives	Total	
Residential	Appliance Turn In Program	Appliance Turn In	\$4,854,772	\$1,371,558	\$6,226,330	
		Sub-Total	\$4,854,772	\$1,371,558	\$6,226,330	
	Energy Efficient Homes Program	School Education	\$902,604	\$935,439	\$1,838,043	
		EE Kits	\$1,275,372	\$6,815,799	\$8,091,172	
		Audits & Education	\$2,085,008	\$1,464,434	\$3,549,442	
		Behavioral	\$2,246,406	\$0	\$2,246,406	
		Smart Thermostat	\$491,076	\$1,069,800	\$1,560,876	
		Sub-Total	\$7,000,467	\$10,285,472	\$17,285,939	
	Energy Efficient Products Program	Appliances	\$191,002	\$1,390,834	\$1,581,835	
		Consumer Electronics	\$121,402	\$366,014	\$487,417	
		Lighting	\$1,725,948	\$3,577,012	\$5,302,960	
		HVAC	\$708,997	\$3,513,965	\$4,222,962	
	Sub-Total	\$2,747,349	\$8,847,825	\$11,595,174		
	Customer Action Program - Res	Customer Action Program - Res	\$364,443	\$0	\$364,443	
		Sub-Total	\$364,443	\$0	\$364,443	
	Residential Demand Response Program	Direct Load Control	\$605,152	\$0	\$605,152	
		Sub-Total	\$605,152	\$0	\$605,152	
Low Income Energy Efficiency Program	Community Connections	\$522,600	\$0	\$522,600		
	LI - New Homes	\$161,292	\$16,934	\$178,226		
	Sub-Total	\$683,892	\$16,934	\$700,826		
Residential Total			\$16,256,075	\$20,521,790	\$36,777,865	
Small Enterprise	C&I Energy Solutions for Business Program - Small	HVAC - SCI	\$396,021	\$969,835	\$1,365,856	
		Lighting - SCI	\$2,240,735	\$4,876,441	\$7,117,176	
		Food Service	\$143,602	\$350,770	\$494,372	
		Appliance Turn In - SCI	\$112,475	\$27,801	\$140,277	
		Appliances - SCI	\$153,815	\$74,908	\$228,722	
		Consumer Electronics - SCI	\$120,336	\$35,226	\$155,562	
		Agricultural	\$229,329	\$102,303	\$331,632	
		Data Centers - SCI	\$687,053	\$467,397	\$1,154,450	
		Custom - SCI	\$1,954,754	\$3,692,386	\$5,647,140	
		Retro - Commissioning - SCI	\$890,793	\$1,012,613	\$1,903,406	
		Custom Buildings - SCI	\$1,108,806	\$1,466,340	\$2,575,146	
		Audits & Education - SCI	\$7,754,091	\$7,617,661	\$15,371,751	
		Sub-Total	\$15,791,809	\$20,693,681	\$36,485,490	
	Customer Action Program - SCI	Customer Action Program - SCI	\$763,882	\$0	\$763,882	
		Sub-Total	\$763,882	\$0	\$763,882	
	Small C&I Total			\$16,555,691	\$20,693,681	\$37,249,372
	Large Enterprise (Mercantile Utility)	C&I Energy Solutions for Business Program - Large	HVAC - LCI	\$370,256	\$487,095	\$857,350
Lighting - LCI			\$643,927	\$976,597	\$1,620,524	
Data Centers - LCI			\$647,745	\$329,884	\$977,629	
Custom - LCI			\$2,739,635	\$4,472,459	\$7,212,094	
Retro - Commissioning - LCI			\$319,520	\$168,769	\$488,288	
Custom Buildings - LCI			\$959,313	\$1,049,681	\$2,008,994	
Audits & Education - LCI			\$1,102,583	\$336,000	\$1,438,583	
Sub-Total			\$6,782,977	\$7,820,484	\$14,603,461	
C&I Demand Response Program - Large		Demand Response - LCI	\$15,600	\$0	\$15,600	
		Sub-Total	\$15,600	\$0	\$15,600	
Customer Action Program - LCI		Customer Action Program - LCI	\$487,113	\$0	\$487,113	
		Sub-Total	\$487,113	\$0	\$487,113	
Large C&I Total			\$7,285,690	\$7,820,484	\$15,106,174	
Government	Government Tariff Lighting Program	Government Tariff Lighting	\$171,107	\$370,750	\$541,857	
		Sub-Total	\$171,107	\$370,750	\$541,857	
Non - Residential Total			\$24,012,488	\$28,884,915	\$52,897,403	
Mercantile	Mercantile Customer Program	Mercantile	\$779,539	\$0	\$779,539	
		Sub-Total	\$779,539	\$0	\$779,539	
Mercantile Total			\$779,539	\$0	\$779,539	
Other	Transmission & Distribution Upgrades	T&D Upgrades	\$15,000	\$0	\$15,000	
		Sub-Total	\$15,000	\$0	\$15,000	
	Smart Grid Modernization Initiative	Smart Grid	\$0	\$0	\$0	
		Sub-Total	\$0	\$0	\$0	
	Energy Special Improvement District	Energy Special Improvement District	\$0	\$0	\$0	
		Sub-Total	\$0	\$0	\$0	
Other Total			\$15,000	\$0	\$15,000	
Total			\$41,063,103	\$49,406,704	\$90,469,807	

Appendix B-2: Program Savings by Program Year

Cleveland Electric Illuminating			2017		2018		2019		Total	
Sector	Program	Sub-Program	kWh	kW	kWh	kW	kWh	kW	kWh	kW
Residential	Appliance Turn In Program	Appliance Turn In	9,358,687	2,141	9,358,687	2,141	10,123,281	2,317	28,840,655	6,599
		Sub-Total	9,358,687	2,141	9,358,687	2,141	10,123,281	2,317	28,840,655	6,599
	Energy Efficient Homes Program	School Education	2,410,847	292	2,410,847	292	2,410,847	292	7,232,542	877
		EE Kits	16,899,709	2,098	16,899,709	2,098	18,366,101	2,280	52,165,519	6,476
		Audits & Education	3,656,080	784	3,656,080	784	4,022,702	862	11,334,861	2,429
		Behavioral	10,620,624	2,013	15,437,726	2,626	15,985,820	2,664	42,044,171	7,303
		Smart Thermostat	585,662	67	585,662	67	585,662	67	1,756,986	201
		Sub-Total	34,172,922	5,253	38,990,025	5,867	41,371,132	6,166	114,534,079	17,285
	Energy Efficient Products Program	Appliances	2,528,544	354	2,528,544	354	2,682,224	373	7,739,312	1,080
		Consumer Electronics	2,454,752	372	2,454,752	372	2,700,292	409	7,609,797	1,153
		Lighting	12,500,526	1,322	16,704,605	1,767	15,707,152	1,661	44,912,283	4,750
		HVAC	3,281,738	741	3,281,738	741	3,540,768	807	10,104,245	2,288
		Sub-Total	20,765,561	2,789	24,969,640	3,233	24,630,436	3,250	70,365,636	9,272
	Customer Action Program - Res	Customer Action Program - Res	2,382,134	272	1,299,346	148	649,673	74	4,331,152	494
		Sub-Total	2,382,134	272	1,299,346	148	649,673	74	4,331,152	494
	Residential Demand Response Program	Direct Load Control	0	2,893	0	2,864	0	2,835	0	2,864
		Sub-Total	0	2,893	0	2,864	0	2,835	0	2,864
	Low Income Energy Efficiency Program	Community Connections	2,646,407	302	2,646,407	302	2,646,407	302	7,939,222	906
		LI - New Homes	17,673	9	17,673	9	17,673	9	53,020	26
Sub-Total		2,664,081	311	2,664,081	311	2,664,081	311	7,992,242	932	
Residential Total			69,343,384	13,658	77,281,778	14,564	79,438,603	14,952	226,063,765	37,447
Small Enterprise	C&I Energy Solutions for Business Program - Small	HVAC - SCI	2,211,285	1,636	2,242,133	1,653	2,261,051	1,667	6,714,469	4,956
		Lighting - SCI	21,545,993	4,027	23,661,432	4,436	23,705,638	4,431	68,913,062	12,893
		Food Service	1,273,463	162	1,382,690	176	1,382,690	176	4,038,843	513
		Appliance Turn In - SCI	167,934	30	185,657	33	204,230	37	557,821	100
		Appliances - SCI	359,546	38	396,801	43	428,278	45	1,184,625	126
		Consumer Electronics - SCI	69,935	6	77,986	7	86,036	8	233,958	21
		Agricultural	82,211	13	88,535	14	94,268	15	265,014	43
		Data Centers - SCI	832,111	95	919,616	105	919,616	105	2,671,344	305
		Custom - SCI	15,690,458	1,849	17,326,910	2,042	17,517,550	2,069	50,534,918	5,960
		Retro - Commissioning - SCI	4,347,883	496	4,755,498	543	4,755,498	543	13,858,879	1,582
		Custom Buildings - SCI	6,269,023	716	6,899,835	788	6,899,835	788	20,068,693	2,291
		Audits & Education - SCI	6,085,471	701	14,784,236	1,727	14,784,236	1,727	35,653,942	4,156
		Sub-Total	58,935,314	9,770	72,721,328	11,566	73,038,926	11,611	204,695,568	32,947
	Customer Action Program - SCI	Customer Action Program - SCI	1,168,717	133	637,482	73	318,741	36	2,124,940	243
		Sub-Total	1,168,717	133	637,482	73	318,741	36	2,124,940	243
	Small C&I Total			60,104,031	9,904	73,358,810	11,638	73,357,667	11,647	206,820,508
Large Enterprise (Mercantile Utility)	C&I Energy Solutions for Business Program - Large	HVAC - LCI	1,165,511	603	1,166,817	604	1,254,910	681	3,587,238	1,888
		Lighting - LCI	3,827,483	739	4,434,910	860	4,735,957	917	12,998,350	2,517
		Data Centers - LCI	957,240	109	957,752	109	1,267,282	145	3,182,274	363
		Custom - LCI	18,399,573	2,107	18,814,929	2,155	20,405,309	2,339	57,619,811	6,601
		Retro - Commissioning - LCI	639,498	73	767,397	88	767,397	88	2,174,292	248
		Custom Buildings - LCI	4,390,082	501	4,390,082	501	4,743,134	541	13,523,298	1,544
		Audits & Education - LCI	352,717	40	352,717	40	379,849	43	1,085,283	124
		Sub-Total	29,732,104	4,173	30,884,604	4,358	33,553,838	4,755	94,170,546	13,285
	C&I Demand Response Program - Large	Demand Response - LCI	0	189,720	0	189,720	0	189,720	0	189,720
		Sub-Total	0	189,720	0	189,720	0	189,720	0	189,720
	Customer Action Program - LCI	Customer Action Program - LCI	3,872,053	442	2,112,029	241	1,056,014	121	7,040,096	804
Sub-Total		3,872,053	442	2,112,029	241	1,056,014	121	7,040,096	804	
Large C&I Total		33,604,156	194,335	32,996,633	194,319	34,609,853	194,595	101,210,642	203,809	
Government	Government Tariff Lighting Program	Government Tariff Lighting	279,463	6	514,867	6	514,867	6	1,309,197	17
		Sub-Total	279,463	6	514,867	6	514,867	6	1,309,197	17
Non - Residential Total			93,987,650	204,244	106,870,310	205,963	108,482,387	206,248	309,340,347	237,015
Mercantile	Mercantile Customer Program	Mercantile	35,562,320	4,327	17,781,693	2,164	17,781,693	2,164	71,125,706	8,655
		Sub-Total	35,562,320	4,327	17,781,693	2,164	17,781,693	2,164	71,125,706	8,655
Mercantile Total			35,562,320	4,327	17,781,693	2,164	17,781,693	2,164	71,125,706	8,655
Other	Transmission & Distribution Upgrades	T&D Upgrades	2,500,000	285	2,200,000	251	2,200,000	251	6,900,000	788
		Sub-Total	2,500,000	285	2,200,000	251	2,200,000	251	6,900,000	788
	Smart Grid Modernization Initiative	Smart Grid	0	0	0	0	0	0	0	0
		Sub-Total	0	0	0	0	0	0	0	0
	Energy Special Improvement District	Energy Special Improvement District	0	0	0	0	0	0	0	0
Sub-Total		0	0	0	0	0	0	0	0	
Other Total			2,500,000	285	2,200,000	251	2,200,000	251	6,900,000	788
Total			201,393,355	222,516	204,133,780	222,942	207,902,683	223,615	613,429,818	283,905

1. kWh savings represents incremental annual savings achieved per year and in total for 2017-2019

2. kW savings represents incremental annual coincident peak demand savings from EEC measures and average annual demand savings from DR measures, per year and in total for 2017 - 2019

Appendix B-3: Costs Elements

Cleveland Electric Illuminating - Cost Assumptions		
<p>The model used for developing the programs involves a build-up of direct costs based on program or subprogram fixed costs and variable costs based on participation at the measure level. Common costs are estimated at the State or Company level and allocated to each program. Program cost elements of this plan include Operations costs and Incentive costs. Operations costs include Utility Administration costs associated with portfolio management and plan development, Program Administration costs associated with program management and implementation, Marketing, Evaluation, Measurement and Verification (EMV) costs associated with EMV of the programs, Tracking and Reporting costs for tracking and reporting of the program results, and Other costs associated with the development and implementation of the Plan. The following details the assumptions for the program cost elements included in this plan:</p>		
Cost Elements	Component Detail	Description
Operations	Utility Administration	Includes costs incurred by the utility for dedicated employee labor for plan development, to oversee and manage the portfolio, and to perform duties associated with activities such as regulatory reporting or meetings to support the plan. Utility administration costs were based on Company estimated EE&C portfolio administration costs, allocated to each subprogram based on subprogram administration and marketing costs, and summed to the program level.
	Program Administration	Includes utility and program implementation provider costs associated with the implementation and ongoing management of the programs including staffing, contractors, website(s), call centers, quality assurance and control processes, vendor tracking systems and other program specific activities supporting successful program implementation. Program administration costs were informed by experience for similar programs operated by FirstEnergy. Program Administration costs were identified by two components, (1) fixed sub-program costs, and (2) variable measure unit costs. These costs were estimated for each subprogram, based on measure participation where applicable, and summed to the subprogram and program level.
	Marketing	Includes costs associated with developing and providing marketing for plan and program messaging and education of the plan and programs. Marketing costs were identified by two components, (1) fixed sub-program costs, and (2) variable measure unit costs. These costs were estimated for each subprogram, based on measure participation where applicable, and summed to the subprogram and program level.
	EM&V	Includes costs for evaluation, measurement and verification activities performed by the Companies and the Companies' independent evaluator, such as surveys, M&V processes, data transfer and evaluation meetings. The EMV costs were based on 4% of the subprogram cost, and summed to the program level.
	Tracking and Reporting	Includes the costs to develop and maintain a data collection, tracking and reporting system, to develop and generate standard reports, and provide the functionality for program management ad hoc reporting. These costs were informed by existing contracts and Company estimates, allocated to each subprogram based on subprogram administration and marketing costs, and summed to the program level.
	Other	Other costs includes other common costs associated with the development and implementation of the plan, including research and development such as participation in research projects, pilots or demonstrations, completing market potential or other studies, consulting and legal fees, modeling software fees, and employee expenses. Other costs were informed by existing contracts or Company estimates, allocated to each subprogram based on subprogram administration and marketing costs, and summed to the program level.
Incentives	Incentives	Incentives include rebates paid to customers as well as costs associated with providing services or measures directly to customers, or mid-stream or upstream payments to program allies where applicable. Incentives were calculated based on measure level incentive and participation assumptions, and summed to the subprogram and program level.

**Cleveland Electric Illuminating
- Appendix C:
Program Assumptions & PUCO Tables**

Appendix C-1: Measure Assumptions

Cleveland Electric Illuminating											
Sector	Program	Sub-Program	Measure	Msre Life	kWh	kW	Incremental Cost	Modeled Rebate	O&M Benefit (\$/Yr)	Savings Source	Incremental Cost Source
Residential	Appliance Turn In Program	Appliance Turn In	Refrigerator Recycling	8	1,020	0.16	0	50	0	Evaluation	DEER
			Freezer Recycling	8	849	0.14	0	50	0	Evaluation	DEER
			Room Air Conditioner Recycling	3	122	1.07	0	30	0	Ohio TRM - Adjusted	DEER
			Dehumidifier Recycling	3	1,075	0.17	0	30	0	Co Assumption	Co Assumption
	Energy Efficient Homes Program	School Education	School Education	7	318	0.04	39	45	0	PA TRM	Co Assumption
		EE Kits	Energy Efficiency Measures	7	324	0.04	40	46	0	PA TRM	Co Assumption
		Audits & Education	Comprehensive Audit	12	633	0.13	665	325	0	Co Assumption	Co Assumption
			On-Line Audit	3	265	0.06	0	0	0	Co Assumption	N/A
		Behavioral	Behavioral	1	142	0.03	0	0	0	Co Assumption	N/A
			Behavioral 18	1	207	0.04	0	0	0	Co Assumption	N/A
			Behavioral 19	1	214	0.04	0	0	0	Co Assumption	N/A
		Smart Thermostat	Smart Thermostat	11	150	0.02	200	100	0	PA TRM - Adjusted	Co Assumption
	Energy Efficient Products Program	Appliances	Clothes Washer	11	233	0.02	50	50	0	Ohio TRM	PA Incremental Cost DB
			Clothes Dryer - (Elec w Moisture Sensor)	16	152	0.02	112	50	0	Co Assumption	PA Incremental Cost DB
			Freezers	14	133	0.02	7	10	0	Co Assumption	PA Incremental Cost DB
			Refrigerators	14	150	0.03	25	25	0	Ohio TRM	PA Incremental Cost DB
			Dehumidifiers	12	182	0.03	20	20	0	Ohio TRM	PA Incremental Cost DB
			Water Heater - Heat Pump	10	1,688	0.23	605	375	0	Ohio TRM	DEER
		Consumer Electronics	Home Technology & Automation	8	420	0.20	200	100	0	Co Assumption	Co Assumption
			Monitors	4	15	0.00	20	1	0	PA TRM	Co Assumption
			Computers	4	133	0.02	30	3	0	PA TRM	Co Assumption
			Imaging	5	73	0.01	25	2	0	PA TRM	Co Assumption
			TVs	6	74	0.01	20	4	0	PA TRM	Co Assumption

Appendix C-1: Measure Assumptions

Cleveland Electric Illuminating											
Sector	Program	Sub-Program	Measure	Msre Life	kWh	kW	Incremental Cost	Modeled Rebate	O&M Benefit (\$/Yr)	Savings Source	Incremental Cost Source
Residential	Energy Efficient Products Program	Lighting	CFL Lamps	7	34	0.00	2	1	0	Ohio TRM	PA Incremental Cost DB
			CFL Fixtures	10	68	0.01	32	5	0	Co Assumption	PA Incremental Cost DB
			LED Fixtures	15	74	0.01	36	7	0	Co Assumption	DEER
			LED Lamps	15	37	0.00	7	3	0	Ohio TRM - Adjusted	Co Assumption
			Residential Lighting Controls	10	38	0.00	40	5	0	Co Assumption	PA Incremental Cost DB
		HVAC	Heat Pump	18	880	0.14	471	313	0	Ohio TRM	DEER
			Central Air Conditioner	18	157	0.14	880	125	0	Ohio TRM	DEER
			Room Air Conditioner	12	27	0.03	50	36	0	Ohio TRM	PA Incremental Cost DB
			Ductless Mini-Split Heat Pump	15	908	0.16	448	125	0	Ohio TRM - Adjusted	PA Incremental Cost DB
			PTAC - Multi Family	15	92	0.12	84	50	0	Ohio TRM - Adjusted	PA Incremental Cost DB
			PTHP - Multi Family	15	300	0.05	255	125	0	Ohio TRM - Adjusted	Co Assumption
			Heat Pump - Water & GeoT	18	3,537	0.28	10,897	300	0	Ohio TRM	PA Incremental Cost DB
			HVAC - Maintenance	5	77	0.04	100	50	0	Ohio TRM	PA Incremental Cost DB
			Furnace Fans	14	446	0.11	360	180	0	PA TRM	PA Incremental Cost DB
			Circulation Pumps	10	157	0.02	62	40	0	Co Assumption	Co Assumption
			Programmable / SMART Thermostat	11	150	0.02	200	100	0	PA TRM - Adjusted	Co Assumption
	Customer Action Program - Res	Customer Action Program - Res	Customer Action Program - Res	9	1	0.0001	0.05	0	0	Co Assumption	Co Assumption
	Residential Demand Response Program	Direct Load Control	Res Direct Load Control	1	0	0.36	0	0	0	Co Assumption	Co Assumption
	Low Income Energy Efficiency Program	Community Connections	Community Connections	8	1,734	0.20	0	0	0	Co Assumption	N/A
		LI - New Homes	LI New Construction	15	897	0.44	756	314	0	Co Assumption	Co Assumption

Appendix C-1: Measure Assumptions

Cleveland Electric Illuminating												
Sector	Program	Sub-Program	Measure	Msre Life	kWh	kW	Incremental Cost	Modeled Rebate	O&M Benefit (\$/Yr)	Savings Source	Incremental Cost Source	
Small Enterprise	C&I Energy Solutions for Business Program - Small	HVAC - SCI	Room Air Conditioner - SCI	12	303	0.20	50	21	0	Ohio TRM	PA Incremental Cost DB	
			Air Conditioning - <=5.4 Tn - SCI	15	962	0.93	1,960	197	0	Ohio TRM	PA Incremental Cost DB	
			Air Conditioning - >5.4 < 20 Tn - SCI	15	3,326	3.00	1,680	328	0	Ohio TRM	PA Incremental Cost DB	
			Air Conditioning - >=20 Tn - SCI	15	7,143	6.45	2,500	394	0	Ohio TRM	PA Incremental Cost DB	
			Chiller - Water Cld w Full Load - SCI	20	14,432	3.26	6,500	2,625	0	PA TRM - Adjusted	PA Incremental Cost DB	
			Heat Pump - <=5.4 Tn - SCI	15	2,452	1.44	1,285	197	0	Ohio TRM	PA Incremental Cost DB	
			Heat Pumps - >5.4 Tn - SCI	15	3,334	3.00	1,935	328	0	Ohio TRM	PA Incremental Cost DB	
			Heat Pumps - Water & GeoT - SCI	15	1,789	1.61	5,870	328	0	Ohio TRM	PA Incremental Cost DB	
			HVAC - Maintenance - SCI	5	48	0.05	150	53	0	Ohio TRM	Co Assumption	
			Circulation Pumps - SCI	10	174	0.02	62	42	0	Co Assumption	Co Assumption	
			Ductless Mini-Split HP - SCI	15	830	0.42	448	492	0	Ohio TRM - Adjusted	PA Incremental Cost DB	
			PTAC - SCI	15	177	0.29	84	53	0	Ohio TRM - Adjusted	PA Incremental Cost DB	
			PTHP - SCI	15	590	0.29	255	53	0	Ohio TRM - Adjusted	PA Incremental Cost DB	
		Lighting - SCI	CFL Fixtures - SCI	15	174	0.04	30	14	4	Co Assumption	PA Incremental Cost DB	
			CFL Lamps - SCI	3	116	0.02	2	7	0	Ohio TRM	PA Incremental Cost DB	
			Lighting Controls (Daylight & Occupancy) - SCI	8	200	0.04	58	16	0	Co Assumption	PA Incremental Cost DB	
			Linear Fluorscent T8 / T5 - SCI	15	66	0.01	8	4	0	Co Assumption	PA Incremental Cost DB	
			LED Linear - SCI	15	142	0.03	75	11	0	Co Assumption	Co Assumption	
			LED Channel Signage - SCI	15	506	0.10	22	41	0	Co Assumption	Co Assumption	
			Exit Signs - SCI	16	83	0.01	30	5	13	Ohio TRM	PA Incremental Cost DB	
			LED Fixtures External - SCI	15	191	0.04	343	15	11	Co Assumption	PA Incremental Cost DB	
			LED Fixtures Internal - SCI	15	191	0.04	129	15	11	Co Assumption	Co Assumption	
			LED Lamps - SCI	15	127	0.03	7	10	11	Ohio TRM - Adjusted	Co Assumption	
			LED Reach in Refrigerator / Freezer Lights - SCI	8	345	0.04	266	28	4	Ohio TRM	PA Incremental Cost DB	
			Street & Area Lighting (Customer Owned) - SCI	10	430	0.05	337	34	13	PA TRM	PA Incremental Cost DB	

Appendix C-1: Measure Assumptions

Cleveland Electric Illuminating												
Sector	Program	Sub-Program	Measure	Msre Life	kWh	kW	Incremental Cost	Modeled Rebate	O&M Benefit (\$/Yr)	Savings Source	Incremental Cost Source	
Small Enterprise	C&I Energy Solutions for Business Program - Small	Food Service	Refrigerators - Reach In - SCI	12	883	0.10	430	158	0	Energy Star / Ohio TRM	PA Incremental Cost DB	
			Freezers - Reach In - SCI	12	4,709	0.54	430	368	0	Energy Star / Ohio TRM	PA Incremental Cost DB	
			Ice Machines - SCI	9	1,218	0.21	981	263	0	Energy Star / Ohio TRM	PA Incremental Cost DB	
			Refrigerated Case Cover - SCI	5	44	0.00	38	12	0	PA TRM	PA Incremental Cost DB	
			Strip Curtains - SCI	6	129	0.01	4	1	0	PA TRM	PA Incremental Cost DB	
			Anti Sweat Heater Controls - SCI	12	1,298	0.03	70	37	0	PA TRM	PA Incremental Cost DB	
			Beverage Vending Machine - Controls - SCI	5	1,633	0.00	180	95	0	PA TRM	PA Incremental Cost DB	
			Beverage Vending Machine - New EE- SCI	14	125	0.00	180	95	0	PA TRM	PA Incremental Cost DB	
			Combination Oven - SCI	12	6,368	1.22	1,584	788	0	Energy Star / Ohio TRM	DEER	
			Convection Oven - SCI	12	1,937	0.37	1,007	525	0	Energy Star / Ohio TRM	DEER	
			Steam Cookers - SCI	12	9,967	1.91	630	368	0	Energy Star / Ohio TRM	Energy Star	
			Fryers - SCI	12	1,744	0.33	105	105	0	Energy Star / Ohio TRM	Energy Star	
			Griddles - SCI	12	1,909	0.37	774	368	0	Energy Star / Ohio TRM	DEER	
			Hot Food Holding Cabinet - SCI	12	1,730	0.33	1,110	525	0	Energy Star / Ohio TRM	Ohio TRM	
		Appliance Turn In - SCI	Refrigerator Recycling - SCI	8	1,020	0.16	0	53	0	Evaluation	DEER	
			Freezer Recycling - SCI	8	849	0.14	0	53	0	Evaluation	DEER	
			Room Air Conditioner Recycling - SCI	3	121	0.26	0	32	0	Ohio TRM	DEER	
			Dehumidifiers Recycling - SCI	3	1,075	0.17	0	32	0	Co Assumption	Co Assumption	
		Appliances - SCI	Clothes Washer - SCI	10	542	0.00	150	79	0	Ohio TRM	PA Incremental Cost DB	
			Clothes Dryer (Elec w Moisture Sensor) - SCI	10	352	0.00	112	58	0	Co Assumption	PA Incremental Cost DB	
			Refrigerators - SCI	12	818	0.09	25	26	0	Energy Star / Ohio TRM	PA Incremental Cost DB	
			Water Heater - Heat Pump - SCI	10	3,377	0.46	945	394	0	Ohio TRM	PA Incremental Cost DB	
			Freezers - SCI	12	2,128	0.24	6	26	0	Energy Star / Ohio TRM	PA Incremental Cost DB	
			Pre-Rinse Sprayers - SCI	5	25	0.00	23	53	0	Ohio TRM	DEER	

Appendix C-1: Measure Assumptions

Cleveland Electric Illuminating											
Sector	Program	Sub-Program	Measure	Msre Life	kWh	kW	Incremental Cost	Modeled Rebate	O&M Benefit (\$/Yr)	Savings Source	Incremental Cost Source
Small Enterprise	C&I Energy Solutions for Business Program - Small	Consumer Electronics - SCI	Uninterruptible Power Supply - SCI	4	3,488	0.40	3,926	525	0	Co Assumption	Co Assumption
			Monitors - SCI	4	15	0.00	10	7	0	PA TRM	PA Incremental Cost DB
			Computers - SCI	4	133	0.00	12	7	0	PA TRM	PA Incremental Cost DB
			Imaging - SCI	5	104	0.00	20	13	0	PA TRM	PA Incremental Cost DB
			Small Network - SCI	4	20	0.00	15	13	0	Co Assumption	Co Assumption
		Agricultural	Efficient Dairy Equipment - SCI	15	2,053	0.29	1,000	656	0	Co Assumption	Co Assumption
			High Efficiency Fans - SCI	10	896	0.18	500	525	0	Co Assumption	Co Assumption
		Data Centers - SCI	DC - Custom Servers- SCI	8	584	0.07	80	47	0	Co Assumption	Co Assumption
			DC - Custom HVAC - SCI	15	43,800	5.00	13,140	3,504	0	Co Assumption	Co Assumption
			DC - Audit - SCI	0	0	0.00	0	5,250	0	N/A	N/A
		Custom - SCI	Custom - Process Improvement - SCI	15	56,484	6.45	16,945	4,519	0	Co Assumption	Co Assumption
			Custom - HVAC & Chillers - SCI	20	28,864	6.51	13,000	2,309	0	PA TRM - Adjusted	PA Incremental Cost DB
			Custom - Compressed Air - SCI	10	55,000	6.00	6,651	4,400	0	Co Assumption	Co Assumption
			Custom - VFDs < 10HP - SCI	15	11,623	1.33	2,150	930	0	PA TRM	PA Incremental Cost DB
			Custom - VFDs > 10 HP - SCI	15	56,240	6.42	10,748	4,499	0	PA TRM	PA Incremental Cost DB
			Custom-Motors - Three Phase - SCI	16	3,851	0.33	233	308	0	PA TRM	PA Incremental Cost DB
			Custom - Refrigeration - SCI	15	2,000	0.20	250	160	0	Co Assumption	PA Incremental Cost DB
		Retro - Commissioning - SCI	Custom Retrocommissioning - SCI	5	145,994	16.67	15,000	11,680	0	Co Assumption	Co Assumption
		Custom Buildings - SCI	Custom - Building Improvements - SCI	15	56,484	6.45	16,945	4,519	0	Co Assumption	Co Assumption
			Custom - Energy Management - SCI	10	35,478	4.05	10,643	2,838	0	Co Assumption	Co Assumption
		Audits & Education SCI	Energy Manager - SCI	1	16,453	1.88	0	0	0	Co Assumption	N/A
			Energy Efficiency Measures - SCI	5	302	0.04	39	39	0	PA TRM	Co Assumption
			Multi Family Audit - SCI	7	324	0.04	40	46	0	Co Assumption	Co Assumption
			Benchmarking - SCI	0	0	0.00	0	0	0	Co Assumption	N/A
			Audit - SCI	0	0	0.00	0	7,875	0	N/A	N/A
			Audits w Direct Install - SCI	12	10,291	1.17	4,116	3,293	0	Co Assumption	Co Assumption
			Behavioral - SCI	1	507	0.06	0	0	0	Co Assumption	Co Assumption
	Customer Action Program - SCI	Customer Action Program - SCI	Customer Action Program - SCI	13	1	0.0001	0	0	0	Co Assumption	Co Assumption

Appendix C-1: Measure Assumptions

Cleveland Electric Illuminating											
Sector	Program	Sub-Program	Measure	Msre Life	kWh	kW	Incremental Cost	Modeled Rebate	O&M Benefit (\$/Yr)	Savings Source	Incremental Cost Source
Large Enterprise (Mercantile Utility)	C&I Energy Solutions for Business Program - Large	HVAC - LCI	Air Conditioning - <=5.4 Tn - LCI	15	962	0.93	1,960	188	0	Ohio TRM	PA Incremental Cost DB
			Chiller - Water Cld w Full Load - LCI	20	43,296	9.77	19,500	7,500	0	PA TRM - Adjusted	PA Incremental Cost DB
			Air Conditioning - >5.4 < 20 Tn - LCI	15	3,326	3.00	1,680	313	0	Ohio TRM	PA Incremental Cost DB
			Air Conditioning - >=20 Tn - LCI	15	7,143	6.45	2,500	375	0	Ohio TRM	PA Incremental Cost DB
			Heat Pump - <=5.4 Tn - LCI	15	2,452	1.44	1,285	188	0	Ohio TRM	PA Incremental Cost DB
			Heat Pumps - >5.4 Tn - LCI	15	3,334	3.00	1,680	313	0	Ohio TRM	PA Incremental Cost DB
			Heat Pumps - Water & GeoT - LCI	15	1,789	1.61	5,870	313	0	Ohio TRM	PA Incremental Cost DB
			Ductless Mini-Split HP - LCI	15	830	0.42	448	300	0	Ohio TRM - Adjusted	PA Incremental Cost DB
			PTAC - LCI	15	177	0.29	84	50	0	Ohio TRM - Adjusted	PA Incremental Cost DB
			PTHP - LCI	15	590	0.29	255	80	0	Ohio TRM - Adjusted	PA Incremental Cost DB
		Lighting - LCI	CFL Fixtures - LCI	15	174	0.04	30	10	4	Co Assumption	PA Incremental Cost DB
			CFL Lamps - LCI	3	116	0.02	2	7	0	Ohio TRM	PA Incremental Cost DB
			Lighting Controls (Daylight & Occupancy) - LCI	8	200	0.04	58	16	0	Co Assumption	PA Incremental Cost DB
			Linear Fluorscent T8 / T5 - LCI	15	66	0.01	8	4	0	Co Assumption	PA Incremental Cost DB
			LED Linear - LCI	15	142	0.03	75	11	0	Co Assumption	Co Assumption
			LED Channel Signage - LCI	15	506	0.10	35	41	0	Co Assumption	PA Incremental Cost DB
			Exit Signs - LCI	16	83	0.01	30	5	13	Ohio TRM	PA Incremental Cost DB
			LED Fixtures External - LCI	15	191	0.04	343	15	11	Co Assumption	PA Incremental Cost DB
			LED Fixtures Internal - LCI	15	191	0.04	129	15	11	Co Assumption	Co Assumption
			LED Lamps - LCI	15	127	0.03	7	10	11	Ohio TRM - Adjusted	Co Assumption
			Street & Area Lighting (Customer Owned) - LCI	10	430	0.00	337	34	13	PA TRM	PA Incremental Cost DB
		Data Centers - LCI	DC - Custom HVAC - LCI	15	350,400	40.00	105,120	28,032	0	Co Assumption	Co Assumption
			DC - Custom Servers - LCI	8	584	0.07	80	47	0	Co Assumption	Co Assumption
			DC - Audit - LCI	0	0	0.00	0	7,500	0	N/A	N/A

Appendix C-1: Measure Assumptions

Cleveland Electric Illuminating											
Sector	Program	Sub-Program	Measure	Msre Life	kWh	kW	Incremental Cost	Modeled Rebate	O&M Benefit (\$/Yr)	Savings Source	Incremental Cost Source
Large Enterprise (Mercantile Utility)	C&I Energy Solutions for Business Program - Large	Custom - LCI	Custom - Process Improvement - LCI	15	403,000	46.00	120,900	32,240	0	Co Assumption	Co Assumption
			Custom - HVAC & Chillers - LCI	20	28,864	6.51	13,000	2,309	0	PA TRM - Adjusted	PA Incremental Cost DB
			Custom - Compressed Air - LCI	10	55,000	6.00	6,651	4,400	0	Co Assumption	Co Assumption
			Custom - VFDs < 10HP - LCI	15	11,623	1.33	2,150	930	0	PA TRM	PA Incremental Cost DB
			Custom - VFDs > 10 HP - LCI	15	56,240	6.42	10,748	4,499	0	PA TRM	PA Incremental Cost DB
			Custom-Motors - Three Phase - LCI	16	3,851	0.33	233	308	0	PA TRM	PA Incremental Cost DB
			Custom - Refrigeration - LCI	15	2,000	0.20	250	160	0	Co Assumption	PA Incremental Cost DB
		Retro - Commissioning - LCI	Custom Retrocommissioning - LCI	5	145,994	16.67	15,000	11,680	0	Co Assumption	Co Assumption
		Custom Buildings - LCI	Custom - Building Improvements - LCI	15	403,000	46.00	120,900	32,240	0	Co Assumption	Co Assumption
			Custom - Energy Management - LCI	10	289,080	33.00	100,000	23,126	0	Co Assumption	Co Assumption
		Audits & Education LCI	Audit - LCI	0	0	0.00	0	12,000	0	N/A	N/A
			Energy Manager - LCI	1	32,906	3.76	0	0	0	Co Assumption	Co Assumption
			Benchmarking - LCI	0	0	0.00	0	0	0	Co Assumption	Co Assumption
	C&I Demand Response Program - Large	Demand Response LCI	LC&I Contracted DR - PJM	1	0	1,000.00	N/A	N/A	N/A	Co Assumption	Co Assumption
			ELR Interruptible Tariff	1	0	1.00	N/A	N/A	N/A	Co Assumption	Co Assumption
	Customer Action Program - LCI	Customer Action Program - LCI	Customer Action Program - LCI	13	1	0.0001	0	0	0	Co Assumption	Co Assumption

Appendix C-1: Measure Assumptions

Cleveland Electric Illuminating											
Sector	Program	Sub-Program	Measure	Msre Life	kWh	kW	Incremental Cost	Modeled Rebate	O&M Benefit (\$/Yr)	Savings Source	Incremental Cost Source
Government	Government Tariff Lighting Program	Government Tariff Lighting	LED - Traffic Signals - Gov	10	400	0.05	170	90	189	Ohio TRM	PA Incremental Cost DB
			Street & Area Lighting (Tariff / Utility Owned) - Gov	10	241	0.00	0	0	15	Ohio TRM	Co Assumption
			Street & Area Lighting (Tariff / Customer Owned) - Gov	10	430	0.00	337	138	15	PA TRM	PA Incremental Cost DB

Appendix C-1: Measure Assumptions

Cleveland Electric Illuminating											
Sector	Program	Sub-Program	Measure	Msre Life	kWh	kW	Incremental Cost	Modeled Rebate	O&M Benefit (\$/Yr)	Savings Source	Incremental Cost Source
Mercantile	Mercantile Customer Program	Mercantile	Mercantile Customer Projects	10	1	0.00	0	0	0	Co Assumption	Co Assumption
Other	Transmission & Distribution Upgrades	T&D Upgrades	Transmission & Distribution Upgrades	15	1	0.00	N/A	N/A	N/A	Co Assumption	Co Assumption
	Smart Grid Modernization Initiative	Smart Grid	Smart Grid Modernization Initiative	N/A	N/A	N/A	N/A	N/A	N/A	Co Assumption	Co Assumption
	Energy Special Improvement District	Energy Special Improvement District	Energy Special Improvement District	N/A	N/A	N/A	N/A	N/A	N/A	Co Assumption	Co Assumption

Appendix C-2: Number of Units

Cleveland Electric Illuminating						
Sector	Program	Sub-Program	Measure	2017 Units	2018 Units	2019 Units
Residential	Appliance Turn In Program	Appliance Turn In	Refrigerator Recycling	6,854	6,854	7,414
			Freezer Recycling	1,595	1,595	1,726
			Room Air Conditioner Recycling	558	558	604
			Dehumidifier Recycling	125	125	135
	Energy Efficient Homes Program	School Education	School Education	6,930	6,930	6,930
		EE Kits	Energy Efficiency Measures	47,609	47,609	51,740
		Audits & Education	Comprehensive Audit	1,453	1,453	1,600
			On-Line Audit	9,143	9,143	10,057
		Behavioral	Behavioral	68,200	0	0
			Behavioral 18	0	68,200	0
			Behavioral 19	0	0	68,200
		Smart Thermostat	Smart Thermostat	3,566	3,566	3,566
	Energy Efficient Products Program	Appliances	Clothes Washer	2,359	2,359	2,595
			Clothes Dryer - (Elec w Moisture Sensor)	644	644	658
			Freezers	910	910	910
			Refrigerators	3,611	3,611	3,611
			Dehumidifiers	897	897	897
			Water Heater - Heat Pump	496	496	545
		Consumer Electronics	Home Technology & Automation	1	1	1
			Monitors	2,785	2,785	3,064
			Computers	712	712	784
			Imaging	60	60	66
			TVs	28,236	28,236	31,060

Appendix C-2: Number of Units

Cleveland Electric Illuminating						
Sector	Program	Sub-Program	Measure	2017 Units	2018 Units	2019 Units
Residential	Energy Efficient Products Program	Lighting	CFL Lamps	3,038	2,037	1,536
			CFL Fixtures	0	0	0
			LED Fixtures	82	82	90
			LED Lamps	303,779	408,006	383,882
			Residential Lighting Controls	497	497	547
		HVAC	Heat Pump	905	905	995
			Central Air Conditioner	1,244	1,244	1,369
			Room Air Conditioner	2,168	2,168	2,385
			Ductless Mini-Split Heat Pump	649	649	713
			PTAC - Multi Family	55	55	61
			PTHP - Multi Family	66	66	73
			Heat Pump - Water & GeoT	158	158	173
			HVAC - Maintenance	2,049	2,049	2,253
			Furnace Fans	24	24	26
			Circulation Pumps	330	330	330
			Programmable / SMART Thermostat	3,696	3,696	3,696
	Customer Action Program - Res	Customer Action Program - Res	Customer Action Program - Res	2,175,663	1,186,725	593,363
	Residential Demand Response Program	Direct Load Control	Res Direct Load Control	7,400	7,326	7,253
	Low Income Energy Efficiency Program	Community Connections	Community Connections	1,394	1,394	1,394
		LI - New Homes	LI New Construction	18	18	18

Appendix C-2: Number of Units

Cleveland Electric Illuminating						
Sector	Program	Sub-Program	Measure	2017 Units	2018 Units	2019 Units
Small Enterprise	C&I Energy Solutions for Business Program - Small	HVAC - SCI	Room Air Conditioner - SCI	255	259	265
			Air Conditioning - <=5.4 Tn - SCI	349	349	349
			Air Conditioning - >5.4 < 20 Tn - SCI	103	103	103
			Air Conditioning - >=20 Tn - SCI	34	35	36
			Chiller - Water Cld w Full Load - SCI	12	13	13
			Heat Pump - <=5.4 Tn - SCI	93	93	93
			Heat Pumps - >5.4 Tn - SCI	38	38	38
			Heat Pumps - Water & GeoT - SCI	28	29	30
			HVAC - Maintenance - SCI	21	21	21
			Circulation Pumps - SCI	398	398	398
			Ductless Mini-Split HP - SCI	155	157	161
			PTAC - SCI	290	295	301
			PTHP - SCI	331	337	344
		Lighting - SCI	CFL Fixtures - SCI	0	0	0
			CFL Lamps - SCI	282	122	75
			Lighting Controls (Daylight & Occupancy) - SCI	16,157	16,837	17,566
			Linear Fluorscent T8 / T5 - SCI	40,005	39,355	34,240
			LED Linear - SCI	36,696	43,634	46,447
			LED Channel Signage - SCI	220	230	240
			Exit Signs - SCI	1,614	1,682	1,755
			LED Fixtures External - SCI	8,224	8,570	8,940
			LED Fixtures Internal - SCI	723	754	786
			LED Lamps - SCI	32,201	37,555	34,681
			LED Reach in Refrigerator / Freezer Lights - SCI	4,185	4,362	4,551
			Street & Area Lighting (Customer Owned) - SCI	2,473	2,576	2,689

Appendix C-2: Number of Units

Cleveland Electric Illuminating						
Sector	Program	Sub-Program	Measure	2017 Units	2018 Units	2019 Units
Small Enterprise	C&I Energy Solutions for Business Program - Small	Food Service	Refrigerators - Reach In - SCI	15	15	15
			Freezers - Reach In - SCI	66	71	71
			Ice Machines - SCI	29	32	32
			Refrigerated Case Cover - SCI	746	823	823
			Strip Curtains - SCI	1,018	1,124	1,124
			Anti Sweat Heater Controls - SCI	94	104	104
			Beverage Vending Machine - Controls - SCI	31	31	31
			Beverage Vending Machine - New EE- SCI	109	121	121
			Combination Oven - SCI	15	17	17
			Convection Oven - SCI	14	14	14
			Steam Cookers - SCI	20	22	22
			Fryers - SCI	26	29	29
			Griddles - SCI	19	20	20
			Hot Food Holding Cabinet - SCI	26	27	27
		Appliance Turn In - SCI	Refrigerator Recycling - SCI	125	138	151
			Freezer Recycling - SCI	26	28	31
			Room Air Conditioner Recycling - SCI	13	14	15
			Dehumidifiers Recycling - SCI	3	3	3
		Appliances - SCI	Clothes Washer - SCI	26	29	32
			Clothes Dryer (Elec w Moisture Sensor) - SCI	66	71	80
			Refrigerators - SCI	184	202	223
			Water Heater - Heat Pump - SCI	26	29	29
			Freezers - SCI	26	27	31
			Pre-Rinse Sprayers - SCI	29	29	29

Appendix C-2: Number of Units

Cleveland Electric Illuminating						
Sector	Program	Sub-Program	Measure	2017 Units	2018 Units	2019 Units
Small Enterprise	C&I Energy Solutions for Business Program - Small	Consumer Electronics - SCI	Uninterruptible Power Supply - SCI	14	16	18
			Monitors - SCI	109	121	133
			Computers - SCI	41	45	49
			Imaging - SCI	41	45	49
			Small Network - SCI	109	121	133
		Agricultural	Efficient Dairy Equipment - SCI	22	24	26
			High Efficiency Fans - SCI	33	36	36
		Data Centers - SCI	DC - Custom Servers- SCI	90	99	99
			DC - Custom HVAC - SCI	16	18	18
			DC - Audit - SCI	16	18	18
		Custom - SCI	Custom - Process Improvement - SCI	203	224	224
			Custom - HVAC & Chillers - SCI	19	21	23
			Custom - Compressed Air - SCI	18	20	22
			Custom - VFDs < 10HP - SCI	28	30	30
			Custom - VFDs > 10 HP - SCI	15	17	17
			Custom-Motors - Three Phase - SCI	26	29	31
			Custom - Refrigeration - SCI	16	18	20
		Retro - Commissioning - SCI	Custom Retrocommissioning - SCI	27	30	30
		Custom Buildings - SCI	Custom - Building Improvements - SCI	100	111	111
			Custom - Energy Management - SCI	2	2	2
		Audits & Education - SCI	Energy Manager - SCI	31	34	34
			Energy Efficiency Measures - SCI	685	755	755
			Multi Family Audit - SCI	1,400	1,400	1,400
			Benchmarking - SCI	31	34	34
			Audit - SCI	108	116	116
			Audits w Direct Install - SCI	426	495	495
			Behavioral - SCI	0	14,160	14,160
	Customer Action Program - SCI	Customer Action Program - SCI	Customer Action Program - SCI	1,067,419	582,228	291,114

Appendix C-2: Number of Units

Cleveland Electric Illuminating						
Sector	Program	Sub-Program	Measure	2017 Units	2018 Units	2019 Units
Large Enterprise (Mercantile Utility)	C&I Energy Solutions for Business Program - Large	HVAC - LCI	Air Conditioning - <=5.4 Tn - LCI	15	16	19
			Chiller - Water Cld w Full Load - LCI	14	14	14
			Air Conditioning - >5.4 < 20 Tn - LCI	14	14	17
			Air Conditioning - >=20 Tn - LCI	31	31	37
			Heat Pump - <=5.4 Tn - LCI	37	37	44
			Heat Pumps - >5.4 Tn - LCI	5	5	6
			Heat Pumps - Water & GeoT - LCI	21	21	21
			Ductless Mini-Split HP - LCI	8	8	9
			PTAC - LCI	216	218	256
			PTHP - LCI	45	45	53
		Lighting - LCI	CFL Fixtures - LCI	0	0	0
			CFL Lamps - LCI	46	27	15
			Lighting Controls (Daylight & Occupancy) - LCI	4,230	4,283	5,015
			Linear Fluorscent T8 / T5 - LCI	8,900	7,885	5,995
			LED Linear - LCI	5,562	7,885	9,592
			LED Channel Signage - LCI	22	23	24
			Exit Signs - LCI	415	420	492
			LED Fixtures External - LCI	3,851	3,899	4,565
			LED Fixtures Internal - LCI	24	24	28
			LED Lamps - LCI	4,761	7,173	6,254
			Street & Area Lighting (Customer Owned) - LCI	218	218	242
		Data Centers - LCI	DC - Custom HVAC - LCI	3	3	3
			DC - Custom Servers - LCI	60	61	65
			DC - Audit - LCI	3	3	4

Appendix C-2: Number of Units

Cleveland Electric Illuminating						
Sector	Program	Sub-Program	Measure	2017 Units	2018 Units	2019 Units
Large Enterprise (Mercantile Utility)	C&I Energy Solutions for Business Program - Large	Custom - LCI	Custom - Process Improvement - LCI	40	41	44
			Custom - HVAC & Chillers - LCI	3	3	4
			Custom - Compressed Air - LCI	10	10	11
			Custom - VFDs < 10HP - LCI	11	11	13
			Custom - VFDs > 10 HP - LCI	17	17	21
			Custom-Motors - Three Phase - LCI	2	2	2
			Custom - Refrigeration - LCI	2	2	3
		Retro - Commissioning - LCI	Custom Retrocommissioning - LCI	4	5	5
		Custom Buildings - LCI	Custom - Building Improvements - LCI	9	9	10
			Custom - Energy Management - LCI	2	2	2
		Audits & Education - LCI	Audit - LCI	9	9	10
			Energy Manager - LCI	10	10	11
			Benchmarking - LCI	10	10	11
	C&I Demand Response Program - Large	Demand Response - LCI	LC&I Contracted DR - PJM	1	1	1
			ELR Interruptible Tariff	189,720	189,720	189,720
	Customer Action Program - LCI	Customer Action Program - LCI	Customer Action Program - LCI	3,756,867	2,049,200	1,024,600

Appendix C-2: Number of Units

Cleveland Electric Illuminating						
Sector	Program	Sub-Program	Measure	2017 Units	2018 Units	2019 Units
Government	Government Tariff Lighting Program	Government Tariff Lighting	LED - Traffic Signals - Gov	100	100	100
			Street & Area Lighting (Tariff / Utility Owned) - Gov	1	1	1
			Street & Area Lighting (Tariff / Customer Owned) - Gov	500	1,000	1,000

Appendix C-2: Number of Units

Cleveland Electric Illuminating						
Sector	Program	Sub-Program	Measure	2017 Units	2018 Units	2019 Units
Mercantile	Mercantile Customer Program	Mercantile	Mercantile Customer Projects	33,379,000	16,690,000	16,690,000
Other	Transmission & Distribution Upgrades	T&D Upgrades	Transmission & Distribution Upgrades	2,500,000	2,200,000	2,200,000
	Smart Grid Modernization Initiative	Smart Grid	Smart Grid Modernization Initiative	1	1	1
Other	Energy Special Improvement District	Energy Special Improvement District	Energy Special Improvement District	1	1	1

Appendix C-3: Calculation Methods and Assumptions - Rebate Strategy

Cleveland Electric Illuminating						
Sector	Program	Sub-Program	Measure	Eligibility / Description	Rebate Strategy (All values are "up to" values) ^{1,2,3,4}	Qualifiers
Residential	Appliance Turn In Program	Appliance Turn In	Refrigerator Recycling	Removal of an existing inefficient unit prior to end of useful life via recycling	\$75	per unit
			Freezer Recycling	Removal of an existing inefficient unit prior to end of useful life via recycling	\$75	per unit
			Room Air Conditioner Recycling	Removal of an existing inefficient unit prior to end of useful life via recycling	\$38	per unit
			Dehumidifier Recycling	Removal of an existing inefficient unit prior to end of useful life via recycling	\$38	per unit
	Energy Efficient Homes Program	School Education	School Education	Adoption of an energy efficiency school curriculum or other engagement which encourages efficient practices & installation of energy efficiency measures at home. Student families are offered an energy efficiency kit to introduce simple retrofit measures.	NA	
		EE Kits	Energy Efficiency Measures	Opt In Kit with low cost energy efficiency measures mailed at the customers request.	NA	
		Audits & Education	Comprehensive Audit	Provides a Customized Home Energy Report for single or multi-family residence. Comprehensive measures that are eligible for incentives, as a result of diagnostics and testing include, but are not limited to: Windows, Duct Sealing, and Wall & Attic Insulation, etc. Manufactured homes are also eligible.	Audit - Up to \$500 for the cost of the audit direct install measures, plus up to \$500 for audit recommended measures and additional incentives	
			On-Line Audit	Energy education and awareness supporting installation of measures and behaviors that reduce consumption of energy and demand.	NA	
		Behavioral	Behavioral	Reports containing energy usage comparisons, recommendations and education emphasizing key points, general conservation tips and information on tools and resources supporting implementation of measures and efficiencies behaviors that reduces consumption of energy and demand.	NA	

1. The Company may provide tiered rebate amounts within the incentive ranges listed above for qualifying products that have varying characteristics (e.g. size, features, etc.).
2. The Company may provide prescriptive rebates in lieu of the performance incentives listed above for certain measures and/or applications where the prescriptive value is within the equivalent performance incentive range.
3. The Company may establish incentive tiers and/or incentive block structures within the performance incentives listed above for different end use technology or sub-measures (lighting, HVAC, etc).
4. Unless otherwise stated, rebates will be limited by the project or equipment cost, where applicable.

Appendix C-3: Calculation Methods and Assumptions - Rebate Strategy

Cleveland Electric Illuminating						
Sector	Program	Sub-Program	Measure	Eligibility / Description	Rebate Strategy (All values are "up to" values) ^{1,2,3,4}	Qualifiers
Residential	Energy Efficient Homes Program	Smart Thermostat	Smart Thermostat	Deployment of a program specific smart thermostat to residential customers with either of the following HVAC systems: central air conditioning, heat pumps, electric resistance furnace or geothermal heat pump.	\$100	per unit
	Energy Efficient Products Program	Appliances	Clothes Washer	Purchase and installation of an Energy Star or CEE Tier 1 (or higher) clothes washer, including appliances that can be interconnected to home energy management systems.	\$100	per unit
			Clothes Dryer - (Elec w Moisture Sensor)	Purchase and installation of an Energy Star rated Clothes Dryer with moisture sensor or Heat Pump Clothes Dryer	\$600	per unit
			Freezers	Purchase and installation of a new unit meeting either Energy Star or greater efficiency level.	\$40	per unit
			Refrigerators	Purchase and installation of a new unit meeting Energy Star or CEE Tier 1 (or higher).	\$150	per unit
			Dehumidifiers	Purchase and installation of a new Energy Star rated unit	\$25	per unit
			Water Heater - Heat Pump	Purchase and installation of a heat pump water heater with EF>2.0 or a solar water heater with SEF >= 1.8 for electric backup.	\$700	per unit
		Consumer Electronics	Home Technology & Automation	Purchase and installation of emerging technologies related to the control of in-home appliances, lighting, HVAC equipment, etc.	75% of equipment cost	per unit
			Monitors	Purchase and installation of an Energy Star rated unit	\$8	per unit
			Computers	Purchase and installation of an Energy Star rated unit	\$8	per unit

1. The Company may provide tiered rebate amounts within the incentive ranges listed above for qualifying products that have varying characteristics (e.g. size, features, etc.).

2. The Company may provide prescriptive rebates in lieu of the performance incentives listed above for certain measures and/or applications where the prescriptive value is within the equivalent performance incentive range.

3. The Company may establish incentive tiers and/or incentive block structures within the performance incentives listed above for different end use technology or sub-measures (lighting, HVAC, etc).

4. Unless otherwise stated, rebates will be limited by the project or equipment cost, where applicable.

Appendix C-3: Calculation Methods and Assumptions - Rebate Strategy

Cleveland Electric Illuminating						
Sector	Program	Sub-Program	Measure	Eligibility / Description	Rebate Strategy (All values are "up to" values) ^{1,2,3,4}	Qualifiers
Residential	Energy Efficient Products Program	Consumer Electronics	Imaging	Purchase and installation of an Energy Star rated unit	\$8	per unit
			TVs	Purchase and installation of an Energy Star V7.0 rated Television	\$8	per unit
		Lighting	CFL Lamps	Purchase and installation of an energy efficient specialty compact fluorescent light bulb (CFL) at participating retailers.	\$3	NTE Cost of Lamp
			CFL Fixtures	Purchase and installation of an energy efficient lighting fixture wired for exclusive use with pin-based (including the GU-24 base) compact fluorescent lamp(s) that is installed in an interior or exterior residential setting.	\$20	per fixture
			LED Fixtures	Purchase and installation of an energy efficient luminaire with integral LED lamp.	\$50	per fixture
			LED Lamps	Purchase and installation of an energy efficient LED lamp at participating retailers.	\$5	NTE Cost of Lamp
			Residential Lighting Controls	The purchase and installation of an occupancy sensor, dimmers or other energy saving controllers inside the home	\$25	per unit
		HVAC	Heat Pump	Replacement of ducted split central units prior to end of life or installation of a new energy efficient unit w/ SEER ratings > or = 14.5 or 12 EER or 8.5 HSPF. Includes variable refrigerant flow (VRF) systems.	\$1,000	per unit
			Central Air Conditioner	Replacement of ducted split central units prior to end of life or installation of a new energy efficient unit w/ SEER ratings > or = 14.5 or 12 EER. Includes variable flow (VRF) systems.	\$800	per unit
			Room Air Conditioner	Purchase and installation of new unit meeting Energy Star standard V4.0.	\$100	per unit
			Ductless Mini-Split Heat Pump	Replacement of ductless mini-split unit prior to end of life or installation of a new energy efficient unit w/ SEER >= 15, EER >=12.5 or HSPF >= 8.5	\$400	per unit
			PTAC - Multi Family	Replacement of a packaged terminal unit prior to end of life or installation of a new energy efficient unit exceeding efficiency ratings of IECC 2012 by 10%. Includes variable flow (VRF) systems.	\$200	per unit

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Appendix C-3: Calculation Methods and Assumptions - Rebate Strategy

Cleveland Electric Illuminating						
Sector	Program	Sub-Program	Measure	Eligibility / Description	Rebate Strategy (All values are "up to" values) ^{1,2,3,4}	Qualifiers
Residential	Energy Efficient Products Program	HVAC	PTHP - Multi Family	Replacement of a packaged terminal unit prior to end of life or a installation of a new energy efficient unit exceeding efficiency ratings of IECC 2012 by 10%. Includes variable flow (VRF) systems.	\$200	per unit
			Heat Pump - Water & GeoT	New installation of Ground & Water Source Heat Pumps: The following retrofit scenarios are eligible: • Ground source heat pumps for existing or new HVAC applications <135,000 BTU/hr, EER >13.1, COP> 3.1 • Groundwater source heat pumps for existing or new HVAC applications <135,000 BTU/hr, EER >16.2, COP> 3.6 • Water source heat pumps for existing or new HVAC applications <65,000 BTU/hr, EER >12.0, COP> 4.2	\$1,500	per unit
			HVAC - Maintenance	Eligibility items covered during maintenance on existing central air conditioner or air source heat pumps: • Check refrigerant charge level and correct as necessary, • Clean filters as needed • Inspect and lubricate bearings • Inspect and clean condenser and, if accessible, evaporator coil and Check refrigerant levels and air flow across coils for CAC and HP units using standard industry tools with correction of any problems found and post-treatment re-measurement.	\$85	per unit
			Furnace Fans	Replacement of an existing fan with a brushless permanent magnet (BPM) or electrically commutated motor (ECM) at the time of an HVAC tune-up or installation of a new CAC or HP. Purchase of a new gas furnace with a BPM or ECM motor is also eligible.	\$150	per unit
			Circulation Pumps	Replacement of existing single speed circulation pump or new circulation pump with variable speed motor and/or controls to automatically change pump speed to produce flow rates that match system heating requirements.	\$100	
			Programmable / SMART Thermostat	New installation of smart thermostat or smart thermostat with advanced features. Advanced features on a smart thermostat must consist of three of the following: fan delays, free cooling, occupancy sensing, heat pump resistance element lock-out, humidity control, compressor optimization or behavioral "coaching" features. Thermostat must control HVAC systems with either of the following: central air conditioning, heat pumps, electric resistance furnace or geothermal heat pump.	Up to 75% of thermostat cost	per unit
	Customer Action Program - Res	Customer Action Program - Res	Customer Action Program - Res	NA	NA	
	Residential Demand Response Program	Direct Load Control	Res Direct Load Control	Residential customers that have split system Central Air Conditioning.	\$50	per year (participation)
	Low Income Energy Efficiency Program	Community Connections	Community Connections	Residential customers and landlords of residents eligible for one of the following programs: (i) the Ohio Home Weatherization Assistance Program (HWAP); (ii) Percent of Income Payment Plan (PIPP); or (iii) Home Energy Assistance Program (HEAP).	NA	
		LI - New Homes	LI New Construction	New construction of low-income housing to be constructed in accordance applicable Energy Star standard or built at a higher efficiency level than the current adopted building code. Modular homes to be designed, manufactured and installed meet the applicable Energy Star standard for Modular Homes, or built at a higher efficiency level than the current adopted building code. Manufactured homes to be designed and built by certified Energy Star manufacturing plant.	\$1,875	per unit
Small Enterprise	C&I Energy Solutions for Business Program - Small	HVAC - SCI	Room Air Conditioner - SCI	Purchase and installation of new unit meeting Energy Star standard V4.0.	\$100	per unit
			Air Conditioning - <=5.4 Tn - SCI	Replacement of a Single Package or Split System central units prior to end of life or installation of a new energy efficient unit exceeding IECC 2012 efficiency ratings by at least 10%. Includes variable flow (VRF) systems.	\$200	per ton

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Sector	Program	Sub-Program	Measure	Eligibility / Description	Rebate Strategy (All values are "up to" values) ^{1,2,3,4}	Qualifiers
Small Enterprise	C&I Energy Solutions for Business Program - Small	HVAC - SCI	Air Conditioning - >5.4 < 20 Tn - SCI	Replacement of a Single Package or Split System central units prior to end of life or installation of a new energy efficient unit exceeding IECC 2012 efficiency ratings by at least 10%. Includes variable flow (VRF) systems.	\$150	per ton
			Air Conditioning - >=20 Tn - SCI	Replacement of a Single Package or Split System central units prior to end of life or installation of a new energy efficient unit exceeding IECC 2012 efficiency ratings by at least 10%. Includes variable flow (VRF) systems.	\$120	per ton
			Chiller - Water Cld w Full Load - SCI	Replacement or new installation of electric chiller w/efficiency exceeding baselines in IECC, 2012, Table 503.2.3(7) by at least 10%. VFD retrofits of existing existing chiller is not included in this measure.	\$45 / Ton	NTE 50% of PC
			Heat Pump - <=5.4 Tn - SCI	Replacement of a Single Package or Split System central unit prior to end of life or installation of a new energy efficient unit exceeding IECC 2012 efficiency ratings by at least 10%. Includes variable flow (VRF) systems.	\$200	per ton
			Heat Pumps - >5.4 Tn - SCI	Replacement of a Single Package or Split System central unit prior to end of life or installation of a new energy efficient unit exceeding IECC 2012 efficiency ratings by at least 10%. Includes variable flow (VRF) systems.	\$150	per ton
			Heat Pumps - Water & GeoT - SCI	New installation of Ground & Water Source Heat Pumps: The following retrofit scenarios are eligible: • Ground source heat pumps for existing or new HVAC applications <135,000 BTU/hr, EER >13.1, COP> 3.1 • Groundwater source heat pumps for existing or new HVAC applications <135,000 BTU/hr, EER >16.2, COP> 3.6 • Water source heat pumps for existing or new HVAC applications <65,000 BTU/hr, EER >12.0, COP> 4.2	\$300	per ton
			HVAC - Maintenance - SCI	Eligibility items covered during maintenance on existing central air conditioner or air source heat pumps: • Check refrigerant charge level and correct as necessary, • Clean filters as needed • Inspect and lubricate bearings • Inspect and clean condenser and, if accessible, evaporator coil, • Check refrigerant levels and air flow across coils for CAC and HP units using standard industry tools with correction of any problems found and post-treatment re-measurement, and installation of smart thermostat or smart thermostat with advanced features	\$50	per ton
			Circulation Pumps - SCI	Replacement of existing single speed circulation pump or installation of a new circulation pump with variable speed motor and/or controls to automatically change pump speed to produce flow rates that match system heating requirements.	\$100	per unit
			Ductless Mini-Split HP - SCI	Replacement of ductless mini-split unit prior to end of life or installation of a new energy efficient unit w/ SEER >= 15, EER >=12.5 or HSPF >= 8.5.	\$300	per ton
			PTAC - SCI	Replacement of a packaged terminal unit prior to end of life or a new unit exceeding efficiency ratings of IECC 2012 by 10%. Includes variable flow (VRF) systems.	\$150	per ton
			PTHP - SCI	Replacement of a packaged terminal unit prior to end of life or a new unit exceeding efficiency ratings exceeding efficiency ratings of IECC 2012 by 10%. Includes variable flow (VRF) systems.	\$150	per ton
		Lighting - SCI	CFL Fixtures - SCI	Purchase and installation of a new energy efficient lighting fixture wired for exclusive use with pin-based (including the GU-24 base) compact fluorescent lamp(s) that is installed in an interior or exterior residential setting.	\$20	per fixture

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Small Enterprise	C&I Energy Solutions for Business Program - Small	Lighting - SCI	CFL Lamps - SCI	Purchase and installation of an energy efficient specialty compact fluorescent light bulb (CFL).	\$3	NTE Cost of Lamp
			Lighting Controls (Daylight & Occupancy) - SCI	Purchase and installation of new lighting controls, including but not limited to: daylight On/Off & dimming, occupancy sensors (wall plate, remote & fixture mounted), time clocks and switching controls.	\$0.10 per kWh saved	
			Linear Fluorescent T8 / T5 - SCI	Replacement of existing linear fluorescent lamps or new installations with high performance T8 or T5 lamps.	\$0.10 per kWh saved	
			LED Linear - SCI	Replacement or new installation of linear LED lighting equipment to a higher efficiency than existing or designed.	\$0.10 per kWh saved	
			LED Channel Signage - SCI	Replacement, retrofit or new installation of channel letter signs w/ LED technology.	\$3	per linear foot
			Exit Signs - SCI	Replacement or retrofit of incandescent or fluorescent exit signs w/ LED type exit sign or photoluminescent sign.	\$23	per sign
			LED Fixtures External - SCI	Replacement or new installation of a lighting fixture wired for exclusive use with LED lamps that is installed in an exterior setting.	\$55	per fixture
			LED Fixtures Internal - SCI	Replacement or new installation of a lighting fixture wired for exclusive use with LED lamps that is installed in an interior setting.	\$55	per fixture
			LED Lamps - SCI	Purchase and installation of an energy efficient LED lamp.	\$20	NTE Cost of Lamp
			LED Reach in Refrigerator / Freezer Lights - SCI	Replacement of linear fluorescent refrigerator, cooler or freezer lights lighting with LED lighting.	\$75	per door
			Street & Area Lighting (Customer Owned) - SCI	Replacement or new installation of Street and Area lighting equipment to a greater efficiency than existing or designed.	\$220	per fixture
		Food Service	Refrigerators - Reach In - SCI	Purchase and installation of new ENERGY STAR, commercial, solid or glass door reach-in refrigerator.	\$165	per unit

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Sector	Program	Sub-Program	Measure	Eligibility / Description	Rebate Strategy (All values are "up to" values) ^{1,2,3,4}	Qualifiers
Small Enterprise	C&I Energy Solutions for Business Program - Small	Food Service	Freezers - Reach In - SCI	Purchase and installation of new ENERGY STAR, commercial, solid or glass door reach-in freezer.	\$165	per unit
			Ice Machines - SCI	Replacement of inefficient ice machine prior to end of life or new unit that is Energy Star rated.	\$590 0-500 lbs \$980 501-1000 lbs \$1100 over 1000 lbs	per unit
			Refrigerated Case Cover - SCI	Replacement or new installation of refrigerated case covers.	\$32	per linear foot
			Strip Curtains - SCI	Replacement or new installation of polyethylene strip curtains on walk in freezers and coolers covering the entire door frame. Eligible units must be open a least 2.5 hrs/day.	\$3	per square-ft
			Anti Sweat Heater Controls - SCI	New installation of door heater controls on glass doors for refrigerators, coolers or freezers.	\$60	per door
			Beverage Vending Machine - Controls - SCI	Retrofit controls for a non Energy Star rated vending machine.	\$115	per unit
			Beverage Vending Machine - New EE-SCI	Purchase and installation of new Energy Star rated vending machine.	\$130	per unit
			Combination Oven - SCI	Replacement or new installation of Energy Star qualified electric units.	\$1,380	per unit
			Convection Oven - SCI	Replacement or new installation of Energy Star qualified electric units.	\$700	per unit
			Steam Cookers - SCI	Replacement or new installation of Energy Star qualified electric units with 3-6 pans. A qualifying steam cooker must meet a minimum cooking efficiency of 50 percent and meet idle energy rates specified by pan capacity.	\$250 - 3 pan \$375 - 4 pan \$500 - 5 pan \$600 - 6 pan	per unit
			Fryers - SCI	Replacement or new installation of Energy Star qualified electric units.	\$325	per unit
			Griddles - SCI	Replacement or new installation of Energy Star qualified electric units.	\$500	per unit

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Small Enterprise	C&I Energy Solutions for Business Program - Small	Food Service	Hot Food Holding Cabinet - SCI	Replacement or new installation of full, three quarter and half sized ENERGY STAR qualified units with idle energy rate of 0.04 kW/CF.	\$500 - full size \$375 - 3/4 size \$225 - 1/2 size	per unit
		Appliance Turn In - SCI	Refrigerator Recycling - SCI	Removal of an existing inefficient unit from service prior to end of useful life thru recycling.	\$75	per unit
			Freezer Recycling - SCI	Removal of an existing inefficient unit from service prior to end of useful life thru recycling.	\$75	per unit
			Room Air Conditioner Recycling - SCI	Removal of an existing inefficient unit from service prior to end of useful life thru recycling.	\$38	per unit
			Dehumidifiers Recycling - SCI	Removal of an existing inefficient unit from service prior to end of useful life thru recycling.	\$38	per unit
		Appliances - SCI	Clothes Washer - SCI	Purchase and installation of an Energy Star or CEE Tier 1 (or higher) clothes washer. Commercial clothes washers and "coin op" units are also eligible.	\$100	per unit
			Clothes Dryer (Elec w Moisture Sensor) - SCI	Purchase and installation of an Energy Star rated Clothes Dryer with moisture sensor or Heat Pump Clothes Dryer. Commercial and "coin op" unit are also eligible.	\$600	per unit
			Refrigerators - SCI	Purchase and installation of a new unit meeting Energy Star or CEE Tier 1 (or higher).	\$150	per unit
			Water Heater - Heat Pump - SCI	Purchase and installation of a heat pump water heater with EF>2.0 or a solar water heater with SEF >= 1.8 for electric backup.	\$700	per unit
			Freezers - SCI	Purchase and installation of a new unit meeting either Energy Star or greater efficiency level.	\$40	per unit
			Pre-Rinse Sprayers - SCI	Replacement of existing sprayer with new unit that use 1.6 GPM or less, on/off squeeze lever, and cleaning of performance of at least 26 seconds. Electric water heating only.	\$55	per unit
		Consumer Electronics - SCI	Uninterruptible Power Supply - SCI	Replacement or new installation of a UPS (less than 12 kW) that exceeds the minimum average efficiency standard as determined by Table 1 of the Energy Star UPS standard. Table 2 of the standard shall be used in calculating the loading of the UPS.	\$220	per kW

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Small Enterprise	C&I Energy Solutions for Business Program - Small	Consumer Electronics - SCI	Monitors - SCI	Purchase and installation of Energy Star rated unit.	\$15	per unit
			Computers - SCI	Purchase and installation of an Energy Star rated unit.	\$15	per unit
			Imaging - SCI	Purchase and installation of Energy Star rated imaging equipment including but not limited to: scanners, copier, printers, fax machines and multi-function machines.	\$30	per unit
			Small Network - SCI	Purchase and installation of network level software that controls desktop computers and monitors power settings with the network. Software must be capable of measuring and managing power consumption of each individual PC. Laptops are not eligible.	\$15	per PC
		Agricultural	Efficient Dairy Equipment - SCI	Purchase and installation of more efficient electric driven equipment in retrofit applications.	\$0.10 per kWh saved	
			High Efficiency Fans - SCI	Purchase and installation of a new high efficiency ventilation fans in retrofit applications.	\$0.10 per kWh saved	
		Data Centers - SCI	DC - Custom Servers- SCI	Replacement of existing server equipment or installation of new energy efficient server equipment meeting Energy Star or other energy efficiency requirements.	\$40	
			DC - Custom HVAC - SCI	Replacement of a HVAC or electric water chilling units prior to end of life or installation of a new unit exceeding IECC 2012 efficiency ratings by at least 10%. Includes variable flow (VRF) units.	\$0.10 per kWh saved.	NTE 50% of PC
			DC - Audit - SCI	Comprehensive Energy Audit for data center facility recommending installation of efficient equipment, such as: high efficiency server and storage devices, high efficiency computer room air conditioning (CRAC) and HVAC equipment, server virtualization, high efficiency power supplies, high efficiency dehumidification systems, economizers, airflow management and controls that improve systems cooling.	Up to 50% of the audit cost or \$5000 (whichever is less) plus upto remaining 50% of audit cost if audit recommended measures are installed.	
		Custom - SCI	Custom - Process Improvement - SCI	Replacement or retrofit of existing equipment or process changes or enhancements that results in electric energy savings.	\$0.10 per kWh saved.	NTE 50% of PC
			Custom - HVAC & Chillers - SCI	Replacement of a HVAC or electric water chilling units prior to end of life or installation of a new unit exceeding IECC 2012 efficiency ratings by at least 10%, and includes variable flow (VRF) units.	\$0.10 per kWh saved.	NTE 50% of PC
			Custom - Compressed Air - SCI	Replacement or retrofit of existing air compressor systems, including but no limited to: new compressors, air dryers, or increased storage capacity. Other efficiency measures such as: leak repair, controls, high efficiency nozzles, piping enhancements, and no loss drains are also eligible.	\$0.10 per kWh saved.	NTE 50% of PC

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Small Enterprise	C&I Energy Solutions for Business Program - Small	Custom - SCI	Custom - VFDs < 10HP - SCI	Purchase and installation of a new VFD for an existing motor (less than 10 hp) driving fans, pumps and other suitable applications.	\$130	per hp
			Custom - VFDs > 10 HP - SCI	Purchase and installation of a new VFD for an existing motor (greater than 10 hp) driving fans, pumps and other suitable applications.	\$100	per hp
			Custom-Motors - Three Phase - SCI	Purchase and installation of a new premium efficiency motor in lieu of rewinding an existing motor.	\$35	per hp
			Custom - Refrigeration - SCI	Retrofit of small commercial walk-in refrigeration and coolers, including, but not limited to: high efficiency fan motors, evaporator fan controllers, floating head pressure controls, evaporator coil defrost controls and variable speed compressor motors.	\$0.10 per kWh saved.	
		Retro - Commissioning - SCI	Custom Retrocommissioning - SCI	Adjustment of Electrical, Electric Mechanical, & Control System set points to improve system performance to existing building conditions and use, including the implementation of energy savings measures identified through building operations training.	\$0.10 per kWh saved.	NTE 50% of PC
		Custom Buildings - SCI	Custom - Building Improvements - SCI	Retrofit of existing building shell, electrical & electric mechanical retrofits to greater efficiency components and processes, including but not limited to wall and ceiling insulation, windows, reduction of conditioned cubic feet (CF) with the square feet (SF) of floor space remaining the same, reduction in window size w/ improved R value.	\$0.10 per kWh saved.	NTE 50% of PC
			Custom - Energy Management - SCI	Installation of new energy management system to control lighting, hvac and other building systems. New installation of smart thermostat or smart thermostat with advanced features. Advanced features on a smart thermostat must consist of three of the following: fan delays, free cooling, occupancy sensing, heat pump resistance element lock-out, humidity control, compressor optimization or behavioral "coaching" features. Thermostat must control electric heating and/or cooling systems.	\$0.10 per kWh saved. Up to 75% of thermostat cost.	
		Audits & Education - SCI	Energy Manager - SCI	Shared resource to provide energy consultative services to assess energy usage and to identify and promote low cost/no cost energy saving improvements and program opportunities.	NA	
			Energy Efficiency Measures - SCI	Opt In Kit with energy efficiency measures mailed at the customers request.	NA	
			Multi Family Audit - SCI	Provides a Customized Home Energy Report to multi-family residences served under a commercial rate tariff. Comprehensive measures eligible for incentive based on applicable diagnostics and testing includes, but are not limited to: Windows, Duct Sealing, and Wall & Attic Insulation, etc.	Audit - Up to \$500 for the cost of the audit direct install measures, plus up to \$500 for audit recommended measures and additional incentives	
			Benchmarking - SCI	Provides building owners and property managers with a quantitative analysis of their building's energy performance.	NA	
			Audit - SCI	Comprehensive Energy Audit for commercial/industrial facilities or manufacturing processes recommending installation of efficient equipment, building shell/envelop improvements, manufacturing process changes, building operating changes, or other energy efficiency improvements. Audit must meet minimum audit requirements for buildings or for process equipment.	Up to 50% of the audit cost or \$5000 (whichever is less) plus upto remaining 50% of audit cost if audit recommended measures are installed. Up to 50% of the cost of comprehensive measures installed.	

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Small Enterprise	C&I Energy Solutions for Business Program - Small	Audits & Education - SCI	Audits w Direct Install - SCI	Provides an audit with the direct installation (DI) of qualified energy efficiency measures. New installation of smart thermostat or smart thermostat with advanced features. Advanced features on a smart thermostat must consist of three of the following: fan delays, free cooling, occupancy sensing, heat pump resistance element lock-out, humidity control, compressor optimization or behavioral "coaching" features. Thermostat must control electric heating and/or cooling systems.	80% of the cost of the DI measures NTE \$6,000	
			Behavioral - SCI	Energy Intelligence Software tool that provides reporting containing energy usage comparisons, recommendations and education emphasizing key points, general conservation tips and information on tools and resources supporting implementation of energy efficiency measures and behaviors that reduces consumption of energy and demand.	NA	
	Customer Action Program - SCI	Customer Action Program - SCI	Customer Action Program - SCI	NA	NA	
Large Enterprise (Mercantile Utility)	C&I Energy Solutions for Business Program - Large	HVAC - LCI	Air Conditioning - <=5.4 Tn - LCI	Replacement of a Single Package or Split System central units prior to end of life or installation of a new energy efficient unit exceeding IECC 2012 efficiency ratings by at least 10%. Includes variable flow (VRF) systems.	\$200	per ton
			Chiller - Water Cld w Full Load - LCI	Replacement or new installation of electric chiller w/efficiency exceeding baselines in IECC, 2012, Table 503.2.3(7) by at least 10%. VFD retrofits of existing existing chiller is NOT included in this measure.	\$45 / Ton	NTE 50% of PC
			Air Conditioning - >5.4 < 20 Tn - LCI	Replacement of a Single Package or Split System central units prior to end of life or installation of a new energy efficient unit exceeding IECC 2012 efficiency ratings by at least 10%. Includes variable flow (VRF) systems.	\$150	per ton
			Heat Pump - <=5.4 Tn - LCI	Replacement of a Single Package or Split System central unit prior to end of life or installation of a new energy efficient unit exceeding IECC 2012 efficiency ratings by at least 10%. Includes variable flow (VRF) systems.	\$200	per ton
			Heat Pumps - >5.4 Tn - LCI	Replacement of a Single Package or Split System central unit prior to end of life or installation of a new energy efficient unit exceeding IECC 2012 efficiency ratings by at least 10%. Includes variable flow (VRF) systems.	\$150	per ton
			Heat Pumps - Water & GeoT - LCI	New installation of Ground & Water Source Heat Pumps: The following retrofit scenarios are eligible: • Ground source heat pumps for existing or new HVAC applications <135,000 BTU/hr, EER >13.1, COP> 3.1 • Groundwater source heat pumps for existing or new HVAC applications <135,000 BTU/hr, EER >16.2, COP> 3.6 • Water source heat pumps for existing or new HVAC applications <65,000 BTU/hr, EER >12.0, COP> 4.2	\$300	per ton
			Ductless Mini-Split HP - LCI	Replacement of ductless mini-split unit prior to end of life or installation of a new energy efficient w/ SEER >= 15, EER >=12.5 or HSPF >= 8.5.	\$300	per ton
			PTAC - LCI	Replacement of a packaged terminal unit prior to end of life or installation of a new energy efficient unit exceeding IECC 2012 efficiency ratings by at least 10%. Includes variable flow (VRF) systems.	\$150	per ton
			PTHP - LCI	Replacement of a packaged terminal unit prior to end of life or installation of a new energy efficient unit exceeding IECC 2012 efficiency ratings by at least 10%. Includes variable flow (VRF) systems.	\$150	per ton

1. The Company may provide tiered rebate amounts within the incentive ranges listed above for qualifying products that have varying characteristics (e.g. size, features, etc.).

2. The Company may provide prescriptive rebates in lieu of the performance incentives listed above for certain measures and/or applications where the prescriptive value is within the equivalent performance incentive range.

3. The Company may establish incentive tiers and/or incentive block structures within the performance incentives listed above for different end use technology or sub-measures (lighting, HVAC, etc).

4. Unless otherwise stated, rebates will be limited by the project or equipment cost, where applicable.

Appendix C-3: Calculation Methods and Assumptions - Rebate Strategy

Cleveland Electric Illuminating						
Sector	Program	Sub-Program	Measure	Eligibility / Description	Rebate Strategy (All values are "up to" values) ^{1,2,3,4}	Qualifiers
Large Enterprise (Mercantile Utility)	C&I Energy Solutions for Business Program - Large	HVAC - LCI	Air Conditioning - >=20 Tn - LCI	Replacement of a Single Package or Split System central units prior to end of life or installation of a new energy efficient unit exceeding IECC 2012 efficiency ratings by at least 10%. Includes variable flow (VRF) systems.	\$120	per ton
		Lighting - LCI	CFL Fixtures - LCI	Purchase and installation of an energy efficient lighting fixture wired for exclusive use with pin-based (including the GU-24 base) compact fluorescent lamp(s).	\$20	per fixture
			CFL Lamps - LCI	Purchase and installation of an energy efficient specialty compact fluorescent light bulb (CFL).	\$3	NTE Cost of Lamp
			Lighting Controls (Daylight & Occupancy) - LCI	Purchase and installation of new lighting controls, including but not limited to: daylight On/Off & dimming, occupancy sensors (wall plate, remote & fixture mounted), time clocks and switching controls.	\$0.10 per kWh saved	
			Linear Fluorescent T8 / T5 - LCI	Replacement of existing linear fluorescent lamps or new installations with high performance T8 or T5 lamps.	\$0.10 per kWh saved	
			LED Linear - LCI	Replacement or new installation of linear LED lighting equipment to a higher efficiency than existing or designed.	\$0.10 per kWh saved	
			LED Channel Signage - LCI	Replacement, retrofit or new installation of channel letter signs w/ LED technology.	\$3	per linear foot
			Exit Signs - LCI	Replacement or retrofit of incandescent or fluorescent exit signs w/ LED or photoluminescent exit sign.	\$23	per sign
			LED Fixtures External - LCI	Replacement or new installation of a lighting fixture wired for exclusive use with LED lamps that is installed in an exterior setting.	\$55	per fixture
			LED Fixtures Internal - LCI	Replacement or new installation of a lighting fixture wired for exclusive use with LED lamps that is installed in an interior setting.	\$55	per fixture
			LED Lamps - LCI	Purchase and installation of an energy efficient LED lamp.	\$20	NTE Cost of Lamp
			Street & Area Lighting (Customer Owned) - LCI	Replacement or new installation of Street and Area lighting equipment to a greater efficiency than existing or designed.	\$220	per fixture

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4. Unless otherwise stated, rebates will be limited by the project or equipment cost, where applicable.

Appendix C-3: Calculation Methods and Assumptions - Rebate Strategy

Cleveland Electric Illuminating						
Sector	Program	Sub-Program	Measure	Eligibility / Description	Rebate Strategy (All values are "up to" values) ^{1,2,3,4}	Qualifiers
Large Enterprise (Mercantile Utility)	C&I Energy Solutions for Business Program - Large	Data Centers - LCI	DC - Custom HVAC - LCI	Replacement of a HVAC or electric water chilling units prior to end of life or installation of a new unit exceeding IECC 2012 efficiency ratings by at least 10%. Includes variable flow (VRF) units.	\$0.10 per kWh saved.	NTE 50% of PC
			DC - Custom Servers - LCI	Replacement or retrofit of existing data center equipment including, but not limited to: high efficiency server and storage devices, high efficiency computer room air conditioning (CRAC) and HVAC equipment, server virtualization, high efficiency power supplies, high efficiency dehumidification systems, economizers, airflow management and controls that improve systems cooling, and UPS efficiency upgrades.	\$0.10 per kWh saved.	
			DC - Audit - LCI	Comprehensive Energy Audit for data center facilities recommending installation of efficient equipment, building shell/envelop improvements, building operating changes, or other energy efficiency improvements.	Up to 50% of the audit cost plus up to remaining 50% of audit cost if audit recommended measures are installed.	
		Custom - LCI	Custom - Process Improvement - LCI	Replacement or retrofit of existing equipment or process changes or enhancements that results in electric energy savings.	\$0.10 per kWh saved.	NTE 50% of PC
			Custom - HVAC & Chillers - LCI	Replacement of a HVAC or electric water chilling units prior to end of life or installation of a new unit exceeding IECC 2012 efficiency ratings by at least 10%. Includes variable flow (VRF) units.	\$0.10 per kWh saved.	NTE 50% of PC
			Custom - Compressed Air - LCI	Replacement or retrofit of existing air compressor systems, including but not limited to: new compressors, air dryers, or increased storage capacity. Other efficiency measures such as: leak repair, controls, high efficiency nozzles, piping enhancements, and no loss drains are also eligible.	\$0.10 per kWh saved.	NTE 50% of PC
			Custom - VFDs < 10HP - LCI	Purchase and installation of a new VFD for an existing motor (less than 10 hp) driving fans, pumps and other suitable applications.	\$130	per hp
			Custom - VFDs > 10 HP - LCI	Purchase and installation of a new VFD for an existing motor (greater than 10 hp) driving fans, pumps and other suitable applications.	\$100	per hp
			Custom-Motors - Three Phase - LCI	Purchase and installation of a new premium efficiency motor in lieu of rewinding an existing motor.	\$35	per hp
			Custom - Refrigeration - LCI	Retrofit of small commercial walk-in refrigeration and coolers, including, but not limited to: high efficiency fan motors, evaporator fan controllers, floating head pressure controls, evaporator coil defrost controls and variable speed compressor motors.	\$0.10 per kWh saved.	
		Retro - Commissioning - LCI	Custom Retrocommissioning - LCI	Adjust Electrical, Electric Mechanical, & Control System set points to improve system performance to existing building conditions and use, including the implementation of energy savings measures identified through building operations training.	\$0.10 per kWh saved.	NTE 50% of PC
		Custom Buildings - LCI	Custom - Building Improvements - LCI	Retrofit of existing building shell, electrical & electric mechanical retrofits to greater efficiency components and processes, including but not limited to wall and ceiling insulation, windows, reduction of conditioned cubic feet (CF) with square feet (SF) of floor space remaining the same, reduction in window size w/ improved R value.	\$0.10 per kWh saved.	NTE 50% of PC

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3. The Company may establish incentive tiers and/or incentive block structures within the performance incentives listed above for different end use technology or sub-measures (lighting, HVAC, etc.).

4. Unless otherwise stated, rebates will be limited by the project or equipment cost, where applicable.

Appendix C-3: Calculation Methods and Assumptions - Rebate Strategy

Cleveland Electric Illuminating						
Sector	Program	Sub-Program	Measure	Eligibility / Description	Rebate Strategy (All values are "up to" values) ^{1,2,3,4}	Qualifiers
Large Enterprise (Mercantile Utility)	C&I Energy Solutions for Business Program - Large	Custom Buildings - LCI	Custom - Energy Management - LCI	Installation of new energy management system in buildings to control lighting, hvac and other building systems.	\$0.10 per kWh saved.	
		Audits & Education - LCI	Audit - LCI	Comprehensive Energy Audit for commercial/industrial facilities or manufacturing processes recommending installation of efficient equipment, building shell/envelop improvements, manufacturing process changes, building operating changes, or other energy efficiency improvements. Audit must meet minimum audit requirements for buildings or for process equipment.	Up to 50% of Audit Cost plus up to remaining 50% of Audit Cost if audit recommended measures are installed	
			Energy Manager - LCI	Shared resource to provide energy consultative services to assess energy usage and to identify and promote low cost/no cost energy saving improvements and program opportunities.	NA	
			Benchmarking - LCI	Provides building owners and property managers with a quantitative analysis of their building's energy performance.	NA	
	C&I Demand Response Program - Large	Demand Response - LCI	LC&I Contracted DR - PJM	Large commercial, industrial and government customers participating in PJM programs and/or contracted curtailment attributes w/ curtailment providers and/or individual customers.	NA	
			ELR Interruptible Tariff	Large commercial, industrial and governmental customers on the Companies ELR tariff.	NA	
	Customer Action Program - LCI	Customer Action Program - LCI	Customer Action Program - LCI	NA	NA	
Government	Government Tariff Lighting Program	Government Tariff Lighting	LED - Traffic Signals - Gov	Replacement of incandescent traffic & pedestrian signals with LED signals.	\$90	per signal
			Street & Area Lighting (Tariff / Utility Owned) - Gov	Replacement or new installation of Street and Area lighting equipment to a greater efficiency than existing or designed.	NA	
			Street & Area Lighting (Tariff / Customer Owned) - Gov	Replacement or new installation of Street and Area lighting equipment to a greater efficiency than existing or designed.	\$220	per fixture
Mercantile	Mercantile Customer Program	Mercantile	Mercantile Customer Projects	Self directed projects completed by large commercial and industrial mercantile customers.	NA	

1. The Company may provide tiered rebate amounts within the incentive ranges listed above for qualifying products that have varying characteristics (e.g. size, features, etc.).

2. The Company may provide prescriptive rebates in lieu of the performance incentives listed above for certain measures and/or applications where the prescriptive value is within the equivalent performance incentive range.

3. The Company may establish incentive tiers and/or incentive block structures within the performance incentives listed above for different end use technology or sub-measures (lighting, HVAC, etc).

4. Unless otherwise stated, rebates will be limited by the project or equipment cost, where applicable.

Appendix C-3: Calculation Methods and Assumptions - Rebate Strategy

Cleveland Electric Illuminating						
Sector	Program	Sub-Program	Measure	Eligibility / Description	Rebate Strategy (All values are "up to" values) ^{1,2,3,4}	Qualifiers
Other	Transmission & Distribution Upgrades	T&D Upgrades	Transmission & Distribution Upgrades	Transmission and distribution system improvements that results in electric energy savings.	NA	
	Smart Grid Modernization Initiative	Smart Grid	Smart Grid Modernization Initiative	Smart Grid Modernization initiatives that results in electric energy savings.	NA	
	Energy Special Improvement District	Energy Special Improvement District	Energy Special Improvement District	Electric energy savings resulting from projects completed as part of an Energy Special Improvement District.	NA	

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2. The Company may provide prescriptive rebates in lieu of the performance incentives listed above for certain measures and/or applications where the prescriptive value is within the equivalent performance incentive range.
3. The Company may establish incentive tiers and/or incentive block structures within the performance incentives listed above for different end use technology or sub-measures (lighting, HVAC, etc).
4. Unless otherwise stated, rebates will be limited by the project or equipment cost, where applicable.

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PUCO 1: Portfolio Summary of Lifetime Costs and Benefits

Cleveland Electric Illuminating Portfolio Summary of Lifetime Costs and Benefits Net Lifetime Benefits, and TRC per the California Standard Practice Manual					
Portfolio	Discount Rate	Total Discounted Lifetime Costs (\$000) ¹	Total Discounted Lifetime Benefits (\$000)	Total Discounted Net Lifetime Benefits (\$000)	Cost- Benefit Ratio (TRC)
Residential (inclusive of Low- Income)	8.48%	56,329	74,971	18,642	1.3
Small Enterprise	8.48%	73,200	109,290	36,090	1.5
Mercantile	8.48%	731	26,672	25,942	36.5
Mercantile-Utility (Large Enterprise)	8.48%	36,267	54,115	17,848	1.5
Governmental	8.48%	971	978	7	1.0
Other	8.48%	14	-	(14)	N/A
Total	8.48%	167,512	266,026	98,515	1.6

1. Includes certain costs outside of Plan budgets according to the Stipulated ESPIV.

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PUCO 2: Summary of Portfolio Energy and Demand Savings

Cleveland Electric Illuminating Summary of Portfolio Energy and Demand Savings						
MWh Saved for Consumption Reductions kW Saved for Peak Load Reductions	Program Year 2017		Program Year 2018		Program Year 2019	
	MWh Saved	KW Saved ¹	MWh Saved	KW Saved ¹	MWh Saved	KW Saved ¹
Residential Sector (inclusive of Low- Income) - Cumulative Projected Portfolio Savings	69,343	13,658	146,625	25,330	226,064	37,419
Small Enterprise - Cumulative Projected Portfolio Savings	60,104	9,904	133,463	21,542	206,821	33,189
Mercantile - Cumulative Projected Portfolio Savings	35,562	4,327	53,344	6,491	71,126	8,655
Mercantile-Utility (Large Enterprise) - Cumulative Projected Portfolio Savings	33,604	194,335	66,601	198,934	101,211	203,809
Government Sector - Cumulative Projected Portfolio Savings	279	6	794	11	1,309	17
Other - Cumulative Projected Portfolio Savings	2,500	285	4,700	537	6,900	788
Portfolio Plan Total - Cumulative Projected Savings	201,393	222,516	405,527	252,845	613,430	283,876
Cumulative Results projected through 2016 (Appendix A-2)	1,589,391	232,737	1,589,391	232,737	1,589,391	232,737
Total Cumulative Projected Savings	1,790,785	455,253	1,994,918	485,582	2,202,821	516,613
SB 310 Target (Table 3)	979,930	212,500	1,157,166	241,200	1,334,635	269,600
% (Over / Under)	183%	214%	172%	201%	165%	192%

1. Includes coincident peak demand reductions for energy efficiency and excludes interruptible demand reductions achieved in previous years.

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PUCO 3: Summary of Portfolio Costs

Cleveland Electric Illuminating Summary of Portfolio Costs			
	Program Year 2017	Program Year 2018	Program Year 2019
	Portfolio Budget (\$)	Portfolio Budget (\$)	Portfolio Budget (\$)
Residential Portfolio (inclusive of Low-Income) Annual Budget	12,292,756	11,985,019	12,500,090
Small Enterprise Portfolio Annual Budget	11,908,203	12,626,429	12,714,740
Mercantile Portfolio Annual Budget	353,291	212,458	213,791
Mercantile-Utility (Large Enterprise) Portfolio Annual Budget	5,228,168	4,763,201	5,114,805
Government Portfolio Annual Budget	134,442	203,481	203,935
Other Portfolio Annual Budget	5,000	5,000	5,000
Total Portfolio Annual Budget	29,921,860	29,795,587	30,752,360

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PUCO 4: Program Summaries

Cleveland Electric Illuminating - Program Summaries								
	EE Program (check box)	PDR Program (check box)	Program Name	Program Market	Program Two Sentence Summary	Net Lifetime MWh Savings	Net Peak Demand kW Savings	Percentage of Portfolio and Total Lifetime MWh savings %
Residential Portfolio Programs (inclusive of Low Income)		X	Residential Demand Response Program	Res	The program consists of a customer having their central air conditioning compressor cycled during summer peak load periods.	-	8,591	0.0%
	X		Appliance Turn In Program	Res	This program provides rebates and removal and recycle services to consumers for turning in working appliances.	227,311	42,385	12.5%
	X		Energy Efficient Products Program	Res	This program promotes the purchase of energy efficient products, such as HVAC equipment, appliances, lighting, home electronics and other energy saving home products, through consumer rebates or incentives and support to retailers and manufacturers.	960,311	123,967	52.8%
	X		Energy Efficient Homes Program	Res	This program provides customers with energy efficiency education and awareness along with measures and incentives to improve energy efficiency of homes.	526,999	72,650	29.0%
	X		Low Income Energy Efficiency Program	LI Res	The low-income program provides weatherization services, home audits and installation of energy efficiency measures for low-income customers under the Community Connections sub-program. The program also provides incentives for the construction of new energy efficient housing or major rehabilitation of existing housing for low-income customers.	64,309	7,643	3.5%
	X		Customer Action Program - Res	Res	The program captures energy savings and peak demand reductions achieved through actions taken by customers outside of utility-administered programs pursuant to R.C. 4928.662	38,980	4,450	2.1%
	Total for Plan					1,817,911	259,685	27.7%

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PUCO 4: Program Summaries

Cleveland Electric Illuminating - Program Summaries								
	EE Program (check box)	PDR Program (check box)	Program Name	Program Market	Program Two Sentence Summary	Net Lifetime MWh Savings	Net Peak Demand kW Savings	Percentage of Portfolio and Total Lifetime MWh savings %
Small Enterprise	X		C&I Energy Solutions for Business Program - Small	Small C&I	This program provides measures and financial incentives (prescriptive & performance) to small commercial and industrial customers, including small government and institutional customers, to purchase qualifying high efficiency measures, recycle inefficient appliances, retrofit specialized processes, applications or end uses to higher efficiency processes, applications and end-uses, complete qualifying high efficiency building shell or system improvements, to complete an audit with qualifying audit installations or recommendations and to achieve energy savings by adapting energy saving behaviors through energy management strategies.	2,451,321	416,561	98.9%
	X		Customer Action Program - SCI	Small C&I	The program captures energy savings and peak demand reductions achieved through actions taken by customers outside of utility-administered programs pursuant to R.C. 4928.662	27,624	3,153	1.1%
	Total for Plan					2,478,945	419,714	37.8%

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PUCO 4: Program Summaries

Cleveland Electric Illuminating - Program Summaries								
	EE Program (check box)	PDR Program (check box)	Program Name	Program Market	Program Two Sentence Summary	Net Lifetime MWh Savings	Net Peak Demand kW Savings	Percentage of Portfolio and Total Lifetime MWh savings %
Mercantile	X		Mercantile Customer Program	Large C&I	Captures energy efficiency and peak demand reduction projects committed to the Company by Mercantile customers as provided for by O.R.C. 4928.01 and 4928.66	711,257	86,549	100.0%
	Total for Plan					711,257	86,549	10.8%
Mercantile-Utility (Large Enterprise)		X	C&I Demand Response Program - Large	Large C&I	The program captures load curtailment and curtailable capacity from the Companies' Interruptible Load Program (Economic Load Response Rider) and from additional demand resources including resources participating in the PJM market or through contracts for demand response attributes with customers or PJM CSPs.	-	569,160	0.0%
	X		C&I Energy Solutions for Business Program - Large	Large C&I	This program provides measures and financial incentives (prescriptive & performance) to small commercial and industrial customers, including small government and institutional customers, to purchase qualifying high efficiency measures, recycle inefficient appliances, retrofit specialized equipment, processes, applications or end uses to higher efficiency equipment, processes, applications and end-uses, complete qualifying high efficiency building shell or system improvements, to complete an audit with qualifying audit installations or recommendations and to achieve energy savings by adapting energy saving behaviors through energy management strategies.	1,348,602	191,753	93.6%
	X		Customer Action Program - LCI	Large C&I	The program captures energy savings and peak demand reductions achieved through actions taken by customers outside of utility-administered programs pursuant to R.C. 4928.662	91,521	10,448	6.4%
	Total for Plan					1,440,123	771,361	21.9%

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PUCO 4: Program Summaries

Cleveland Electric Illuminating - Program Summaries								
	EE Program (check box)	PDR Program (check box)	Program Name	Program Market	Program Two Sentence Summary	Net Lifetime MWh Savings	Net Peak Demand kW Savings	Percentage of Portfolio and Total Lifetime MWh savings %
Government Portfolio Programs	X		Government Tariff Lighting Program	Gov't	The program provides financial incentives and support to customers for implementing energy efficient street lighting or traffic lighting technologies on customer owned and maintained installations.	13,092	168	100.0%
	Total for Plan					13,092	168	0.2%
Other	X		Transmission & Distribution Upgrades	T&D	Capture savings achieved through various T&D projects that reduce line losses, which in turn results in a more efficient delivery system.	103,500	11,815	100.0%
	X		Smart Grid Modernization Initiative	T&D	Captures energy savings from the project to produce an integrated system of protection, performance, efficiency and economy that extends across the energy delivery system.	-	-	0.0%
	X		Energy Special Improvement District	T&D	Incorporation of State Legislation that permits Ohio townships and municipalities to create Energy Special Improvement Districts offering constituents Property Assessed Clean Energy (PACE) financing for qualifying energy efficiency projects.	-	-	0.0%
	Total for Plan					103,500	11,815	1.6%

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PUCO 5: Budget and Parity Analysis Summary

Cleveland Electric Illuminating						
Customer Class	3 Year Budget	% of Total EDC Budget	% of Total Budget of Customer Programs	2015 Revenue by Customer Class	% of Total Customer Revenue	Difference
Residential <i>(inclusive of Low-Income)</i>	36,777,865					
Residential Subtotal	36,777,865	40.7%	40.7%	422,282,243	44.4%	-4%
Small Enterprise	37,249,372					
Small Enterprise Total	37,249,372	41.2%	41.2%	381,892,290	40.2%	1%
Mercantile-Utility (Large Enterprise)	15,106,174					
Mercantile	779,539					
Mercantile Subtotal	15,885,713	17.6%	17.6%	125,981,150	13.3%	4%
Government	541,857	0.6%	0.6%	20,016,445	2.1%	-2%
Other	15,000	0.0%	0.0%			
EDC TOTAL	90,469,807	100%	100%	950,172,128	100%	

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PUCO 5A: Energy Savings and Parity Analysis Summary

Cleveland Electric Illuminating						
Customer Class	3 Year Cumulative Energy Savings (MWh)	% of Total EDC Energy Savings	% of Total Energy Savings of Customer Programs	2015 Sales by Customer Class (MWh)	% of Total Customer Sales	Difference
Residential	226,064					
Residential Subtotal	226,064	36.9%	36.9%	5,489,972	29.7%	7%
Small Enterprise	206,821					
Small Enterprise Total	206,821	33.7%	33.7%	6,547,941	35.4%	-2%
Mercantile-Utility (Large Enterprise)	101,211					
Mercantile	71,126					
Mercantile Subtotal	172,336	28.1%	28.1%	6,322,770	34.2%	-6%
Government	1,309	0.2%	0.2%	141,303	0.8%	-1%
Other	6,900	1.1%	1.1%			
EDC TOTAL	613,430	100%	100%	18,501,986	100%	

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PUCO 6A: Portfolio-Specific Assignment of EE&C Costs

Cleveland Electric Illuminating Residential Portfolio (including Low-Income)			
EE&C Program	Cost Elements (\$)		
	Total Incentives	Operations Costs	Total Budget (2017-2019)
Peak Demand Reduction Programs			
Residential Demand Response Program	0	539,476	539,476
Peak Demand Reduction Program Subtotal	0	539,476	539,476
Energy Efficiency Programs			
Appliance Turn In Program	1,371,558	4,333,809	5,705,367
Energy Efficient Products Program	8,847,825	2,484,479	11,332,304
Energy Efficient Homes Program	10,285,472	6,194,602	16,480,074
Low Income Energy Efficiency Program	16,934	436,150	453,084
Customer Action Program - Res	0	308,118	308,118
EE Program Subtotal	20,521,790	13,757,158	34,278,948
Totals	20,521,790	14,296,634	34,818,423

Cleveland Electric Illuminating Small Enterprise			
EE&C Program	Cost Elements (\$)		
	Total Incentives	Operations Costs	Total Budget (2017-2019)
C&I Energy Solutions for Business Program - Small	20,693,681	13,966,688	34,660,368
Customer Action Program - SCI	0	661,532	661,532
Totals	20,693,681	14,628,219	35,321,900

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PUCO 6A: Portfolio-Specific Assignment of EE&C Costs

Cleveland Electric Illuminating Mercantile			
EE&C Program	Cost Elements (\$)		
	<i>Total Incentives</i>	<i>Operations Costs</i>	<i>Total Budget (2017-2019)</i>
Mercantile Customer Program	0	284,984	284,984
Totals	0	284,984	284,984

Cleveland Electric Illuminating Mercantile Utility (Large Enterprise)			
EE&C Program	Cost Elements (\$)		
	<i>Total Incentives</i>	<i>Operations Costs</i>	<i>Total Budget (2017-2019)</i>
Peak Demand Reduction Programs			
C&I Demand Response Program - Large	0	600	600
Peak Demand Reduction Program Subtotal	0	600	600
Energy Efficiency Programs			
C&I Energy Solutions for Business Program - Large	7,820,484	5,530,168	13,350,652
Customer Action Program - LCI	0	389,123	389,123
EE Program Subtotal	7,820,484	5,919,291	13,739,775

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PUCO 6A: Portfolio-Specific Assignment of EE&C Costs

Cleveland Electric Illuminating Government			
EE&C Program	Cost Elements (\$)		
	<i>Total Incentives</i>	<i>Operations Costs</i>	<i>Total Budget (2017-2019)</i>
Government Tariff Lighting Program	370,750	129,275	500,025
Totals	370,750	129,275	500,025

Cleveland Electric Illuminating Other			
EE&C Program	Cost Elements (\$)		
	<i>Total Incentives</i>	<i>Operations Costs</i>	<i>Total Budget (2017-2019)</i>
Transmission & Distribution Upgrades	0	0	0
Smart Grid Modernization Initiative	0	0	0
Energy Special Improvement District	0	0	0
Totals	0	0	0

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PUCO 6B: Allocation of Common Costs to Applicable Customer Sector

Cleveland Electric Illuminating										
Common Cost Element	EE Program (check box)	PDR Program (check box)	Total Cost (\$)	Basis for Cost Allocation	Class Cost Allocaton (\$)					
					Residential (Including Low-Income)	Small Enterprise (Small C&I)	Mercantile	Mercantile-Utility (Large C&I)	Other	Government
Utility Administration	X	X	\$2,885,783	FERC Form 1 Sales	\$1,014,324	\$930,453	\$238,738	\$667,074	\$15,000	\$20,194
Tracking and Reporting	X	X	\$1,327,289	FERC Form 1 Sales	\$440,690	\$447,981	\$114,944	\$313,951	\$0	\$9,723
Other	X	X	\$1,591,028	FERC Form 1 Sales	\$504,427	\$549,038	\$140,873	\$384,773	\$0	\$11,916
Totals			\$5,804,099		\$1,959,441	\$1,927,472	\$494,555	\$1,365,799	\$15,000	\$41,833

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PUCO 6C: Summary of Portfolio EE&C Costs

Cleveland Electric Illuminating	Total Sector Portfolio-specific Costs	Total Common Costs	Total of All Costs
Residential (Including Low-Income)	\$34,818,423	\$1,959,441	\$36,777,865
Small Enterprise	\$35,321,900	\$1,927,472	\$37,249,372
Mercantile	\$284,984	\$494,555	\$779,539
Mercantile-Utility (Large Enterprise)	\$13,740,375	\$1,365,799	\$15,106,174
Other	\$0	\$15,000	\$15,000
Government	\$500,025	\$41,833	\$541,857
Totals	\$84,665,708	\$5,804,099	\$90,469,807

Appendix C-4

PUCO 7A-B: TRC Benefits Table - Residential

Residential (inclusive of Low- Income)	Cleveland Electric Illuminating TRC Benefits By Program Per Year (\$000)												
Program	Program Year	TRC	Program Costs	Program Benefits	Capacity Benefits	Energy Benefits	Load Reductions in kW		MWh Saved				
							Annual	Lifetime	Annual	Lifetime			
Residential Demand Response Program	2017		202	206			2,893		0				
	2018		199	261			2,864		0				
	2019		203	312			2,835		0				
	Total	1.3	559	712	712	-		8,591		0			
Appliance Turn In Program	2017		1,628	531			2,141		9,359				
	2018		1,557	1,153			4,283		18,717				
	2019		1,670	1,922			6,599		28,841				
	Total	2.3	4,482	10,458	3,536	6,921		42,385		227,311			
Energy Efficient Products Program	2017		9,107	1,099			2,789		20,766				
	2018		9,734	2,550			6,022		45,735				
	2019		10,056	4,166			9,272		70,366				
	Total	1.3	26,625	35,108	8,750	24,458		123,967		960,311			
Energy Efficient Homes Program	2017		6,448	1,814			5,253		34,173				
	2018		6,046	3,513			11,120		73,163				
	2019		6,387	5,283			17,285		114,534				
	Total	1.4	17,450	24,613	6,074	16,707		72,650		526,999			
Low Income Energy Efficiency Program	2017		2,441	130			311		2,664				
	2018		2,397	274			622		5,328				
	2019		2,398	434			932		7,992				
	Total ³	0.4	6,688	2,581	627	1,954		7,643		64,309			
Customer Action Program - Res	2017		231	113			272		2,382				
	2018		180	184			420		3,681				
	2019		151	227			494		4,331				
	Total	2.9	525	1,500	317	1,183		4,450		38,980			
Total							1.3	56,329	74,971	20,016	51,224	259,685	1,817,911
1: Generation, Transmission and Distribution Capacity costs are combined in a sum of avoided capacity costs.													
2: The on and off peak energy costs are combined in a sum of avoided energy costs.													
3: Includes cost for the OPAE Community Connections program according to the Stipulated ESPIV.													

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PUCO 7C: TRC Benefits Table - Small Enterprise

Small Enterprise	Cleveland Electric Illuminating TRC Benefits By Program Per Year (\$000)										
Program	Program Year	TRC	Program Costs	Program Benefits	Capacity Benefits	Energy Benefits	Load Reductions in kW		MWh Saved		
							Annual	Lifetime	Annual	Lifetime	
C&I Energy Solutions for Business Program - Small	2017		24,415	3,643			9,770		58,935		
	2018		26,259	8,485			21,336		131,657		
	2019		26,786	13,440			32,947		204,696		
	Total	1.5	71,711	108,326	29,756	64,404		416,561		2,451,321	
Customer Action Program - SCI	2017		255	56			133		1,169		
	2018		254	91			206		1,806		
	2019		255	113			243		2,125		
	Total	1.4	706	964	205	759		3,153		27,624	
Total ³							419,714				2,478,945
1: Generation, Transmission and Distribution Capacity costs are combined in a sum of avoided capacity costs.											
2: The on and off peak energy costs are combined in a sum of avoided energy costs.											
3: Includes cost for the COSE Ohio Energy Efficiency Program and Administrator payments, and the AICUO Efficiency Resource Program and Administrator payments according to the Stipulated ESPIV.											

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PUCO 7D: TRC Benefits Table - Mercantile

Mercantile	Cleveland Electric Illuminating TRC Benefits By Program Per Year (\$000)									
Program	Program Year	TRC	Program Costs	Program Benefits	Capacity Benefits	Energy Benefits	Load Reductions in kW		MWh Saved	
							Annual	Lifetime	Annual	Lifetime
Mercantile Customer Program	2017		353	1,707			4,327		35,562	
	2018		212	2,685			6,491		53,344	
	2019		214	3,768			8,655		71,126	
	Total		36.5	731			26,672		5,637	
Total		36.5	731	26,672	5,637	21,035	86,549		711,257	
<div>1: Generation, Transmission and Distribution Capacity costs are combined in a sum of avoided capacity costs.</div> <div>2: The on and off peak energy costs are combined in a sum of avoided energy costs.</div>										

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PUCO 7E: TRC Benefits Table - Mercantile Utility (Large Enterprise)

Mercantile Utility (Large Enterprise)	Cleveland Electric Illuminating TRC Benefits By Program Per Year (\$000)									
Program	Program Year	TRC	Program Costs	Program Benefits	Capacity Benefits	Energy Benefits	Load Reductions in kW		MWh Saved	
							Annual	Lifetime	Annual	Lifetime
C&I Demand Response Program - Large	2017		5				189,720		0	
	2018		5				189,720		0	
	2019		5				189,720		0	
	Total	N/A	14					569,160		0
C&I Energy Solutions for Business Program - Large	2017		12,181	1,620			4,173		29,732	
	2018		11,966	3,501			8,531		60,617	
	2019		13,134	5,752			13,285		94,171	
	Total	1.5	34,373	50,922	13,428	34,380		191,753		1,348,602
Customer Action Program - LCI	2017		839	186			442		3,872	
	2018		531	301			683		5,984	
	2019		347	373			804		7,040	
	Total	2.0	1,623	3,193	679	2,514		10,448		91,521
Total ³		1.5	36,267	54,115	14,107	36,894	771,361		1,440,123	
1: Generation, Transmission and Distribution Capacity costs are combined in a sum of avoided capacity costs.										
2: The on and off peak energy costs are combined in a sum of avoided energy costs.										
3: Includes cost for the AICUO Efficiency Resource Program and Administrator payments according to the Stipulated ESPIV.										

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PUCO 7F: TRC Benefits Table - Government

Government	Cleveland Electric Illuminating TRC Benefits By Program Per Year (\$000)									
Program	Program Year	TRC	Program Costs	Program Benefits	Capacity Benefits	Energy Benefits	Load Reductions in		MWh Saved	
							Annual	Lifetime	Annual	Lifetime
Government Tariff Lighting Program	2017		242	37			6		279	
	2018		411	92			11		794	
	2019		411	147			17		1,309	
	Total	1.0	971	978			13		342	
Total		1.0	971	978	13	342	168		13,092	
1: Generation, Transmission and Distribution Capacity costs are combined in a sum of avoided capacity costs.										
2: The on and off peak energy costs are combined in a sum of avoided energy costs.										

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PUCO 7G: TRC Benefits Table - Other

Other	Cleveland Electric Illuminating TRC Benefits By Program Per Year (\$000)									
Program	Program Year	TRC	Program Costs	Program Benefits	Capacity Benefits	Energy Benefits	Load Reductions in kW		MWh Saved	
							Annual	Lifetime	Annual	Lifetime
Transmission & Distribution Upgrades	2017		5				285		2,500	
	2018		5				537		4,700	
	2019		5				788		6,900	
	Total	N/A	14						11,815	
Smart Grid Modernization Initiative	2017		-	-			0		0	
	2018		-	-			0		0	
	2019		-	-			0		0	
	Total	N/A	-	-			-		-	
Energy Special Improvement District	2017		-	-			0		0	
	2018		-	-			0		0	
	2019		-	-			0		0	
	Total	N/A	-	-			-		-	
Total		0.0	14	-	-	-	11,815		103,500	
1: Generation, Transmission and Distribution Capacity costs are combined in a sum of avoided capacity costs.										
2: The on and off peak energy costs are combined in a sum of avoided energy costs.										

Toledo Edison - Appendix A: Results of Existing Plan

Appendix A-1 Summary Annualized Energy and Demand Portfolio Impacts, 2009 - 2015

Cumulative 2009 - 2015 Energy Efficiency and Peak Demand Reduction Results		
Utility	Energy Savings, MWh^{1, 2}	Coincident Peak Demand Reductions, MW^{1, 2, 3}
OE	1,741,966	287
CEI	1,504,135	221
TE	702,081	119
TOTAL	3,948,182	627
<p>¹ Includes preliminary estimate of cumulative 2013-2015 Portfolio Results plus results of the Companies' 2009-2012 Portfolio progress. Also includes projects pending PUCO approval 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.</p> <p>² 2015 values are based on preliminary estimates. Values shown through 2014 are based on the Companies' Annual Compliance Filings.</p> <p>³ Includes coincident peak demand reductions for energy efficiency and excludes interruptible demand reductions.</p>		

Appendix A-2 Summary Annualized Energy and Demand Portfolio Impacts

2016 Projection Energy Efficiency and Incremental Coincident Peak Demand Reduction Results		
Utility	Energy Savings, MWh ¹	Coincident Peak Demand Reductions, MW ^{1, 2}
OE	126,329	21
CEI	85,256	12
TE	44,976	7
TOTAL	256,561	39
¹ Values shown are preliminary estimates and include projections for the Companies existing Low Income Program, Mercantile Customer Program, Transmission and Distribution Savings and Customer Action Program. ² Includes coincident peak demand reductions for energy efficiency and excludes interruptible demand reductions.		

Cumulative EOY 2016 Estimated Energy Efficiency and Coincident Peak Demand Reduction Results ¹		
Utility	Energy Savings, MWh	Coincident Peak Demand Reductions, MW ²
OE	1,868,294	308
CEI	1,589,391	233
TE	747,057	126
TOTAL	4,204,743	666
¹ Sum of Appendix A-1 and 2016 Projection ² Includes coincident peak demand reductions for energy efficiency and excludes interruptible demand reductions.		

Toledo Edison - Appendix B: Portfolio Budget Detail

Appendix B-1: Program Cost by Program Year

Toledo Edison - Program Year 2017					
Sector	Program	Sub-Program	Operations	Incentives	Total
Residential	Appliance Turn In Program	Appliance Turn In	\$724,005	\$182,248	\$906,253
		Sub-Total	\$724,005	\$182,248	\$906,253
	Energy Efficient Homes Program	School Education	\$186,725	\$172,555	\$359,279
		EE Kits	\$232,079	\$905,265	\$1,137,343
		Audits & Education	\$322,746	\$193,538	\$516,283
		Behavioral	\$396,582	\$0	\$396,582
		Smart Thermostat	\$55,207	\$146,200	\$201,407
		Sub-Total	\$1,193,338	\$1,417,557	\$2,610,895
	Energy Efficient Products Program	Appliances	\$29,826	\$187,867	\$217,693
		Consumer Electronics	\$21,188	\$48,455	\$69,644
		Lighting	\$423,940	\$407,098	\$831,038
		HVAC	\$102,268	\$468,875	\$571,143
	Sub-Total	\$577,223	\$1,112,295	\$1,689,518	
	Customer Action Program - Res	Customer Action Program - Res	\$92,895	\$0	\$92,895
		Sub-Total	\$92,895	\$0	\$92,895
Residential Demand Response Program	Direct Load Control	\$55,007	\$0	\$55,007	
	Sub-Total	\$55,007	\$0	\$55,007	
Low Income Energy Efficiency Program	Community Connections	\$131,951	\$0	\$131,951	
	LI - New Homes	\$31,941	\$2,509	\$34,450	
	Sub-Total	\$163,893	\$2,509	\$166,402	
Residential Total			\$2,806,360	\$2,714,608	\$5,520,968
Small Enterprise	C&I Energy Solutions for Business Program - Small	HVAC - SCI	\$68,302	\$139,398	\$207,700
		Lighting - SCI	\$366,012	\$787,123	\$1,153,135
		Food Service	\$32,183	\$47,686	\$79,870
		Appliance Turn In - SCI	\$24,582	\$3,579	\$28,161
		Appliances - SCI	\$32,809	\$8,550	\$41,359
		Consumer Electronics - SCI	\$28,773	\$3,665	\$32,438
		Agricultural	\$40,093	\$10,822	\$50,915
		Data Centers - SCI	\$85,148	\$53,873	\$139,021
		Custom - SCI	\$307,521	\$570,403	\$877,925
		Retro - Commissioning - SCI	\$112,225	\$129,059	\$241,283
		Custom Buildings - SCI	\$168,809	\$229,026	\$397,835
		Audits & Education - SCI	\$1,103,095	\$1,204,808	\$2,307,903
		Sub-Total	\$2,369,553	\$3,187,992	\$5,557,545
	Customer Action Program - SCI	Customer Action Program - SCI	\$84,626	\$0	\$84,626
		Sub-Total	\$84,626	\$0	\$84,626
		Small C&I Total		\$2,454,179	\$3,187,992
	Large Enterprise (Mercantile Utility)	C&I Energy Solutions for Business Program - Large	HVAC - LCI	\$220,792	\$128,694
Lighting - LCI			\$282,464	\$219,089	\$501,553
Data Centers - LCI			\$201,886	\$62,589	\$264,475
Custom - LCI			\$963,341	\$1,162,286	\$2,125,627
Retro - Commissioning - LCI			\$122,171	\$39,710	\$161,881
Custom Buildings - LCI			\$279,526	\$238,889	\$518,416
Audits & Education - LCI			\$444,641	\$86,400	\$531,041
Sub-Total			\$2,514,822	\$1,937,657	\$4,452,480
C&I Demand Response Program - Large		Demand Response - LCI	\$5,200	\$0	\$5,200
		Sub-Total	\$5,200	\$0	\$5,200
Customer Action Program - LCI		Customer Action Program - LCI	\$84,073	\$0	\$84,073
		Sub-Total	\$84,073	\$0	\$84,073
		Large C&I Total		\$2,604,095	\$1,937,657
Government	Government Tariff Lighting Program	Government Tariff Lighting	\$19,605	\$3,600	\$23,205
		Sub-Total	\$19,605	\$3,600	\$23,205
Non - Residential Total			\$5,077,879	\$5,129,249	\$10,207,128
Mercantile	Mercantile Customer Program	Mercantile	\$107,070	\$0	\$107,070
		Sub-Total	\$107,070	\$0	\$107,070
Mercantile Total			\$107,070	\$0	\$107,070
Other	Transmission & Distribution Upgrades	T&D Upgrades	\$5,000	\$0	\$5,000
		Sub-Total	\$5,000	\$0	\$5,000
	Smart Grid Modernization Initiative	Smart Grid	\$0	\$0	\$0
		Sub-Total	\$0	\$0	\$0
	Energy Special Improvement District	Energy Special Improvement District	\$0	\$0	\$0
		Sub-Total	\$0	\$0	\$0
Other Total			\$5,000	\$0	\$5,000
Total			\$7,996,309	\$7,843,857	\$15,840,166

Appendix B-1: Program Cost by Program Year

Toledo Edison - Program Year 2018					
Sector	Program	Sub-Program	Operations	Incentives	Total
Residential	Appliance Turn In Program	Appliance Turn In	\$691,293	\$182,248	\$873,541
		Sub-Total	\$691,293	\$182,248	\$873,541
	Energy Efficient Homes Program	School Education	\$146,584	\$172,555	\$319,138
		EE Kits	\$176,638	\$905,265	\$1,081,902
		Audits & Education	\$281,850	\$193,538	\$475,388
		Behavioral	\$287,534	\$0	\$287,534
		Smart Thermostat	\$50,667	\$146,200	\$196,867
		Sub-Total	\$943,272	\$1,417,557	\$2,360,829
	Energy Efficient Products Program	Appliances	\$24,240	\$187,867	\$212,107
		Consumer Electronics	\$18,205	\$48,455	\$66,660
		Lighting	\$358,049	\$545,560	\$903,609
		HVAC	\$95,944	\$468,875	\$564,819
		Sub-Total	\$496,438	\$1,250,757	\$1,747,196
	Customer Action Program - Res	Customer Action Program - Res	\$92,486	\$0	\$92,486
		Sub-Total	\$92,486	\$0	\$92,486
	Residential Demand Response Program	Direct Load Control	\$54,485	\$0	\$54,485
Sub-Total		\$54,485	\$0	\$54,485	
Low Income Energy Efficiency Program	Community Connections	\$119,370	\$0	\$119,370	
	LI - New Homes	\$18,824	\$2,509	\$21,332	
	Sub-Total	\$138,193	\$2,509	\$140,702	
Residential Total			\$2,416,168	\$2,853,071	\$5,269,238
Small Enterprise	C&I Energy Solutions for Business Program - Small	HVAC - SCI	\$56,360	\$140,752	\$197,112
		Lighting - SCI	\$372,250	\$866,031	\$1,238,281
		Food Service	\$21,870	\$54,260	\$76,129
		Appliance Turn In - SCI	\$13,349	\$3,963	\$17,311
		Appliances - SCI	\$22,430	\$9,585	\$32,015
		Consumer Electronics - SCI	\$18,092	\$4,211	\$22,303
		Agricultural	\$29,274	\$11,268	\$40,542
		Data Centers - SCI	\$86,915	\$61,513	\$148,428
		Custom - SCI	\$309,946	\$624,015	\$933,961
		Retro - Commissioning - SCI	\$111,504	\$138,986	\$250,490
		Custom Buildings - SCI	\$173,412	\$252,072	\$425,484
		Audits & Education - SCI	\$1,312,415	\$1,389,254	\$2,701,669
		Sub-Total	\$2,527,817	\$3,555,910	\$6,083,726
	Customer Action Program - SCI	Customer Action Program - SCI	\$84,052	\$0	\$84,052
		Sub-Total	\$84,052	\$0	\$84,052
	Small C&I Total			\$2,611,869	\$3,555,910
Large Enterprise (Mercantile Utility)	C&I Energy Solutions for Business Program - Large	HVAC - LCI	\$144,173	\$129,045	\$273,218
		Lighting - LCI	\$219,278	\$256,817	\$476,095
		Data Centers - LCI	\$157,632	\$62,589	\$220,220
		Custom - LCI	\$715,784	\$1,162,286	\$1,878,069
		Retro - Commissioning - LCI	\$81,906	\$39,710	\$121,616
		Custom Buildings - LCI	\$231,698	\$238,889	\$470,587
		Audits & Education - LCI	\$347,562	\$86,400	\$433,962
		Sub-Total	\$1,898,033	\$1,975,736	\$3,873,768
	C&I Demand Response Program - Large	Demand Response - LCI	\$5,200	\$0	\$5,200
		Sub-Total	\$5,200	\$0	\$5,200
	Customer Action Program - LCI	Customer Action Program - LCI	\$82,370	\$0	\$82,370
		Sub-Total	\$82,370	\$0	\$82,370
Large C&I Total			\$1,985,603	\$1,975,736	\$3,961,339
Government	Government Tariff Lighting Program	Government Tariff Lighting	\$13,218	\$3,600	\$16,818
		Sub-Total	\$13,218	\$3,600	\$16,818
Non - Residential Total			\$4,610,690	\$5,535,246	\$10,145,936
Mercantile	Mercantile Customer Program	Mercantile	\$59,429	\$0	\$59,429
		Sub-Total	\$59,429	\$0	\$59,429
Mercantile Total			\$59,429	\$0	\$59,429
Other	Transmission & Distribution Upgrades	T&D Upgrades	\$5,000	\$0	\$5,000
		Sub-Total	\$5,000	\$0	\$5,000
	Smart Grid Modernization Initiative	Smart Grid	\$0	\$0	\$0
		Sub-Total	\$0	\$0	\$0
	Energy Special Improvement District	Energy Special Improvement District	\$0	\$0	\$0
		Sub-Total	\$0	\$0	\$0
Other Total			\$5,000	\$0	\$5,000
Total			\$7,091,287	\$8,388,316	\$15,479,603

Appendix B-1: Program Cost by Program Year

Toledo Edison - Program Year 2019					
Sector	Program	Sub-Program	Operations	Incentives	Total
Residential	Appliance Turn In Program	Appliance Turn In	\$738,662	\$197,134	\$935,796
		Sub-Total	\$738,662	\$197,134	\$935,796
	Energy Efficient Homes Program	School Education	\$149,498	\$172,555	\$322,053
		EE Kits	\$188,669	\$983,834	\$1,172,503
		Audits & Education	\$301,080	\$212,891	\$513,971
		Behavioral	\$286,584	\$0	\$286,584
		Smart Thermostat	\$50,205	\$146,200	\$196,405
		Sub-Total	\$976,036	\$1,515,480	\$2,491,516
	Energy Efficient Products Program	Appliances	\$25,055	\$195,900	\$220,955
		Consumer Electronics	\$19,483	\$53,294	\$72,777
		Lighting	\$358,161	\$513,319	\$871,480
		HVAC	\$98,204	\$500,005	\$598,209
	Sub-Total	\$500,903	\$1,262,517	\$1,763,420	
	Customer Action Program - Res	Customer Action Program - Res	\$92,775	\$0	\$92,775
		Sub-Total	\$92,775	\$0	\$92,775
Residential Demand Response Program	Direct Load Control	\$55,622	\$0	\$55,622	
	Sub-Total	\$55,622	\$0	\$55,622	
Low Income Energy Efficiency Program	Community Connections	\$119,678	\$0	\$119,678	
	LI - New Homes	\$19,211	\$2,509	\$21,720	
	Sub-Total	\$138,889	\$2,509	\$141,398	
Residential Total			\$2,502,887	\$2,977,640	\$5,480,527
Small Enterprise	C&I Energy Solutions for Business Program - Small	HVAC - SCI	\$56,936	\$141,892	\$198,828
		Lighting - SCI	\$369,002	\$860,330	\$1,229,332
		Food Service	\$22,270	\$54,260	\$76,530
		Appliance Turn In - SCI	\$14,613	\$4,346	\$18,960
		Appliances - SCI	\$23,288	\$10,183	\$33,472
		Consumer Electronics - SCI	\$18,509	\$4,312	\$22,821
		Agricultural	\$31,219	\$12,607	\$43,826
		Data Centers - SCI	\$87,005	\$61,513	\$148,517
		Custom - SCI	\$313,369	\$630,815	\$944,184
		Retro - Commissioning - SCI	\$134,197	\$168,769	\$302,966
		Custom Buildings - SCI	\$173,452	\$252,072	\$425,524
		Audits & Education - SCI	\$1,324,910	\$1,389,254	\$2,714,164
		Sub-Total	\$2,568,772	\$3,590,352	\$6,159,124
	Customer Action Program - SCI	Customer Action Program - SCI	\$84,458	\$0	\$84,458
		Sub-Total	\$84,458	\$0	\$84,458
		Small C&I Total		\$2,653,230	\$3,590,352
	Large Enterprise (Mercantile Utility)	C&I Energy Solutions for Business Program - Large	HVAC - LCI	\$147,943	\$135,103
Lighting - LCI			\$227,574	\$276,781	\$504,355
Data Centers - LCI			\$182,127	\$92,950	\$275,076
Custom - LCI			\$757,022	\$1,250,050	\$2,007,073
Retro - Commissioning - LCI			\$89,683	\$49,638	\$139,320
Custom Buildings - LCI			\$230,563	\$238,889	\$469,452
Audits & Education - LCI			\$352,125	\$86,400	\$438,525
Sub-Total			\$1,987,037	\$2,129,811	\$4,116,848
C&I Demand Response Program - Large		Demand Response - LCI	\$5,200	\$0	\$5,200
		Sub-Total	\$5,200	\$0	\$5,200
Customer Action Program - LCI		Customer Action Program - LCI	\$83,573	\$0	\$83,573
		Sub-Total	\$83,573	\$0	\$83,573
		Large C&I Total		\$2,075,810	\$2,129,811
Government	Government Tariff Lighting Program	Government Tariff Lighting	\$13,448	\$3,600	\$17,048
		Sub-Total	\$13,448	\$3,600	\$17,048
Non - Residential Total			\$4,742,487	\$5,723,763	\$10,466,250
Mercantile	Mercantile Customer Program	Mercantile	\$59,651	\$0	\$59,651
		Sub-Total	\$59,651	\$0	\$59,651
Mercantile Total			\$59,651	\$0	\$59,651
Other	Transmission & Distribution Upgrades	T&D Upgrades	\$5,000	\$0	\$5,000
		Sub-Total	\$5,000	\$0	\$5,000
	Smart Grid Modernization Initiative	Smart Grid	\$0	\$0	\$0
		Sub-Total	\$0	\$0	\$0
	Energy Special Improvement District	Energy Special Improvement District	\$0	\$0	\$0
		Sub-Total	\$0	\$0	\$0
Other Total			\$5,000	\$0	\$5,000
Total			\$7,310,025	\$8,701,403	\$16,011,428

Appendix B-1: Program Cost by Program Year

Toledo Edison - Program Year 2017 - 2019						
Sector	Program	Sub-Program	Operations	Incentives	Total	
Residential	Appliance Turn In Program	Appliance Turn In	\$2,153,960	\$561,630	\$2,715,590	
		Sub-Total	\$2,153,960	\$561,630	\$2,715,590	
	Energy Efficient Homes Program	School Education	\$482,807	\$517,664	\$1,000,471	
		EE Kits	\$597,385	\$2,794,363	\$3,391,749	
		Audits & Education	\$905,676	\$599,966	\$1,505,642	
		Behavioral	\$970,699	\$0	\$970,699	
		Smart Thermostat	\$156,078	\$438,600	\$594,678	
		Sub-Total	\$3,112,646	\$4,350,593	\$7,463,239	
	Energy Efficient Products Program	Appliances	\$79,122	\$571,634	\$650,755	
		Consumer Electronics	\$58,876	\$150,204	\$209,081	
		Lighting	\$1,140,150	\$1,465,977	\$2,606,127	
		HVAC	\$296,416	\$1,437,754	\$1,734,171	
	Sub-Total	\$1,574,564	\$3,625,569	\$5,200,133		
	Customer Action Program - Res	Customer Action Program - Res	\$278,155	\$0	\$278,155	
		Sub-Total	\$278,155	\$0	\$278,155	
	Residential Demand Response Program	Direct Load Control	\$165,115	\$0	\$165,115	
		Sub-Total	\$165,115	\$0	\$165,115	
Low Income Energy Efficiency Program	Community Connections	\$371,000	\$0	\$371,000		
	LI - New Homes	\$69,976	\$7,526	\$77,502		
	Sub-Total	\$440,975	\$7,526	\$448,502		
Residential Total			\$7,725,415	\$8,545,319	\$16,270,734	
Small Enterprise	C&I Energy Solutions for Business Program - Small	HVAC - SCI	\$181,599	\$422,042	\$603,641	
		Lighting - SCI	\$1,107,264	\$2,513,483	\$3,620,747	
		Food Service	\$76,324	\$156,205	\$232,529	
		Appliance Turn In - SCI	\$52,544	\$11,888	\$64,432	
		Appliances - SCI	\$78,527	\$28,319	\$106,846	
		Consumer Electronics - SCI	\$65,374	\$12,188	\$77,562	
		Agricultural	\$100,586	\$34,696	\$135,282	
		Data Centers - SCI	\$259,067	\$176,899	\$435,966	
		Custom - SCI	\$930,837	\$1,825,233	\$2,756,070	
		Retro - Commissioning - SCI	\$357,926	\$436,814	\$794,739	
		Custom Buildings - SCI	\$515,674	\$733,170	\$1,248,843	
		Audits & Education - SCI	\$3,740,420	\$3,983,316	\$7,723,736	
		Sub-Total	\$7,466,141	\$10,334,253	\$17,800,395	
	Customer Action Program - SCI	Customer Action Program - SCI	\$253,136	\$0	\$253,136	
		Sub-Total	\$253,136	\$0	\$253,136	
		Small C&I Total			\$7,719,278	\$10,334,253
	Large Enterprise (Mercantile Utility)	C&I Energy Solutions for Business Program - Large	HVAC - LCI	\$512,909	\$392,842	\$905,751
Lighting - LCI			\$729,316	\$752,687	\$1,482,003	
Data Centers - LCI			\$541,645	\$218,127	\$759,771	
Custom - LCI			\$2,436,147	\$3,574,622	\$6,010,769	
Retro - Commissioning - LCI			\$293,759	\$129,059	\$422,818	
Custom Buildings - LCI			\$741,787	\$716,668	\$1,458,455	
Audits & Education - LCI			\$1,144,329	\$259,200	\$1,403,529	
Sub-Total			\$6,399,892	\$6,043,204	\$12,443,096	
C&I Demand Response Program - Large		Demand Response - LCI	\$15,600	\$0	\$15,600	
		Sub-Total	\$15,600	\$0	\$15,600	
Customer Action Program - LCI		Customer Action Program - LCI	\$250,016	\$0	\$250,016	
		Sub-Total	\$250,016	\$0	\$250,016	
	Large C&I Total			\$6,665,508	\$6,043,204	\$12,708,712
Government	Government Tariff Lighting Program	Government Tariff Lighting	\$46,271	\$10,800	\$57,071	
		Sub-Total	\$46,271	\$10,800	\$57,071	
Non - Residential Total			\$14,431,057	\$16,388,258	\$30,819,314	
Mercantile	Mercantile Customer Program	Mercantile	\$226,149	\$0	\$226,149	
		Sub-Total	\$226,149	\$0	\$226,149	
Mercantile Total			\$226,149	\$0	\$226,149	
Other	Transmission & Distribution Upgrades	T&D Upgrades	\$15,000	\$0	\$15,000	
		Sub-Total	\$15,000	\$0	\$15,000	
	Smart Grid Modernization Initiative	Smart Grid	\$0	\$0	\$0	
		Sub-Total	\$0	\$0	\$0	
	Energy Special Improvement District	Energy Special Improvement District	\$0	\$0	\$0	
		Sub-Total	\$0	\$0	\$0	
Other Total			\$15,000	\$0	\$15,000	
Total			\$22,397,621	\$24,933,576	\$47,331,197	

Appendix B-2: Program Savings by Program Year

Toledo Edison			2017		2018		2019		Total		
Sector	Program	Sub-Program	kWh	kW	kWh	kW	kWh	kW	kWh	kW	
Residential	Appliance Turn In Program	Appliance Turn In	3,827,197	876	3,827,197	876	4,139,778	948	11,794,173	2,700	
		Sub-Total	3,827,197	876	3,827,197	876	4,139,778	948	11,794,173	2,700	
	Energy Efficient Homes Program	School Education	1,334,141	162	1,334,141	162	1,334,141	162	4,002,424	485	
		EE Kits	6,928,549	860	6,928,549	860	7,529,890	935	21,386,988	2,655	
		Audits & Education	989,775	156	989,775	156	1,088,787	172	3,068,336	484	
		Behavioral	3,926,530	798	5,693,469	955	5,912,320	1,026	15,532,319	2,779	
		Smart Thermostat	240,112	27	240,112	27	240,112	27	720,335	82	
		Sub-Total	13,419,107	2,003	15,186,045	2,161	16,105,250	2,322	44,710,402	6,486	
	Energy Efficient Products Program	Appliances	1,053,371	148	1,053,371	148	1,093,805	153	3,200,546	449	
		Consumer Electronics	1,006,565	153	1,006,565	153	1,107,278	168	3,120,408	473	
		Lighting	5,123,598	542	6,847,146	724	6,438,058	681	18,408,801	1,947	
		HVAC	1,376,630	303	1,376,630	303	1,487,606	330	4,240,866	936	
	Sub-Total	8,560,163	1,145	10,283,711	1,328	10,126,747	1,332	28,970,621	3,805		
	Customer Action Program - Res	Customer Action Program - Res	1,104,290	126	602,340	69	301,170	34	2,007,801	229	
		Sub-Total	1,104,290	126	602,340	69	301,170	34	2,007,801	229	
	Residential Demand Response Program	Direct Load Control	0	684	0	677	0	670	0	677	
		Sub-Total	0	684	0	677	0	670	0	677	
	Low Income Energy Efficiency Program	Community Connections	1,042,345	119	1,042,345	119	1,042,345	119	3,127,034	357	
		LI - New Homes	7,887	4	7,887	4	7,887	4	23,660	12	
Sub-Total		1,050,231	123	1,050,231	123	1,050,231	123	3,150,694	369		
Residential Total			27,960,989	4,958	30,949,526	5,234	31,723,176	5,428	90,633,691	14,265	
Small Enterprise	C&I Energy Solutions for Business Program - Small	HVAC - SCI	972,313	717	984,406	727	988,779	730	2,945,495	2,174	
		Lighting - SCI	11,144,407	2,091	12,216,814	2,298	12,094,045	2,271	35,455,266	6,660	
		Food Service	546,665	69	622,154	80	622,154	80	1,790,974	229	
		Appliance Turn In - SCI	71,751	13	79,298	14	86,687	16	237,736	43	
		Appliances - SCI	141,130	15	159,641	17	173,531	18	474,302	51	
		Consumer Electronics - SCI	24,405	2	28,222	3	28,605	3	81,232	7	
		Agricultural	28,041	5	28,875	5	31,377	5	88,293	14	
		Data Centers - SCI	309,800	35	353,280	40	353,280	40	1,016,361	116	
		Custom - SCI	7,806,680	918	8,540,427	1,001	8,633,488	1,015	24,980,595	2,933	
		Retro - Commissioning - SCI	1,766,328	202	1,902,199	217	2,309,813	264	5,978,340	682	
		Custom Buildings - SCI	3,134,511	358	3,449,917	394	3,449,917	394	10,034,346	1,145	
		Audits & Education - SCI	3,149,932	363	9,073,441	1,034	9,073,441	1,034	21,296,814	2,432	
		Sub-Total	29,095,963	4,786	37,438,673	5,831	37,845,118	5,869	104,379,754	16,486	
	Customer Action Program - SCI	Customer Action Program - SCI	356,888	41	194,666	22	97,333	11	648,888	74	
		Sub-Total	356,888	41	194,666	22	97,333	11	648,888	74	
	Small C&I Total			29,452,851	4,827	37,633,339	5,853	37,942,451	5,880	105,028,642	16,560
	Large Enterprise (Mercantile Utility)	C&I Energy Solutions for Business Program - Large	HVAC - LCI	932,302	475	935,512	478	999,364	533	2,867,178	1,485
Lighting - LCI			2,954,126	576	3,427,484	671	3,661,226	715	10,042,836	1,962	
Data Centers - LCI			643,472	73	643,472	73	953,159	109	2,240,102	256	
Custom - LCI			15,006,416	1,718	15,006,416	1,718	16,139,555	1,850	46,152,386	5,285	
Retro - Commissioning - LCI			512,705	59	512,705	59	640,881	73	1,666,291	190	
Custom Buildings - LCI			3,084,331	352	3,084,331	352	3,084,331	352	9,252,994	1,056	
Audits & Education - LCI			135,954	16	163,145	19	163,145	19	462,243	53	
Sub-Total			23,269,306	3,268	23,773,064	3,369	25,641,661	3,650	72,684,031	10,287	
C&I Demand Response Program - Large		Demand Response - LCI	0	201,301	0	201,301	0	201,301	0	201,301	
		Sub-Total	0	201,301	0	201,301	0	201,301	0	201,301	
Customer Action Program - LCI		Customer Action Program - LCI	835,743	95	455,860	52	227,930	26	1,519,532	173	
		Sub-Total	835,743	95	455,860	52	227,930	26	1,519,532	173	
Large C&I Total			24,105,048	204,665	24,228,924	204,722	25,869,591	204,977	74,203,563	211,762	
Government	Government Tariff Lighting Program	Government Tariff Lighting	17,782	2	17,782	2	17,782	2	53,346	7	
		Sub-Total	17,782	2	17,782	2	17,782	2	53,346	7	
Non - Residential Total			53,575,682	209,494	61,880,045	210,577	63,829,824	210,860	179,285,551	228,329	
Mercantile	Mercantile Customer Program	Mercantile	24,345,466	2,965	12,149,597	1,479	12,149,597	1,479	48,644,660	5,924	
		Sub-Total	24,345,466	2,965	12,149,597	1,479	12,149,597	1,479	48,644,660	5,924	
Mercantile Total			24,345,466	2,965	12,149,597	1,479	12,149,597	1,479	48,644,660	5,924	
Other	Transmission & Distribution Upgrades	T&D Upgrades	70,000	8	1,450,000	166	1,450,000	166	2,970,000	339	
		Sub-Total	70,000	8	1,450,000	166	1,450,000	166	2,970,000	339	
	Smart Grid Modernization Initiative	Smart Grid	0	0	0	0	0	0	0	0	
		Sub-Total	0	0	0	0	0	0	0	0	
	Energy Special Improvement District	Energy Special Improvement District	0	0	0	0	0	0	0	0	
		Sub-Total	0	0	0	0	0	0	0	0	
Other Total			70,000	8	1,450,000	166	1,450,000	166	2,970,000	339	
Total			105,952,137	217,424	106,429,168	217,455	109,152,597	217,933	321,533,902	248,857	

1. kWh savings represents incremental annual savings achieved per year and in total for 2017-2019

2. kW savings represents incremental annual coincident peak demand savings from EEC measures and average annual demand savings from DR measures, per year and in total for 2017 - 2019

Appendix B-3: Costs Elements

Toledo Edison - Cost Assumptions		
<p>The model used for developing the programs involves a build-up of direct costs based on program or subprogram fixed costs and variable costs based on participation at the measure level. Common costs are estimated at the State or Company level and allocated to each program. Program cost elements of this plan include Operations costs and Incentive costs. Operations costs include Utility Administration costs associated with portfolio management and plan development, Program Administration costs associated with program management and implementation, Marketing, Evaluation, Measurement and Verification (EMV) costs associated with EMV of the programs, Tracking and Reporting costs for tracking and reporting of the program results, and Other costs associated with the development and implementation of the Plan. The following details the assumptions for the program cost elements included in this plan:</p>		
Cost Elements	Component Detail	Description
Operations	Utility Administration	Includes costs incurred by the utility for dedicated employee labor for plan development, to oversee and manage the portfolio, and to perform duties associated with activities such as regulatory reporting or meetings to support the plan. Utility administration costs were based on Company estimated EE&C portfolio administration costs, allocated to each subprogram based on subprogram administration and marketing costs, and summed to the program level.
	Program Administration	Includes utility and program implementation provider costs associated with the implementation and ongoing management of the programs including staffing, contractors, website(s), call centers, quality assurance and control processes, vendor tracking systems and other program specific activities supporting successful program implementation. Program administration costs were informed by experience for similar programs operated by FirstEnergy. Program Administration costs were identified by two components, (1) fixed sub-program costs, and (2) variable measure unit costs. These costs were estimated for each subprogram, based on measure participation where applicable, and summed to the subprogram and program level.
	Marketing	Includes costs associated with developing and providing marketing for plan and program messaging and education of the plan and programs. Marketing costs were identified by two components, (1) fixed sub-program costs, and (2) variable measure unit costs. These costs were estimated for each subprogram, based on measure participation where applicable, and summed to the subprogram and program level.
	EM&V	Includes costs for evaluation, measurement and verification activities performed by the Companies and the Companies' independent evaluator, such as surveys, M&V processes, data transfer and evaluation meetings. The EMV costs were based on 4% of the subprogram cost, and summed to the program level.
	Tracking and Reporting	Includes the costs to develop and maintain a data collection, tracking and reporting system, to develop and generate standard reports, and provide the functionality for program management ad hoc reporting. These costs were informed by existing contracts and Company estimates, allocated to each subprogram based on subprogram administration and marketing costs, and summed to the program level.
	Other	Other costs includes other common costs associated with the development and implementation of the plan, including research and development such as participation in research projects, pilots or demonstrations, completing market potential or other studies, consulting and legal fees, modeling software fees, and employee expenses. Other costs were informed by existing contracts or Company estimates, allocated to each subprogram based on subprogram administration and marketing costs, and summed to the program level.
Incentives	Incentives	Incentives include rebates paid to customers as well as costs associated with providing services or measures directly to customers, or mid-stream or upstream payments to program allies where applicable. Incentives were calculated based on measure level incentive and participation assumptions, and summed to the subprogram and program level.

Toledo Edison - Appendix C: Program Assumptions & PUCO Tables

Appendix C-1: Measure Assumptions

Toledo Edison											
Sector	Program	Sub-Program	Measure	Msre Life	kWh	kW	Incremental Cost	Modeled Rebate	O&M Benefit (\$/Yr)	Savings Source	Incremental Cost Source
Residential	Appliance Turn In Program	Appliance Turn In	Refrigerator Recycling	8	1,020	0.16	0	50	0	Evaluation	DEER
			Freezer Recycling	8	849	0.14	0	50	0	Evaluation	DEER
			Room Air Conditioner Recycling	3	122	1.07	0	30	0	Ohio TRM - Adjusted	DEER
			Dehumidifier Recycling	3	1,075	0.17	0	30	0	Co Assumption	Co Assumption
	Energy Efficient Homes Program	School Education	School Education	7	318	0.04	39	45	0	PA TRM	Co Assumption
		EE Kits	Energy Efficiency Measures	7	324	0.04	40	46	0	PA TRM	Co Assumption
		Audits & Education	Comprehensive Audit	12	511	0.12	537	325	0	Co Assumption	Co Assumption
			On-Line Audit	3	160	0.02	0	0	0	Co Assumption	N/A
		Behavioral	Behavioral	1	129	0.03	0	0	0	Co Assumption	N/A
			Behavioral 18	1	187	0.03	0	0	0	Co Assumption	N/A
			Behavioral 19	1	194	0.03	0	0	0	Co Assumption	N/A
		Smart Thermostat	Smart Thermostat	11	150	0.02	200	100	0	PA TRM - Adjusted	Co Assumption
	Energy Efficient Products Program	Appliances	Clothes Washer	11	233	0.02	50	50	0	Ohio TRM	PA Incremental Cost DB
			Clothes Dryer - (Elec w Moisture Sensor)	16	152	0.02	112	50	0	Co Assumption	PA Incremental Cost DB
			Freezers	14	133	0.02	7	10	0	Co Assumption	PA Incremental Cost DB
			Refrigerators	14	150	0.03	25	25	0	Ohio TRM	PA Incremental Cost DB
			Dehumidifiers	12	182	0.03	20	20	0	Ohio TRM	PA Incremental Cost DB
			Water Heater - Heat Pump	10	1,688	0.23	605	375	0	Ohio TRM	DEER
		Consumer Electronics	Home Technology & Automation	8	420	0.20	200	100	0	Co Assumption	Co Assumption
			Monitors	4	15	0.00	20	1	0	PA TRM	Co Assumption
			Computers	4	133	0.02	30	3	0	PA TRM	Co Assumption
			Imaging	5	73	0.01	25	2	0	PA TRM	Co Assumption
			TVs	6	74	0.01	20	4	0	PA TRM	Co Assumption

Appendix C-1: Measure Assumptions

Toledo Edison											
Sector	Program	Sub-Program	Measure	Msre Life	kWh	kW	Incremental Cost	Modeled Rebate	O&M Benefit (\$/Yr)	Savings Source	Incremental Cost Source
Residential	Energy Efficient Products Program	Lighting	CFL Lamps	7	34	0.00	2	1	0	Ohio TRM	PA Incremental Cost DB
			CFL Fixtures	10	68	0.01	32	5	0	Co Assumption	PA Incremental Cost DB
			LED Fixtures	15	74	0.01	36	7	0	Co Assumption	DEER
			LED Lamps	15	37	0.00	7	3	0	Ohio TRM - Adjusted	Co Assumption
			Residential Lighting Controls	10	38	0.00	40	5	0	Co Assumption	PA Incremental Cost DB
		HVAC	Heat Pump	18	910	0.14	471	313	0	Ohio TRM	DEER
			Central Air Conditioner	18	160	0.14	880	125	0	Ohio TRM	DEER
			Room Air Conditioner	12	27	0.03	50	36	0	Ohio TRM	PA Incremental Cost DB
			Ductless Mini-Split Heat Pump	15	939	0.16	448	125	0	Ohio TRM - Adjusted	PA Incremental Cost DB
			PTAC - Multi Family	15	93	0.12	84	50	0	Ohio TRM - Adjusted	PA Incremental Cost DB
			PTHP - Multi Family	15	310	0.05	255	125	0	Ohio TRM - Adjusted	Co Assumption
			Heat Pump - Water & GeoT	18	3,667	0.28	10,897	300	0	Ohio TRM	PA Incremental Cost DB
			HVAC - Maintenance	5	78	0.04	100	50	0	Ohio TRM	PA Incremental Cost DB
			Furnace Fans	14	446	0.11	360	180	0	PA TRM	PA Incremental Cost DB
			Circulation Pumps	10	163	0.02	62	40	0	Co Assumption	Co Assumption
			Programmable / SMART Thermostat	11	150	0.02	200	100	0	PA TRM - Adjusted	Co Assumption
	Customer Action Program - Res	Customer Action Program - Res	Customer Action Program - Res	9	1	0.0001	0.05	0	0	Co Assumption	Co Assumption
	Residential Demand Response Program	Direct Load Control	Res Direct Load Control	1	0	0.36	0	0	0	Co Assumption	Co Assumption
	Low Income Energy Efficiency Program	Community Connections	Community Connections	8	1,619	0.18	0	0	0	Co Assumption	N/A
		LI - New Homes	LI New Construction	15	900	0.44	759	314	0	Co Assumption	Co Assumption

Appendix C-1: Measure Assumptions

Toledo Edison											
Sector	Program	Sub-Program	Measure	Msre Life	kWh	kW	Incremental Cost	Modeled Rebate	O&M Benefit (\$/Yr)	Savings Source	Incremental Cost Source
Small Enterprise	C&I Energy Solutions for Business Program - Small	HVAC - SCI	Room Air Conditioner - SCI	12	300	0.20	50	21	0	Ohio TRM	PA Incremental Cost DB
			Air Conditioning - <=5.4 Tn - SCI	15	954	0.93	1,960	197	0	Ohio TRM	PA Incremental Cost DB
			Air Conditioning - >5.4 < 20 Tn - SCI	15	3,298	3.00	1,680	328	0	Ohio TRM	PA Incremental Cost DB
			Air Conditioning - >=20 Tn - SCI	15	7,082	6.45	2,500	394	0	Ohio TRM	PA Incremental Cost DB
			Chiller - Water Cld w Full Load - SCI	20	14,309	3.26	6,500	2,625	0	PA TRM - Adjusted	PA Incremental Cost DB
			Heat Pump - <=5.4 Tn - SCI	15	2,543	1.44	1,285	197	0	Ohio TRM	PA Incremental Cost DB
			Heat Pumps - >5.4 Tn - SCI	15	3,306	3.00	1,935	328	0	Ohio TRM	PA Incremental Cost DB
			Heat Pumps - Water & GeoT - SCI	15	1,774	1.61	5,870	328	0	Ohio TRM	PA Incremental Cost DB
			HVAC - Maintenance - SCI	5	48	0.05	150	53	0	Ohio TRM	Co Assumption
			Circulation Pumps - SCI	10	174	0.02	62	42	0	Co Assumption	Co Assumption
			Ductless Mini-Split HP - SCI	15	867	0.42	448	492	0	Ohio TRM - Adjusted	PA Incremental Cost DB
			PTAC - SCI	15	175	0.29	84	53	0	Ohio TRM - Adjusted	PA Incremental Cost DB
			PTHP - SCI	15	614	0.29	255	53	0	Ohio TRM - Adjusted	PA Incremental Cost DB
		Lighting - SCI	CFL Fixtures - SCI	15	174	0.04	30	14	4	Co Assumption	PA Incremental Cost DB
			CFL Lamps - SCI	3	116	0.02	2	7	0	Ohio TRM	PA Incremental Cost DB
			Lighting Controls (Daylight & Occupancy) - SCI	8	200	0.04	58	16	0	Co Assumption	PA Incremental Cost DB
			Linear Fluorescent T8 / T5 - SCI	15	66	0.01	8	4	0	Co Assumption	PA Incremental Cost DB
			LED Linear - SCI	15	142	0.03	75	11	0	Co Assumption	Co Assumption
			LED Channel Signage - SCI	15	506	0.10	22	41	0	Co Assumption	Co Assumption
			Exit Signs - SCI	16	83	0.01	30	5	13	Ohio TRM	PA Incremental Cost DB
			LED Fixtures External - SCI	15	191	0.04	343	15	11	Co Assumption	PA Incremental Cost DB
			LED Fixtures Internal - SCI	15	191	0.04	129	15	11	Co Assumption	Co Assumption
			LED Lamps - SCI	15	127	0.03	7	10	11	Ohio TRM - Adjusted	Co Assumption
			LED Reach in Refrigerator / Freezer Lights - SCI	8	345	0.04	266	28	4	Ohio TRM	PA Incremental Cost DB
			Street & Area Lighting (Customer Owned) - SCI	10	430	0.05	337	34	13	PA TRM	PA Incremental Cost DB

Appendix C-1: Measure Assumptions

Toledo Edison											
Sector	Program	Sub-Program	Measure	Msre Life	kWh	kW	Incremental Cost	Modeled Rebate	O&M Benefit (\$/Yr)	Savings Source	Incremental Cost Source
Small Enterprise	C&I Energy Solutions for Business Program - Small	Food Service	Refrigerators - Reach In - SCI	12	883	0.10	430	158	0	Energy Star / Ohio TRM	PA Incremental Cost DB
			Freezers - Reach In - SCI	12	4,709	0.54	430	368	0	Energy Star / Ohio TRM	PA Incremental Cost DB
			Ice Machines - SCI	9	1,218	0.21	981	263	0	Energy Star / Ohio TRM	PA Incremental Cost DB
			Refrigerated Case Cover - SCI	5	44	0.00	38	12	0	PA TRM	PA Incremental Cost DB
			Strip Curtains - SCI	6	129	0.01	4	1	0	PA TRM	PA Incremental Cost DB
			Anti Sweat Heater Controls - SCI	12	1,298	0.03	70	37	0	PA TRM	PA Incremental Cost DB
			Beverage Vending Machine - Controls - SCI	5	1,633	0.00	180	95	0	PA TRM	PA Incremental Cost DB
			Beverage Vending Machine - New EE- SCI	14	125	0.00	180	95	0	PA TRM	PA Incremental Cost DB
			Combination Oven - SCI	12	6,368	1.22	1,584	788	0	Energy Star / Ohio TRM	DEER
			Convection Oven - SCI	12	1,937	0.37	1,007	525	0	Energy Star / Ohio TRM	DEER
			Steam Cookers - SCI	12	9,967	1.91	630	368	0	Energy Star / Ohio TRM	Energy Star
			Fryers - SCI	12	1,744	0.33	105	105	0	Energy Star / Ohio TRM	Energy Star
			Griddles - SCI	12	1,909	0.37	774	368	0	Energy Star / Ohio TRM	DEER
			Hot Food Holding Cabinet - SCI	12	1,730	0.33	1,110	525	0	Energy Star / Ohio TRM	Ohio TRM
		Appliance Turn In - SCI	Refrigerator Recycling - SCI	8	1,020	0.16	0	53	0	Evaluation	DEER
			Freezer Recycling - SCI	8	849	0.14	0	53	0	Evaluation	DEER
			Room Air Conditioner Recycling - SCI	3	121	0.26	0	32	0	Ohio TRM	DEER
			Dehumidifiers Recycling - SCI	3	1,075	0.17	0	32	0	Co Assumption	Co Assumption
		Appliances - SCI	Clothes Washer - SCI	10	542	0.00	150	79	0	Ohio TRM	PA Incremental Cost DB
			Clothes Dryer (Elec w Moisture Sensor) - SCI	10	352	0.00	112	58	0	Co Assumption	PA Incremental Cost DB
			Refrigerators - SCI	12	818	0.09	25	26	0	Energy Star / Ohio TRM	PA Incremental Cost DB
			Water Heater - Heat Pump - SCI	10	3,377	0.46	945	394	0	Ohio TRM	PA Incremental Cost DB
			Freezers - SCI	12	2,128	0.24	6	26	0	Energy Star / Ohio TRM	PA Incremental Cost DB
			Pre-Rinse Sprayers - SCI	5	25	0.00	23	53	0	Ohio TRM	DEER

Appendix C-1: Measure Assumptions

Toledo Edison											
Sector	Program	Sub-Program	Measure	Msre Life	kWh	kW	Incremental Cost	Modeled Rebate	O&M Benefit (\$/Yr)	Savings Source	Incremental Cost Source
Small Enterprise	C&I Energy Solutions for Business Program - Small	Consumer Electronics - SCI	Uninterruptible Power Supply - SCI	4	3,488	0.40	3,926	525	0	Co Assumption	Co Assumption
			Monitors - SCI	4	15	0.00	10	7	0	PA TRM	PA Incremental Cost DB
			Computers - SCI	4	133	0.00	12	7	0	PA TRM	PA Incremental Cost DB
			Imaging - SCI	5	104	0.00	20	13	0	PA TRM	PA Incremental Cost DB
			Small Network - SCI	4	20	0.00	15	13	0	Co Assumption	Co Assumption
		Agricultural	Efficient Dairy Equipment - SCI	15	2,053	0.29	1,000	656	0	Co Assumption	Co Assumption
			High Efficiency Fans - SCI	10	896	0.18	500	525	0	Co Assumption	Co Assumption
		Data Centers - SCI	DC - Custom Servers- SCI	8	584	0.07	80	47	0	Co Assumption	Co Assumption
			DC - Custom HVAC - SCI	15	43,800	5.00	13,140	3,504	0	Co Assumption	Co Assumption
			DC - Audit - SCI	0	0	0.00	0	5,250	0	N/A	N/A
		Custom - SCI	Custom - Process Improvement - SCI	15	56,484	6.45	16,945	4,519	0	Co Assumption	Co Assumption
			Custom - HVAC & Chillers - SCI	20	28,618	6.51	13,000	2,289	0	PA TRM - Adjusted	PA Incremental Cost DB
			Custom - Compressed Air - SCI	10	55,000	6.00	6,651	4,400	0	Co Assumption	Co Assumption
			Custom - VFDs < 10HP - SCI	15	11,623	1.33	2,150	930	0	PA TRM	PA Incremental Cost DB
			Custom - VFDs > 10 HP - SCI	15	56,240	6.42	10,748	4,499	0	PA TRM	PA Incremental Cost DB
			Custom-Motors - Three Phase - SCI	16	3,851	0.33	233	308	0	PA TRM	PA Incremental Cost DB
			Custom - Refrigeration - SCI	15	2,000	0.20	250	160	0	Co Assumption	PA Incremental Cost DB
		Retro - Commissioning - SCI	Custom Retrocommissioning - SCI	5	145,994	16.67	15,000	11,680	0	Co Assumption	Co Assumption
		Custom Buildings - SCI	Custom - Building Improvements - SCI	15	56,484	6.45	16,945	4,519	0	Co Assumption	Co Assumption
			Custom - Energy Management - SCI	10	35,478	4.05	10,643	2,838	0	Co Assumption	Co Assumption
		Audits & Education SCI	Energy Manager - SCI	1	16,453	1.88	0	0	0	Co Assumption	N/A
			Energy Efficiency Measures - SCI	5	302	0.04	39	39	0	PA TRM	Co Assumption
			Multi Family Audit - SCI	7	324	0.04	40	46	0	Co Assumption	Co Assumption
			Benchmarking - SCI	0	0	0.00	0	0	0	Co Assumption	N/A
			Audit - SCI	0	0	0.00	0	7,875	0	N/A	N/A
			Audits w Direct Install - SCI	12	10,291	1.17	4,116	3,293	0	Co Assumption	Co Assumption
			Behavioral - SCI	1	353	0.04	0	0	0	Co Assumption	Co Assumption
	Customer Action Program - SCI	Customer Action Program - SCI	Customer Action Program - SCI	13	1	0.0001	0	0	0	Co Assumption	Co Assumption

Appendix C-1: Measure Assumptions

Toledo Edison											
Sector	Program	Sub-Program	Measure	Msre Life	kWh	kW	Incremental Cost	Modeled Rebate	O&M Benefit (\$/Yr)	Savings Source	Incremental Cost Source
Large Enterprise (Mercantile Utility)	C&I Energy Solutions for Business Program - Large	HVAC - LCI	Air Conditioning - <=5.4 Tn - LCI	15	954	0.93	1,960	188	0	Ohio TRM	PA Incremental Cost DB
			Chiller - Water Cld w Full Load - LCI	20	42,926	9.77	19,500	7,500	0	PA TRM - Adjusted	PA Incremental Cost DB
			Air Conditioning - >5.4 < 20 Tn - LCI	15	3,298	3.00	1,680	313	0	Ohio TRM	PA Incremental Cost DB
			Air Conditioning - >=20 Tn - LCI	15	7,082	6.45	2,500	375	0	Ohio TRM	PA Incremental Cost DB
			Heat Pump - <=5.4 Tn - LCI	15	2,543	1.44	1,285	188	0	Ohio TRM	PA Incremental Cost DB
			Heat Pumps - >5.4 Tn - LCI	15	3,306	3.00	1,680	313	0	Ohio TRM	PA Incremental Cost DB
			Heat Pumps - Water & GeoT - LCI	15	1,774	1.61	5,870	313	0	Ohio TRM	PA Incremental Cost DB
			Ductless Mini-Split HP - LCI	15	867	0.42	448	300	0	Ohio TRM - Adjusted	PA Incremental Cost DB
			PTAC - LCI	15	175	0.29	84	50	0	Ohio TRM - Adjusted	PA Incremental Cost DB
			PTHP - LCI	15	614	0.29	255	80	0	Ohio TRM - Adjusted	PA Incremental Cost DB
		Lighting - LCI	CFL Fixtures - LCI	15	174	0.04	30	10	4	Co Assumption	PA Incremental Cost DB
			CFL Lamps - LCI	3	116	0.02	2	7	0	Ohio TRM	PA Incremental Cost DB
			Lighting Controls (Daylight & Occupancy) - LCI	8	200	0.04	58	16	0	Co Assumption	PA Incremental Cost DB
			Linear Fluorscent T8 / T5 - LCI	15	66	0.01	8	4	0	Co Assumption	PA Incremental Cost DB
			LED Linear - LCI	15	142	0.03	75	11	0	Co Assumption	Co Assumption
			LED Channel Signage - LCI	15	506	0.10	35	41	0	Co Assumption	PA Incremental Cost DB
			Exit Signs - LCI	16	83	0.01	30	5	13	Ohio TRM	PA Incremental Cost DB
			LED Fixtures External - LCI	15	191	0.04	343	15	11	Co Assumption	PA Incremental Cost DB
			LED Fixtures Internal - LCI	15	191	0.04	129	15	11	Co Assumption	Co Assumption
			LED Lamps - LCI	15	127	0.03	7	10	11	Ohio TRM - Adjusted	Co Assumption
			Street & Area Lighting (Customer Owned) - LCI	10	430	0.00	337	34	13	PA TRM	PA Incremental Cost DB
		Data Centers - LCI	DC - Custom HVAC - LCI	15	350,400	40.00	105,120	28,032	0	Co Assumption	Co Assumption
			DC - Custom Servers - LCI	8	584	0.07	80	47	0	Co Assumption	Co Assumption
			DC - Audit - LCI	0	0	0.00	0	7,500	0	N/A	N/A

Appendix C-1: Measure Assumptions

Toledo Edison											
Sector	Program	Sub-Program	Measure	Msre Life	kWh	kW	Incremental Cost	Modeled Rebate	O&M Benefit (\$/Yr)	Savings Source	Incremental Cost Source
Large Enterprise (Mercantile Utility)	C&I Energy Solutions for Business Program - Large	Custom - LCI	Custom - Process Improvement - LCI	15	403,000	46.00	120,900	32,240	0	Co Assumption	Co Assumption
			Custom - HVAC & Chillers - LCI	20	28,618	6.51	13,000	2,289	0	PA TRM - Adjusted	PA Incremental Cost DB
			Custom - Compressed Air - LCI	10	55,000	6.00	6,651	4,400	0	Co Assumption	Co Assumption
			Custom - VFDs < 10HP - LCI	15	11,623	1.33	2,150	930	0	PA TRM	PA Incremental Cost DB
			Custom - VFDs > 10 HP - LCI	15	56,240	6.42	10,748	4,499	0	PA TRM	PA Incremental Cost DB
			Custom-Motors - Three Phase - LCI	16	3,851	0.33	233	308	0	PA TRM	PA Incremental Cost DB
			Custom - Refrigeration - LCI	15	2,000	0.20	250	160	0	Co Assumption	PA Incremental Cost DB
		Retro - Commissioning - LCI	Custom Retrocommissioning - LCI	5	145,994	16.67	15,000	11,680	0	Co Assumption	Co Assumption
		Custom Buildings - LCI	Custom - Building Improvements - LCI	15	403,000	46.00	120,900	32,240	0	Co Assumption	Co Assumption
			Custom - Energy Management - LCI	10	289,080	33.00	100,000	23,126	0	Co Assumption	Co Assumption
		Audits & Education LCI	Audit - LCI	0	0	0.00	0	12,000	0	N/A	N/A
			Energy Manager - LCI	1	32,906	3.76	0	0	0	Co Assumption	Co Assumption
			Benchmarking - LCI	0	0	0.00	0	0	0	Co Assumption	Co Assumption
	C&I Demand Response Program - Large	Demand Response LCI	LC&I Contracted DR - PJM	1	0	1,000.00	N/A	N/A	N/A	Co Assumption	Co Assumption
			ELR Interruptible Tariff	1	0	1.00	N/A	N/A	N/A	Co Assumption	Co Assumption
	Customer Action Program - LCI	Customer Action Program - LCI	Customer Action Program - LCI	13	1	0.0001	0	0	0	Co Assumption	Co Assumption

Appendix C-1: Measure Assumptions

Toledo Edison												
Sector	Program	Sub-Program	Measure	Msre Life	kWh	kW	Incremental Cost	Modeled Rebate	O&M Benefit (\$/Yr)	Savings Source	Incremental Cost Source	
Government	Government Tariff Lighting Program	Government Tariff Lighting	LED - Traffic Signals - Gov	10	400	0.05	170	90	189	Ohio TRM	PA Incremental Cost DB	
			Street & Area Lighting (Tariff / Utility Owned) - Gov	10	241	0.00	0	0	15	Ohio TRM	Co Assumption	
			Street & Area Lighting (Tariff / Customer Owned) - Gov	10	430	0.00	337	138	15	PA TRM	PA Incremental Cost DB	

Appendix C-1: Measure Assumptions

Toledo Edison												
Sector	Program	Sub-Program	Measure	Msre Life	kWh	kW	Incremental Cost	Modeled Rebate	O&M Benefit (\$/Yr)	Savings Source	Incremental Cost Source	
Mercantile	Mercantile Customer Program	Mercantile	Mercantile Customer Projects	10	1	0.00	0	0	0	Co Assumption	Co Assumption	
Other	Transmission & Distribution Upgrades	T&D Upgrades	Transmission & Distribution Upgrades	15	1	0.00	N/A	N/A	N/A	Co Assumption	Co Assumption	
	Smart Grid Modernization Initiative	Smart Grid	Smart Grid Modernization Initiative	N/A	N/A	N/A	N/A	N/A	N/A	Co Assumption	Co Assumption	
	Energy Special Improvement District	Energy Special Improvement District	Energy Special Improvement District	N/A	N/A	N/A	N/A	N/A	N/A	Co Assumption	Co Assumption	

Appendix C-2: Number of Units

Toledo Edison						
Sector	Program	Sub-Program	Measure	2017 Units	2018 Units	2019 Units
Residential	Appliance Turn In Program	Appliance Turn In	Refrigerator Recycling	2,811	2,811	3,040
			Freezer Recycling	655	655	708
			Room Air Conditioner Recycling	229	229	247
			Dehumidifier Recycling	42	42	45
	Energy Efficient Homes Program	School Education	School Education	3,835	3,835	3,835
		EE Kits	Energy Efficiency Measures	19,519	19,519	21,213
		Audits & Education	Comprehensive Audit	596	596	655
			On-Line Audit	3,748	3,748	4,123
		Behavioral	Behavioral	27,800	0	0
			Behavioral 18	0	27,800	0
			Behavioral 19	0	0	27,800
		Smart Thermostat	Smart Thermostat	1,462	1,462	1,462
	Energy Efficient Products Program	Appliances	Clothes Washer	967	967	1,064
			Clothes Dryer - (Elec w Moisture Sensor)	255	255	255
			Freezers	389	389	389
			Refrigerators	1,547	1,547	1,547
			Dehumidifiers	384	384	384
			Water Heater - Heat Pump	204	204	213
		Consumer Electronics	Home Technology & Automation	1	1	1
			Monitors	1,142	1,142	1,255
			Computers	292	292	321
			Imaging	25	25	27
			TVs	11,576	11,576	12,734

Appendix C-2: Number of Units

Toledo Edison						
Sector	Program	Sub-Program	Measure	2017 Units	2018 Units	2019 Units
Residential	Energy Efficient Products Program	Lighting	CFL Lamps	1,245	835	630
			CFL Fixtures	0	0	0
			LED Fixtures	34	34	37
			LED Lamps	124,543	167,273	157,383
			Residential Lighting Controls	170	170	187
		HVAC	Heat Pump	371	371	408
			Central Air Conditioner	510	510	561
			Room Air Conditioner	889	889	978
			Ductless Mini-Split Heat Pump	266	266	292
			PTAC - Multi Family	19	19	20
			PTHP - Multi Family	22	22	25
			Heat Pump - Water & GeoT	65	65	71
			HVAC - Maintenance	840	840	924
			Furnace Fans	9	9	10
			Circulation Pumps	135	135	135
			Programmable / SMART Thermostat	1,514	1,514	1,514
	Customer Action Program - Res	Customer Action Program - Res	Customer Action Program - Res	1,008,577	550,133	275,066
	Residential Demand Response Program	Direct Load Control	Res Direct Load Control	1,750	1,733	1,715
	Low Income Energy Efficiency Program	Community Connections	Community Connections	588	588	588
		LI - New Homes	LI New Construction	8	8	8

Appendix C-2: Number of Units

Toledo Edison						
Sector	Program	Sub-Program	Measure	2017 Units	2018 Units	2019 Units
Small Enterprise	C&I Energy Solutions for Business Program - Small	HVAC - SCI	Room Air Conditioner - SCI	111	113	115
			Air Conditioning - <=5.4 Tn - SCI	156	156	156
			Air Conditioning - >5.4 < 20 Tn - SCI	46	46	46
			Air Conditioning - >=20 Tn - SCI	14	15	15
			Chiller - Water Cld w Full Load - SCI	5	5	5
			Heat Pump - <=5.4 Tn - SCI	41	41	41
			Heat Pumps - >5.4 Tn - SCI	17	17	17
			Heat Pumps - Water & GeoT - SCI	12	13	13
			HVAC - Maintenance - SCI	5	5	5
			Circulation Pumps - SCI	177	177	177
			Ductless Mini-Split HP - SCI	67	68	70
			PTAC - SCI	125	128	130
			PTHP - SCI	143	145	148
		Lighting - SCI	CFL Fixtures - SCI	0	0	0
			CFL Lamps - SCI	155	68	42
			Lighting Controls (Daylight & Occupancy) - SCI	8,914	9,291	9,291
			Linear Fluorscent T8 / T5 - SCI	19,378	19,068	16,626
			LED Linear - SCI	17,830	21,143	22,486
			LED Channel Signage - SCI	116	121	121
			Exit Signs - SCI	803	837	837
			LED Fixtures External - SCI	4,482	4,667	4,888
			LED Fixtures Internal - SCI	394	411	428
			LED Lamps - SCI	17,722	20,601	18,997
			LED Reach in Refrigerator / Freezer Lights - SCI	2,134	2,223	2,277
			Street & Area Lighting (Customer Owned) - SCI	1,202	1,252	1,252

Appendix C-2: Number of Units

Toledo Edison						
Sector	Program	Sub-Program	Measure	2017 Units	2018 Units	2019 Units
Small Enterprise	C&I Energy Solutions for Business Program - Small	Food Service	Refrigerators - Reach In - SCI	7	9	9
			Freezers - Reach In - SCI	29	32	32
			Ice Machines - SCI	14	14	14
			Refrigerated Case Cover - SCI	318	352	352
			Strip Curtains - SCI	437	481	481
			Anti Sweat Heater Controls - SCI	41	46	46
			Beverage Vending Machine - Controls - SCI	14	14	14
			Beverage Vending Machine - New EE- SCI	46	51	51
			Combination Oven - SCI	7	9	9
			Convection Oven - SCI	5	7	7
			Steam Cookers - SCI	9	10	10
			Fryers - SCI	10	12	12
			Griddles - SCI	7	7	7
			Hot Food Holding Cabinet - SCI	12	14	14
		Appliance Turn In - SCI	Refrigerator Recycling - SCI	54	60	65
			Freezer Recycling - SCI	11	12	14
			Room Air Conditioner Recycling - SCI	5	6	7
			Dehumidifiers Recycling - SCI	1	1	1
		Appliances - SCI	Clothes Washer - SCI	12	12	14
			Clothes Dryer (Elec w Moisture Sensor) - SCI	22	24	27
			Refrigerators - SCI	78	87	95
			Water Heater - Heat Pump - SCI	9	10	10
			Freezers - SCI	10	12	14
			Pre-Rinse Sprayers - SCI	13	13	13

Appendix C-2: Number of Units

Toledo Edison						
Sector	Program	Sub-Program	Measure	2017 Units	2018 Units	2019 Units
Small Enterprise	C&I Energy Solutions for Business Program - Small	Consumer Electronics - SCI	Uninterruptible Power Supply - SCI	5	6	6
			Monitors - SCI	37	40	44
			Computers - SCI	14	15	16
			Imaging - SCI	14	15	16
			Small Network - SCI	37	40	44
		Agricultural	Efficient Dairy Equipment - SCI	8	8	8
			High Efficiency Fans - SCI	11	12	14
		Data Centers - SCI	DC - Custom Servers- SCI	38	43	43
			DC - Custom HVAC - SCI	6	7	7
			DC - Audit - SCI	6	7	7
		Custom - SCI	Custom - Process Improvement - SCI	102	112	112
			Custom - HVAC & Chillers - SCI	9	9	10
			Custom - Compressed Air - SCI	8	9	10
			Custom - VFDs < 10HP - SCI	16	18	18
			Custom - VFDs > 10 HP - SCI	9	9	9
			Custom-Motors - Three Phase - SCI	11	12	13
			Custom - Refrigeration - SCI	7	8	9
		Retro - Commissioning - SCI	Custom Retrocommissioning - SCI	11	12	14
		Custom Buildings - SCI	Custom - Building Improvements - SCI	50	55	55
			Custom - Energy Management - SCI	1	1	1
		Audits & Education - SCI	Energy Manager - SCI	13	14	14
			Energy Efficiency Measures - SCI	308	340	340
			Multi Family Audit - SCI	700	700	700
			Benchmarking - SCI	13	14	14
			Audit - SCI	52	60	60
			Audits w Direct Install - SCI	228	265	265
			Behavioral - SCI	0	14,160	14,160
	Customer Action Program - SCI	Customer Action Program - SCI	Customer Action Program - SCI	325,955	177,794	88,897

Appendix C-2: Number of Units

Toledo Edison						
Sector	Program	Sub-Program	Measure	2017 Units	2018 Units	2019 Units
Large Enterprise (Mercantile Utility)	C&I Energy Solutions for Business Program - Large	HVAC - LCI	Air Conditioning - <=5.4 Tn - LCI	12	12	14
			Chiller - Water Cld w Full Load - LCI	12	12	12
			Air Conditioning - >5.4 < 20 Tn - LCI	11	11	13
			Air Conditioning - >=20 Tn - LCI	25	25	29
			Heat Pump - <=5.4 Tn - LCI	29	29	34
			Heat Pumps - >5.4 Tn - LCI	3	4	4
			Heat Pumps - Water & GeoT - LCI	16	16	16
			Ductless Mini-Split HP - LCI	6	6	8
			PTAC - LCI	168	170	199
			PTHP - LCI	35	35	42
		Lighting - LCI	CFL Fixtures - LCI	0	0	0
			CFL Lamps - LCI	36	21	12
			Lighting Controls (Daylight & Occupancy) - LCI	3,291	3,332	3,902
			Linear Fluorscent T8 / T5 - LCI	6,923	6,134	4,664
			LED Linear - LCI	4,327	6,134	7,462
			LED Channel Signage - LCI	17	17	18
			Exit Signs - LCI	323	326	383
			LED Fixtures External - LCI	2,996	3,034	3,552
			LED Fixtures Internal - LCI	19	19	22
			LED Lamps - LCI	3,703	5,580	4,865
			Street & Area Lighting (Customer Owned) - LCI	102	102	119
		Data Centers - LCI	DC - Custom HVAC - LCI	2	2	3
			DC - Custom Servers - LCI	47	47	50
			DC - Audit - LCI	2	2	3

Appendix C-2: Number of Units

Toledo Edison						
Sector	Program	Sub-Program	Measure	2017 Units	2018 Units	2019 Units
Large Enterprise (Mercantile Utility)	C&I Energy Solutions for Business Program - Large	Custom - LCI	Custom - Process Improvement - LCI	33	33	35
			Custom - HVAC & Chillers - LCI	2	2	3
			Custom - Compressed Air - LCI	7	7	8
			Custom - VFDs < 10HP - LCI	9	9	12
			Custom - VFDs > 10 HP - LCI	12	12	15
			Custom-Motors - Three Phase - LCI	1	1	2
			Custom - Refrigeration - LCI	2	2	2
		Retro - Commissioning - LCI	Custom Retrocommissioning - LCI	3	3	4
		Custom Buildings - LCI	Custom - Building Improvements - LCI	7	7	7
			Custom - Energy Management - LCI	1	1	1
		Audits & Education - LCI	Audit - LCI	7	7	7
			Energy Manager - LCI	4	5	5
			Benchmarking - LCI	4	5	5
	C&I Demand Response Program - Large	Demand Response - LCI	LC&I Contracted DR - PJM	1	1	1
			ELR Interruptible Tariff	201,301	201,301	201,301
	Customer Action Program - LCI	Customer Action Program - LCI	Customer Action Program - LCI	809,130	441,344	220,672

Appendix C-2: Number of Units

Toledo Edison						
Sector	Program	Sub-Program	Measure	2017 Units	2018 Units	2019 Units
Government	Government Tariff Lighting Program	Government Tariff Lighting	LED - Traffic Signals - Gov	40	40	40
			Street & Area Lighting (Tariff / Utility Owned) - Gov	1	1	1
			Street & Area Lighting (Tariff / Customer Owned) - Gov	0	0	0

Appendix C-2: Number of Units

Toledo Edison						
Sector	Program	Sub-Program	Measure	2017 Units	2018 Units	2019 Units
Mercantile	Mercantile Customer Program	Mercantile	Mercantile Customer Projects	23,150,000	11,553,000	11,553,000
Other	Transmission & Distribution Upgrades	T&D Upgrades	Transmission & Distribution Upgrades	70,000	1,450,000	1,450,000
	Smart Grid Modernization Initiative	Smart Grid	Smart Grid Modernization Initiative	1	1	1
Other	Energy Special Improvement District	Energy Special Improvement District	Energy Special Improvement District	1	1	1

Appendix C-3: Calculation Methods and Assumptions - Rebate Strategy

Toledo Edison						
Sector	Program	Sub-Program	Measure	Eligibility / Description	Rebate Strategy (All values are "up to" values) ^{1,2,3,4}	Qualifiers
Residential	Appliance Turn In Program	Appliance Turn In	Refrigerator Recycling	Removal of an existing inefficient unit prior to end of useful life via recycling	\$75	per unit
			Freezer Recycling	Removal of an existing inefficient unit prior to end of useful life via recycling	\$75	per unit
			Room Air Conditioner Recycling	Removal of an existing inefficient unit prior to end of useful life via recycling	\$38	per unit
			Dehumidifier Recycling	Removal of an existing inefficient unit prior to end of useful life via recycling	\$38	per unit
	Energy Efficient Homes Program	School Education	School Education	Adoption of an energy efficiency school curriculum or other engagement which encourages efficient practices & installation of energy efficiency measures at home. Student families are offered an energy efficiency kit to introduce simple retrofit measures.	NA	
		EE Kits	Energy Efficiency Measures	Opt In Kit with low cost energy efficiency measures mailed at the customers request.	NA	
		Audits & Education	Comprehensive Audit	Provides a Customized Home Energy Report for single or multi-family residence. Comprehensive measures that are eligible for incentives, as a result of diagnostics and testing include, but are not limited to: Windows, Duct Sealing, and Wall & Attic Insulation, etc. Manufactured homes are also eligible.	Audit - Up to \$500 for the cost of the audit direct install measures, plus up to \$500 for audit recommended measures and additional incentives	
			On-Line Audit	Energy education and awareness supporting installation of measures and behaviors that reduce consumption of energy and demand.	NA	
		Behavioral	Behavioral	Reports containing energy usage comparisons, recommendations and education emphasizing key points, general conservation tips and information on tools and resources supporting implementation of measures and efficiencies behaviors that reduces consumption of energy and demand.	NA	

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Appendix C-3: Calculation Methods and Assumptions - Rebate Strategy

Toledo Edison						
Sector	Program	Sub-Program	Measure	Eligibility / Description	Rebate Strategy (All values are "up to" values) ^{1,2,3,4}	Qualifiers
Residential	Energy Efficient Homes Program	Smart Thermostat	Smart Thermostat	Deployment of a program specific smart thermostat to residential customers with either of the following HVAC systems: central air conditioning, heat pumps, electric resistance furnace or geothermal heat pump.	\$100	per unit
	Energy Efficient Products Program	Appliances	Clothes Washer	Purchase and installation of an Energy Star or CEE Tier 1 (or higher) clothes washer, including appliances that can be interconnected to home energy management systems.	\$100	per unit
			Clothes Dryer - (Elec w Moisture Sensor)	Purchase and installation of an Energy Star rated Clothes Dryer with moisture sensor or Heat Pump Clothes Dryer	\$600	per unit
			Freezers	Purchase and installation of a new unit meeting either Energy Star or greater efficiency level.	\$40	per unit
			Refrigerators	Purchase and installation of a new unit meeting Energy Star or CEE Tier 1 (or higher).	\$150	per unit
			Dehumidifiers	Purchase and installation of a new Energy Star rated unit	\$25	per unit
			Water Heater - Heat Pump	Purchase and installation of a heat pump water heater with EF>2.0 or a solar water heater with SEF >= 1.8 for electric backup.	\$700	per unit
		Consumer Electronics	Home Technology & Automation	Purchase and installation of emerging technologies related to the control of in-home appliances, lighting, HVAC equipment, etc.	75% of equipment cost	per unit
			Monitors	Purchase and installation of an Energy Star rated unit	\$8	per unit
			Computers	Purchase and installation of an Energy Star rated unit	\$8	per unit

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Residential	Energy Efficient Products Program	Consumer Electronics	Imaging	Purchase and installation of an Energy Star rated unit	\$8	per unit
			TVs	Purchase and installation of an Energy Star V7.0 rated Television	\$8	per unit
		Lighting	CFL Lamps	Purchase and installation of an energy efficient specialty compact fluorescent light bulb (CFL) at participating retailers.	\$3	NTE Cost of Lamp
			CFL Fixtures	Purchase and installation of an energy efficient lighting fixture wired for exclusive use with pin-based (including the GU-24 base) compact fluorescent lamp(s) that is installed in an interior or exterior residential setting.	\$20	per fixture
			LED Fixtures	Purchase and installation of an energy efficient luminaire with integral LED lamp.	\$50	per fixture
			LED Lamps	Purchase and installation of an energy efficient LED lamp at participating retailers.	\$5	NTE Cost of Lamp
			Residential Lighting Controls	The purchase and installation of an occupancy sensor, dimmers or other energy saving controllers inside the home	\$25	per unit
		HVAC	Heat Pump	Replacement of ducted split central units prior to end of life or installation of a new energy efficient unit w/ SEER ratings > or = 14.5 or 12 EER or 8.5 HSPF. Includes variable refrigerant flow (VRF) systems.	\$1,000	per unit
			Central Air Conditioner	Replacement of ducted split central units prior to end of life or installation of a new energy efficient unit w/ SEER ratings > or = 14.5 or 12 EER. Includes variable flow (VRF) systems.	\$800	per unit
			Room Air Conditioner	Purchase and installation of new unit meeting Energy Star standard V4.0.	\$100	per unit
			Ductless Mini-Split Heat Pump	Replacement of ductless mini-split unit prior to end of life or installation of a new energy efficient unit w/ SEER >= 15, EER >=12.5 or HSPF >= 8.5	\$400	per unit
			PTAC - Multi Family	Replacement of a packaged terminal unit prior to end of life or installation of a new energy efficient unit exceeding efficiency ratings of IECC 2012 by 10%. Includes variable flow (VRF) systems.	\$200	per unit

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Residential	Energy Efficient Products Program	HVAC	PTHP - Multi Family	Replacement of a packaged terminal unit prior to end of life or a installation of a new energy efficient unit exceeding efficiency ratings of IECC 2012 by 10%. Includes variable flow (VRF) systems.	\$200	per unit
			Heat Pump - Water & GeoT	New installation of Ground & Water Source Heat Pumps: The following retrofit scenarios are eligible: • Ground source heat pumps for existing or new HVAC applications <135,000 BTU/hr, EER >13.1, COP> 3.1 • Groundwater source heat pumps for existing or new HVAC applications <135,000 BTU/hr, EER >16.2, COP> 3.6 • Water source heat pumps for existing or new HVAC applications <65,000 BTU/hr, EER >12.0, COP> 4.2	\$1,500	per unit
			HVAC - Maintenance	Eligibility items covered during maintenance on existing central air conditioner or air source heat pumps: • Check refrigerant charge level and correct as necessary,• Clean filters as needed • Inspect and lubricate bearings • Inspect and clean condenser and, if accessible, evaporator coil and Check refrigerant levels and air flow across coils for CAC and HP units using standard industry tools with correction of any problems found and post-treatment re-measurement.	\$85	per unit
			Furnace Fans	Replacement of an existing fan with a brushless permanent magnet (BPM) or electrically commutated motor (ECM) at the time of an HVAC tune-up or installation of a new CAC or HP. Purchase of a new gas furnace with a BPM or ECM motor is also eligible.	\$150	per unit
			Circulation Pumps	Replacement of existing single speed circulation pump or new circulation pump with variable speed motor and/or controls to automatically change pump speed to produce flow rates that match system heating requirements.	\$100	
			Programmable / SMART Thermostat	New installation of smart thermostat or smart thermostat with advanced features. Advanced features on a smart thermostat must consist of three of the following: fan delays, free cooling, occupancy sensing, heat pump resistance element lock-out, humidity control, compressor optimization or behavioral "coaching" features. Thermostat must control HVAC systems with either of the following: central air conditioning, heat pumps, electric resistance furnace or geothermal heat pump.	Up to 75% of thermostat cost	per unit
	Customer Action Program - Res	Customer Action Program - Res	Customer Action Program - Res	NA	NA	
	Residential Demand Response Program	Direct Load Control	Res Direct Load Control	Residential customers that have split system Central Air Conditioning.	\$50	per year (participation)
	Low Income Energy Efficiency Program	Community Connections	Community Connections	Residential customers and landlords of residents eligible for one of the following programs: (i) the Ohio Home Weatherization Assistance Program (HWAP); (ii) Percent of Income Payment Plan (PIPP); or (iii) Home Energy Assistance Program (HEAP).	NA	
		LI - New Homes	LI New Construction	New construction of low-income housing to be constructed in accordance applicable Energy Star standard or built at a higher efficiency level than the current adopted building code. Modular homes to be designed, manufactured and installed meet the applicable Energy Star standard for Modular Homes, or built at a higher efficiency level than the current adopted building code. Manufactured homes to be designed and built by certified Energy Star manufacturing plant.	\$1,875	per unit
Small Enterprise	C&I Energy Solutions for Business Program - Small	HVAC - SCI	Room Air Conditioner - SCI	Purchase and installation of new unit meeting Energy Star standard V4.0.	\$100	per unit
			Air Conditioning - <=5.4 Tn - SCI	Replacement of a Single Package or Split System central units prior to end of life or installation of a new energy efficient unit exceeding IECC 2012 efficiency ratings by at least 10%. Includes variable flow (VRF) systems.	\$200	per ton

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Toledo Edison						
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Small Enterprise	C&I Energy Solutions for Business Program - Small	HVAC - SCI	Air Conditioning - >5.4 < 20 Tn - SCI	Replacement of a Single Package or Split System central units prior to end of life or installation of a new energy efficient unit exceeding IECC 2012 efficiency ratings by at least 10%. Includes variable flow (VRF) systems.	\$150	per ton
			Air Conditioning - >=20 Tn - SCI	Replacement of a Single Package or Split System central units prior to end of life or installation of a new energy efficient unit exceeding IECC 2012 efficiency ratings by at least 10%. Includes variable flow (VRF) systems.	\$120	per ton
			Chiller - Water Cld w Full Load - SCI	Replacement or new installation of electric chiller w/efficiency exceeding baselines in IECC, 2012, Table 503.2.3(7) by at least 10%. VFD retrofits of existing existing chiller is not included in this measure.	\$45 / Ton	NTE 50% of PC
			Heat Pump - <=5.4 Tn - SCI	Replacement of a Single Package or Split System central unit prior to end of life or installation of a new energy efficient unit exceeding IECC 2012 efficiency ratings by at least 10%. Includes variable flow (VRF) systems.	\$200	per ton
			Heat Pumps - >5.4 Tn - SCI	Replacement of a Single Package or Split System central unit prior to end of life or installation of a new energy efficient unit exceeding IECC 2012 efficiency ratings by at least 10%. Includes variable flow (VRF) systems.	\$150	per ton
			Heat Pumps - Water & GeoT - SCI	New installation of Ground & Water Source Heat Pumps: The following retrofit scenarios are eligible: • Ground source heat pumps for existing or new HVAC applications <135,000 BTU/hr, EER >13.1, COP> 3.1 • Groundwater source heat pumps for existing or new HVAC applications <135,000 BTU/hr, EER >16.2, COP> 3.6 • Water source heat pumps for existing or new HVAC applications <65,000 BTU/hr, EER >12.0, COP> 4.2	\$300	per ton
			HVAC - Maintenance - SCI	Eligibility items covered during maintenance on existing central air conditioner or air source heat pumps: • Check refrigerant charge level and correct as necessary,• Clean filters as needed • Inspect and lubricate bearings • Inspect and clean condenser and, if accessible, evaporator coil, • Check refrigerant levels and air flow across coils for CAC and HP units using standard industry tools with correction of any problems found and post-treatment re-measurement, and installation of smart thermostat or smart thermostat with advanced features	\$50	per ton
			Circulation Pumps - SCI	Replacement of existing single speed circulation pump or installation of a new circulation pump with variable speed motor and/or controls to automatically change pump speed to produce flow rates that match system heating requirements.	\$100	per unit
			Ductless Mini-Split HP - SCI	Replacement of ductless mini-split unit prior to end of life or installation of a new energy efficient unit w/ SEER >= 15, EER >=12.5 or HSPF >= 8.5.	\$300	per ton
			PTAC - SCI	Replacement of a packaged terminal unit prior to end of life or a new unit exceeding efficiency ratings of IECC 2012 by 10%. Includes variable flow (VRF) systems.	\$150	per ton
			PTHP - SCI	Replacement of a packaged terminal unit prior to end of life or a new unit exceeding efficiency ratings exceeding efficiency ratings of IECC 2012 by 10%. Includes variable flow (VRF) systems.	\$150	per ton
		Lighting - SCI	CFL Fixtures - SCI	Purchase and installation of a new energy efficient lighting fixture wired for exclusive use with pin-based (including the GU-24 base) compact fluorescent lamp(s) that is installed in an interior or exterior residential setting.	\$20	per fixture

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Toledo Edison						
Sector	Program	Sub-Program	Measure	Eligibility / Description	Rebate Strategy (All values are "up to" values) ^{1,2,3,4}	Qualifiers
Small Enterprise	C&I Energy Solutions for Business Program - Small	Lighting - SCI	CFL Lamps - SCI	Purchase and installation of an energy efficient specialty compact fluorescent light bulb (CFL).	\$3	NTE Cost of Lamp
			Lighting Controls (Daylight & Occupancy) - SCI	Purchase and installation of new lighting controls, including but not limited to: daylight On/Off & dimming, occupancy sensors (wall plate, remote & fixture mounted), time clocks and switching controls.	\$0.10 per kWh saved	
			Linear Fluorescent T8 / T5 - SCI	Replacement of existing linear fluorescent lamps or new installations with high performance T8 or T5 lamps.	\$0.10 per kWh saved	
			LED Linear - SCI	Replacement or new installation of linear LED lighting equipment to a higher efficiency than existing or designed.	\$0.10 per kWh saved	
			LED Channel Signage - SCI	Replacement, retrofit or new installation of channel letter signs w/ LED technology.	\$3	per linear foot
			Exit Signs - SCI	Replacement or retrofit of incandescent or fluorescent exit signs w/ LED type exit sign or photoluminescent sign.	\$23	per sign
			LED Fixtures External - SCI	Replacement or new installation of a lighting fixture wired for exclusive use with LED lamps that is installed in an exterior setting.	\$55	per fixture
			LED Fixtures Internal - SCI	Replacement or new installation of a lighting fixture wired for exclusive use with LED lamps that is installed in an interior setting.	\$55	per fixture
			LED Lamps - SCI	Purchase and installation of an energy efficient LED lamp.	\$20	NTE Cost of Lamp
			LED Reach in Refrigerator / Freezer Lights - SCI	Replacement of linear fluorescent refrigerator, cooler or freezer lights lighting with LED lighting.	\$75	per door
			Street & Area Lighting (Customer Owned) - SCI	Replacement or new installation of Street and Area lighting equipment to a greater efficiency than existing or designed.	\$220	per fixture
		Food Service	Refrigerators - Reach In - SCI	Purchase and installation of new ENERGY STAR, commercial, solid or glass door reach-in refrigerator.	\$165	per unit

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Toledo Edison						
Sector	Program	Sub-Program	Measure	Eligibility / Description	Rebate Strategy (All values are "up to" values) ^{1,2,3,4}	Qualifiers
Small Enterprise	C&I Energy Solutions for Business Program - Small	Food Service	Freezers - Reach In - SCI	Purchase and installation of new ENERGY STAR, commercial, solid or glass door reach-in freezer.	\$165	per unit
			Ice Machines - SCI	Replacement of inefficient ice machine prior to end of life or new unit that is Energy Star rated.	\$590 0-500 lbs \$980 501-1000 lbs \$1100 over 1000 lbs	per unit
			Refrigerated Case Cover - SCI	Replacement or new installation of refrigerated case covers.	\$32	per linear foot
			Strip Curtains - SCI	Replacement or new installation of polyethylene strip curtains on walk in freezers and coolers covering the entire door frame. Eligible units must be open a least 2.5 hrs/day.	\$3	per square-ft
			Anti Sweat Heater Controls - SCI	New installation of door heater controls on glass doors for refrigerators, coolers or freezers.	\$60	per door
			Beverage Vending Machine - Controls - SCI	Retrofit controls for a non Energy Star rated vending machine.	\$115	per unit
			Beverage Vending Machine - New EE- SCI	Purchase and installation of new Energy Star rated vending machine.	\$130	per unit
			Combination Oven - SCI	Replacement or new installation of Energy Star qualified electric units.	\$1,380	per unit
			Convection Oven - SCI	Replacement or new installation of Energy Star qualified electric units.	\$700	per unit
			Steam Cookers - SCI	Replacement or new installation of Energy Star qualified electric units with 3-6 pans. A qualifying steam cooker must meet a minimum cooking efficiency of 50 percent and meet idle energy rates specified by pan capacity.	\$250 - 3 pan \$375 - 4 pan \$500 - 5 pan \$600 - 6 pan	per unit
			Fryers - SCI	Replacement or new installation of Energy Star qualified electric units.	\$325	per unit
			Griddles - SCI	Replacement or new installation of Energy Star qualified electric units.	\$500	per unit

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Small Enterprise	C&I Energy Solutions for Business Program - Small	Food Service	Hot Food Holding Cabinet - SCI	Replacement or new installation of full, three quarter and half sized ENERGY STAR qualified units with idle energy rate of 0.04 kW/CF.	\$500 - full size \$375 - 3/4 size \$225 - 1/2 size	per unit
		Appliance Turn In - SCI	Refrigerator Recycling - SCI	Removal of an existing inefficient unit from service prior to end of useful life thru recycling.	\$75	per unit
			Freezer Recycling - SCI	Removal of an existing inefficient unit from service prior to end of useful life thru recycling.	\$75	per unit
			Room Air Conditioner Recycling - SCI	Removal of an existing inefficient unit from service prior to end of useful life thru recycling.	\$38	per unit
			Dehumidifiers Recycling - SCI	Removal of an existing inefficient unit from service prior to end of useful life thru recycling.	\$38	per unit
		Appliances - SCI	Clothes Washer - SCI	Purchase and installation of an Energy Star or CEE Tier 1 (or higher) clothes washer. Commercial clothes washers and "coin op" units are also eligible.	\$100	per unit
			Clothes Dryer (Elec w Moisture Sensor) - SCI	Purchase and installation of an Energy Star rated Clothes Dryer with moisture sensor or Heat Pump Clothes Dryer. Commercial and "coin op" unit are also eligible.	\$600	per unit
			Refrigerators - SCI	Purchase and installation of a new unit meeting Energy Star or CEE Tier 1 (or higher).	\$150	per unit
			Water Heater - Heat Pump - SCI	Purchase and installation of a heat pump water heater with EF>2.0 or a solar water heater with SEF >= 1.8 for electric backup.	\$700	per unit
			Freezers - SCI	Purchase and installation of a new unit meeting either Energy Star or greater efficiency level.	\$40	per unit
			Pre-Rinse Sprayers - SCI	Replacement of existing sprayer with new unit that use 1.6 GPM or less, on/off squeeze lever, and cleaning of performance of at least 26 seconds. Electric water heating only.	\$55	per unit
		Consumer Electronics - SCI	Uninterruptible Power Supply - SCI	Replacement or new installation of a UPS (less than 12 kW) that exceeds the minimum average efficiency standard as determined by Table 1 of the Energy Star UPS standard. Table 2 of the standard shall be used in calculating the loading of the UPS.	\$220	per kW

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Small Enterprise	C&I Energy Solutions for Business Program - Small	Consumer Electronics - SCI	Monitors - SCI	Purchase and installation of Energy Star rated unit.	\$15	per unit
			Computers - SCI	Purchase and installation of an Energy Star rated unit.	\$15	per unit
			Imaging - SCI	Purchase and installation of Energy Star rated imaging equipment including but not limited to: scanners, copier, printers, fax machines and multi-function machines.	\$30	per unit
			Small Network - SCI	Purchase and installation of network level software that controls desktop computers and monitors power settings with the network. Software must be capable of measuring and managing power consumption of each individual PC. Laptops are not eligible.	\$15	per PC
		Agricultural	Efficient Dairy Equipment - SCI	Purchase and installation of more efficient electric driven equipment in retrofit applications.	\$0.10 per kWh saved	
			High Efficiency Fans - SCI	Purchase and installation of a new high efficiency ventilation fans in retrofit applications.	\$0.10 per kWh saved	
		Data Centers - SCI	DC - Custom Servers- SCI	Replacement of existing server equipment or installation of new energy efficient server equipment meeting Energy Star or other energy efficiency requirements.	\$40	
			DC - Custom HVAC - SCI	Replacement of a HVAC or electric water chilling units prior to end of life or installation of a new unit exceeding IECC 2012 efficiency ratings by at least 10%. Includes variable flow (VRF) units.	\$0.10 per kWh saved.	NTE 50% of PC
			DC - Audit - SCI	Comprehensive Energy Audit for data center facility recommending installation of efficient equipment, such as: high efficiency server and storage devices, high efficiency computer room air conditioning (CRAC) and HVAC equipment, server virtualization, high efficiency power supplies, high efficiency dehumidification systems, economizers, airflow management and controls that improve systems cooling.	Up to 50% of the audit cost or \$5000 (whichever is less) plus upto remaining 50% of audit cost if audit recommended measures are installed.	
		Custom - SCI	Custom - Process Improvement - SCI	Replacement or retrofit of existing equipment or process changes or enhancements that results in electric energy savings.	\$0.10 per kWh saved.	NTE 50% of PC
			Custom - HVAC & Chillers - SCI	Replacement of a HVAC or electric water chilling units prior to end of life or installation of a new unit exceeding IECC 2012 efficiency ratings by at least 10%, and includes variable flow (VRF) units.	\$0.10 per kWh saved.	NTE 50% of PC
			Custom - Compressed Air - SCI	Replacement or retrofit of existing air compressor systems, including but no limited to: new compressors, air dryers, or increased storage capacity. Other efficiency measures such as: leak repair, controls, high efficiency nozzles, piping enhancements, and no loss drains are also eligible.	\$0.10 per kWh saved.	NTE 50% of PC

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Small Enterprise	C&I Energy Solutions for Business Program - Small	Custom - SCI	Custom - VFDs < 10HP - SCI	Purchase and installation of a new VFD for an existing motor (less than 10 hp) driving fans, pumps and other suitable applications.	\$130	per hp
			Custom - VFDs > 10 HP - SCI	Purchase and installation of a new VFD for an existing motor (greater than 10 hp) driving fans, pumps and other suitable applications.	\$100	per hp
			Custom-Motors - Three Phase - SCI	Purchase and installation of a new premium efficiency motor in lieu of rewinding an existing motor.	\$35	per hp
			Custom - Refrigeration - SCI	Retrofit of small commercial walk-in refrigeration and coolers, including, but not limited to: high efficiency fan motors, evaporator fan controllers, floating head pressure controls, evaporator coil defrost controls and variable speed compressor motors.	\$0.10 per kWh saved.	
		Retro - Commissioning - SCI	Custom Retrocommissioning - SCI	Adjustment of Electrical, Electric Mechanical, & Control System set points to improve system performance to existing building conditions and use, including the implementation of energy savings measures identified through building operations training.	\$0.10 per kWh saved.	NTE 50% of PC
		Custom Buildings - SCI	Custom - Building Improvements - SCI	Retrofit of existing building shell, electrical & electric mechanical retrofits to greater efficiency components and processes, including but not limited to wall and ceiling insulation, windows, reduction of conditioned cubic feet (CF) with the square feet (SF) of floor space remaining the same, reduction in window size w/ improved R value.	\$0.10 per kWh saved.	NTE 50% of PC
			Custom - Energy Management - SCI	Installation of new energy management system to control lighting, hvac and other building systems. New installation of smart thermostat or smart thermostat with advanced features. Advanced features on a smart thermostat must consist of three of the following: fan delays, free cooling, occupancy sensing, heat pump resistance element lock-out, humidity control, compressor optimization or behavioral "coaching" features. Thermostat must control electric heating and/or cooling systems.	\$0.10 per kWh saved. Up to 75% of thermostat cost.	
		Audits & Education - SCI	Energy Manager - SCI	Shared resource to provide energy consultative services to assess energy usage and to identify and promote low cost/no cost energy saving improvements and program opportunities.	NA	
			Energy Efficiency Measures - SCI	Opt In Kit with energy efficiency measures mailed at the customers request.	NA	
			Multi Family Audit - SCI	Provides a Customized Home Energy Report to multi-family residences served under a commercial rate tariff. Comprehensive measures eligible for incentive based on applicable diagnostics and testing includes, but are not limited to: Windows, Duct Sealing, and Wall & Attic Insulation, etc.	Audit - Up to \$500 for the cost of the audit direct install measures, plus up to \$500 for audit recommended measures and additional incentives	
			Benchmarking - SCI	Provides building owners and property managers with a quantitative analysis of their building's energy performance.	NA	
			Audit - SCI	Comprehensive Energy Audit for commercial/industrial facilities or manufacturing processes recommending installation of efficient equipment, building shell/envelop improvements, manufacturing process changes, building operating changes, or other energy efficiency improvements. Audit must meet minimum audit requirements for buildings or for process equipment.	Up to 50% of the audit cost or \$5000 (whichever is less) plus up to remaining 50% of audit cost if audit recommended measures are installed. Up to 50% of the cost of comprehensive measures installed.	

1. The Company may provide tiered rebate amounts within the incentive ranges listed above for qualifying products that have varying characteristics (e.g. size, features, etc.).

2. The Company may provide prescriptive rebates in lieu of the performance incentives listed above for certain measures and/or applications where the prescriptive value is within the equivalent performance incentive range.

3. The Company may establish incentive tiers and/or incentive block structures within the performance incentives listed above for different end use technology or sub-measures (lighting, HVAC, etc.).

4. Unless otherwise stated, rebates will be limited by the project or equipment cost, where applicable.

Appendix C-3: Calculation Methods and Assumptions - Rebate Strategy

Toledo Edison						
Sector	Program	Sub-Program	Measure	Eligibility / Description	Rebate Strategy (All values are "up to" values) ^{1,2,3,4}	Qualifiers
Small Enterprise	C&I Energy Solutions for Business Program - Small	Audits & Education - SCI	Audits w Direct Install - SCI	Provides an audit with the direct installation (DI) of qualified energy efficiency measures. New installation of smart thermostat or smart thermostat with advanced features. Advanced features on a smart thermostat must consist of three of the following: fan delays, free cooling, occupancy sensing, heat pump resistance element lock-out, humidity control, compressor optimization or behavioral "coaching" features. Thermostat must control electric heating and/or cooling systems.	80% of the cost of the DI measures NTE \$6,000	
			Behavioral - SCI	Energy Intelligence Software tool that provides reporting containing energy usage comparisons, recommendations and education emphasizing key points, general conservation tips and information on tools and resources supporting implementation of energy efficiency measures and behaviors that reduces consumption of energy and demand.	NA	
	Customer Action Program - SCI	Customer Action Program - SCI	Customer Action Program - SCI	NA	NA	
Large Enterprise (Mercantile Utility)	C&I Energy Solutions for Business Program - Large	HVAC - LCI	Air Conditioning - <=5.4 Tn - LCI	Replacement of a Single Package or Split System central units prior to end of life or installation of a new energy efficient unit exceeding IECC 2012 efficiency ratings by at least 10%. Includes variable flow (VRF) systems.	\$200	per ton
			Chiller - Water Cld w Full Load - LCI	Replacement or new installation of electric chiller w/efficiency exceeding baselines in IECC, 2012, Table 503.2.3(7) by at least 10%. VFD retrofits of existing existing chiller is NOT included in this measure.	\$45 / Ton	NTE 50% of PC
			Air Conditioning - >5.4 < 20 Tn - LCI	Replacement of a Single Package or Split System central units prior to end of life or installation of a new energy efficient unit exceeding IECC 2012 efficiency ratings by at least 10%. Includes variable flow (VRF) systems.	\$150	per ton
			Heat Pump - <=5.4 Tn - LCI	Replacement of a Single Package or Split System central unit prior to end of life or installation of a new energy efficient unit exceeding IECC 2012 efficiency ratings by at least 10%. Includes variable flow (VRF) systems.	\$200	per ton
			Heat Pumps - >5.4 Tn - LCI	Replacement of a Single Package or Split System central unit prior to end of life or installation of a new energy efficient unit exceeding IECC 2012 efficiency ratings by at least 10%. Includes variable flow (VRF) systems.	\$150	per ton
			Heat Pumps - Water & GeoT - LCI	New installation of Ground & Water Source Heat Pumps: The following retrofit scenarios are eligible: • Ground source heat pumps for existing or new HVAC applications <135,000 BTU/hr, EER >13.1, COP> 3.1 • Groundwater source heat pumps for existing or new HVAC applications <135,000 BTU/hr, EER >16.2, COP> 3.6 • Water source heat pumps for existing or new HVAC applications <65,000 BTU/hr, EER >12.0, COP> 4.2	\$300	per ton
			Ductless Mini-Split HP - LCI	Replacement of ductless mini-split unit prior to end of life or installation of a new energy efficient w/ SEER >= 15, EER >=12.5 or HSPF >= 8.5.	\$300	per ton
			PTAC - LCI	Replacement of a packaged terminal unit prior to end of life or installation of a new energy efficient unit exceeding IECC 2012 efficiency ratings by at least 10%. Includes variable flow (VRF) systems.	\$150	per ton
			PTHP - LCI	Replacement of a packaged terminal unit prior to end of life or installation of a new energy efficient unit exceeding IECC 2012 efficiency ratings by at least 10%. Includes variable flow (VRF) systems.	\$150	per ton

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4. Unless otherwise stated, rebates will be limited by the project or equipment cost, where applicable.

Appendix C-3: Calculation Methods and Assumptions - Rebate Strategy

Toledo Edison						
Sector	Program	Sub-Program	Measure	Eligibility / Description	Rebate Strategy (All values are "up to" values) ^{1,2,3,4}	Qualifiers
Large Enterprise (Mercantile Utility)	C&I Energy Solutions for Business Program - Large	HVAC - LCI	Air Conditioning - >=20 Tn - LCI	Replacement of a Single Package or Split System central units prior to end of life or installation of a new energy efficient unit exceeding IECC 2012 efficiency ratings by at least 10%. Includes variable flow (VRF) systems.	\$120	per ton
		Lighting - LCI	CFL Fixtures - LCI	Purchase and installation of an energy efficient lighting fixture wired for exclusive use with pin-based (including the GU-24 base) compact fluorescent lamp(s).	\$20	per fixture
			CFL Lamps - LCI	Purchase and installation of an energy efficient specialty compact fluorescent light bulb (CFL).	\$3	NTE Cost of Lamp
			Lighting Controls (Daylight & Occupancy) - LCI	Purchase and installation of new lighting controls, including but not limited to: daylight On/Off & dimming, occupancy sensors (wall plate, remote & fixture mounted), time clocks and switching controls.	\$0.10 per kWh saved	
			Linear Fluorescent T8 / T5 - LCI	Replacement of existing linear fluorescent lamps or new installations with high performance T8 or T5 lamps.	\$0.10 per kWh saved	
			LED Linear - LCI	Replacement or new installation of linear LED lighting equipment to a higher efficiency than existing or designed.	\$0.10 per kWh saved	
			LED Channel Signage - LCI	Replacement, retrofit or new installation of channel letter signs w/ LED technology.	\$3	per linear foot
			Exit Signs - LCI	Replacement or retrofit of incandescent or fluorescent exit signs w/ LED or photoluminescent exit sign.	\$23	per sign
			LED Fixtures External - LCI	Replacement or new installation of a lighting fixture wired for exclusive use with LED lamps that is installed in an exterior setting.	\$55	per fixture
			LED Fixtures Internal - LCI	Replacement or new installation of a lighting fixture wired for exclusive use with LED lamps that is installed in an interior setting.	\$55	per fixture
			LED Lamps - LCI	Purchase and installation of an energy efficient LED lamp.	\$20	NTE Cost of Lamp
			Street & Area Lighting (Customer Owned) - LCI	Replacement or new installation of Street and Area lighting equipment to a greater efficiency than existing or designed.	\$220	per fixture

1. The Company may provide tiered rebate amounts within the incentive ranges listed above for qualifying products that have varying characteristics (e.g. size, features, etc.).
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Appendix C-3: Calculation Methods and Assumptions - Rebate Strategy

Toledo Edison						
Sector	Program	Sub-Program	Measure	Eligibility / Description	Rebate Strategy (All values are "up to" values) ^{1,2,3,4}	Qualifiers
Large Enterprise (Mercantile Utility)	C&I Energy Solutions for Business Program - Large	Data Centers - LCI	DC - Custom HVAC - LCI	Replacement of a HVAC or electric water chilling units prior to end of life or installation of a new unit exceeding IECC 2012 efficiency ratings by at least 10%. Includes variable flow (VRF) units.	\$0.10 per kWh saved.	NTE 50% of PC
			DC - Custom Servers - LCI	Replacement or retrofit of existing data center equipment including, but not limited to: high efficiency server and storage devices, high efficiency computer room air conditioning (CRAC) and HVAC equipment, server virtualization, high efficiency power supplies, high efficiency dehumidification systems, economizers, airflow management and controls that improve systems cooling, and UPS efficiency upgrades.	\$0.10 per kWh saved.	
			DC - Audit - LCI	Comprehensive Energy Audit for data center facilities recommending installation of efficient equipment, building shell/envelop improvements, building operating changes, or other energy efficiency improvements.	Up to 50% of the audit cost plus up to remaining 50% of audit cost if audit recommended measures are installed.	
		Custom - LCI	Custom - Process Improvement - LCI	Replacement or retrofit of existing equipment or process changes or enhancements that results in electric energy savings.	\$0.10 per kWh saved.	NTE 50% of PC
			Custom - HVAC & Chillers - LCI	Replacement of a HVAC or electric water chilling units prior to end of life or installation of a new unit exceeding IECC 2012 efficiency ratings by at least 10%. Includes variable flow (VRF) units.	\$0.10 per kWh saved.	NTE 50% of PC
			Custom - Compressed Air - LCI	Replacement or retrofit of existing air compressor systems, including but not limited to: new compressors, air dryers, or increased storage capacity. Other efficiency measures such as: leak repair, controls, high efficiency nozzles, piping enhancements, and no loss drains are also eligible.	\$0.10 per kWh saved.	NTE 50% of PC
			Custom - VFDs < 10HP - LCI	Purchase and installation of a new VFD for an existing motor (less than 10 hp) driving fans, pumps and other suitable applications.	\$130	per hp
			Custom - VFDs > 10 HP - LCI	Purchase and installation of a new VFD for an existing motor (greater than 10 hp) driving fans, pumps and other suitable applications.	\$100	per hp
			Custom-Motors - Three Phase - LCI	Purchase and installation of a new premium efficiency motor in lieu of rewinding an existing motor.	\$35	per hp
			Custom - Refrigeration - LCI	Retrofit of small commercial walk-in refrigeration and coolers, including, but not limited to: high efficiency fan motors, evaporator fan controllers, floating head pressure controls, evaporator coil defrost controls and variable speed compressor motors.	\$0.10 per kWh saved.	
		Retro - Commissioning - LCI	Custom Retrocommissioning - LCI	Adjust Electrical, Electric Mechanical, & Control System set points to improve system performance to existing building conditions and use, including the implementation of energy savings measures identified through building operations training.	\$0.10 per kWh saved.	NTE 50% of PC
		Custom Buildings - LCI	Custom - Building Improvements - LCI	Retrofit of existing building shell, electrical & electric mechanical retrofits to greater efficiency components and processes, including but not limited to wall and ceiling insulation, windows, reduction of conditioned cubic feet (CF) with square feet (SF) of floor space remaining the same, reduction in window size w/ improved R value.	\$0.10 per kWh saved.	NTE 50% of PC

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4. Unless otherwise stated, rebates will be limited by the project or equipment cost, where applicable.

Appendix C-3: Calculation Methods and Assumptions - Rebate Strategy

Toledo Edison						
Sector	Program	Sub-Program	Measure	Eligibility / Description	Rebate Strategy (All values are "up to" values) ^{1,2,3,4}	Qualifiers
Large Enterprise (Mercantile Utility)	C&I Energy Solutions for Business Program - Large	Custom Buildings - LCI	Custom - Energy Management - LCI	Installation of new energy management system in buildings to control lighting, hvac and other building systems.	\$0.10 per kWh saved.	
		Audits & Education - LCI	Audit - LCI	Comprehensive Energy Audit for commercial/industrial facilities or manufacturing processes recommending installation of efficient equipment, building shell/envelop improvements, manufacturing process changes, building operating changes, or other energy efficiency improvements. Audit must meet minimum audit requirements for buildings or for process equipment.	Up to 50% of Audit Cost plus up to remaining 50% of Audit Cost if audit recommended measures are installed	
			Energy Manager - LCI	Shared resource to provide energy consultative services to assess energy usage and to identify and promote low cost/no cost energy saving improvements and program opportunities.	NA	
			Benchmarking - LCI	Provides building owners and property managers with a quantitative analysis of their building's energy performance.	NA	
	C&I Demand Response Program - Large	Demand Response - LCI	LC&I Contracted DR - PJM	Large commercial, industrial and government customers participating in PJM programs and/or contracted curtailment attributes w/ curtailment providers and/or individual customers.	NA	
			ELR Interruptible Tariff	Large commercial, industrial and governmental customers on the Companies ELR tariff.	NA	
	Customer Action Program - LCI	Customer Action Program - LCI	Customer Action Program - LCI	NA	NA	
Government	Government Tariff Lighting Program	Government Tariff Lighting	LED - Traffic Signals - Gov	Replacement of incandescent traffic & pedestrian signals with LED signals.	\$90	per signal
			Street & Area Lighting (Tariff / Utility Owned) - Gov	Replacement or new installation of Street and Area lighting equipment to a greater efficiency than existing or designed.	NA	
			Street & Area Lighting (Tariff / Customer Owned) - Gov	Replacement or new installation of Street and Area lighting equipment to a greater efficiency than existing or designed.	\$220	per fixture
Mercantile	Mercantile Customer Program	Mercantile	Mercantile Customer Projects	Self directed projects completed by large commercial and industrial mercantile customers.	NA	

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2. The Company may provide prescriptive rebates in lieu of the performance incentives listed above for certain measures and/or applications where the prescriptive value is within the equivalent performance incentive range.

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4. Unless otherwise stated, rebates will be limited by the project or equipment cost, where applicable.

Appendix C-3: Calculation Methods and Assumptions - Rebate Strategy

Toledo Edison						
Sector	Program	Sub-Program	Measure	Eligibility / Description	Rebate Strategy (All values are "up to" values) ^{1,2,3,4}	Qualifiers
Other	Transmission & Distribution Upgrades	T&D Upgrades	Transmission & Distribution Upgrades	Transmission and distribution system improvements that results in electric energy savings.	NA	
	Smart Grid Modernization Initiative	Smart Grid	Smart Grid Modernization Initiative	Smart Grid Modernization initiatives that results in electric energy savings.	NA	
	Energy Special Improvement District	Energy Special Improvement District	Energy Special Improvement District	Electric energy savings resulting from projects completed as part of an Energy Special Improvement District.	NA	

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2. The Company may provide prescriptive rebates in lieu of the performance incentives listed above for certain measures and/or applications where the prescriptive value is within the equivalent performance incentive range.
3. The Company may establish incentive tiers and/or incentive block structures within the performance incentives listed above for different end use technology or sub-measures (lighting, HVAC, etc).
4. Unless otherwise stated, rebates will be limited by the project or equipment cost, where applicable.

Appendix C-4

PUCO 1: Portfolio Summary of Lifetime Costs and Benefits

Toledo Edison Portfolio Summary of Lifetime Costs and Benefits Net Lifetime Benefits, and TRC per the California Standard Practice Manual					
Portfolio	Discount Rate	Total Discounted Lifetime Costs (\$000) ¹	Total Discounted Lifetime Benefits (\$000)	Total Discounted Net Lifetime Benefits (\$000)	Cost- Benefit Ratio (TRC)
Residential (inclusive of Low- Income)	8.48%	25,219	30,546	5,327	1.2
Small Enterprise	8.48%	35,674	54,753	19,080	1.5
Mercantile	8.48%	213	18,243	18,030	85.8
Mercantile-Utility (Large Enterprise)	8.48%	28,312	40,292	11,980	1.4
Governmental	8.48%	62	169	107	2.7
Other	8.48%	14	-	(14)	N/A
Total	8.48%	89,494	144,004	54,510	1.6

1. Includes certain costs outside of Plan budgets according to the Stipulated ESPIV.

Appendix C-4

PUCO 2: Summary of Portfolio Energy and Demand Savings

Toledo Edison Summary of Portfolio Energy and Demand Savings						
MWh Saved for Consumption Reductions kW Saved for Peak Load Reductions	Program Year 2017		Program Year 2018		Program Year 2019	
	MWh Saved	KW Saved ¹	MWh Saved	KW Saved ¹	MWh Saved	KW Saved ¹
Residential Sector (inclusive of Low- Income) - Cumulative Projected Portfolio Savings	27,961	4,958	58,911	9,507	90,634	14,258
Small Enterprise - Cumulative Projected Portfolio Savings	29,453	4,827	67,086	10,680	105,029	16,560
Mercantile - Cumulative Projected Portfolio Savings	24,345	2,965	36,495	4,444	48,645	5,924
Mercantile-Utility (Large Enterprise) - Cumulative Projected Portfolio Savings	24,105	204,665	48,334	208,085	74,204	211,762
Government Sector - Cumulative Projected Portfolio Savings	18	2	36	4	53	7
Other - Cumulative Projected Portfolio Savings	70	8	1,520	174	2,970	339
Portfolio Plan Total - Cumulative Projected Savings	105,952	217,424	212,381	232,895	321,534	248,850
Cumulative Results projected through 2016 (Appendix A-2)	747,057	125,935	747,057	125,935	747,057	125,935
Total Cumulative Projected Savings	853,009	343,359	959,438	358,830	1,068,591	374,784
SB 310 Target (Table 3)	548,843	115,500	654,513	130,200	759,190	145,000
% (Over / Under)	155%	297%	147%	276%	141%	258%

1. Includes coincident peak demand reductions for energy efficiency and excludes interruptible demand reductions achieved in previous years.

Appendix C-4

PUCO 3: Summary of Portfolio Costs

Toledo Edison Summary of Portfolio Costs			
	Program Year 2013	Program Year 2014	Program Year 2015
	Portfolio Budget (\$)	Portfolio Budget (\$)	Portfolio Budget (\$)
Residential Portfolio (inclusive of Low-Income) Annual Budget	5,520,968	5,269,238	5,480,527
Small Enterprise Portfolio Annual Budget	5,642,171	6,167,779	6,243,582
Mercantile Portfolio Annual Budget	107,070	59,429	59,651
Mercantile-Utility (Large Enterprise) Portfolio Annual Budget	4,541,752	3,961,339	4,205,621
Government Portfolio Annual Budget	23,205	16,818	17,048
Other Portfolio Annual Budget	5,000	5,000	5,000
Total Portfolio Annual Budget	15,840,166	15,479,603	16,011,428

Appendix C-4

PUCO 4: Program Summaries

Toledo Edison Program Summaries								
	EE Program (check box)	PDR Program (check box)	Program Name	Program Market	Program Two Sentence Summary	Net Lifetime MWh Savings	Net Peak Demand kW Savings	Percentage of Portfolio and Total Lifetime MWh savings %
Residential Portfolio Programs (inclusive of Low Income)		X	Residential Demand Response Program	Res	The program consists of a customer having their central air conditioning compressor cycled during summer peak load periods.	-	2,032	0.0%
	X		Appliance Turn In Program	Res	This program provides rebates and removal and recycle services to consumers for turning in working appliances.	93,128	17,363	12.5%
	X		Energy Efficient Products Program	Res	This program promotes the purchase of energy efficient products, such as HVAC equipment, appliances, lighting, home electronics and other energy saving home products, through consumer rebates or incentives and support to retailers and manufacturers.	395,734	50,873	53.0%
	X		Energy Efficient Homes Program	Res	This program provides customers with energy efficiency education and awareness along with measures and incentives to improve energy efficiency of homes.	214,470	28,722	28.7%
	X		Low Income Energy Efficiency Program	LI Res	The low-income program provides weatherization services, home audits and installation of energy efficiency measures for low-income customers under the Community Connections sub-program. The program also provides incentives for the construction of new energy efficient housing or major rehabilitation of existing housing for low-income customers.	25,371	3,030	3.4%
	X		Customer Action Program - Res	Res	The program captures energy savings and peak demand reductions achieved through actions taken by customers outside of utility-administered programs pursuant to R.C. 4928.662	18,070	2,063	2.4%
	Total for Plan					746,773	104,082	20.9%

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PUCO 4: Program Summaries

Toledo Edison Program Summaries								
	EE Program (check box)	PDR Program (check box)	Program Name	Program Market	Program Two Sentence Summary	Net Lifetime MWh Savings	Net Peak Demand kW Savings	Percentage of Portfolio and Total Lifetime MWh savings %
Small Enterprise	X		C&I Energy Solutions for Business Program - Small	Small C&I	This program provides measures and financial incentives (prescriptive & performance) to small commercial and industrial customers, including small government and institutional customers, to purchase qualifying high efficiency measures, recycle inefficient appliances, retrofit specialized processes, applications or end uses to higher efficiency processes, applications and end-uses, complete qualifying high efficiency building shell or system improvements, to complete an audit with qualifying audit installations or recommendations and to achieve energy savings by adapting energy saving behaviors through energy management strategies.	1,222,491	204,858	99.3%
	X		Customer Action Program - SCI	Small C&I	The program captures energy savings and peak demand reductions achieved through actions taken by customers outside of utility-administered programs pursuant to R.C. 4928.662	8,436	963	0.7%
	Total for Plan					1,230,926	205,821	34.4%

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PUCO 4: Program Summaries

Toledo Edison Program Summaries								
	EE Program (check box)	PDR Program (check box)	Program Name	Program Market	Program Two Sentence Summary	Net Lifetime MWh Savings	Net Peak Demand kW Savings	Percentage of Portfolio and Total Lifetime MWh savings %
Mercantile	X		Mercantile Customer Program	Large C&I	Captures energy efficiency and peak demand reduction projects committed to the Company by Mercantile customers as provided for by O.R.C. 4928.01 and 4928.66	486,447	59,236	100.0%
	Total for Plan					486,447	59,236	13.6%
Mercantile-Utility (Large Enterprise)		X	C&I Demand Response Program - Large	Large C&I	The program captures load curtailment and curtailable capacity from the Companies' Interruptible Load Program (Economic Load Response Rider) and from additional demand resources including resources participating in the PJM market or through contracts for demand response attributes with customers or PJM CSPs.	-	603,903	0.0%
	X		C&I Energy Solutions for Business Program - Large	Large C&I	This program provides measures and financial incentives (prescriptive & performance) to small commercial and industrial customers, including small government and institutional customers, to purchase qualifying high efficiency measures, recycle inefficient appliances, retrofit specialized equipment, processes, applications or end uses to higher efficiency equipment, processes, applications and end-uses, complete qualifying high efficiency building shell or system improvements, to complete an audit with qualifying audit installations or recommendations and to achieve energy savings by adapting energy saving behaviors through energy management strategies.	1,049,485	149,468	98.2%
	X		Customer Action Program - LCI	Large C&I	The program captures energy savings and peak demand reductions achieved through actions taken by customers outside of utility-administered programs pursuant to R.C. 4928.662	19,754	2,255	1.8%
	Total for Plan					1,069,239	755,626	29.9%

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PUCO 4: Program Summaries

Toledo Edison Program Summaries								
	EE Program (check box)	PDR Program (check box)	Program Name	Program Market	Program Two Sentence Summary	Net Lifetime MWh Savings	Net Peak Demand kW Savings	Percentage of Portfolio and Total Lifetime MWh savings %
Government Portfolio Programs	X		Government Tariff Lighting Program	Gov't	The program provides financial incentives and support to customers for implementing energy efficient street lighting or traffic lighting technologies on customer owned and maintained installations.	533	67	100.0%
	Total for Plan					533	67	0.0%
Other	X		Transmission & Distribution Upgrades	T&D	Capture savings achieved through various T&D projects that reduce line losses, which in turn results in a more efficient delivery system.	44,550	5,086	100.0%
	X		Smart Grid Modernization Initiative	T&D	Captures energy savings from the project to produce an integrated system of protection, performance, efficiency and economy that extends across the energy delivery system.	-	-	0.0%
	X		Energy Special Improvement District	T&D	Incorporation of State Legislation that permits Ohio townships and municipalities to create Energy Special Improvement Districts offering constituents Property Assessed Clean Energy (PACE) financing for qualifying energy efficiency	-	-	0.0%
	Total for Plan					44,550	5,086	1.2%

Appendix C-4

PUCO 5: Budget and Parity Analysis Summary

Toledo Edison						
Customer Class	3 Year Budget	% of Total EDC Budget	% of Total Budget of Customer Programs	2015 Revenue by Customer Class	% of Total Customer Revenue	Difference
Residential (<i>inclusive of Low-Income</i>)	16,270,734					
Residential Subtotal	16,270,734	34.4%	34.4%	209,191,299	46.6%	-12%
Small Enterprise	18,053,531					
Small Enterprise Total	18,053,531	38.1%	38.1%	118,719,096	26.4%	12%
Mercantile-Utility (Large Enterprise)	12,708,712					
Mercantile	226,149					
Mercantile Subtotal	12,934,861	27.3%	27.3%	112,943,625	25.2%	2%
Government	57,071	0.1%	0.1%	8,031,295	1.8%	-2%
Other	15,000	0.0%	0.0%			
EDC TOTAL	47,331,197	100%	100%	448,885,315	100%	

Appendix C-4

PUCO 5A: Energy Savings and Parity Analysis Summary

Toledo Edison						
Customer Class	3 Year Cumulative Energy Savings (MWh)	% of Total EDC Energy Savings	% of Total Energy Savings of Customer Programs	2011 Sales by Customer Class (MWh)	% of Total Customer Sales	Difference
Residential	90,634	28.2%				
Residential Subtotal	90,634	28.2%	28.2%	2,468,896	23.6%	5%
Small Enterprise	105,029	32.7%				
Small Enterprise Total	105,029	32.7%	32.7%	1,975,314	18.9%	14%
Mercantile-Utility (Large Enterprise)	74,204	23.1%				
Mercantile	48,645	15.1%				
Mercantile Subtotal	122,848	38.2%	38.2%	5,958,835	57.0%	-19%
Government	53	0.0%	0.0%	51,466	0.5%	0%
Other	2,970	0.9%	0.9%			
EDC TOTAL	321,534	100%	100%	10,454,511	100%	

Appendix C-4

PUCO 6A: Portfolio-Specific Assignment of EE&C Costs

Toledo Edison			
Residential Portfolio (including Low-Income)			
EE&C Program	Cost Elements (\$)		
	Total Incentives	Operations Costs	Total Budget (2017-2019)
Peak Demand Reduction Programs			
Residential Demand Response Program	0	147,747	147,747
Peak Demand Reduction Program Subtotal	0	147,747	147,747
Energy Efficiency Programs			
Appliance Turn In Program	561,630	1,929,600	2,491,230
Energy Efficient Products Program	3,625,569	1,422,492	5,048,062
Energy Efficient Homes Program	4,350,593	2,768,010	7,118,603
Low Income Energy Efficiency Program	7,526	274,635	282,161
Customer Action Program - Res	0	241,744	241,744
EE Program Subtotal	8,545,319	6,636,481	15,181,800
Totals	8,545,319	6,784,228	15,329,547

Toledo Edison			
Small Enterprise			
EE&C Program	Cost Elements (\$)		
	Total Incentives	Operations Costs	Total Budget (2017-2019)
C&I Energy Solutions for Business Program - Small	10,334,253	6,928,894	17,263,147
Customer Action Program - SCI	0	202,011	202,011
Totals	10,334,253	7,130,905	17,465,158

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PUCO 6A: Portfolio-Specific Assignment of EE&C Costs

Toledo Edison Mercantile			
EE&C Program	Cost Elements (\$)		
	<i>Total Incentives</i>	<i>Operations Costs</i>	<i>Total Budget (2017-2019)</i>
Mercantile Customer Program	0	143,830	143,830
Totals	0	143,830	143,830

Toledo Edison Mercantile Utility (Large Enterprise)			
EE&C Program	Cost Elements (\$)		
	<i>Total Incentives</i>	<i>Operations Costs</i>	<i>Total Budget (2017-2019)</i>
Peak Demand Reduction Programs			
C&I Demand Response Program - Large	0	600	600
Peak Demand Reduction Program Subtotal	0	600	600
Energy Efficiency Programs			
C&I Energy Solutions for Business Program - Large	6,043,204	4,970,926	11,014,130
Customer Action Program - LCI	0	98,289	98,289
EE Program Subtotal	6,043,204	5,069,215	11,112,419
Totals	6,043,204	5,069,815	11,113,019

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PUCO 6A: Portfolio-Specific Assignment of EE&C Costs

Toledo Edison Government			
EE&C Program	Cost Elements (\$)		
	<i>Total Incentives</i>	<i>Operations Costs</i>	<i>Total Budget (2017-2019)</i>
Government Tariff Lighting Program	10,800	31,246	42,046
Totals	10,800	31,246	42,046

Toledo Edison Other			
EE&C Program	Cost Elements (\$)		
	<i>Total Incentives</i>	<i>Operations Costs</i>	<i>Total Budget (2017-2019)</i>
Transmission & Distribution Upgrades	0	0	0
Smart Grid Modernization Initiative	0	0	0
Energy Special Improvement District	0	0	0
Totals	0	0	0

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PUCO 6B: Allocation of Common Costs to Applicable Customer Sector

Toledo Edison										
Common Cost Element	EE Program (check box)	PDR Program (check box)	Total Cost (\$)	Basis for Cost Allocation	Class Cost Allocation (\$)					
					Residential (Including Low-Income)	Small Enterprise (Small C&I)	Mercantile	Mercantile-Utility (Large C&I)	Other	Government
Utility Administration	X	X	\$1,640,383	FERC Form 1 Sales	\$516,314	\$284,026	\$39,738	\$778,051	\$15,000	\$7,253
Tracking and Reporting	X	X	\$722,379	FERC Form 1 Sales	\$195,623	\$136,749	\$19,133	\$367,383	\$0	\$3,492
Other	X	X	\$874,835	FERC Form 1 Sales	\$229,251	\$167,597	\$23,448	\$450,258	\$0	\$4,280
Totals			\$3,237,597		\$941,188	\$588,372	\$82,319	\$1,595,693	\$15,000	\$15,025

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PUCO 6C: Summary of Portfolio EE&C Costs

Toledo Edison	Total Sector Portfolio-specific Costs	Total Common Costs	Total of All Costs
Residential (Including Low-Income)	\$15,329,547	\$941,188	\$16,270,734
Small Enterprise	\$17,465,158	\$588,372	\$18,053,531
Mercantile	\$143,830	\$82,319	\$226,149
Mercantile-Utility (Large Enterprise)	\$11,113,019	\$1,595,693	\$12,708,712
Other	\$0	\$15,000	\$15,000
Government	\$42,046	\$15,025	\$57,071
Totals	\$44,093,600	\$3,237,597	\$47,331,197

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PUCO 7A-B: TRC Benefits Table - Residential

Residential (inclusive of Low- Income)	Toledo Edison TRC Benefits By Program Per Year (\$000)									
Program	Program Year	TRC	Program Costs	Program Benefits	Capacity Benefits	Energy Benefits	Load Reductions in kW		MWh Saved	
							Annual	Lifetime	Annual	Lifetime
Residential Demand Response Program	2017		55	49			684		0	
	2018		54	62			677		0	
	2019		56	74			670		0	
	Total	1.1	152	168	168	-		2,032		0
Appliance Turn In Program	2017		724	217			876		3,827	
	2018		691	471			1,752		7,654	
	2019		739	786			2,700		11,794	
	Total	2.2	1,989	4,284	1,449	2,835		17,363		93,128
Energy Efficient Products Program	2017		3,898	452			1,145		8,560	
	2018		4,126	1,050			2,473		18,844	
	2019		4,258	1,713			3,805		28,971	
	Total	1.3	11,320	14,445	3,591	10,076		50,873		395,734
Energy Efficient Homes Program	2017		2,743	709			2,003		13,419	
	2018		2,493	1,367			4,164		28,605	
	2019		2,626	2,067			6,486		44,710	
	Total	1.4	7,272	9,935	2,397	6,787		28,722		214,470
Low Income Energy Efficiency Program	2017		1,510	51			123		1,050	
	2018		1,485	108			246		2,100	
	2019		1,485	171			369		3,151	
	Total ³	0.2	4,141	1,019	248	771		3,030		25,371
Customer Action Program - Res	2017		143	52			126		1,104	
	2018		120	85			195		1,707	
	2019		107	105			229		2,008	
	Total	2.0	344	695	147	548		2,063		18,070
Total							104,082		746,773	
1: Generation, Transmission and Distribution Capacity costs are combined in a sum of avoided capacity costs.										
2: The on and off peak energy costs are combined in a sum of avoided energy costs.										
3: Includes cost for the OPAE Community Connections program according to the Stipulated ESPIV.										

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PUCO 7C: TRC Benefits Table - Small Enterprise

Small Enterprise	Toledo Edison TRC Benefits By Program Per Year (\$000)																	
Program	Program Year	TRC	Program Costs	Program Benefits	Capacity Benefits	Energy Benefits	Load Reductions in kW		MWh Saved									
							Annual	Lifetime	Annual	Lifetime								
C&I Energy Solutions for Business Program - Small	2017		11,978	1,823			4,786		29,096									
	2018		13,020	4,319			10,617		66,535									
	2019		13,282	6,803			16,486		104,380									
	Total	1.5	35,399	54,459	14,648	32,136		204,858		1,222,491								
Customer Action Program - SCI	2017		85	17			41		357									
	2018		84	28			63		552									
	2019		84	34			74		649									
	Total	1.3	234	294	63	232		963		8,436								
Total ³							35,674		54,753		14,710		32,368		205,821		1,230,926	
1: Generation, Transmission and Distribution Capacity costs are combined in a sum of avoided capacity costs.																		
2: The on and off peak energy costs are combined in a sum of avoided energy costs.																		
3: Includes cost for the COSE Ohio Energy Efficiency Program and Administrator payments, and the AICUO Efficiency Resource Program and Administrator payments according to the Stipulated ESPIV.																		

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PUCO 7D: TRC Benefits Table - Mercantile

Mercantile	Toledo Edison TRC Benefits By Program Per Year (\$000)									
Program	Program Year	TRC	Program Costs	Program Benefits	Capacity Benefits	Energy Benefits	Load Reductions in kW		MWh Saved	
							Annual	Lifetime	Annual	Lifetime
Mercantile Customer Program	2017		107	1,168			2,965		24,345	
	2018		59	1,837			4,444		36,495	
	2019		60	2,577			5,924		48,645	
	Total	85.8	213	18,243	3,855	14,387	59,236	486,447		
Total	85.8	213	18,243	3,855	14,387	59,236	486,447			
1: Generation, Transmission and Distribution Capacity costs are combined in a sum of avoided capacity costs.										
2: The on and off peak energy costs are combined in a sum of avoided energy costs.										

PUCO 7E: TRC Benefits Table - Mercantile Utility (Large Enterprise)

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PUCO 7F: TRC Benefits Table - Government

Government	Toledo Edison TRC Benefits By Program Per Year (\$000)									
Program		TRC	Program Costs	Program Benefits	Capacity Benefits	Energy Benefits	Load Reductions in		MWh Saved	
							Annual	Lifetime	Annual	Lifetime
Government Tariff Lighting Program	2017		26	8			2		18	
	2018		20	17			4		36	
	2019		20	25			7		53	
	Total	2.7	62	169	5	14		67		533
Total		2.7	62	169	5	14	67		533	
1: Generation, Transmission and Distribution Capacity costs are combined in a sum of avoided capacity costs.										
2: The on and off peak energy costs are combined in a sum of avoided energy costs.										

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PUCO 7G: TRC Benefits Table - Other

Other	Toledo Edison TRC Benefits By Program Per Year (\$000)									
	Program Year	TRC	Program Costs	Program Benefits	Capacity Benefits	Energy Benefits	Load Reductions in kW		MWh Saved	
							Annual	Lifetime	Annual	Lifetime
Transmission & Distribution Upgrades	2017		5				8		70	
	2018		5				174		1,520	
	2019		5				339		2,970	
	Total	N/A	14					5,086		44,550
Smart Grid Modernization Initiative	2017		-	-	-	-	0		0	
	2018		-	-	-	-	0		0	
	2019		-	-	-	-	0		0	
	Total	N/A	-	-	-	-		0		0
Energy Special Improvement District	2017		-	-	-	-	0		0	
	2018		-	-	-	-	0		0	
	2019		-	-	-	-	0		0	
	Total	N/A	-	-	-	-		0		0
Total		0.0	14	-	-	-		5,086		44,550
<p>1: Generation, Transmission and Distribution Capacity costs are combined in a sum of avoided capacity costs.</p> <p>2: The on and off peak energy costs are combined in a sum of avoided energy costs.</p>										

Appendix D: Market Potential Study

See Proposed Plans

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Summary: Text Stipulated EE/PDR Plan electronically filed by Ms. Carrie M Dunn-Lucco on behalf of The Toledo Edison Company and The Cleveland Electric Illuminating Company and Ohio Edison Company