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March 4, 2024

VIA eFILING

Rosemary Chiavetta, Secretary
Pennsylvania Public Utility Commission
Commonwealth Keystone Building
400 North Street
Harrisburg, PA 17120

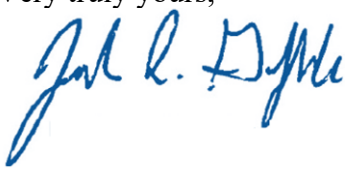
Re: Petition of PECO Energy Company for Approval of Its Act 129 Phase IV Energy Efficiency and Conservation Plan
Docket No. M-2020-3020830

Dear Secretary Chiavetta:

Enclosed for filing please find the **Petition of PECO Energy Company for Approval of Changes to Its Act 129 Phase IV Energy Efficiency and Conservation Plan**. A copy of this filing will be served as indicated on the attached Certificate of Service.

If you have any questions regarding this filing, please do not hesitate to contact me directly at 267-533-1999.

Very truly yours,



Jack R. Garfinkle

Enclosures
c: Per the Certificate of Service (w/encls.)

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BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION

PETITION OF PECO ENERGY COMPANY FOR APPROVAL OF ITS ACT 129 PHASE IV ENERGY EFFICIENCY AND CONSERVATION PLAN	: : : : :	**Docket No. M-2020-3020830**

CERTIFICATE OF SERVICE

I hereby certify that I have this date served true and correct copies of the **Petition of PECO Energy Company for Approval of Changes to Its Act 129 Phase IV Energy Efficiency and Conservation Plan** on the following individuals in the matter specified in accordance with the requirements of 52 Pa. Code § 1.54:

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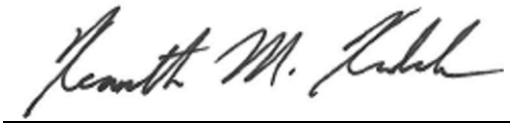

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Dated: March 4, 2024

BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION

PETITION OF PECO ENERGY COMPANY FOR APPROVAL OF ITS ACT 129 PHASE IV ENERGY EFFICIENCY AND CONSERVATION PLAN	: : : : :	**DOCKET NO. M-2020-3020830**

PETITION OF PECO ENERGY COMPANY FOR APPROVAL OF CHANGES TO ITS ACT 129 PHASE IV ENERGY EFFICIENCY AND CONSERVATION PLAN

I. INTRODUCTION

PECO Energy Company ("PECO" or "Company") hereby petitions the Pennsylvania Public Utility Commission ("Commission"), pursuant to 52 Pa. Code § 5.41 and §5.572, for approval of changes to the Company's Phase IV Energy Efficiency and Conservation Plan ("Phase IV Plan" or "Plan"). The Phase IV Plan was approved by the Commission on March 25, 2021[1] and is designed to achieve energy and peak demand reductions ("PDRs") in accordance with the requirements of Act 129 of 2008, 66 Pa.C.S. § 2806.1 ("Act 129" or "Act") and the Commission's Implementation Order entered June 18, 2020 at Docket No. M-2020-3015228 ("Phase IV Implementation Order").

PECO has analyzed the implementation of the Plan through November 30, 2023 and developed updated energy savings, PDR and budget projections through the end of Phase IV (May 31, 2026). Based on this analysis, the Company has identified several Plan adjustments designed to allow PECO to continue to meet its compliance targets within PECO's approved Plan budget while keeping a diverse array of measures available to customers through May 31, 2026. Specifically, PECO is proposing to: (1) transfer approximately $12.1 million from the

[1] *See Petition of PECO Energy Company for Approval of its Act 129 Phase IV Energy Efficiency and Conservation Plan*, Docket No. M-2020-3020830 (Order entered March 25, 2021).

Large Commercial and Industrial ("C&I") rate class to the Small C&I rate class within the Non-Residential Program to support higher than originally forecasted adoption of midstream point-of-sale ("POS") measures by Small C&I customers; (2) transfer approximately $1.5 million from the Large C&I sector budget in the Non-Residential Program to the Large C&I sector budget in the Residential Program to support non-residentially metered multi-family measures; (3) transfer approximately $8.4 million from the Large C&I rate class to the Small C&I rate class within the Non-Residential Program to support Street Lighting Measures;[2] (4) transfer approximately $99,000 from the Large C&I rate class to the Municipal Lighting rate class within the Non-Residential Program to support Street Lighting Measures; and (5) add new measures and modify existing measures in the Residential Program and Income-Eligible Program without budget impacts.

PECO has developed several summary tables (PECO Exhibit No. 1) to highlight certain Plan implementation data through November 30, 2023, and to provide an overview of the proposed Plan changes. The Company's Plan redline (PECO Exhibit No. 2) details how these proposals will impact projected energy savings, PDRs, cost allocations and budgets beginning with the current Plan program year (June 1, 2023 – May 31, 2024) through the end of the Phase IV Plan. As explained in this Petition, the redline also shows updated PDRs for all Phase IV program years for the Residential Home Energy Reports ("HER") Program and Income-Eligible HER Program.

[2] For purposes of this Petition, "Street Lighting Measures" refers to LED Pole/Arm Mounted Parking and Roadway Fixtures and Retrofit Kits. These measures are available to Large C&I, Small C&I and Municipal Lighting customers.

Upon implementation of these changes, PECO's Plan is projected to continue to exceed the Company's overall energy savings and PDR targets. In addition, the Plan will remain cost effective with a Total Resource Cost ("TRC") value of 1.10.

PECO's proposals include some changes that qualify as "minor" under the Commission's expedited review process and other changes that do not qualify for the expedited review process.[3] To facilitate review of PECO's proposals by the Commission and interested stakeholders, PECO is submitting both its major and minor proposed changes in a single petition and a single Plan redline (see PECO Exhibit No. 2). The Company requests that the Commission utilize the non-expedited review process for all of the Company's proposals. Accordingly, comments, answers or both would be filed within 30 days of service of this Petition, and all parties would have 20 days to file replies to any comments or answers.

The Company respectfully requests that the Commission resolve issues, if possible, on the basis of comments and reply comments and promptly approve PECO's proposals to improve its Phase IV Plan. As explained below, PECO already met with interested stakeholders to provide them with an overview of the Company's proposals.

II. BACKGROUND

1. PECO is a corporation duly incorporated and validly subsisting under the laws of the Commonwealth of Pennsylvania with its principal office in Philadelphia, Pennsylvania. PECO provides electric delivery service to approximately 1.7 million customers and natural gas delivery service to more than 545,000 customers in Pennsylvania.

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[3] *See Energy Efficiency and Conservation Program,* Docket No. M-2008-2069887 (Order entered June 10, 2011) ("*Minor Plan Change Order*"). The list of "minor" plan changes was refined in the Phase II Implementation Order. *See Energy Efficiency and Conservation Program Implementation Order*, Docket Nos. M-2012-2289411 and M-2008-2069887 (Order entered Aug. 3, 2012), p. 91. In its *Phase IV Implementation Order* (p. 96), the Commission determined that it would continue to use the minor plan change process. PECO's second, fourth and fifth proposals qualify as "minor" plan changes.

2. On October 15, 2008, then Governor Edward G. Rendell signed into law Act 129, which, among other things, added Section 2806.1 to the Pennsylvania Public Utility Code. The applicable provisions of Act 129 required Pennsylvania electric distribution companies ("EDCs") to file energy efficiency and conservation ("EE&C") plans by July 1, 2009, containing the plan elements specified in Section 2806.1(b) ("Phase I EE&C Program").[4] 66 Pa.C.S. § 2806.1(b). In addition, Sections 2806.1(c) and (d) required that EDCs' Phase I EE&C plans be designed: (1) to reduce retail energy consumption by a minimum of 1% by May 31, 2011, and a minimum of 3% by May 31, 2013; and (2) to reduce peak demand, measured by reference to the 100 highest hours of demand, by a minimum of 4.5% no later than May 31, 2013. 66 Pa.C.S. § 2806.1(c) and (d).

3. The EE&C plan filing requirements in Section 2806.1(b) mandated that energy savings be derived from certain customer segments during Phase I. For instance, a minimum of 10% of an EDC's consumption reductions had to be obtained from the governmental, educational, and nonprofit sector. 66 Pa.C.S. § 2806.1(b)(1)(i)(B). In addition, each EDC's Phase I plan was to include specific energy efficiency programs for households with income at or below 150% of the Federal Poverty Income Guidelines ("low-income sector") that are proportionate to such households' share of the total energy usage in the EDC's service territory. *Id.* § 2806.1(b)(1)(i)(G). Finally, an EDC's plan had to pass a TRC test to determine whether the avoided cost of supplying electricity is greater than the cost of a plan's energy efficiency and conservation measures. 66 Pa.C.S. § 2806.1(b)(1)(i)(I); *2016 Total Resource Cost (TRC) Test*, Docket No. M-2015-2468992 (Order entered June 22, 2015).

[4] 66 Pa.C.S. § 2806.1(l) exempts EDCs with fewer than 100,000 customers from this requirement.

4. Pursuant to the Act, EDCs are entitled to full and current cost recovery of prudent and reasonable costs, including administrative costs, but annual plan expenditures are limited to 2% of the EDC's total annual revenue as of December 31, 2006. 66 Pa.C.S. §§ 2806.1(g), (k). For PECO, this annual spending amount is approximately $85.5 million.

5. In compliance with Section 2806.1 and the Commission's Order entered January 15, 2009, at Docket No. M-2008-2069887, PECO submitted its EE&C plan for the Phase I EE&C Program on July 1, 2009. The Commission approved PECO's Phase I Plan, with modifications, on October 28, 2009.[5] PECO met its Phase I consumption reduction target, consumption reduction carve-outs, and PDR target.

6. Act 129 further required the Commission, by November 30, 2013, to evaluate the costs and benefits of the Phase I EE&C Program. If the benefits of the Program were found to exceed its costs, the Commission was directed to adopt "additional required incremental reductions in consumption" and "additional incremental requirements for reduction in peak demand." 66 Pa.C.S. §§ 2806.1(c)(3) and (d)(2). The Commission did so and has issued implementation orders for Phase II,[6] Phase III,[7] and Phase IV[8] of the EE&C program.

7. PECO submitted its Phase II Plan consistent with the *Phase II Implementation Order*, which the Commission approved on February 28, 2013. A voluntary DR program was

[5]*See Petition of PECO Energy Company for Approval of its Act 129 Energy Efficiency and Conservation Plan and Expedited Approval of its Compact Fluorescent Lamp Program*, Docket No. M-2009-2093215. Certain revisions were adopted in subsequent orders.

[6]*Energy Efficiency and Conservation Program*, Docket Nos. M-2012-2289411 and M-2008-2069887 (Order entered August 3, 2012) ("*Phase II Implementation Order*").

[7]*Energy Efficiency and Conservation Program*, Docket No. M-2014-2424864 (Order entered June 19, 2015) ("*Phase III Implementation Order*").

[8]*See Phase IV Implementation Order.*

added to the Phase II Plan on May 9, 2013.[9] PECO met its Phase II consumption reduction target and carve-outs.

8. PECO submitted its Phase III Plan consistent with the *Phase III Implementation Order*, which the Commission approved on May 19, 2016.[10] PECO met its Phase III targets and carve-outs.

9. In its *Phase IV Implementation Order*, the Commission established both consumption reduction and PDR targets for the five-year plan period of June 1, 2021, through May 31, 2026. PECO's total Phase IV MWh savings target is 1,380,837 MWh. The Company's total Phase IV PDR target is 256 MW and must be achieved exclusively with energy efficiency measures. The Commission also established a savings carve-out for the low-income sector. Under this carve-out, PECO must obtain 80,089 MWh of savings from programs solely directed at low-income customers or low-income-verified participants in multi-family housing programs.

10. Consistent with the *Phase IV Implementation Order*, PECO submitted a Phase IV Plan and cost recovery surcharge, both of which were approved by the Commission on March 25, 2021.

11. PECO's Plan has five programs: (1) the Residential Program; (2) the Income-Eligible Program; (3) the Residential HER Program; (4) the Income-Eligible HER Program; and (5) the Non-Residential Program. The Plan is designed to exceed PECO's energy savings and PDR targets.

[9]*See Petition of PECO Energy Company for Approval of its Act 129 Phase II Energy Efficiency and Conservation Plan*, Docket No. M-2012 2333992.

[10]*Petition of PECO Energy Company for Approval of its Act 129 Phase III Energy Efficiency and Conservation Plan*, Docket No. M-2015-2515691 (Order entered May 19, 2016) (further revisions to PECO's Phase III Plan were adopted in later orders in the same docket).

12. The Company's cost recovery mechanism, the Energy Efficiency and Conservation Program Cost ("EEPC"), provides, among other things, that "Costs that relate to measures that are applicable to more than one rate class or that are shown to provide system-wide benefits, will be allocated to each class based on the ratio of class-specific projected program costs to the total projected program costs."

III. PROPOSED CHANGES TO PECO'S PHASE IV PLAN

13. After reviewing Plan implementation data through November 30, 2023 (see, e.g., PECO Exhibit No. 1, Tables 1-3/3A), as well as updated savings and budget forecasts for the remainder of Phase IV, PECO believes that several budgetary transfers will improve the overall performance of the Phase IV Plan. As explained below, these transfers will support continued Plan implementation in areas with strong customer participation, including Small C&I POS measures, Large C&I multi-family measures and Street Lighting Measures. PECO will allocate the total projected Street Lighting Measure costs among Large C&I, Small C&I and Municipal Lighting classes in accordance with the EEPC cost allocation methodology described in Paragraph 12 of this Petition.

14. The Company is also proposing to add new measures and modify several existing measures in the Residential Program and Income-Eligible Program. Many of these changes will provide residential customers more opportunities to save energy and money while others will improve alignment among the programs and with protocols in the Technical Reference Manual ("TRM").

15. PECO's proposals will not increase the cost of the Phase IV Plan and the Company continues to project that the Plan will exceed PECO's overall energy savings and PDR compliance targets. Further, the Plan will remain cost-effective with an overall gross TRC of 1.10

16. PECO's proposals, if approved, will require the Company to amend associated existing Commission-approved Conservation Service Provider ("CSP") implementation contracts and obtain Commission approval of those amendments. Separately, if PECO's proposed budgetary transfers are approved, the Company may also request Commission approval of an interim revision of the EEPC to become effective ten days from the date of filing, unless otherwise ordered by the Commission.

A. Transfer of Approximately $12.1 Million from the Large C&I Rate Class to the Small C&I Rate Class Within the Non-Residential Program to Support Higher Than Originally Forecasted Adoption of Midstream POS Measures by Small C&I Customers (Major Change)

17. The Non-Residential rate classes currently have an overall approved budget of $290,501,464, with the budget allocations to the different non-residential customer classes as follows: $165,853,617 for the Large C&I rate class, $122,897,847 for the Small C&I rate class, and $1,750,000 for the Municipal Lighting rate class. PECO Exhibit No. 1, Table 4.

18. As shown in PECO Exhibit No. 1, Table 1, actual expenditures for the Large C&I rate class are substantially below the forecasts in the Company's approved Plan. This underperformance relates to Large C&I expenditures in the Non-Residential Program. *See* PECO Exhibit No. 1, Table 2. Program participation levels by Large C&I customers have been lower than originally forecast due to several market conditions, including lower building occupancy rates, higher interest rates, higher equipment costs and longer lead times on efficient equipment. Supply chain delays have eased for most lighting measures, and customer participation is strong. Long lead times remain, however, for heating, ventilating and air conditioning ("HVAC") and other non-lighting measures, which is impacting customer participation. It is uncertain at this time how much longer the supply chain issues will continue to impact the delivery and installation of non-lighting measures.

19. PECO has updated its forecast for the Non-Residential Program and believes that expenditures and savings for the Large C&I rate class will continue to be below the levels in the approved Plan based on current and expected market trends.

20. In contrast to the Large C&I trends in the Non-Residential Program, the Company is projecting a higher level of Small C&I expenditures and savings than what is stated in the current Phase IV Plan. As shown in PECO Exhibit No. 1, Table 1, actual expenditures for the Small C&I rate class are above the original forecasts. This overperformance is driven by the Small C&I expenditures in the Non-Residential Program. *See* PECO Exhibit No. 1, Table 2. Small C&I customer participation in the Program's midstream POS channel, which provides discounts at the time of sale, has been stronger than originally forecast. The midstream channel removes barriers to participation by eliminating the required paperwork effort and Small C&I customers are taking full advantage of the streamlined process to purchase discounted energy efficient products.

21. PECO has updated the Company's Small C&I forecast to reflect continued strong mid-stream channel participation along with increasing levels of participation in downstream and small business channels based on historic trends. The Company notes that, under the updated forecast, the existing budget allocation to the Small C&I rate class could be depleted by March 2025.

22. In light of the higher-than-expected Small C&I expenditures, as well as the revised budgetary forecast for Large C&I measures in the Non-Residential Program, PECO believes it would be beneficial to transfer approximately $12.1 million from the Large C&I rate class to the Small C&I rate class within the Non-Residential Program.

B. Transfer of Approximately $1.5 Million from the Large C&I Sector Budget in the Non-Residential Program to the Large C&I Sector Budget in the Residential Program to Support Multi-Family Measures (Minor Change)

23. The Residential Program incentivizes measures for multi-family properties, including commercially-metered properties for Small C&I or Large C&I customers. The Residential Program has incentive and CSP delivery fee budget allocations to the Non-Residential customer classes for multi-family measures of $2.45 million for Small C&I and $0.994 million for Large C&I. *See* Phase IV Plan, Appendix B, Table 10.

24. PECO expects that supporting future Large C&I multi-family projects will require funds beyond the current budget allocation. As shown in PECO Exhibit No. 1, Tables 3 and 3A, actual Residential Program expenditures for the Large C&I rate class are substantially above the forecasts in the Company's approved Plan. As of November 30, 2023, approximately $952,000, or 96%, of the total Large C&I incentive and administrative budget allocation in the Residential Program had been expended. Large C&I multi-family projects are very diverse in size and larger projects can qualify for a significant amount of incentives. A recent large Philadelphia Housing Authority multi-family project, for example, expended about $268,000 of the Large C&I budget allocation.

25. PECO has updated its forecast for Large C&I multifamily measures based on the current pipeline, market interest and run rate to date. The Company believes that an additional $1.5 million in funds will be necessary to keep Large C&I multi-family measures available for the remainder of the Plan. Without additional funds, the entire Plan budget allocation for Large C&I multi-family measures would be exhausted in 2024. PECO Exhibit No. 1, Table 6, summarizes the proposed budgetary changes for the Large C&I rate class within the Residential Program.

26. In light of the limited remaining Large C&I budget allocation for multi-family measures and forecasts for future Large C&I multi-family projects, as well as the revised budgetary forecast for Large C&I measures in the Non-Residential Program as described in Section III.A, PECO believes it would be beneficial to transfer approximately $1.5 million from the Large C&I sector budget in the Non-Residential Program to the Large C&I sector budget in the Residential Program. This transfer of funds between programs does not impact the overall Large C&I sector budget.

C. Transfer of Approximately $8.4 Million from the Large C&I Rate Class to Support Street Lighting Measures ($8.35 Million Transferred to the Small C&I Rate Class and $99,408 Transferred to the Municipal Lighting Rate Class) (Major Change)

27. The Non-Residential Program has three Street Lighting Measures that are available to customers in the Municipal Lighting, Small C&I and Large C&I rate classes. PECO has recently received Street Lighting Measure incentive applications from multiple Municipal Lighting, Small C&I and Large C&I customers that, in combination, could qualify for over $15 million in incentives. For example, the City of Philadelphia has submitted incentive applications related to a large-scale project to convert over 100,000 municipal streetlights to LED beginning in August 2023 and continuing for approximately 2 years. The project is estimated to generate 40,000-50,000 MWh in annual electric energy savings and support public safety by improving visibility for pedestrians, cyclists and motorists and by improving remote outage detection. The Company has over 90 other Street Lighting Measure applications from a range of Municipal (9), Small C&I (68) and Large C&I customers (15). The Company also anticipates that additional applications for Street Lighting Measure incentives will be submitted during the remaining term of the Plan.

28. As noted earlier, PECO's EEPC provides for the allocation of costs of a measure applicable to more than one rate class based on the ratio of class-specific projected program costs to the total projected program costs. PECO will allocate the total projected Street Lighting Measure costs among Large C&I, Small C&I and Municipal Lighting classes in accordance with this provision of the EEPC. If the Company's budgetary transfer requests described above are granted, the ratio of class-specific projected Non-Residential rate class costs[11] used to allocate the projected Street Lighting costs among all Non-Residential rate classes to the total projected Non-Residential rate class costs would be as follows: 51.55% Large C&I, 47.88% Small C&I, 0.56% Municipal Lighting (*see* PECO Exhibit No. 1 Table 4).

29. The total anticipated cost of the pending Street Lighting Measure incentive applications, including administrative costs, is approximately $17.4 million. Applying the allocation cost ratio identified in the preceding paragraph, the Street Lighting Measure costs would be recovered approximately as follows: $9.0 million from Large C&I, $8.4 million from Small C&I and $99,000 from Municipal Lighting.

30. Based on the overall updated expenditure forecasts for the remainder of the Phase IV Plan, neither the Small C&I rate class, nor the Municipal Lighting rate class have sufficient funds available to support their respective allocation of Street Lighting Measure costs. In light of these anticipated incentive and administrative costs for Street Lighting Measures as well as the revised budgetary forecast for Large C&I measures in the Non-Residential Program, PECO believes it would be beneficial to: (1) transfer approximately $8.4 million from the Large C&I rate class to the Small C&I rate class within the Non-Residential Program; and (2) transfer

[11] In calculating these ratios, PECO considered Program-related costs such as equipment, installation, and CSP administration. PECO did not include common costs and marketing cost when calculating these ratios as these costs are portfolio cross cutting costs and are subject to a different allocation methodology based on the proportionality of projected 1st-year MWh, consistent with the approved Phase IV Plan.

approximately $99,000 from the Large C&I rate class to the Municipal Lighting rate class within the Non-Residential Program. PECO Exhibit No. 1, Table 5, summarizes the overall proposed budgetary changes for each rate class within the Non-Residential Program.

D. Addition of Measures and Modification of Measures in the Residential Program and Income-Eligible Program (Minor Change)

31. PECO is proposing to add new measures and modify certain existing measures in the Residential Program and Income-Eligible Program to improve Program delivery. PECO Exhibit No. 1, Table 7 (Residential) and Table 8 (Income-Eligible), provide information about individual measure additions and modifications.

32. Several of the new measures, such as window heat pumps and smart water controls, have "interim measure protocols" or IMPs that were issued by the Statewide Evaluator ("SWE") after the approval of PECO's Phase IV Plan. By adding them as separate measures in the Plan, PECO can offer more specific rebate ranges instead of being limited to the general rebate range under the broad "custom" measure. Other new measures relate to different types of installations, such as dehumidifier recycling, that had also been previously addressed under the broad "custom" measure. The specificity of a measure allows for PECO to provide a targeted rebate range that appropriately offsets customer technology costs.

33. PECO is also proposing to expand the eligible technologies for certain existing measures, broaden the incentive range for "custom" measures to accommodate emerging technologies, and consolidate some existing insulation measures to be consistent with the TRM. Many of these changes will provide residential customers with more opportunities to save energy and money while others will improve alignment among the programs and with protocols in the TRM.

E. Updated PDR Values for the Residential HER Program and Income-Eligible HER Program (Minor Change)

34. The Residential HER Program and Income-Eligible HER Program are behavioral programs that use tailored energy reports to encourage customers to reduce their energy usage.

35. The PDR projections for the Residential HER Program and Income-Eligible HER Program in PECO's approved Plan were developed before the SWE updated its Evaluation Framework to address the calculation of PDRs from Phase IV behavioral programs.

36. Since Plan approval, the SWE has issued an updated Evaluation Framework concerning PDRs from Phase IV behavioral programs and PECO has contracted with a CSP to implement its behavioral programs.

37. As shown PECO Exhibit No. 1, Tables 9 and 10, PECO has updated its PDR projections for all Phase IV program years considering both the SWE's updated Evaluation Framework and the PDR targets in the Company's Commission-approved CSP contract.

IV. PECO NOTICE

38. PECO is serving copies of this filing on the Office of Consumer Advocate ("OCA"), the Office of Small Business Advocate ("OSBA"), the Commission's Bureau of Investigation and Enforcement, and all parties to the Company's Phase IV EE&C Plan proceeding.

39. The Company also briefed key stakeholders about the filing on February 22, 2024, including OCA, OSBA, the Public Utility Law Project, the Philadelphia Area Industrial Energy Users Group and the Industrial Energy Consumers of Pennsylvania.

40. In addition, the Company will post a complete redlined version of its proposed EE&C Plan on the Company's website: https://www.peco.com/my-account/my-dashboard/rates-tariffs/filings

V. CONCLUSION

Based on the above, including the attached Exhibits, PECO respectfully requests that the Commission grant this Petition and enter an Order approving the modifications to PECO's Phase IV Plan as shown in PECO Exhibit No. 2.

Respectfully submitted,

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Counsel for PECO Energy Company

Dated: March 4, 2024

VERIFICATION

I, Doreen L. Masalta, hereby declare that I am the Director of Energy and Marketing Services for PECO Energy Company; that, as such, I am authorized to make this verification on its behalf; that the facts set forth in the foregoing Petition are true and correct to the best of my knowledge, information and belief; and that I make this verification subject to the penalties of 18 Pa.C.S. § 4904 pertaining to false statements to authorities.

Dated: March 4th, 2024.

Doreen L. Masalta

Doreen L. Masalta

PECO EXHIBIT NO. 1

PECO EXHIBIT NO. 1

1. Summary Tables

Table 1. PY13 + PY14 + PY15 through 11/30/23 (Program to Date) Actual Spend Vs. Plan Budget by Rate Class

Rate Class	Program to Date Approved Plan Budget	Rate Class Share - Approved Plan	Program to Date Rate Class Spend - Actual	Rate Class Share – Actual	Program to Date Actual – Plan Variance (Plan - Actual)	% Actual Spend vs Plan Budget
Residential (RESI)	$67,406,777	32.43%	$69,730,649	37.05%	$2,323,872	103.45%
Small C&I (SCI)	$59,321,749	28.54%	$67,559,575	35.90%	$8,237,826	113.89%
Large C&I (LCI)	$80,258,632	38.62%	$50,012,187	26.58%	-$30,246,445	62.31%
Municipal Lighting (ML)	$847,445	0.41%	$887,851	0.47%	$40,406	104.77%
Totals	$207,834,603	100.00%	$188,190,262	100.00%	-$19,644,341	90.55%

Note: Approved & Actual Spend includes Program, Marketing and Common Costs

Table 2. Program to Date Actual Spend Vs. Plan Budget for the Non-Residential Program by Rate Class (Incentive + CSP Admin)

Rate Class	Program to Date Approved Plan Rate Class Budget	Rate Class Share in Non-RESI Program - Approved Plan	Program to Date Rate Class Spend - Actual	Rate Class Share in Non-RESI Program - Actual	Program to Date Actual – Plan Variance (Plan - Actual)	% Actual Spend vs Plan Budget
Small C&I	$50,259,995	42.60%	$61,499,159	59.47%	$11,239,165	122.36%
Large C&I	$67,058,367	56.83%	$41,117,451	39.76%	-$25,940,916	61.32%
Municipal Lighting	$675,844	0.57%	$795,672	0.77%	$119,828	117.73%
Totals	$117,994,205	100.00%	$103,412,283	100.00%	-$14,581,923	87.64%

Note: Table 2 does not include Marketing or Common Costs.

Table 3. Program to Date Actual Spend Vs. Plan Budget for the Residential Program by Rate Class (Incentive + CSP Admin)

Rate Class	Program to Date Approved Plan Rate Class Budget	Rate Class Share in RESI Program - Approved Plan	Program to Date Rate Class Spend - Actual	Rate Class Share in RESI Program - Actual	Program to Date Actual – Plan Variance (Plan - Actual)	% Actual Spend vs Plan Budget
Residential	$46,939,405	96.57%	$49,976,818	96.77%	$3,037,413	106.47%
Small C&I (Commercially metered Multi-Family buildings)	$1,185,731	2.44%	$713,964	1.38%	-$471,768	60.21%
Large C&I (Commercially metered Multi-Family buildings)	$480,634	0.99%	$952,075	1.84%	$471,441	198.09%
Totals	$48,605,770	100.00%	$51,642,857	100.00%	$3,037,087	106.25%

Note: Table 3 does not include Marketing or Common Costs.

Table 3 A. Residential Commercially Metered Multi-Family (MF) Portion of Commercial/Industrial Large Portfolio Total Plan Budget vs. Actual Spend Program to Date

Total Large C&I Component of Residential Program	Total Plan Approved Budget	Program to Date Spend - Actual	Total Approved vs. Spend thru 11/30/23
Residential (Commercially metered MF buildings) Total Plan Budget	$994,099	$952,075	95.77%

Note: Table 3A does not include Marketing or Common Costs.

2. Summary Information About PECO's Proposed Plan Changes by Rate Class and Program

A. Proposed Changes to Non-Residential Recovery Plan

Table 4. Development of Rate Class Allocation and Revised Non-Residential Recovery Plan

(1)	(2)	(3)	(4)=(3) +/- $12.1M	(5)=(4 / 4 total)	(6)=(5 x $17.44M)	(7)=(4 +/-6)	(8) = (7 / 7 total)	(9)	(10)
Rate Class	**Approved Non-Resi Budget with Marketing and Portfolio Common Costs**	**Approved Non-Resi Budget w/o Marketing & Portfolio Common Costs[2]**	**Budget net of moving $12.1M to SCI**	**Proposed Street Lighting (SL) Allocation Factors**	**Allocation of SL $17.44M**	**Updated Non-Resi Budget if PUC Approves Petition Changes**	**Percentage (%) of Updated Non-Resi Budget**	**Updated Non-Resi Budget w/Portfolio Common Costs[3]**	**Updated % of Non-Resi Budget w/Portfolio Common Costs**
SCI	$122,897,847	$106,405,685	$118,505,685	47.88%	$8,350,272	$126,855,957	51.26%	$145,771,232	50.18%
LCI	$165,853,617	$139,691,558	$127,591,558	51.55%	$8,990,320	$119,141,878	48.14%	$142,869,425	49.18%
ML	$1,750,000	$1,397,855	$1,397,855	0.56%	$99,408	$1,497,263	0.6%	$1,860,809[1]	0.6%
Non-Resi Total	$290,501,464	$247,495,098	$247,495,098	100%	$17,440,000	$247,495,098	100%	$290,501,465	100%

Note: [1] *Per the approved Phase IV Plan, the Municipal Lighting rate class totals are embedded in LCI and SCI Non-Residential Program segments.*

[2] *Common and marketing costs have been removed from column 3 as they are portfolio "cross-cutting" costs subject to a different allocation methodology. This methodology is based on the proportionality of projected 1st-year MWh, consistent with the approved Phase IV Plan as outlined in Plan Table 11. Allocation of Common Costs to Applicable Customer Sector.*

[3] *Column 9 demonstrates the final proposed rate class budgets including reallocated common and marketing costs in accordance with the approved Plan methodology.*

Table 5. Summary of Non-Residential Program Budget Changes

Non-Residential Program Approved Plan	Approved Program Budget (Incentive and CSP Admin)	Proposed Amended Program Budget (Incentive and CSP Admin)	Proposed % Change (Incentive and CSP Admin)
Residential	$0	$0	0.00%
Small Commercial	$104,817,502	$125,367,182	19.61%
Large Commercial	$139,231,037	$117,181,357	-15.84%
Total	$244,048,539	$242,548,539	-0.61%

Note: Table 5 does not include Marketing or Common Costs.

Program Change Highlights:

1. Transferred, approximately $8.4 million from the Large C&I rate class to the Small C&I rate class and $99,000 from Large C&I rate class to the Municipal Lighting rate class within the Non-Residential Program to support certain exterior lighting measures (LED Pole/Arm Mounted Parking and Roadway Fixtures and Retrofit Kits ("street lighting measures"))

2. Transferred approximately $12.1 million from the Large C&I rate class to the Small C&I rate class within the Non-Residential Program to support higher than forecasted adoption of midstream point-of-sale ("POS") measures by small C&I customers.

B. Proposed Changes to Residential Energy Efficiency Program

Table 6. Summary of Residential Program Budget Changes

Residential Program Approved Plan	Approved Program Budget (Incentive and CSP Admin)	Proposed Amended Program Budget (Incentive and CSP Admin)	Proposed % Change (Incentive and CSP Admin)
Residential	$59,434,216	$59,434,216	0.00%
Small Commercial	$2,452,460	$2,452,460	0.00%
Large Commercial	$994,099	$2,494,099	150.89%
Total	$62,880,775	$64,380,775	2.39%

Note: Table 6 does not include Marketing or Common Costs.

Program Change Highlights:

1. Transferred approximately $1.5 million from the Large C&I sector budget in the Non-Residential Program to the Large C&I sector budget in the Residential Program to support multi-family measures.

2. Added new measures to the Residential Program and changed the conditions of several existing measures.

Table 7. Summary of Residential Program Measure Additions and Changes

Measure	Unit	Approved Incentive Range ($/unit)	Proposed Incentive Range ($/unit)	Reason for Change
Residential ENERGY STAR Heat Pump Water Heater	Water Heater	$0 - $700	$0 - $1,000	Expand incentive range allowing for flexibility due to increased costs
Residential ENERGY STAR Refrigerator	Refrigerator	$0 - $20	No Change	Remove Most Efficient criteria to expand qualified products
Residential ENERGY STAR Clothes Washer	Clothes Washer	$0 - $25	No Change	Remove Most Efficient criteria to expand qualified products

Residential ENERGY STAR Air Source Heat Pump:	Outdoor unit	$0 - $700	$0 - $1,000	Remove Most Efficient criteria to expand qualified products Expand incentive range allowing for flexibility due to increased costs
Residential High Efficiency Central A/C	Outdoor unit	$0 - $300	$0 - $1,000	Remove ENERGY STAR criteria and changed to High Efficiency due to anticipated label changes and to maintain qualified products Expand incentive range allowing for flexibility due to increased costs
Residential ENERGY STAR Ductless Mini-Split Heat Pump (per Outdoor Unit)	Outdoor unit	$0 - $500	$0 - $1,000	Remove Most Efficient criteria to expand qualified products Expand incentive range allowing for flexibility due to increased costs
Residential ENERGY STAR Integral LED fixture: Indoor	Fixture	$0-10	$0-30	Expand incentive range allowing for flexibility due to increased costs
Residential Advanced Power Strips	Power Strip	$0 - $21	$0 - $50	Expand incentive range allowing for flexibility due to increased costs
C&I Interior Daylighting Controls	Sensor	$0-$25	$0-$50	Expand incentive range allowing for flexibility due to increased costs
C&I Interior Occupancy Controls	Sensor	$0-$25	$0-$50	Expand incentive range allowing for flexibility due to increased costs
C&I LED Exit Sign	Lamp	$0-$5	$0-$150	Expand incentive range allowing for flexibility due to increased costs
C&I LED Parking Garage and Canopy Fixtures and Retrofit Kits	Fixture	$0-$6	$0-$110	Expand incentive range allowing for flexibility due to increased costs
C&I LED Outdoor Flood Light Fixtures	Fixture	$0-$35	$0-$110	Expand incentive range allowing for flexibility due to increased costs
C&I ECM Circulation Pump	Pump	$0-$25	$0-$30	Expand incentive range allowing for flexibility due to increased costs

Residential ENERGY STAR Ductless Mini-Split Heat Pump (per Ton)	Ton	$0 - $30	$0 - $100	Remove Most Efficient criteria to expand qualified products Expand incentive range allowing for flexibility due to increased costs
C&I Air Cooled Heat Pump	Ton	$0-$35	$0-$85	Expand incentive range allowing for flexibility due to increased costs
C&I Air Cooled Air Conditioner	Ton	$0-$0	$0-$80	Expand incentive range allowing for flexibility due to increased costs
C&I LED Replacement Lamps (Tubes)	Fixture	$0-$0	$0-$10	Expand incentive range allowing for flexibility due to increased costs
C&I LED Pole/Arm Mounted Parking and Roadway Fixtures and Retrofit Kits	Fixture	$0-$0	$0-$55	Expand incentive range allowing for flexibility due to increased costs
C&I LED Troffer Fixtures and Retrofit Kits	Fixture	$0-$20	$0-$48	Expand incentive range allowing for flexibility due to increased costs
C&I VSD retrofit on HVAC Pump	HP	$0-$15	$0-$500	Expand incentive range allowing for flexibility due to increased costs
C&I LED Wall Mount Fixtures and Retrofit Kits	Fixture	$0-$45	$0-110	Expand incentive range allowing for flexibility due to increased costs
Residential A/R Dehumidifier Retirement	Per Unit	NEW	$0 - $71.25	Provide rebate range flexibility and measure specificity versus custom measure
Residential Adjust Thermostat Education	Per Account	NEW	$0 - $0	Accounting for savings attributable to in-person energy education
Residential CAC and Heat Pump Maintenance	Per System	$0-$175	$0 - $250	Administrative revision for naming consistency with the Technical Reference Manual (“TRM”) Expand incentive range to allow for flexibility due to increased costs
Residential Fluorescent in unit fixture	Per Fixture	NEW	$0 - $73	Measure added to provide additional energy savings
Residential Ceiling/Attic, Wall, Floor and Rim Joist Insulation	Per SQFT	$0 - $1.50	$0 - $3	Administrative revision for consistency with various insulation measures in TRM; Expand incentive range allowing for flexibility due to increased costs
Residential Custom	Per kWh	$0 - $0.05/kWh	$0 - $2.20	Expand incentive range allowing for flexibility due to increased costs and potential new measures and emerging technologies as identified in the TRM, Guidance Memos or approved Interim Measure Protocols (“IMPs”).

Residential Shorter Showers Education	Per Account	NEW	$0 - $0	Accounting for savings attributable to in-person energy education
Residential Smart Water Control	Per Unit	NEW	$0 - $199	New Smart Technology alternative to water heater timer. IMP approved.
Residential Wash Laundry in Cold Water Education	Per Account	NEW	$0 - $0	Accounting for savings attributable to in-person energy education
Residential Window Heat Pump	Per Unit	NEW	$0 - $2000	Cost-effective option for addressing heating and cooling zone issues. IMP approved.
Residential Drain Water Heat Recovery Units	Per Unit	NEW	$0 - $2000	TRM measure added to provide additional energy savings
Residential ENERGY STAR Air Purifier	Per Unit	$0-25	$0-$250	Expand incentive range allowing for flexibility due to increased costs
Residential ENERGY STAR Dehumidifier	Per Unit	$0-$50	$0-$500	Expand incentive range allowing for flexibility due to increased costs

C. Proposed Changes to Income-Eligible Energy Efficiency Program

Program Change Highlights:

1. Added new measures to the Income-Eligible Program and changed the conditions of several existing measures.

Table 8. Summary of Income-Eligible Program Measure Additions and Changes

Measure	Unit	Approved Incentive Range ($/unit)	Proposed Incentive Range ($/unit)	Reason for Change
Residential High Efficiency Central A/C	Ton	$0 - $1357	No Change	Remove ENERGY STAR criteria and change to High Efficiency due to anticipated label changes and to maintain qualified products.
Residential ENERGY STAR Heat Pump Water Heater	Water Heater	$0 - $2000	$0 - $4500	Expand incentive range to allow for flexibility due to increased costs
Residential ENERGY STAR Air Source Heat Pump: IE Direct Install)	Ton	$0 - $2000	$0-$4500	Remove Most Efficient criteria to expand qualified products Expand incentive range to allow for flexibility due to increased costs
Residential ENERGY STAR Ductless Mini-Split Heat Pump (per Ton)	Ton	$0 - $1500	$0-$6000	Remove Most Efficient criteria to expand qualified products Expand incentive range to allow for flexibility due to increased costs
Residential Drain Water Heat Recovery Units	Per Unit	NEW	$0 - $2000	TRM measure added to provide additional energy savings
Residential Window Heat Pump	Per Unit	NEW	$0 - $2000	Cost-effective option for addressing heating and cooling zone issues. IMP approved.
Residential Fluorescent in unit fixture	Per Fixture	NEW	$0 - $73	Measure added to provide additional energy savings
Residential Smart Water Control	Per Unit	NEW	$0-$199	New Smart Technology alternative to water heater timer. IMP approved.

Residential Wash Laundry in Cold Water Education	Per Account	NEW	$0 - $0	Accounting for savings attributable to in-person energy education
Residential Shorter Showers Education	Per Account	NEW	$0 - $0	Accounting for savings attributable to in-person energy education
Residential A/R Dehumidifier Retirement	Per Unit	NEW	$0 - $71.25	Provide rebate range flexibility and measure specificity versus custom measure
Residential Adjust Thermostat Education	Per Account	NEW	$0 - $0	Accounting for savings attributable to in-person energy education
Residential CAC and Heat Pump Maintenance	Per System	$0-$175	$0 - $450	Administrative revision for naming consistency with TRM Expand incentive range to allow for flexibility due to increased costs
Residential ENERGY STAR Dehumidifier	Per Unit	NEW	$0-$500	TRM measure added to provide additional energy savings
Residential ENERGY STAR Air Purifier	Per Unit	$0-$70	$0-$250	Expand incentive range allowing for flexibility due to increased costs

In the Approved Plan, PECO reserved the right to offer additional, no cost measures as outlined in the TRM. PECO is proposing to exercise this ability to include measures from the TRM, new Guidance Memos, and/or approved IMPs.

D. Proposed Changes to Residential Home Energy Reports ("HER") Program

Program Change Highlights:

1. Updated expected Residential HER Program demand savings with no adjustment to Program savings (kWh) or budgets. Changes are based on PECO's Commission-approved Conservation Service Provider contract for the Residential HER Program

Table 9. Summary of Residential HER Program Demand Reduction Changes

Measure	Metric	PY13	PY14	PY15	PY16	PY17	Total
Home Energy Reports	Approved Plan – Demand Reduction (MW)	8.39	9.93	8.67	8.59	8.37	43.95
	Plan Update - Demand Reduction (MW)	4.22	5.00	4.36	4.32	6.60	24.50

E. Proposed Changes to Income-Eligible HER Program

Update Highlight Summary:

1. Updated expected Income-Eligible HER Program demand savings with no adjustment to Program savings (kWh) or budgets. Changes are based on the Commission-approved Conservation Service Provider contract for the Income-Eligible HER Program.

Table 10. Summary of Income-Eligible HER Program Demand Reduction Changes

Measure	Metric	PY13	PY14	PY15	PY16	PY17	Total
Home Energy Reports	Approved Plan – Demand Reduction (MW)	.1908	.2874	.1908	.2874	.2099	1.1663
	Plan Update - Demand Reduction (MW)	.02	.02	.02	.02	.03	.10

PECO EXHIBIT NO. 2

PECO Program Years 13 to 17

Act 129 – Phase IV Energy Efficiency and Conservation Plan

Submitted to:

Pennsylvania Public Utility Commission

Submitted by:

~~February 26, 2021~~March 4, 2024

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Table of Acronyms

AC	Air Conditioning
BPI	Building Performance Indicator
C&I	Commercial and Industrial
CERP	Customized Energy Reduction Package
CFL	Compact Fluorescent Lamp
CRM	Customer Relationship Management
CSP	Conservation Service Provider
DOE	US Department of Energy
EAP	Electrical Association of Philadelphia
ECM	Electronically Commutated Motors
EDC	Electric Distribution Company
EE&C	Energy Efficiency and Conservation
EEPC	Energy Efficiency and Conservation Program Charge
EGS	Electric Generation Supplier
EM&V	Evaluation, Measurement, and Verification
FCM	Forward Capacity Market
FERC	Federal Energy Regulatory Commission
FTE	Full Time Equivalent
G/E/NP	Government, Educational, and Nonprofit
HER	Home Energy Report
HERS	Home Energy Rating System
HVAC	Heating, Ventilating, and Air Conditioning
IT	Information Technology
kW	Kilowatt
kWh	Kilowatt-hour
LED	Light-Emitting Diode
LIURP	Low-Income Usage Reduction Program
M&V	Measurement and Verification
MW	Megawatt
MWh	Megawatt-hour
NTG	Net-to-Gross Ratio
PDR	Peak Demand Reduction
POP	Point of Purchase
PUC	Public Utility Commission
PJM Interconnection	Pennsylvania Jersey and Maryland
PY	Program Year
QA	Quality Assurance
QC	Quality Control
R&D	Research and Development
RFP	Request for Proposal
TRC	Total Resource Cost
TRM	Technical Reference Manual

1. Overview of Plan

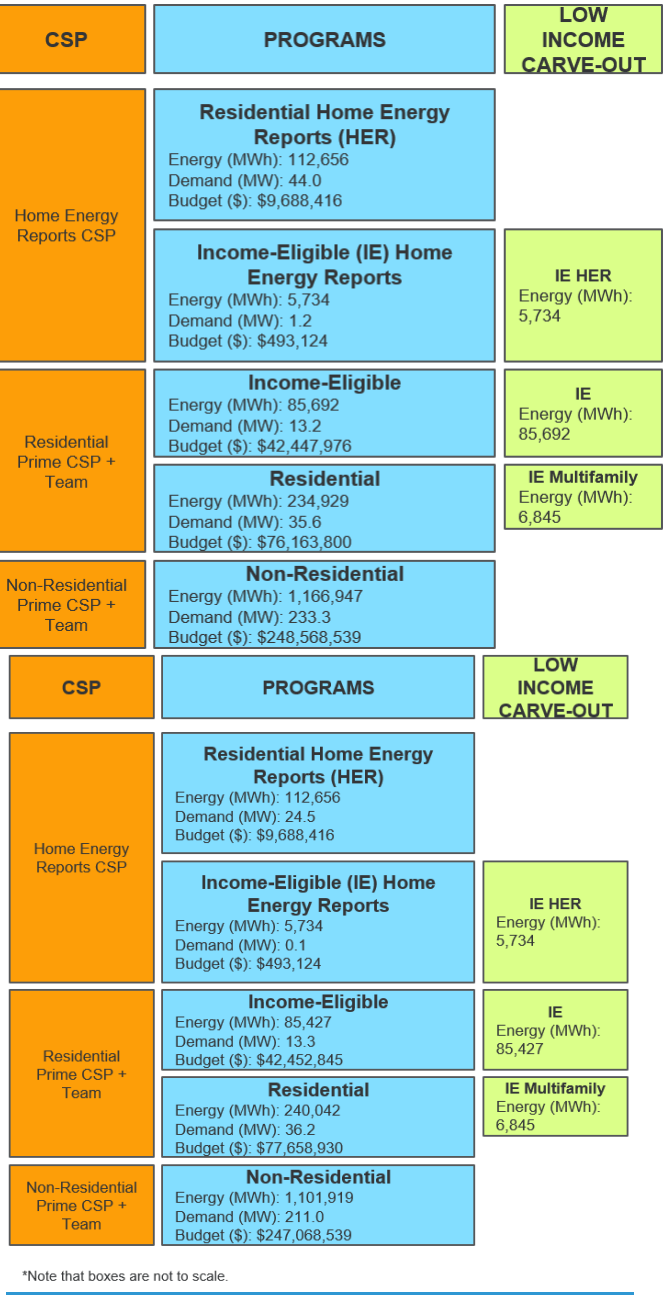
PECO's Phase IV Energy Efficiency Plan (EE&C plan or plan) is a customer-centric portfolio of offerings to meet its customers' energy saving needs, regardless of customer class. PECO's plan has five comprehensive customer programs:

- Residential
- Residential Home Energy Reports
- Income-Eligible
- Income-Eligible Home Energy Reports
- Non-Residential

PECO is competitively contracting with Conservation Service Providers (CSPs) to implement the Phase IV programs. A prime CSP for each program will manage a team of subcontractors to implement various program components. Additionally, PECO will hire an independent evaluation contractor to evaluate all of PECO's Phase IV programs.

Figure 1 shows the three prime CSPs, the five programs, and the programs that will contribute to the low income carve-out. The Home Energy Reports (HER) CSP will implement the Residential HER and Income-Eligible HER programs, the Residential Prime CSP and their team will implement the Income-Eligible and Residential programs, and the Non-Residential Prime CSP and their team will implement the Non-Residential program. Three programs will contribute to the low income carve-out savings: Income-Eligible HER, Income-Eligible, and Residential programs. Figure 1 does not show cross cutting portfolio costs but does include program allocated direct costs for marketing.

Figure 1. PECO's Phase IV Program Structure, Program Savings, and Program Budget



1.1 Summary Description of Plan, Objectives, and Overall Strategy

Phase IV covers five program years, starting June 1, 2021 and ending on May 31, 2026:

- **Program Year (PY) 13:** June 1, 2021 – May 31, 2022
- **PY 14:** June 1, 2022 – May 31, 2023
- **PY 15:** June 1, 2023 – May 31, 2024

- **PY 16:** June 1, 2024 – May 31, 2025
- **PY 17:** June 1, 2025 – May 31, 2026

The savings achieved under this plan will meet the energy and demand savings targets specified in the Public Utilities Commission (PUC) Implementation Order.[1] From June 1, 2021 through May 31, 2026, PECO shall achieve at least 1,380,837 MWh of energy savings and 256 MW of peak demand reduction with a budget of $427.4 million. The plan is designed to achieve a minimum of 15% of its total Phase IV savings targets each year.

The EE&C plan's objectives include:

- Delivering required energy savings and peak demand reduction with the broadest mix of cost-effective technologies
- Generating energy savings through streamlined processes that make participation easy for customers and market actors, striving to continuously provide customers with a positive experience and help them save energy in their homes and businesses
- Meeting data and documentation needs of evaluators and regulators
- Responsible use of Act 129 dollars on behalf of PECO's customers

PECO developed its program portfolio to offer a holistic, easy customer experience across its service territory. Programs are designed based on proven, tested, and commercially viable approaches. Aside from the HER programs, each program includes a mix of measures and treatments for customers and is structured to include interactions with multiple market actors across the value chain.

Key features of PECO's plan include:

- **Program Components:** Programs tailor service delivery to the needs of each customer class though program components. Section 3 details each program's components.
- **Customer and Market Actor Engagement:** The Residential, Income-Eligible, and Non-Residential programs will each use a customer relationship management (CRM) system to ensure all customers receive a comprehensive experience (Section 3.1.4 describes the meaning of comprehensive). The CRM system will contain all interactions CSPs and subcontractors have with customers. In addition, CSPs will provide support for when a customer, at any point in their energy efficiency journey, requires assistance to participate. Assistance includes appointment scheduling, application status, rebate status, completing an application, and responding to questions on eligibility. CSPs will provide customer assistance through outreach methods such as a call center, online chat, email, social media, texting, and apps.
- **Education and Outreach:** PECO will educate customers on energy efficiency by conducting outreach to schools, speaking with groups, hosting tables at events, and reaching diverse communities. PECO will also send customers emails, distribute program materials, and canvas neighborhoods. Additionally, PECO will leverage its strong relationships with community organizations, which, through annual sponsorships and other

[1] Implementation Order, Energy Efficiency and Conservation Program, Docket No. M-2020-3015228 (Order entered June 18, 2020) ("Final Implementation Order").

partner specific programs, will help spread the word to their constituents about energy efficiency.

PECO will include heat pump specific technology content within its customer newsletter (bill insert) twice a year as part of seasonal readiness communications. Content will include the benefits of heat pump technology and proper maintenance instructions. PECO will provide a post installation email to customers with instructions on proper temperature settings and an overview of how heat pump technology works with tips regarding minimization of auxiliary heat systems and proper maintenance (sourced by Energy Star®.) PECO will also work with the Electrical Association of Philadelphia (EAP) to develop a heat pump specific education curriculum including right-sizing, proper installation, and customer instruction, as part of the EAP education series. PECO will host one virtual and one in-person (post-pandemic) session for its contractor network each year throughout the phase.

- **Measure Mix:** PECO's goal is to achieve compliance targets with the broadest measure mix possible and with processes that make participation easy for customers and market actors. When CSPs review all the technologies and occupant behaviors in a home or building, they will arrive at the most comprehensive treatments or plans to adjust the behavior of occupants to use less energy.
- **Rebate Structure:** Per the Final Implementation Order, a minimum of 50% of the total phase budget is allocated to customer incentives (including direct installation measure costs and labor).

Figure 2, Figure 3, Figure 4, Figure 5, and Figure 6 provide a summary of PECO's expected energy savings (MWh), peak demand savings (MW), budget ($), Total Resource Costs (TRC), and incentive budget by program and in total for Phase IV.

Figure 2. Summary of PECO's Phase IV Plan: Annual Energy Savings (MWh) by Program

Programs	Annual Energy Savings (MWh)					
	PY13	PY14	PY15	PY16	PY17	5-Year Total
Residential	44,174	45,513	46,914	48,389	49,939	234,929
Income-Eligible	17,138	17,140	17,138	17,140	17,138	85,692
Non-Residential	174,863	233,474	291,873	291,873	174,864	1,166,947
Residential Home Energy Reports	21,507	25,447	22,234	22,012	21,456	112,656
Income-Eligible Home Energy Reports	938	1,413	938	1,413	1,032	5,734
Grand Total – All Phase IV Programs	***258,619***	***322,986***	***379,097***	***380,827***	***264,428***	***1,605,958***

Programs	Annual Energy Savings (MWh)					
	PY13	PY14	PY15	PY16	PY17	5-Year Total
Residential	44,174	45,513	48,314	50,284	51,758	240,042
Income-Eligible	17,138	17,140	16,597	17,285	17,269	85,427
Non-Residential	174,863	233,474	267,261	269,974	156,348	1,101,919
Residential Home Energy Reports	21,507	25,447	22,234	22,012	21,456	112,656
Income-Eligible Home Energy Reports	938	1,413	938	1,413	1,032	5,734
Grand Total – All Phase IV Programs	***258,619***	***322,986***	***355,343***	***360,968***	***247,863***	***1,545,779***

Figure 3. Summary of PECO's Phase IV Plan: Peak Demand Savings (MW) by Program

Programs	Peak Demand Reductions (MW)					
	PY13	PY14	PY15	PY16	PY17	5-Year Total
Residential	6.7	6.9	7.3	7.5	7.7	36.2
Income-Eligible	2.6	2.6	2.6	2.7	2.7	13.2
Non-Residential	34.9	46.7	49.7	49.7	29.9	211.0
Residential Home Energy Reports	4.2	5.0	4.4	4.3	6.6	24.5
Income-Eligible Home Energy Reports	0.0	0.0	0.0	0.0	0.0	0.1
Grand Total – All Phase IV Programs	***48.6***	***61.3***	***63.9***	***64.3***	***47.0***	***285.0***

Programs	Peak Demand Reductions (MW)					
	PY13	PY14	PY15	PY16	PY17	5-Year Total
Residential	6.7	6.9	7.1	7.3	7.5	35.6
Income-Eligible	2.6	2.6	2.6	2.6	2.6	13.2
Non-Residential	34.9	46.7	58.4	58.4	34.9	233.3
Residential Home Energy Reports	8.4	9.9	8.7	8.6	8.4	44.0
Income-Eligible Home Energy Reports	0.2	0.3	0.2	0.3	0.2	1.2
Grand Total – All Phase IV Programs	***52.9***	***66.5***	***77.0***	***77.2***	***53.7***	***327.2***

Figure 4. Summary of PECO's Phase IV Plan: Budget by Program, Common Costs, and Total

Program	Budget (Million $)						
	PY13	PY14	PY15	PY16	PY17	5-Year Total	Average Annual
Residential	$14.45	$14.82	$15.65	$16.16	$16.58	$77.66	$15.53
Income-Eligible	$8.49	$8.50	$8.33	$8.57	$8.57	$42.45	$8.49
Residential Home Energy Reports	$1.85	$2.19	$1.91	$1.89	$1.85	$9.69	$1.94
Income-Eligible Home Energy Reports	$0.08	$0.12	$0.08	$0.12	$0.09	$0.49	$0.10
Subtotal Residential Programs	***$24.87***	***$25.63***	***$25.97***	***$26.75***	***$27.08***	***$130.29***	***$26.06***
Non-Residential	$39.59	$49.23	$60.96	$61.91	$35.38	$247.07	$49.41
Subtotal Commercial & Industrial Programs	***$39.59***	***$49.23***	***$60.96***	***$61.91***	***$35.38***	***$247.07***	***$49.41***
Common Costs	***$10.00***	***$10.00***	***$10.00***	***$10.00***	***$10.00***	***$50.02***	***$10.00***
Grand Total – All Programs & Common Costs	***$74.46***	***$84.86***	***$96.93***	***$98.66***	***$72.47***	***$427.39***	***$85.48***

Program	Budget (Million $)						
	PY13	PY14	PY15	PY16	PY17	5-Year Total	Average Annual
Residential	$14.45	$14.82	$15.21	$15.62	$16.06	$76.16	$15.23
Income-Eligible	$8.49	$8.49	$8.49	$8.49	$8.49	$42.45	$8.49
Residential Home Energy Reports	$1.85	$2.19	$1.91	$1.89	$1.85	$9.69	$1.94
Income-Eligible Home Energy Reports	$0.08	$0.12	$0.08	$0.12	$0.09	$0.49	$0.10
Subtotal Residential Programs	***$24.87***	***$25.63***	***$25.69***	***$26.13***	***$26.48***	***$128.79***	***$25.76***
Non-Residential	$39.59	$49.23	$61.32	$61.32	$37.11	$248.57	$49.71
Subtotal Commercial & Industrial Programs	***$39.59***	***$49.23***	***$61.32***	***$61.32***	***$37.11***	***$248.57***	***$49.71***
Common Costs	***$10.00***	***$10.00***	***$10.00***	***$10.00***	***$10.00***	***$50.02***	***$10.00***
Grand Total – All Programs & Common Costs	***$74.46***	***$84.86***	***$97.02***	***$97.46***	***$73.59***	***$427.39***	***$85.48***

Figure 5. Summary of PECO's Phase IV Plan: TRC Analysis (including common costs)

Program	TRC Analysis				
	Discounted Benefits (Million $)[1]	Discounted Costs (Million $)[1]	Net Benefits (Million $)	B/C Ratio (Gross)	B/C Ratio (Net)
Residential	$155.07	$134.66	$20.41	1.15	1.02
Income-Eligible	$40.47	$38.59	$1.88	1.05	1.05
Residential Home Energy Reports	$12.72	$8.82	$3.90	1.44	1.44
Income-Eligible Home Energy Reports	$0.34	$0.45	-$0.11	0.75	0.75
Subtotal Residential Programs	***$208.60***	***$182.51***	***$26.08***	***1.14***	***1.05***
Non-Residential	$527.04	$438.04	$89.00	1.20	1.15
Subtotal Commercial & Industrial Programs	***$527.04***	***$438.04***	***$89.00***	***1.20***	***1.15***
Common Costs		***$45.36***			
Grand Total – All EE/DR Programs	***$735.64***	***$665.92***	***$69.72***	***1.10***	***1.03***

[1] *Cost and benefits discounted to PY13.*

Program	TRC Analysis				
	Discounted Benefits (Million $)[1]	Discounted Costs (Million $)[1]	Net Benefits (Million $)	B/C Ratio (Gross)	B/C Ratio (Net)
Residential	$154.32	$130.89	$23.43	1.18	1.04
Income-Eligible	$41.91	$38.59	$3.32	1.09	1.09
Residential Home Energy Reports	$17.20	$8.82	$8.38	1.95	1.95
Income-Eligible Home Energy Reports	$0.55	$0.45	$0.11	1.24	1.24
Subtotal Residential Programs	***$213.99***	***$178.75***	***$35.24***	***1.20***	***1.11***
Non-Residential	$562.71	$458.09	$104.62	1.23	1.18
Subtotal Commercial & Industrial Programs	***$562.71***	***$458.09***	***$104.62***	***1.23***	***1.18***
Common Costs		***$45.36***			
Grand Total – All EE/DR Programs	***$776.70***	***$682.21***	***$94.49***	***1.14***	***1.06***

[1] *Cost and benefits discounted to PY13.*

Figure 6. Summary of PECO's Phase IV Plan: Incentive Budget Percentage

Program	Incentive Budget (Million $)						
	PY13	PY14	PY15	PY16	PY17	5-Year Total	Average Annual
Residential	$6.55	$6.77	$7.19	$7.47	$7.71	$35.69	$7.14
Income-Eligible	$5.83	$5.84	$5.72	$5.90	$5.89	$29.19	$5.84
Residential Home Energy Reports	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Income-Eligible Home Energy Reports	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Subtotal Residential Programs	***$12.39***	***$12.61***	***$12.91***	***$13.37***	***$13.60***	***$64.88***	***$12.98***
Non-Residential	$27.32	$36.47	$45.21	$46.01	$25.79	$180.81	$36.16
Subtotal Commercial & Industrial Programs	***$27.32***	***$36.47***	***$45.21***	***$46.01***	***$25.79***	***$180.81***	***$36.16***
Total Portfolio Budget (Incentive, Admin & Common Costs)	***$74.46***	***$84.86***	***$96.93***	***$98.66***	***$72.47***	***$427.39***	***$85.48***
Incentive Budget as Percent of Total	***53%***	***58%***	***60%***	***60%***	***54%***	***57%***	***N/A***

Program	Incentive Budget (Million $)						
	PY13	PY14	PY15	PY16	PY17	5-Year Total	Average Annual
Residential	$6.55	$6.77	$6.99	$7.23	$7.47	$35.01	$7.00
Income-Eligible	$5.83	$5.84	$5.83	$5.84	$5.83	$29.19	$5.84
Residential Home Energy Reports	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Income-Eligible Home Energy Reports	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Subtotal Residential Programs	***$12.39***	***$12.61***	***$12.83***	***$13.07***	***$13.31***	***$64.20***	***$12.84***
Non-Residential	$27.32	$36.47	$45.59	$45.59	$27.32	$182.31	$36.46
Subtotal Commercial & Industrial Programs	***$27.32***	***$36.47***	***$45.59***	***$45.59***	***$27.32***	***$182.31***	***$36.46***
Total Portfolio Budget (Incentive, Admin & Common Costs)	***$74.46***	***$84.86***	***$97.02***	***$97.46***	***$73.59***	***$427.39***	***$85.48***
Incentive Budget as Percent of Total	***53%***	***58%***	***60%***	***60%***	***55%***	***58%***	***N/A***

1.2 Summary Description of Process Used to Develop the Phase IV Plan

PECO implemented a process in Phase III to observe program and portfolio performance, record learnings, and adjust programs as needed to improve outcomes. The learnings gained from this continuous improvement process and our knowledge of the regulatory environment in Pennsylvania helped inform the Phase IV plan.

First, we developed and set the structure of the programs, defined the payment structure for CSPs, and detailed how CSPs should approach the program development. We then created a Scope of Work defining specific program design elements and requested bidding CSPs to design programs that meet the Scope of Work's criteria.

We referenced the Pennsylvania Statewide Evaluator (SWE) Baseline[2] and Potential Studies[3] to determine savings and budget by program, the Tentative[4] and Final[5] Implementation Orders to identify specific regulatory requirements to incorporate into the Scope of Work , and the lessons learned from the Phase III evaluation and research to ensure the Scope of Work meets the needs of customers and other market actors.

Key elements of the CSP Scope of Work include:

- **Program savings and budget targets are derived from the Statewide Evaluator Phase IV Potential Study**

  The SWE conducted an energy efficiency and peak demand reduction potential study to support the development of electric distribution company (EDC) Phase IV portfolio designs. This study contains the best available data to guide PECO's planning and is the basis for compliance targets as defined in the Phase IV Final Implementation Order. Program savings targets are mapped from customer segment results in the potential study to ensure achievable goals for CSPs. The SWE Phase IV Potential Study includes expected budgets to achieve savings targets required for compliance. Program budget allocations are derived based on the potential study similarly to savings targets.

- **Program details are defined by the market**

  PECO released the CSP Requests for Proposals (RFPs) in August 2020, in accordance with the Company's PUC approved Phase IV RFP process. With this approach, CSPs contributed to the plan's design. This schedule also allows the CSPs time to start planning for Phase IV in early 2021 before Phase IV begins, providing a streamlined flow from Phase III to Phase IV.

  PECO developed a rigorous approach for CSPs to propose program implementation plans. The CSPs reviewed the Final Implementation Order and the SWE Potential Study. The CSPs developed the program structure, delivery channels, and eligible measures using historical PECO participation and savings data, evaluation reports, and interviews with market actors. They also calibrated the savings estimates to the 2021 Technical Reference Manual (TRM) and forecasted measure level adoption through 2026.

- **The CSP payment structure is a pay-for-savings model**

[2] 2018 Pennsylvania Statewide Act 129 Residential Baseline Study, February 12, 2019. http://www.puc.pa.gov/Electric/pdf/Act129/SWE-Phase3_Res_Baseline_Study_Rpt021219.pdf

2018 Non-Residential Baseline Study, February 2019. http://www.puc.pa.gov/Electric/pdf/Act129/SWE-Phase3_NonRes_Baseline_Study_Rpt021219.pdf

[3] Pennsylvania Act 129 - Phase IV Energy Efficiency and Peak Demand Reduction Market Potential Study Report, February 28, 2020. http://www.puc.pa.gov/pcdocs/1656474.pdf

Phase IV Demand Response Potential Study, February 2020. http://www.puc.pa.gov/pcdocs/1656475.pdf

[4] Phase IV Tentative Implementation Order The Act 129 Phase IV EE&C Program Tentative Implementation Order. From the Public Meeting of March 12, 2020. Docket No. M-2020-3015228.

[5] Phase IV Final Implementation Order – The Act 129 Phase IV EE&C Program Implementation Order. From the Public Meeting of June 18, 2020. Docket No. M-2020-3015228.

PECO must meet megawatt-hour and megawatt goals. PECO will pay CSPs for megawatt-hours that meet those goals ($/verified MWh). This protects ratepayer funding by only paying CSPs for verified savings.

PECO met with stakeholders, presented the EE&C plan, and incorporated recommendations into the plan.

1.3 Summary Tables of Portfolio Savings Goals, Budget and Cost-Effectiveness

PECO will invest up to $427.4 million in energy efficiency and peak demand reduction programs over a 5-year program period (PY 13 through PY 17). It plans to achieve approximately ~~116~~112% of the energy savings target established in the Final Implementation Order. Consistent with Phase IV requirements, PECO developed this plan to meet or exceed the required 5.8% of the overall energy savings target from the low-income sector. PECO plans to achieve approximately 111~~128~~% of the PY 13–PY 17 peak demand reduction (PDR) target of 256 MW.

Figure 1 presents the Phase IV portfolio structure. Section 3 provides full descriptions of each program.

Table 1 through Table 4 summarize PECO's lifetime costs and benefits of energy efficiency measures, portfolio energy and demand savings by program year, and portfolio costs by program year. Note these tables provide data at the sector level and sector level breakouts do not directly map to programs. Therefore, these tables should not be directly compared to Figure 1.

Table 1. Portfolio Summary of Lifetime Costs and Benefits of Energy Efficiency Measures

Portfolio[1]	Total Discounted Lifetime Costs ($000)[2]	Total Discounted Lifetime Benefits ($000)	Total Discounted Net[3] Lifetime Benefits ($000)	Cost-Benefit Ratio (TRC)
Residential (*exclusive of Low-Income*)[4]	$129,306	$153,919	$24,614	1.19
Residential Low-Income	$40,732	$44,761	$4,029	1.10
Commercial/Industrial Small	$204,208	$277,588	$73,380	1.36
Commercial/Industrial Large	$246,313	$259,370	$13,057	1.05
Total	$620,558	$735,638	$115,080	1.19

1 Portfolio sector breakouts do not map directly to programs. Multifamily master-metered and common space measures are attributed to the small and large commercial sectors and delivered through the Residential Energy Efficiency program.
2 Sector portfolio costs do not include portfolio level cross-cutting allocations.
3 "Net" refers to the arithmetic difference between the previous two columns. It does not refer to net verified savings.
4 The June 18, 2020 Implementation Order disallowed the inclusion of low-income participation in standard, non-low-income-specific residential programs in the calculation of savings towards the low-income carve-out. See June 18, 2020 Implementation Order at 28.

Portfolio[1]	Total Discounted Lifetime Costs ($000)[2]	Total Discounted Lifetime Benefits ($000)	Total Discounted Net[3] Lifetime Benefits ($000)	Cost-Benefit Ratio (TRC)
Residential (*exclusive of Low-Income*)[4]	$129,036	$160,171	$31,134	1.24
Residential Low-Income	$40,782	$46,427	$5,645	1.14
Commercial/Industrial Small	$168,178	$232,843	$64,665	1.38
Commercial/Industrial Large	$298,845	$337,255	$38,410	1.13
Total	$636,841	$776,696	$139,855	1.22

1 Portfolio sector breakouts do not map directly to programs. Multifamily master-metered and common space measures are attributed to the small and large commercial sectors and delivered through the Residential Energy Efficiency program.
2 Sector portfolio costs do not include portfolio level cross-cutting allocations.
3 "Net" refers to the arithmetic difference between the previous two columns. It does not refer to net verified savings.
4 The June 18, 2020 Implementation Order disallowed the inclusion of low-income participation in standard, non-low-income-specific residential programs in the calculation of savings towards the low-income carve-out. See June 18, 2020 Implementation Order at 28.

Table 2. Summary of Portfolio Energy Savings

MWh Saved for Consumption Reductions (Meter-Level)	PY13		PY14		PY15		PY16		PY17		Total	
	1st-Year MWh	Lifetime MWh	1st-Year MWh	Lifetime MWh	1st-Year MWh	Lifetime MWh	1st-Year MWh	Lifetime MWh	1st-Year MWh	Lifetime MWh	Sum of 1st-Year MWh	Lifetime MWh
Baseline[1]	39,386,000	N/A[4]	39,386,000	N/A[4]	39,386,000	N/A[4]	39,386,000	N/A[4]	39,386,000	N/A[4]	39,386,000	N/A[4]
Residential Sector (*exclusive of Low-Income*) – **Cumulative Projected Portfolio Savings**	61,162	479,288	66,441	535,038	63,842	530,038	65,596	552,699	66,513	570,608	323,555	2,667,671
Residential Low-Income Sub-Sector – Cumulative Projected Portfolio Savings	19,445	188,539	19,922	191,293	18,904	174,892	20,067	184,532	19,670	183,496	98,006	922,753
Commercial/Industrial Small Sector – Cumulative Projected Portfolio Savings[5]	68,250	765,282	90,439	1,015,305	148,517	1,641,712	149,908	1,651,621	88,419	990,193	545,533	6,064,113
Commercial/Industrial Large Sector – Cumulative Projected Portfolio Savings[5]	109,762	1,360,228	146,185	1,812,073	124,080	1,466,386	125,398	1,473,892	73,260	878,564	578,684	6,991,143
EE&C Plan Total – Cumulative Projected Savings	258,619	2,793,337	581,605	6,347,045	936,948	10,160,074	1,297,916	14,022,818	1,545,779	16,645,680	1,545,779	16,645,680
EE&C Plan Total – Percentage of Target to be Met	19%	N/A[4]	23%	N/A[4]	26%	N/A[4]	26%	N/A[4]	18%	N/A[4]	112%	N/A[4]
Estimated Phase III Carryover Savings	0	0	0	0	0	0	0	0	0	0	0	0
Total Cumulative Projected Savings Phase IV + Estimated Phase III Carryover Savings	258,619	2,793,337	581,605	6,347,045	936,948	10,160,074	1,297,916	14,022,818	1,545,779	16,645,680	1,545,779	16,645,680
EE&C Plan Total – Percentage of Target to be Met[2]	19%	N/A[4]	23%	N/A[4]	26%	N/A[4]	26%	N/A[4]	18%	N/A[4]	112%	N/A[4]
Percent Reduction from Baseline	0.7%	N/A[4]	0.8%	N/A[4]	0.9%	N/A[4]	0.9%	N/A[4]	0.6%	N/A[4]	3.9%	N/A[4]
Commission-Identified Goal[1]	1,380,837	N/A[4]	1,380,837	N/A[4]	1,380,837	N/A[4]	1,380,837	N/A[4]	1,380,837	N/A[4]	1,380,837	N/A[4]
Percent Savings due to Portfolio Above or Below Commission-Identified Goal[3]	4%	N/A[4]	8%	N/A[4]	11%	N/A[4]	11%	N/A[4]	3%	N/A[4]	12%	N/A[4]

1 As defined in the June 18, 2020 Implementation Order.
2 The June 18, 2020 Implementation Order directed that EDCs achieve at least 15 percent of the target amount in each program year.
3 Percent savings based on 15 percent annual goal per year and Phase goal for total.
4 Baseline for lifetime saving and goal not applicable.
5 The small and large commercial/industrial sectors include municipal lighting savings. The small CI and large CI sector phase total sum of 1st-Year energy savings is 54,647 MWh and 2,381 MWh respectively.

MWh Saved for Consumption Reductions (Meter-Level)	PY13		PY14		PY15		PY16		PY17		Total	
	1st-Year MWh	Lifetime MWh	1st-Year MWh	Lifetime MWh	1st-Year MWh	Lifetime MWh	1st-Year MWh	Lifetime MWh	1st-Year MWh	Lifetime MWh	Sum of 1st-Year MWh	Lifetime MWh
Baseline[1]	39,386,000	N/A[4]	39,386,000	N/A[4]	39,386,000	N/A[4]	39,386,000	N/A[4]	39,386,000	N/A[4]	39,386,000	N/A[4]
Residential Sector (*exclusive of Low-Income*) – **Cumulative Projected Portfolio Savings**	61,162	479,288	66,441	535,038	64,633	545,145	65,887	563,926	66,880	582,809	325,004	2,706,205
Residential Low-Income Sub-Sector – Cumulative Projected Portfolio Savings	19,445	188,539	19,922	191,293	19,445	188,539	19,922	191,293	19,539	190,276	98,271	949,941
Commercial/Industrial Small Sector – Cumulative Projected Portfolio Savings[5]	68,250	765,282	90,439	1,015,305	112,456	1,262,901	112,456	1,262,901	68,249	765,246	451,850	5,071,636
Commercial/Industrial Large Sector – Cumulative Projected Portfolio Savings[5]	109,762	1,360,228	146,185	1,812,073	182,563	2,263,664	182,563	2,263,664	109,761	1,360,211	730,833	9,059,841
EE&C Plan Total – Cumulative Projected Savings	258,619	2,793,337	581,605	6,347,045	960,702	10,607,296	1,341,529	14,889,081	1,605,958	17,787,622	1,605,958	17,787,622
EE&C Plan Total – Percentage of Target to be Met	19%	N/A[4]	23%	N/A[4]	27%	N/A[4]	28%	N/A[4]	19%	N/A[4]	116%	N/A[4]
Estimated Phase III Carryover Savings	0	0	0	0	0	0	0	0	0	0	0	0
Total Cumulative Projected Savings Phase IV + Estimated Phase III Carryover Savings	258,619	2,793,337	581,605	6,347,045	960,702	10,607,296	1,341,529	14,889,081	1,605,958	17,787,622	1,605,958	17,787,622
EE&C Plan Total – Percentage of Target to be Met[2]	19%	N/A[4]	23%	N/A[4]	27%	N/A[4]	28%	N/A[4]	19%	N/A[4]	116%	N/A[4]
Percent Reduction from Baseline	0.7%	N/A[4]	0.8%	N/A[4]	1.0%	N/A[4]	1.0%	N/A[4]	0.7%	N/A[4]	4.1%	N/A[4]
Commission-Identified Goal[1]	1,380,837	N/A[4]	1,380,837	N/A[4]	1,380,837	N/A[4]	1,380,837	N/A[4]	1,380,837	N/A[4]	1,380,837	N/A[4]
Percent Savings due to Portfolio Above or Below Commission-Identified Goal[3]	4%	N/A[4]	8%	N/A[4]	12%	N/A[4]	13%	N/A[4]	4%	N/A[4]	16%	N/A[4]

1 As defined in the June 18, 2020 Implementation Order.
2 The June 18, 2020 Implementation Order directed that EDCs achieve at least 15 percent of the target amount in each program year.
3 Percent savings based on 15 percent annual goal per year and Phase goal for total.
4 Baseline for lifetime saving and goal not applicable.
5 The small and large commercial/industrial sectors include municipal lighting savings. The small CI and large CI sector phase total sum of 1st-Year energy savings is 4,647 MWh and 3,106 MWh respectively.

Table 3. Summary of Portfolio Demand Savings

MW Saved for Consumption Reductions (System-Level)	PY13		PY14		PY15		PY16		PY17		Total	
	1st-Year MW	Lifetime MW	1st-Year MW	Lifetime MW	1st-Year MW	Lifetime MW	1st-Year MW	Lifetime MW	1st-Year MW	Lifetime MW	1st-Year MW	Lifetime MW
Baseline[1]	7,899	N/A[4]	7,899	N/A[4]	7,899	N/A[4]	7,899	N/A[4]	7,899	N/A[4]	7,899	N/A[4]
Residential Sector (*exclusive of Low-Income*) – **Cumulative Projected Portfolio Savings**	10	N/A[4]	11	N/A[4]	11	N/A[4]	11	N/A[4]	14	N/A[4]	57	N/A[4]
Residential Low-Income Sub-Sector – Cumulative Projected Portfolio Savings	3	N/A[4]	3	N/A[4]	3	N/A[4]	3	N/A[4]	3	N/A[4]	14	N/A[4]
Commercial/Industrial Small Sector – Cumulative Projected Portfolio Savings[5]	12	N/A[4]	16	N/A[4]	27	N/A[4]	27	N/A[4]	16	N/A[4]	98	N/A[4]
Commercial/Industrial Large Sector – Cumulative Projected Portfolio Savings[5]	23	N/A[4]	31	N/A[4]	24	N/A[4]	24	N/A[4]	14	N/A[4]	115	N/A[4]
EE&C Plan Total – Cumulative Projected Savings	49	N/A[4]	110	N/A[4]	174	N/A[4]	238	N/A[4]	285	N/A[4]	285	N/A[4]
EE&C Plan Total – Percentage of Target to be Met[2]	19%	N/A[4]	24%	N/A[4]	25%	N/A[4]	25%	N/A[4]	18%	N/A[4]	111%	N/A[4]
Percent Reduction from Baseline	0.6%	N/A[4]	0.8%	N/A[4]	0.8%	N/A[4]	0.8%	N/A[4]	0.6%	N/A[4]	3.6%	N/A[4]
Commission-Identified Goal[1]	256	N/A[4]	256	N/A[4]	256	N/A[4]	256	N/A[4]	256	N/A[4]	256	N/A[4]
Percent Savings due to Portfolio Above or Below Commission-Identified Goal	4%	N/A[4]	9%	N/A[4]	10%	N/A[4]	10%	N/A[4]	3%	N/A[4]	11%	N/A[4]

1 As defined in the June 18, 2020 Implementation Order.
2 The June 18, 2020 Implementation Order directed that EDCs achieve at least 15 percent of the target amount in each program year.
3 Percent savings based on 15 percent annual goal per year and Phase goal for total.
4 Baseline for lifetime saving and goal not applicable.
5 The small and large commercial/industrial sectors include municipal lighting savings. These measures have exterior lighitng loadshapes and therefore do not contribute to pead demand reductions.

MW Saved for Consumption Reductions (System-Level)	PY13		PY14		PY15		PY16		PY17		Total	
	1st-Year MW	Lifetime MW	1st-Year MW	Lifetime MW	1st-Year MW	Lifetime MW	1st-Year MW	Lifetime MW	1st-Year MW	Lifetime MW	1st-Year MW	Lifetime MW
Baseline[1]	7,899	N/A[4]	7,899	N/A[4]	7,899	N/A[4]	7,899	N/A[4]	7,899	N/A[4]	7,899	N/A[4]
Residential Sector (*exclusive of Low-Income*) – **Cumulative Projected Portfolio Savings**	15	N/A[4]	16	N/A[4]	15	N/A[4]	15	N/A[4]	15	N/A[4]	77	N/A[4]
Residential Low-Income Sub-Sector – Cumulative Projected Portfolio Savings	3	N/A[4]	3	N/A[4]	3	N/A[4]	3	N/A[4]	3	N/A[4]	15	N/A[4]
Commercial/Industrial Small Sector – Cumulative Projected Portfolio Savings[5]	12	N/A[4]	16	N/A[4]	20	N/A[4]	20	N/A[4]	12	N/A[4]	82	N/A[4]
Commercial/Industrial Large Sector – Cumulative Projected Portfolio Savings[5]	23	N/A[4]	31	N/A[4]	38	N/A[4]	38	N/A[4]	23	N/A[4]	154	N/A[4]
EE&C Plan Total – Cumulative Projected Savings	53	N/A[4]	119	N/A[4]	196	N/A[4]	274	N/A[4]	327	N/A[4]	327	N/A[4]
EE&C Plan Total – Percentage of Target to be Met[2]	21%	N/A[4]	26%	N/A[4]	30%	N/A[4]	30%	N/A[4]	21%	N/A[4]	128%	N/A[4]
Percent Reduction from Baseline	0.7%	N/A[4]	0.8%	N/A[4]	1.0%	N/A[4]	1.0%	N/A[4]	0.7%	N/A[4]	4.1%	N/A[4]
Commission-Identified Goal[1]	256	N/A[4]	256	N/A[4]	256	N/A[4]	256	N/A[4]	256	N/A[4]	256	N/A[4]
Percent Savings due to Portfolio Above or Below Commission-Identified Goal	6%	N/A[4]	11%	N/A[4]	15%	N/A[4]	15%	N/A[4]	6%	N/A[4]	28%	N/A[4]

1 As defined in the June 18, 2020 Implementation Order.
2 The June 18, 2020 Implementation Order directed that EDCs achieve at least 15 percent of the target amount in each program year.
3 Percent savings based on 15 percent annual goal per year and Phase goal for total.
4 Baseline for lifetime saving and goal not applicable.
5 The small and large commercial/industrial sectors include municipal lighting savings. These measures have exterior lighitng loadshapes and therefore do not contribute to pead demand reductions.

Table 4. Summary of Portfolio Costs

Sector	PY13		PY14		PY15		PY16		PY17	
	$000	%	$000	%	$000	%	$000	%	$000	%
Residential Portfolio Annual Budget	$15,053	20%	$15,790	19%	$15,789	16%	$16,295	17%	$16,695	23%
Residential Low-Income Portfolio Annual Budget	$8,938	12%	$8,965	11%	$8,695	9%	$8,980	9%	$8,918	12%
Commercial/Industrial Small Portfolio Annual Budget	$17,468	23%	$21,748	26%	$35,067	36%	$35,521	36%	$20,809	29%
Commercial/Industrial Large Portfolio Annual Budget	$23,001	31%	$28,355	33%	$27,378	28%	$27,859	28%	$16,039	22%
Common Costs	$10,005	13%	$10,005	12%	$10,005	10%	$10,005	10%	$10,005	14%
Total Portfolio Annual Budget	**$74,464**	**100%**	**$84,862**	**100%**	**$96,934**	**100%**	**$98,659**	**100%**	**$72,466**	**100%**

Sector	PY13		PY14		PY15		PY16		PY17	
	$000	%	$000	%	$000	%	$000	%	$000	%
Residential Portfolio Annual Budget	$15,060	20%	$15,797	19%	$15,938	16%	$16,355	17%	$16,764	23%
Residential Low-Income Portfolio Annual Budget	$8,931	12%	$8,958	11%	$8,888	9%	$8,915	9%	$8,852	12%
Commercial/Industrial Small Portfolio Annual Budget	$17,468	23%	$21,748	26%	$26,939	28%	$26,936	28%	$16,518	22%
Commercial/Industrial Large Portfolio Annual Budget	$23,001	31%	$28,355	33%	$35,247	36%	$35,246	36%	$21,448	29%
Common Costs	$10,005	13%	$10,005	12%	$10,005	10%	$10,005	10%	$10,005	14%
Total Portfolio Annual Budget	**$74,464**	**100%**	**$84,862**	**100%**	**$97,016**	**100%**	**$97,456**	**100%**	**$73,587**	**100%**

1.4 Summary of Program Implementation

Program implementation from Phase III to Phase IV will be as seamless as possible based on PECO's planning for Phase IV. In March 2021, PECO and CSPs will kick-off the program pre-launch process. During pre-launch, CSPs will assign key staff and ensure all customer support systems and marketing and outreach is in place. The programs will launch on June 1, 2021 and implementation will occur from June 1, 2021 through May 31, 2026.

1.5 Summary Description of PECO's Strategy to Acquire at Least 15% of Its Consumption Reduction and Peak Demand Reduction Target Each Year

PECO's program portfolio is designed to produce significant savings in each of the five program years. As Table 2 and Table 3 show (above), PECO projects that no less than 19% of the 5-year savings and PDR targets will be achieved in each program year.

1.6 Summary Description of the Program or Measure Categories from which PECO Intends to Nominate Peak Demand Reductions into PJM's Forward Capacity Market

PECO will nominate up to 50 MW of PDRs from its portfolio of energy-efficiency programs into the PJM forward capacity market no earlier than PY 16. The programs and measures selected for bidding will meet the eligibility requirements for energy efficiency resources as outlined in PJM Manual 18b.[6] PECO recognizes that revenue from PJM can contribute to a reduced ratepayer burden for energy efficiency programs and intends to balance this benefit to its customers against the risk posed to customers by the potential for deficiency charges from PJM. To meet the order requirement for Phase IV, PECO will issue an RFP for a vendor to supply PJM bidding services. The RFP will be a competitive solicitation for a turnkey provider of these services. PECO expects the provider to handle all details of bidding into the Reliability Pricing Model, including the selection of measures and programs, submitting documentation as required by PJM, and the actual bidding services. PECO further expects the provider will assume all risk associated with bidding (to include potential deficiency charges, audit risk, and M&V compliance risk) in return for some portion of the revenues generated by bidding into the PJM capacity market. As part of the competitive solicitation process, PECO will seek to minimize the portion of the revenues retained by the turnkey provider ("Provider Revenues"). All such revenues, net of any Provider Revenues paid, will be returned to customers as an offset to Plan costs. PECO will submit its proposed contract with the turnkey provider to the Commission consistent with the process for all CSP contracts.

[6] PJM Manual 18B: Energy Efficiency Measurement and Verification. https://www.pjm.com/-/media/documents/manuals/m18b.ashx

1.7 Summary Descriptions of PECO's Implementation Strategy to Manage the EE&C Portfolio and Engage Customers and Trade Allies

PECO will take several steps to ensure the effective Act 129-compliant implementation of this EE&C plan. These steps include:

- **Close Coordination Between PECO and the CSPs:** PECO will oversee the performance and service obligations of CSPs and make sure the CSP's delivery is aligned with the approved EE&C plan.
- **Customer and Market Actor Experience:** A positive customer and market actor experience is essential. CSPs will work closely with customers throughout Phase IV to help incorporate energy efficiency into their long-term planning projects. Customers will be offered innovative options to engage with the program and market actors will be supported for their program participation.
- **Awareness and Education:** PECO will maintain its general education campaign to inform customers and other stakeholders about the programs, PECO's commitment to reducing customer electricity use, and the benefits of energy efficiency and demand reductions. These activities may include, but are not limited to:
    - Raise awareness and familiarity of PECO's energy efficiency programs
    - Create new innovative ways to engage the community
    - Provide interactive energy efficiency displays, fun educational games, attractive table/booth décor, program flyers, and promotional giveaway items as appropriate for each event
    - Develop a strategy to leverage existing community partnerships in delivering educational outreach
    - Raise awareness and use of PECO's educational tools and calculators offered on peco.com and My Account
    - Manage the Energy Force Ambassador program, which empowers people with disabilities to become energy efficiency educators and ambassadors in the greater Philadelphia region
- **Data tracking system:** A third-party database vendor will maintain PECO's tracking database. Database protocols ensure accurate data entry through proper field definitions and input validations. Program activity tracking queries facilitate program tracking and reporting for PECO and the PUC. The implementation CSPs upload program data into the database at defined intervals and according to the data protocols. The independent evaluation contractor can access the information in the database.
- **Pre-launch period:** The implementation schedule for each program includes a pre-launch period to properly prepare for the program launch. This time will be used to refine the program, develop protocols and training materials, recruit trade allies, conduct educational activities, and develop and print incentive applications. The elements will be in place prior to full program operation. They will also be reviewed during process evaluations so that improvements may be incorporated during this plan cycle.

- **Continuous improvement:** PECO and its independent evaluation contractor will review program protocols, procedures, participant and market actor satisfaction, savings, and spending to identify and address issues that arise during program operation and to facilitate ongoing program improvement.

1.8 Summary Description of PECO's Data Management, Quality Assurance, and Evaluation Processes

PECO's data tracking system collects and stores program and invoice data from CSPs. CSPs will input projects and determine incentives on behalf of program participants. The data management system will track metrics that facilitate effective project tracking and regulatory reporting. This data will support PECO's Quality Assurance process and evaluation, management, and verification (EM&V) requirements.

1.9 Summary Description of Cost Recovery Mechanism

As Act 129 requires, PECO's EE&C plan costs are recoverable through a 66 Pa. C.S.§1307 cost-recovery mechanism. In its Phase IV Implementation Order, the PUC provided direction on the cost recovery tariff mechanism. The Commission described a Phase IV mechanism like the Phase I through Phase III mechanisms. The mechanism will be designed to recover (on a full and current basis, without interest, from each customer class) all prudent and reasonable EE&C plan costs assigned to each class. In addition, the PUC required that the mechanism be reconciled annually with revised rates effective June 1 of each program year. PECO proposes to use a cost recovery mechanism similar to those used in prior Phases but modified to meet the additional Phase IV requirements.

As with Phases I through III, PECO' s proposed Phase IV cost recovery mechanism includes four separate recovery charges, one for the Residential rate class (which includes low-income customers), one for the Small Commercial and Industrial (C&I) rate class, one for the Large C&I rate class, and one for the Municipal Lighting rate class (streetlights and traffic lights). For the government, educational, and nonprofit (G/E/NP) customers defined in Act 129, PECO does not have a separate recovery mechanism because its electric accounts are included in the Small C&I and the Large C&I rate classes. Four separate charges were developed to ensure that the rate classes financing the measures are those receiving the direct energy and conservation benefits.

Section 7 includes a detailed description of and estimated values for the cost recovery mechanisms.

2. Energy Efficiency Portfolio/Program Summary Tables and Charts

This section provides a quantitative overview of the entire plan for the 5-year period.

2.1 Residential, Small C&I, Large C&I and G/E/NP Portfolio Summaries

Table 5. Program Summaries

	Program Name	Program Market	Program Two-Sentence Summary	Program Years Operated	Lifetime MWh Savings	Lifetime MW Savings[1]	Percentage of Portfolio Resource Savings (MWh% and MW%)	
Residential Portfolio Programs (*exclusive of Low-Income*)	Residential	PECO residential electric customers that do not qualify as income-eligible in single family (one and two unit buildings) and multifamily buildings (3 or more units) - existing and new construction	The program goal is to increase the energy efficiency in residential spaces through a variety of incentive mechanisms, in home assessments, and appliance recycling.	PY13-PY17	2,403,706	32.8	14.4%	11.5%
	Residential Home Energy Reports	PECO residential electric customers that do not qualify as income-eligible	The program involves regularly delivering direct mail or digital HERs that motivate customers to act through contextualized energy-usage information, personal and neighborhood comparisons, and energy savings recommendations.	PY13-PY17	263,965	24.5	1.6%	8.6%
	Totals for Residential Sector				2,667,671	57.3	16.0%	20.1%
Residential Low-Income Sub-Sector Programs	Income-Eligible	PECO residential electric customers with a household income of less than or equal to 150% of the federal poverty level. This program includes income-eligible customers only in single-family housing	The program goal is to improve the energy efficiency of single-family homes for income-eligible customers to help make their homes more affordable.	PY13-PY17	849,592	13.3	5.1%	4.7%
	Residential	PECO residential electric customers with a household income of less than or equal to 150% of the federal poverty level in multifamily buildings - existing and new construction	The program goal is to improve the energy efficiency of individual units of multifamily buildings for income-eligible customers to help make their homes more affordable.	PY13-PY17	61,287	0.8	0.4%	0.3%
	Income-Eligible Home Energy Reports	PECO residential electric customers with a household income of less than or equal to 150% of the federal poverty level	The program involves regularly delivering direct mail or digital HERs that motivate customers to act through contextualized energy-usage information, personal and neighborhood comparisons, and energy savings recommendations.	PY13-PY17	11,874	0.1	0.1%	0.0%
	Totals for Low-Income Sector				922,753	14.1	5.5%	5.0%
Commercial/Industrial Small Portfolio Programs	Non-Residential	All non-residential customer classes, business types, and building types throughout PECO's service territory - existing buildings and new construction.	The program offers a comprehensive and cross-cutting array of opportunities so non-residential customers can reduce their energy consumption and costs.	PY13-PY17	5,949,248	96.9	35.7%	34.0%
	Residential	Multifamily buildings and areas that are connected to a commercial meter	The program will increase the efficiency in multifamily spaces (including common areas) connected to a commercial meter.	PY13-PY17	114,865	1.3	0.7%	0.5%
	Totals for C&I Small Sector				6,064,113	98.3	36.4%	34.5%
Commercial/Industrial Large Portfolio Programs	Non-Residential	All non-residential customer classes, business types, and building types throughout PECO's service territory - existing buildings and new construction.	The program offers a comprehensive and cross-cutting array of opportunities so non-residential customers can reduce their energy consumption and costs.	PY13-PY17	6,877,515	114.0	41.3%	40.0%
	Residential	Multifamily buildings and areas that are connected to a commercial meter	The program will increase the efficiency in multifamily spaces (including common areas) connected to a commercial meter.	PY13-PY17	113,628	1.3	0.7%	0.5%
	Totals for C&I Large Sector				6,991,143	115.4	42.0%	40.5%
Totals for Plan					16,645,680	285.1	100.0%	100.0%

1 Lifetime MW are equivalent to the sum of first year MW.

	Program Name	Program Market	Program Two-Sentence Summary	Program Years Operated	Lifetime MWh Savings	Lifetime MW Savings[1]	Percentage of Portfolio Resource Savings (MWh% and MW%)	
Residential Portfolio Programs (*exclusive of Low-Income*)	Residential	PECO residential electric customers that do not qualify as income-eligible in single family (one and two unit buildings) and multifamily buildings (3 or more units) - existing and new construction	The program goal is to increase the energy efficiency in residential spaces through a variety of incentive mechanisms, in home assessments, and appliance recycling.	PY13-PY17	2,442,241	32.9	13.7%	10.1%
	Residential Home Energy Reports	PECO residential electric customers that do not qualify as income-eligible	The program involves regularly delivering direct mail or digital HERs that motivate customers to act through contextualized energy-usage information, personal and neighborhood comparisons, and energy savings recommendations.	PY13-PY17	263,965	44.0	1.5%	13.4%
	Totals for Residential Sector				2,706,205	76.9	15.2%	23.5%
Residential Low-Income Sub-Sector Programs	Income-Eligible	PECO residential electric customers with a household income of less than or equal to 150% of the federal poverty level. This program includes income-eligible customers only in single-family housing	The program goal is to improve the energy efficiency of single-family homes for income-eligible customers to help make their homes more affordable.	PY13-PY17	876,780	13.2	4.9%	4.0%
	Residential	PECO residential electric customers with a household income of less than or equal to 150% of the federal poverty level in multifamily buildings - existing and new construction	The program goal is to improve the energy efficiency of individual units of multifamily buildings for income-eligible customers to help make their homes more affordable.	PY13-PY17	61,287	0.8	0.3%	0.2%
	Income-Eligible Home Energy Reports	PECO residential electric customers with a household income of less than or equal to 150% of the federal poverty level	The program involves regularly delivering direct mail or digital HERs that motivate customers to act through contextualized energy-usage information, personal and neighborhood comparisons, and energy savings recommendations.	PY13-PY17	11,874	1.2	0.1%	0.4%
	Totals for Low-Income Sector				949,941	15.1	5.3%	4.6%
Commercial/Industrial Small Portfolio Programs	Non-Residential	All non-residential customer classes, business types, and building types throughout PECO's service territory - existing buildings and new construction.	The program offers a comprehensive and cross-cutting array of opportunities so non-residential customers can reduce their energy consumption and costs.	PY13-PY17	4,956,793	80.4	27.9%	24.6%
	Residential	Multifamily buildings and areas that are connected to a commercial meter	The program will increase the efficiency in multifamily spaces (including common areas) connected to a commercial meter.	PY13-PY17	114,842	1.3	0.6%	0.4%
	Totals for C&I Small Sector				5,071,636	81.7	28.5%	25.0%
Commercial/Industrial Large Portfolio Programs	Non-Residential	All non-residential customer classes, business types, and building types throughout PECO's service territory - existing buildings and new construction.	The program offers a comprehensive and cross-cutting array of opportunities so non-residential customers can reduce their energy consumption and costs.	PY13-PY17	9,013,296	153.0	50.7%	46.7%
	Residential	Multifamily buildings and areas that are connected to a commercial meter	The program will increase the efficiency in multifamily spaces (including common areas) connected to a commercial meter.	PY13-PY17	46,545	0.5	0.3%	0.2%
	Totals for C&I Large Sector				9,059,841	153.5	50.9%	46.9%
Totals for Plan					17,787,622	327.2	100.0%	100.0%

1 Lifetime MW are equivalent to the sum of first year MW.

2.2 Plan Data: Costs, Cost-Effectiveness and Savings by Program, Sector and Portfolio

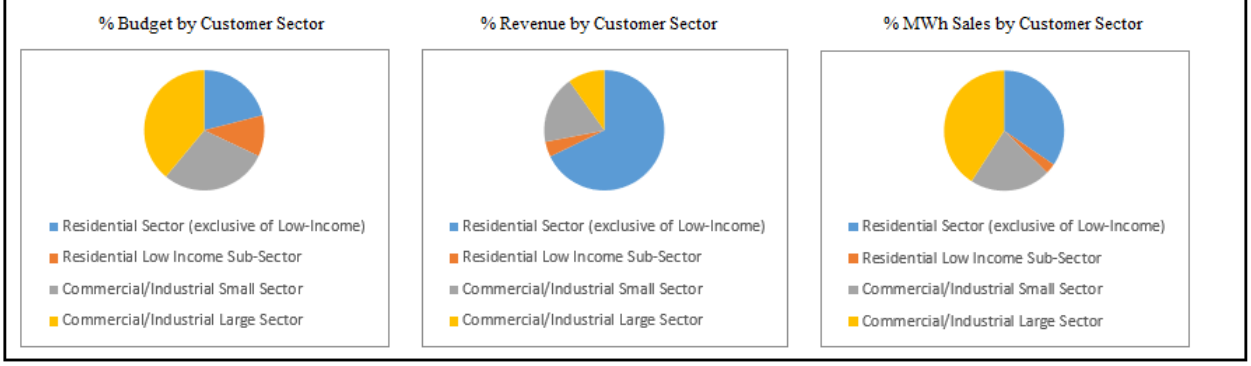
Various sections of this report contain the following data tables, as required by the PUC's Plan IV template:

- **Section 1.3:** Table 1. Portfolio Summary of Lifetime Costs and Benefits of Energy Efficiency Measures
- **Section 1.3:** Table 2. Portfolio Summary of Energy and Demand Savings
- **Section 1.3:** Table 3. Summary of Portfolio Energy and Demand Savings
- **Section 1.3:** Table 4. Summary of Portfolio Costs
- **Section 2.1:** Table 5. Program Summaries

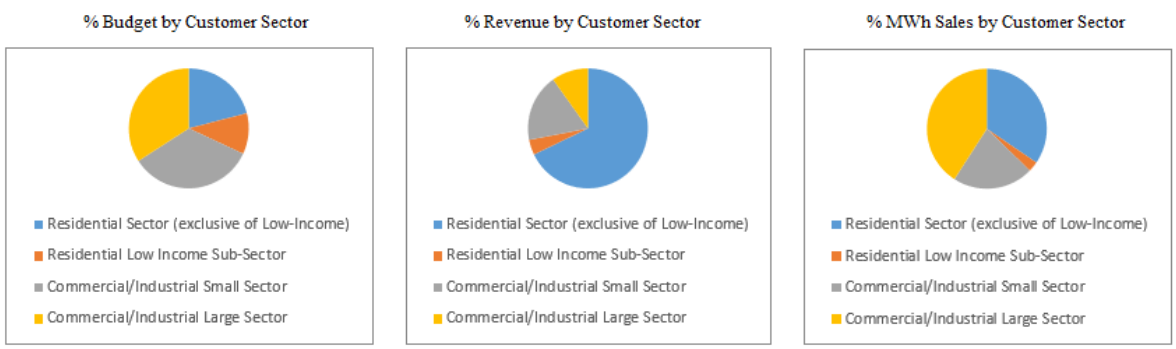
2.3 Budget and Parity Analysis

Table 6. Budget and Parity Analysis Summary

Customer Sector	Phase IV EE&C Budget $000 (inclusive of allocated common cost)	% of Total EDC EE&C Budget	% of EDC Total Annual Revenue	% of EDC Total MWh Sales
Residential Sector (*exclusive of Low-Income*)	$89,745	21%	68%	35%
Residential Low Income Sub-Sector	$47,140	11%	4%	3%
Residential Subtotal	$136,884	32%	72%	37%
Commercial/Industrial Small Sector	$123,973	29%	18%	22%
Commercial/Industrial Large Sector	$166,529	39%	10%	41%
Non-Residential Subtotal	$290,501	68%	28%	63%
EDC TOTAL	**$427,386**	**100%**	**100%**	**100%**



Customer Sector	Phase IV EE&C Budget $000 (inclusive of allocated common cost)	% of Total EDC EE&C Budget	% of EDC Total Annual Revenue	% of EDC Total MWh Sales
Residential Sector (*exclusive of Low-Income*)	$89,453	21%	68%	35%
Residential Low Income Sub-Sector	$47,092	11%	4%	3%
Residential Subtotal	$136,546	32%	72%	37%
Commercial/Industrial Small Sector	$144,976	34%	18%	22%
Commercial/Industrial Large Sector	$145,864	34%	10%	41%
Non-Residential Subtotal	$290,840	68%	28%	63%
EDC TOTAL	**$427,386**	**100%**	**100%**	**100%**



3. Program Descriptions

This section describes each proposed program, PECO's selection process, and how the programs form balanced/integrated portfolios.

3.1 Discussion of Criteria and Process Used for Selection of Programs

This section contains portfolio objectives and metrics, the process for program development, how measures were included, and a discussion of the meaning of comprehensive programs in the context of the plan.

3.1.1 *Portfolio Objectives and Metrics that Define Program Success*

PECO's portfolio objectives are to achieve the requirements set forth in the Phase IV Final Implementation Order. The plan will be implemented by delivering the required energy savings and peak demand reduction in a cost-effective manner, on pace, and with a reasonable mix of cost-effective technologies. Figure 7 outlines PECO's Phase IV budget and savings targets. These metrics will define Phase IV's success.

Figure 7. PECO's Phase IV Budget and Savings Targets

Overall Budget	Regulatory Energy Savings Target	Energy Savings Carve Outs	Pace of Savings	Peak Demand Reduction Target
The total Phase IV budget is not to exceed $427.4 million. The total annual budget will be $85.5 million.	The total Phase IV MWh savings target (sum of first year annual savings) is 1,380,837 MWh over 5 years. This represents an average of 276,167 MWh/year (or 3.5% of 2009/2010 sales on an annual basis).	Low income carve out as defined in the Final Implementation Order (<=150% FPL): • 80,089 MWh for Phase IV • 16,018 average annual MWh/year	The portfolio must plan to achieve at least 15% of MWh savings target each year (207,125 MWh).	The total Phase IV peak demand reduction target is 256 MW. The programs should achieve at least 15% of their peak demand reduction target in each program year. The peak demand period for Act 129 programs is non-holiday weekdays June through August from 2:00 p.m. to 6:00 p.m. EDT. Dispatchable demand response is not eligible to contribute to 256 MW target.

PECO will monitor portfolio performance and make mid-course corrections as necessary to:

- Generate the energy savings through streamlined processes that make participation easy for customers and market actors
- Continuously improve or maintain customer satisfaction
- Monitor the marketplace for additional measures and solutions that could be offered in the future
- Maintain a comprehensive set of energy solution offerings across all end-uses to its customers

- Represent all customer segments
- Present a comprehensive and appropriate set of participation channels (e.g. retail vs. contractor) through which customers can access energy efficiency solutions

3.1.2 *Process for Program Development*

PECO's detailed program development process resulted in a Phase IV Plan with five energy efficiency programs. PECO took the following steps to develop the program structure:

- Reviewed Phase III learnings. This step involved compiling all research findings and determining which findings could lead to improvements for Phase IV.
- Reviewed the SWE Phase IV Potential Study to understand potential by customer segment and measure category.
- Identified program structure options based on the Phase III learnings and the potential study.
- Developed preferred design elements for an ideal program structure and selected the program structure that met most of the design elements, resulting in a program structure that:
    - Offers energy efficiency options to all customer classes, including residential, with a focus on income-eligible and multifamily and non-residential with a focus on small business
    - Provides a single CSP for the residential customer class and a single CSP for the non-residential class
    - Allows for market response flexibility to be nimble and responsive to customers' demand for measures and services to best meet the needs of customers
    - Offers consistent measures across customer classes (residential, non-residential)
    - Contains all multifamily measures (in unit and common area) within one program so there is a dedicated focus to acquire all possible savings from this building type
    - Provides one call center for residential customers and one call center for non-residential customers
- Identified program components within each program based on historical programs in PECO's territory, market research, other market factors in PECO's territory, research in other jurisdictions into best practices.

3.1.3 *How Energy Efficiency and Demand Reduction Measures Were Included in the Portfolio*

Per Sections 1.3 and 3.1.2, bidding CSPs recommended program designs based on PECO's program design criteria and chose measures to include in the programs. CSPs used a data-driven approach and model to estimate the measures, participation levels, and incentive ranges using PECO's design workbook provided as part of the RFP process. This data-driven approach created space for a number of less cost-effective but still important measures to be layered into the measure mix, including key HVAC measures such as heat pump water heaters and ductless mini-split heat pumps. Data inputs included the following:

- 2021 Technical Reference Manual
- US Census
- North American Industry Classification System code data analysis
- Commercial Buildings Energy Consumption Survey and Manufacturing Energy Consumption Survey data analysis
- US Energy Information Administration consumption data
- Subject matter expert interviews
- Historical participation and savings analysis
- SWE market potential
- Evaluation reports
- Manufacturer and distributor interviews

In addition, PECO completed an economic screen of the proposed measure mix. The economic screen uses the TRC test to compare the lifetime benefits of each applicable measure (avoided cost times energy savings) with each measure's lifetime costs (incremental capital and installation costs and operations and maintenance [O&M] costs). The lifetime benefits are obtained by multiplying the annual energy, demand, gas, and water savings for each measure by the avoided cost for each year, discounting the dollar savings to a present value equivalent basis and adding present value O&M benefits where applicable. The measure savings, costs and lifetimes are obtained as part of the measure characterization.

Not all measures are required to pass the TRC test for inclusion in the program, but the overall portfolio must pass this screening test. If too many measures were included that do not pass the TRC test, it would push the overall portfolio out of compliance. Therefore, the goal was a measure mix that provides comprehensive energy and demand savings measures to be offered through the programs to all customers while maintaining portfolio cost-effectiveness.

3.1.4 *Describe How the EDC Defines 'Comprehensive' in the Context of EE&C Plan Design and Delivery*

PECO's Phase IV programs were designed to be comprehensive for all customer classes. For PECO, comprehensive means:

- The portfolio is designed to allow customers to make a wide range of energy efficiency upgrades
- The Residential, Income-Eligible, and Non-Residential programs include a range of delivery channels such as downstream, midstream, upstream, marketplace, instant rebates, in-home assessments, no cost measures to income-eligible customers, small business direct-install, retro-commissioning, and a combination of custom measures
- During in-home or in-business assessments (or virtual assessments), programs offer a variety of efficiency upgrade recommendations leading to deeper retrofits
- Having one Residential program and one Non-Residential program (with a separate prime CSP leading each) encourages deeper retrofits, rather than asking customers to cross-reference many programs and apply through various channels

3.2 Residential Sector

Program #1 Title and Program Years During Which Program Will Be Implemented

Residential program (2021-2026)

Objective(s)

The Residential program has multiple objectives:

- Provide incentives for customer purchases of efficient lighting, appliances, HVAC upgrades, energy saving devices, and other energy savings technologies.
- Remove old, inefficient refrigerators, freezers, and window AC units from the PECO service area. Window ACs are picked up at the time of large appliance collection.
- Increase efficiency in-unit and in common areas of multifamily buildings[7] for both market-rate households and income-eligible households[8].
- Drive the construction of energy-efficient homes and demonstrate their value to the marketplace.

Target Market

The eligible population and target market for the Residential program includes single-family and multifamily customers. This program includes all existing buildings and new construction for single-family and multifamily customers.

- **Single Family:** Includes PECO residential electric customers in one- or two-unit buildings that do not qualify as income-eligible.
- **Multifamily (defined as a building with three or more units):** Includes all PECO multifamily buildings and all areas of a multifamily building (units and common areas):

[7] Defined as a building with three or more units.

[8] Income-eligible defined as household income less than or equal to 150% of federal poverty level.

multifamily buildings with income-eligible customers (household income of less than or equal to 150% of the federal poverty level), market rate customers, and common areas, regardless of the meter type. The costs of commercially metered multifamily buildings and common area measures are recovered through the small commercial sector and the large commercial sector cost recovery mechanisms.

Program Description

The Residential program offers residential customers in single-family and multifamily buildings opportunities to save energy across all of their electric end-uses. The customer-friendly approach will enable participants to make comprehensive energy efficiency upgrades to a variety of equipment types while working with a single PECO program, leading to deeper retrofits. The following section describes program components.

Program Sub-Components

The Residential program contains five components:

- **Rebates and Marketplace:** This component includes customer rebates for lighting, HVAC, appliances, and energy saving devices. There are multiple channels to receive a rebate for products:
    - Downstream: Customers receive the downstream rebate by applying through an online portal, fax, or mail-in application.
    - Trade Ally and Distributor Network: Trade allies can submit downstream applications on behalf of their customers. PECO may also choose to engage the distributor and trade ally network to provide incentives directly on a contractor's invoice to the customer.
    - Point of Purchase (POP): Customers can also engage with the program through brick-and-mortar retailer POP materials on qualified appliances and lighting products, including instant rebates to PECO customers at the POP using a mobile- and desktop-enabled platform to deliver single-use coupon barcodes to validated customers.
    - Marketplace: Customers can enter their energy efficiency journey via PECO's online Marketplace. The Marketplace presents a one-stop shopping experience for instant rebates on efficient products with the opportunity to increase customer awareness of products and programs.
- **In-Home Assessments (Single Family):** This component provides in-home or virtual assessments and comprehensive audits to educate customers, install energy efficient measures, identify additional, potentially larger energy efficiency opportunities (such as insulation and air sealing), and encourage greater participation in other Residential program sub-components. In-home assessments will be performed by Building Performance Institute (BPI)-certified Energy Advisors when possible.
- **Multifamily:** This component will provide analysis, direct-install measures, and larger, investment-level upgrades to improve the energy efficiency of multifamily buildings, both in-unit and in common areas. The component will serve buildings with market rate customers,

income-eligible customers, and a mix of customer types. This component is focused on all aspects and types of multifamily buildings to promote a strategic and thoughtful approach to multifamily buildings as a whole. The program will:

  - Collaborate with program managers, building owners and building management to identify and implement energy efficiency solutions
  - Provide complimentary direct-install measures to multifamily residents and provide residents with educational materials including a pathway to participate in other residential programs
  - Target high-impact, income-eligible multifamily sites for complimentary direct-installation projects and comprehensive retrofits with more favorable incentives

- **Appliance Recycling:** This component focuses on recycling refrigerators, freezers, dehumidifiers, and window AC units responsibly. This can be many customers' first introduction to energy efficiency—and it comes with a cash-back offer that can help encourage participation in other programs. For example, the CSP will deliver marketing materials for other programs, such as the in-home assessment, when they pick up a refrigerator for recycling or refer customers to the Marketplace to find other energy efficiency measures.

- **New Construction:** The Residential program's new construction component supports the construction of more comfortable, durable, and energy efficient homes compared to those simply built to code. This component will work with Home Energy Rating System (HERS) raters and builders to create more energy efficient homes during the design and construction phases.

  Incentive spend is tied directly to achieved savings while bonus incentives highlight and support the installation of leading-edge technology. The program's performance-based incentive design rewards builders for higher performing homes and establishes predictable acquisition costs.

Implementation Strategy

The Residential program will be administered by a prime CSP and a team of partners with a proven record of providing the services offered in this program.

The implementation strategy will vary by program component:

- **Rebates and Marketplace:** The strategy will include market analysis that informs the marketing approach to connect with returning and new utility customers on program opportunities through advertisements, as well as assessment referrals. PECO will leverage trade ally relationships and retail to promote energy efficient product offerings and incentives to eligible utility customers.
- **In-Home Assessments (Single Family):** The CSP will offer three assessments to customers:

- Quick Assessment: Offered to all residentially metered PECO electric customers. The Quick Assessment provides customers with an in-person, in-depth energy evaluation of their home, recommendations for whole-house improvements, recommendations on other ways to save within the PECO energy efficiency portfolio, and the installation of numerous energy-saving products.

- Comprehensive Assessment: Offered to residentially metered customers whose primary fuel for heating is electricity. Comprehensive Assessments are in-depth, in-person energy audits performed for electrically heated homes in accordance with BPI standards. They provide the same services as the Quick Assessment and add depth and detail by using a variety of diagnostic equipment and inspection techniques such as building tightness testing and infrared thermography. Customers receive more specific information to help them move forward with recommendations, including the estimated cost to fulfill the recommendations, estimated savings, and applicable incentives. The Comprehensive Assessment also includes the installation of numerous energy-saving products.

- Virtual Energy Checkup: A new offering to all residentially metered PECO electric customers. Much like an in-home assessment, the virtual energy checkup will have our skilled Energy Advisors connect with customers virtually via a tablet or cell phone, lead customers through their home to explore energy-savings opportunities, create a personalized analysis of each customer's home and provide a Customized Energy Reduction Package (CERP) to help customers self-install and start saving energy immediately. This grants another entry point for the energy efficiency journey for customers who do not want visitors in their home, while allowing them to take advantage of the energy efficiency measures PECO provides. All CERPs include easy-to-follow instructions for the measures included, and our team is available if a customer needs help.

- **Multifamily:** The CSP will conduct direct outreach with a focus on tenants and trade allies to deliver more comprehensive projects and will market across property portfolios of affordable housing and larger property management firms. The CSP will offer an integrated solution of in-unit projects supported by rebated deeper installations (i.e., multiple measures) that will be built upon a network of stakeholders with portfolios of residential real estate holdings. This approach makes a wide-array of building configurations accessible, both master and individually metered. Many ownership groups provide housing for both market rate and income-eligible residents; the CSP will present analysis of portfolio wide upgrade potential to decision makers to reduce the risk of split incentives. The CSP will also leverage connections to the Philadelphia Housing Authority, Philadelphia Energy Authority, and other regional stakeholders.
- **Appliance Recycling:** The strategy will be a continuation of the Phase III program delivery strategy. Recycling services can be scheduled by telephone or online. Appliance recycling is performed using state-of-the-art recycling services designed to guarantee that all appliances are fully de-manufactured, stripped of hazardous materials and components, stored, transported, and disposed of in a safe and an environmentally responsible manner following federal, state, and local laws and regulations.
- **New Construction:** The new construction component will be implemented similar to Phase III, working through new home builders and Home Energy Raters. Additionally, the

component will add multifamily new construction options and smart thermostats as a bridge to energy efficiency actions by new home buyers.

Program Issues and Risks and Risk Management Strategy

The Residential program will manage risks by implementing a continuous improvement process such that PECO closely monitors program results and adjusts implementation tactics (including marketing approaches, participation guidelines, incentives, and program resource allocation) to meet the portfolio level targets.

One risk is the transition from Phase III to Phase IV. PECO is managing this risk by contracting with an experienced implementation CSP with extensive regulatory and market knowledge in Pennsylvania and prior extensive experience with PECO's energy efficiency programs.

An additional risk is an increase in COVID-19 cases and/or market resistance to in-person activities during the COVID-19 crisis. PECO will work with the CSP to offer virtual, no-contact services (e.g., assessments, appliance pickups, inspections) that have proven successful in PECO's territory and to develop a virtual heating test to support the virtual assessment. The CSP will have safety protocols to guide customer contact and employee safety issues. In addition, customers of the In-Home Assessments component will be able to view appointments using the online scheduling portal and pick a time that is best for them. To accommodate nontraditional schedules, customers may choose an evening or Saturday appointment. Customized energy kits may also be delivered directly to customers to ensure that energy savings continue—even remotely.

Anticipated Costs to Participating Customers

Customers participating in the Residential program have anticipated costs of ~~$68,249,214~~64,299,496 for Phase IV after EDC incentives.

Ramp-Up Strategy

Minimal ramp-up will be needed for the Appliance Recycling, In-Home Assessments (Single Family), and New Construction components because similar components are already operating in Phase III.

For the Rebates and Marketplace component, minimal ramp-up is required for rebates. Marketplace will require platform setup and data integration for POP submissions for savings extracts to PECO's database.

For the Multifamily component, market analysis and an outreach plan need to be fine-tuned. The CSP will engage with low- to moderate-income advocates and community-based organizations to inform the outreach plan. Interested parties and trade allies will be recruited before component launch to develop the pipeline and assure a jumpstart to program participation.

Marketing Strategy

The prime CSP will be responsible for program marketing, coordinating with PECO's Marketing and Promotions team and the PECO brand advertising agency of record for messaging design and consistency.

Marketing strategies include bill inserts, TV and radio ads, website activity, marketplace advertising, and promotion by midstream and downstream market actors. They also include digital strategies such as social media and email, outreach to building owners, property managers, tenants, and tenant groups at multifamily buildings, engaging community influencers and advocates for low-income customers in multifamily buildings, outreach to builders, raters and home buyers, promotion and events through home builder associations, other industry groups, and trade publications.

Eligible Measures and Incentive Strategy

The measure mix includes a comprehensive mix of end-use technologies such as lighting, HVAC, appliances, shell, water heating, and plug loads. Incentives are based on previous experience and knowledge of the market in PECO's territory.

Table 7A. Residential Program: Eligible Measures

Measure	Unit	Low-Income Measure (Yes/No)	Eligibility Requirements	Incremental Cost ($/unit)	Estimated Useful Life	Incentive Amount or Incentive Range ($/unit)
Residential ENERGY STAR Air Purifier	Air Purifier	No	Phase IV TRM	$~~7~~250.00	9	$0 - $250
Residential ENERGY STAR Room Air Conditioner	Unit	No	Phase IV TRM	$40.00	15	$0 - $15
Residential ENERGY STAR Bathroom Ventilation Fan	Unit	No	Phase IV TRM	$43.50	15	$0 - $20
Residential ENERGY STAR Dehumidifier	Dehumidifier	No	Phase IV TRM	$20.21	12	$0 - $50
Residential Variable Speed Pool Pump	Pump	No	Phase IV TRM	$454.23	10	$0 - $200
Residential ENERGY STAR Heat Pump Water Heater	Water Heater	No	Phase IV TRM	$1,045.00	10	$0 - $1000~~700~~
Residential ENERGY STAR ~~Most Efficient~~ Refrigerator	Refrigerator	No	Phase IV TRM	$100.00	14	$0 - $20
Residential ENERGY STAR ~~Most Efficient~~ Clothes Washer	Clothes Washer	No	Phase IV TRM	$50.00	11	$0 - $25
Residential ENERGY STAR Clothes Dryer	Clothes Dryer	No	Phase IV TRM	$111.73	12	$0 - $15
Residential Heat Pump Clothes Dryer	Clothes Dryer	No	Phase IV TRM	$350.00	12	$0 - $175
Residential ENERGY STAR ~~Most Efficient~~ Air Source Heat Pump~~: Cold Climate~~	Outdoor unit	No	Phase IV TRM	$1,636.75	15	$0 - $1000~~700~~

Measure	Unit	Low-Income Measure (Yes/No)	Eligibility Requirements	Incremental Cost ($/unit)	Estimated Useful Life	Incentive Amount or Incentive Range ($/unit)
Residential ~~ENERGY STAR~~High Efficiency Central A/C	Outdoor unit	No	Phase IV TRM	$~~507.78~~1000	15	$0 - $1000~~300~~
Residential ENERGY STAR ~~Most Efficient~~ Ductless Mini-Split Heat Pump (per Outdoor Unit)	Outdoor unit	No	Phase IV TRM	$~~783.50~~1000	15	$0 - $1000~~500~~
Residential ECM Furnace Fan	Unit	No	Phase IV TRM	$200.00	15	$0 - $50
Residential Smart/Learning Thermostat	Thermostat	Yes	Phase IV TRM	$234.33	11	$0 - $225
Residential ENERGY STAR Integral LED fixture: Indoor	Fixture	No	Phase IV TRM	$32.00	15	$0 - $10
Residential Duct Insulation	System	No	Phase IV TRM	$540.00	15	$0 - $50
Residential ENERGY STAR Integral LED fixture: Outdoor	Fixture	No	Phase IV TRM	$20.00	15	$0 - $~~1~~30
Residential ENERGY STAR Integral LED fixture: Outdoor Recessed Downlight Retrofit Module	Fixture	No	Phase IV TRM	$20.00	15	$0 - $10
Residential ENERGY STAR Screw-in LED Bulb (Decorative: Globe)	Bulb	Yes	Phase IV TRM	$5.52	15	$0 - $5.52

Measure	Unit	Low-Income Measure (Yes/No)	Eligibility Requirements	Incremental Cost ($/unit)	Estimated Useful Life	Incentive Amount or Incentive Range ($/unit)
Residential ENERGY STAR Screw-in LED Bulb (Decorative: non-globe (e.g., candelabra))	Bulb	Yes	Phase IV TRM	$2.59	15	$0 - $2.59
Residential ENERGY STAR Screw-in LED Bulb (Directional/ Reflector)	Bulb	Yes	Phase IV TRM	$4.42	15	$0 - $4.42
Residential LED Nightlight	Nightlight	No	Phase IV TRM	$2.51	8	$0 - $2.51
Residential Advanced Power Strips	Power Strip	Yes	Phase IV TRM	$~~32.35~~50	5	$0 - $50~~21~~
Residential Low Flow Faucet Aerator	Aerator	Yes	Phase IV TRM	$1.61	10	$0 - $1.61
Residential Low Flow Showerhead	Showerhead	Yes	Phase IV TRM	$6.00	9	$0 - $6
Residential Duct Air Sealing	Home	No	Phase IV TRM	$744.00	15	$0 - $200
Residential Attic/Ceiling/Roof Insulation	100 Square Feet	No	Phase IV TRM	$264.00	15	$0 - $150
Residential Insulation/Wrap for Hot Water Pipe	Foot of Insulated Pipe	No	Phase IV TRM	$3.00	13	$0 - $3
Residential Home Air Sealing/ Weatherization	Home	No	Phase IV TRM	$440.00	15	$0 - $200

Measure	Unit	Low-Income Measure (Yes/No)	Eligibility Requirements	Incremental Cost ($/unit)	Estimated Useful Life	Incentive Amount or Incentive Range ($/unit)
Residential ENERGY STAR Screw-in LED Bulb (Standard)	Bulb	Yes	Phase IV TRM	$3.07	15	$0 - $3.07
Residential A/R: Removal of Existing Freezer with Replacement	Freezer	Yes	Phase IV TRM	$0.00	5	$0 - $75
Residential A/R: Removal of Existing Refrigerator with Replacement	Refrigerator	Yes	Phase IV TRM	$0.00	6	$0 - $75
Residential Thermostatic Restrictor Shower Valve	Shower Valve	Yes	Phase IV TRM	$35.00	15	$0 - $35
Residential Heat Pump Water Heater	Water heater	No	Phase IV TRM	$854.00	10	$0 - $100
C&I ENERGY STAR Integral LED fixture: Outdoor Recessed Downlight Retrofit Module	Fixture	No	Phase IV TRM	$93.00	15	$0 - $18
C&I Interior Daylighting Controls	Sensor	No	Phase IV TRM	$378.95	8	$0 - $~~2~~250
C&I Interior Occupancy Controls	Sensor	No	Phase IV TRM	$150.00	8	$0 - $~~2~~250
C&I LED Exit Sign	Lamp	No	Phase IV TRM	$~~3~~3150.00	15	$0 - $~~5~~5150
C&I LED Parking Garage and Canopy Fixtures and Retrofit Kits	Fixture	No	Phase IV TRM	$125.00	6	$0 - $~~6~~6110

Measure	Unit	Low-Income Measure (Yes/No)	Eligibility Requirements	Incremental Cost ($/unit)	Estimated Useful Life	Incentive Amount or Incentive Range ($/unit)
C&I LED Outdoor Flood Light Fixtures	Fixture	No	Phase IV TRM	$268.31	6	$0 - $~~35~~110
C&I ECM Circulation Pump	Pump	No	Phase IV TRM	$150.00	13	$0 - $~~25~~30
Residential ENERGY STAR ~~Most Efficient~~ Ductless Mini-Split Heat Pump (per Ton)	Ton	Yes	Phase IV TRM	$522.33	15	$0 - $100~~80~~
C&I Air Cooled Heat Pump	Ton	No	Phase IV TRM	$172.00	15	$0 - $~~3~~85
C&I Air Cooled Air Conditioner	Ton	No	Phase IV TRM	$113.00	15	$0 - $80
Residential Attic/Ceiling/Roof Insulation - IE Direct Install with Heat Pump	100 Square Feet	No	Phase IV TRM	$325.00	15	$0 - $35
C&I LED Replacement Lamps (Tubes)	Fixture	No	Phase IV TRM	$13.31	15	$0 - $10
C&I LED Pole/Arm Mounted Parking and Roadway Fixtures and Retrofit Kits	Fixture	No	Phase IV TRM	$405.61	6	$0 - $~~0~~55
C&I Air Cooled Chiller	Ton	No	Phase IV TRM	$124.00	15	$0 - $35
C&I LED Troffer Fixtures and Retrofit Kits	Fixture	No	Phase IV TRM	$185.95	15	$0 - $~~20~~48

Measure	Unit	Low-Income Measure (Yes/No)	Eligibility Requirements	Incremental Cost ($/unit)	Estimated Useful Life	Incentive Amount or Incentive Range ($/unit)
Residential ENERGY STAR Screw-in LED Bulb (Standard: 3-Way)	Bulb	Yes	Phase IV TRM	$3.07	15	$0 - $3.07
Residential PTAC	Ton	Yes	Phase IV TRM	$84.00	15	$0 - $100
C&I VSD retrofit on HVAC Pump	HP	No	Phase IV TRM	$~~214~~500.00	13	$0 - $~~1~~500
C&I LED Wall Mount Fixtures and Retrofit Kits	Fixture	No	Phase IV TRM	$~~86.15~~110	6	$0 - $~~45~~110
Residential Code Plus Home - Multifamily	Home	No	Phase IV TRM	$864.00	15	$0 - $2,500
Residential Code Plus Home – Single-family	Home	No	Phase IV TRM	$1,152.00	15	$0 - $2,500
Residential ENERGY STAR 3.0 Home	Home	No	Phase IV TRM	$2,561.00	15	$0 - $4,500
Residential ENERGY STAR 3.0 Home - Multifamily	Home	No	Phase IV TRM	$1,537.00	15	$0 - $4,500
Residential Net Zero Energy Home	Home	No	Phase IV TRM	$8,964.00	15	$0 - $4,500
Residential Midrise Multifamily Common and Commercial Space	Building	No	Phase IV TRM	$5,000.00	15	$0 - $60,000
Residential Mid-rise Multifamily Common and Commercial Space	Building	No	Phase IV TRM	$10,000.00	15	$0 - $60000

Measure	Unit	Low-Income Measure (Yes/No)	Eligibility Requirements	Incremental Cost ($/unit)	Estimated Useful Life	Incentive Amount or Incentive Range ($/unit)
Residential A/R: Freezer Recycling	Freezer	No	Phase IV TRM	$0.00	4	$0 - $75
Residential A/R: Refrigerator Recycling	Refrigerator	No	Phase IV TRM	$0.00	5	$0 - $75
Residential A/R: Room AC Retirement	Unit	No	Phase IV TRM	$0.00	3	$0 - $10
Residential A/R Dehumidifier Retirement	Per Unit	No	Phase IV TRM	$71.25	4	$0 - $71.25
Residential Adjust Thermostat Education	Per Account	No	Phase IV TRM	$0.00	1	$0 - $0
Residential ASHP Tune Up	Per System	No	Phase IV TRM	$250.00	3	$0 - $250
Residential Fluorescent in units fixture	Per Fixture	No	Phase IV TRM	$73.00	15	$0 - $73
Residential Knee wall Insulation	Per SQFT	No	Phase IV TRM	$3.00	15	$0 - $3
Residential Custom	Per kWh offset (first year)	No	Phase IV TRM	$2.20	15	$0 - $2.2
Residential Shorter Showers Education	Per Account	No	Phase IV TRM	$0.00	1	$0 - $0
Residential Smart Water Control	Per Unit	No	Phase IV TRM	$199.00	11	$0 - $199

Measure	Unit	Low-Income Measure (Yes/No)	Eligibility Requirements	Incremental Cost ($/unit)	Estimated Useful Life	Incentive Amount or Incentive Range ($/unit)
Residential Wash Laundry in Cold Water Education	Per Account	No	Phase IV TRM	$0.00	1	$0 - $0
Residential Window Heat Pump	Per Unit	No	Phase IV TRM	$2,000.00	18	$0 - $2000
Residential Drain Water Heat Recovery Units	Per Unit	No	Phase IV TRM	$2,000.00	15	$0 - $2000
Residential ENERGY STAR ~~Air Purifier~~Dehumidifier	~~Air Purifier~~ Dehumidifier	No	Phase IV TRM	$~~7~~500.00	9	$0 - $~~7~~500

To maximize opportunities for customer energy savings, PECO reserves the right to offer an incentive of up to $~~0.05~~2.20/first year kWh for any measure that is not listed in Table 7A but is identified in the TRM newly issued Guidance Memos, or the approved Interim Measure Protocols. ~~-~~For measures not specified in the TRM, Guidance memos or approved Interim Measure Protocols, such as emerging technologies or measures that are custom to each participant, PECO intends to apply the Residential Custom Measure.

~~To maximize opportunities for customer energy savings, PECO reserves the right to offer an incentive of $0.05/first year kWh for any measure that is not listed in Table 7A but is identified in the TRM.~~

Basis for the Proposed Level of Incentives

Incentives are based on previous experience and knowledge of the market in PECO's territory. Incentives will be provided per unit. Upstream lighting incentives are managed based on lighting manufacturer and retailer partner agreements. Multifamily resident spaces and common spaces are also eligible for standard and income-eligible incentives.

Maximum Deadlines for Rebates

PECO requires 180 days as a maximum length of time for an application to be submitted. Any longer may affect reporting and reconciliation timeframes.

Program Start Date with Key Schedule Milestones

The planned implementation schedule is as follows:

- March 2021: PECO and the CSPs will kick-off the program pre-launch process. During pre-launch, CSPs will assign key staff and ensure all customer support systems and marketing and outreach is in place.
- June 1, 2021: The programs will launch with some components on a ramp-up period for the first 6 months.
- June 2021–May 2026: Programs will operate and adjust to market changes. Savings and budget compared to goals will be reviewed on a regular basis.
- May 31, 2026: Last day of the Phase IV programs.

Assumed Evaluation, Measurement, and Verification (EM&V) Requirements

The Residential program's proposed evaluation methodology and data collection are consistent with current EM&V practices for PECO's Phase III programs. The EM&V requirements for this program conform to all applicable state protocols, including the SWE Evaluation Framework and the Pennsylvania TRM. PECO will follow the SWE's Evaluation Framework, will utilize a SWE-approved Phase IV evaluation plan, and will utilize an independent evaluator to verify all Plan-related savings and ensure that there is no double-counting of savings for programs that leverage outside funding. Metrics for monitoring program success include, but are not limited to:

- Customer satisfaction with the program and participation trends
- Energy savings and PDRs associated with installed efficient equipment or removed equipment
- Program implementation costs and program cost-effectiveness

Data for evaluating the program will come from some of the following sources:

- Tracking system data
- Engineering or TRM estimates of measure savings

- Follow-up surveys of customers, retailers, trade allies, and service providers who participate in the program
- Program implementer and PECO staff surveys or interviews
- Evaluation of billing data
- Local weather data

Program impacts will be determined using a variety of data sources and tested techniques. These strategies may include:

- Field and phone verification, review of program records and incentive applications
- Project reviews referencing per-unit deemed or default energy savings
- Billing analysis
- Installation follow-up phone interviews with program participants to identify: Rebated measures installed and persistence (e.g., are the measures still installed?), and other changes to the business that affect energy usage, such as changes in occupancy or changes in building size

Evaluating program process success and efficiency across program delivery, administration, implementation, and customer response includes the following strategies:

- Assessment of marketing and promotional efforts
- Monitoring contractor data-tracking system and implementation procedures to ensure that the program is being implemented as designed
- Interviews with utility staff, contractors, equipment vendors, and customers
- Survey of program participants
- Assess customer understanding, satisfaction, and attitudes about the program

See Section 6.1.4 for more details about market and process evaluations.

Administrative Requirements

PECO will administer the Residential program through a CSP. PECO will ensure that major milestones are met and that the program is delivered according to the program design. Requested external staffing levels will be provided upon the completion of the CSP selection and contracting process. PECO will have 4.5 full time equivalents (FTEs) dedicated to the residential sector.

Savings Targets and Estimated Participation

Table 8A Residential Program: Estimate Savings and Participation

Notes:
o Energy Savings and Demand Reduction should be aggregate (not per-unit)
o Each measure should receive its own row in the table
o Projected participation should use the same basis as the units shown in Table 7

Measure	Metric	PY13	PY14	PY15	PY16	PY17	Total
Residential ENERGY STAR Air Purifier	Energy Savings (MWh/year)	732.50	769.13	415.52807.58	830.75847.96	830.81890.36	3,578.704,047.52
	Demand Reduction (MW)	0.0907	0.0952	0.05150.1000	0.10290.1050	0.10290.1103	0.44320.5012
	Projected Participation	2,500	2,625	1,4182,756	2,8352,894	2,8363,039	12,21413,814
Residential ENERGY STAR Room Air Conditioner	Energy Savings (MWh/year)	5.78	6.06	6.376.37	6.696.69	7.027.02	31.9131.91
	Demand Reduction (MW)	0.0109	0.0115	0.01200.0120	0.01260.0126	0.01330.0133	0.06040.0604
	Projected Participation	385	404	424424	446446	468468	2,1272,127
Residential ENERGY STAR Bathroom Ventilation Fan	Energy Savings (MWh/year)	20.88	21.93	23.0223.02	24.1724.17	25.3825.38	115.39115.39
	Demand Reduction (MW)	0.0026	0.0027	0.00290.0029	0.00300.0030	0.00320.0032	0.01440.0144
	Projected Participation	231	243	255255	267267	281281	1,2761,276
Residential ENERGY STAR Dehumidifier	Energy Savings (MWh/year)	281.40	295.47	310.24310.24	325.76325.76	342.04342.04	1,554.911,554.91
	Demand Reduction (MW)	0.0754	0.0792	0.08320.0832	0.08730.0873	0.09170.0917	0.41680.4168
	Projected Participation	1,400	1,470	1,5441,544	1,6211,621	1,7021,702	7,7367,736
Residential Variable Speed Pool Pump	Energy Savings (MWh/year)	1,197.69	1,257.58	1,320.461,320.46	1,386.481,386.48	1,455.801,455.80	6,618.016,618.01
	Demand Reduction (MW)	0.2933	0.3079	0.32330.3233	0.33950.3395	0.35650.3565	1.62061.6206
	Projected Participation	850	893	937937	984984	1,0331,033	4,6974,697
Residential ENERGY STAR Heat Pump Water Heater	Energy Savings (MWh/year)	877.72	921.61	967.69967.69	1,016.071,016.07	1,066.881,066.88	4,849.984,849.98
	Demand Reduction (MW)	0.0712	0.0748	0.07850.0785	0.08240.0824	0.08660.0866	0.39350.3935

Measure	Metric	PY13	PY14	PY15	PY16	PY17	Total
	Projected Participation	500	525	551~~551~~	579~~579~~	608~~608~~	2,763~~2,763~~
Residential ENERGY STAR Most Efficient Refrigerator	Energy Savings (MWh/year)	146.55	153.88	161.57~~161.57~~	169.65~~169.65~~	178.14~~178.14~~	809.79~~809.79~~
	Demand Reduction (MW)	0.0255	0.0267	0.0281~~0.0281~~	0.0295~~0.0295~~	0.0309~~0.0309~~	0.1407~~0.1407~~
	Projected Participation	2,500	2,625	2,756~~2,756~~	2,894~~2,894~~	3,039~~3,039~~	13,814~~13,814~~
Residential ENERGY STAR Most Efficient Clothes Washer	Energy Savings (MWh/year)	142.47	149.60	157.08~~157.08~~	164.93~~164.93~~	173.18~~173.18~~	787.25~~787.25~~
	Demand Reduction (MW)	0.0167	0.0175	0.0184~~0.0184~~	0.0193~~0.0193~~	0.0203~~0.0203~~	0.0922~~0.0922~~
	Projected Participation	2,100	2,205	2,315~~2,315~~	2,431~~2,431~~	2,553~~2,553~~	11,604~~11,604~~
Residential ENERGY STAR Clothes Dryer	Energy Savings (MWh/year)	33.36	35.03	36.78~~36.78~~	38.62~~38.62~~	40.55~~40.55~~	184.34~~184.34~~
	Demand Reduction (MW)	0.0043	0.0045	0.0047~~0.0047~~	0.0050~~0.0050~~	0.0052~~0.0052~~	0.0236~~0.0236~~
	Projected Participation	1,200	1,260	1,323~~1,323~~	1,389~~1,389~~	1,459~~1,459~~	6,631~~6,631~~
Residential Heat Pump Clothes Dryer	Energy Savings (MWh/year)	0.47	0.49	0.51~~0.51~~	0.54~~0.54~~	0.57~~0.57~~	2.58~~2.58~~
	Demand Reduction (MW)	0.0001	0.0001	0.0001~~0.0001~~	0.0001~~0.0001~~	0.0001~~0.0001~~	0.0006~~0.0006~~
	Projected Participation	5	5	6~~6~~	6~~6~~	6~~6~~	28~~28~~
Residential ENERGY STAR Most Efficient Air Source Heat Pump: Cold Climate	Energy Savings (MWh/year)	3,350.63	3,518.16	3,694.07~~3,694.07~~	3,878.77~~3,878.77~~	4,072.71~~4,072.71~~	18,514.33~~18,514.33~~
	Demand Reduction (MW)	0.4649	0.4882	0.5126~~0.5126~~	0.5382~~0.5382~~	0.5651~~0.5651~~	2.5690~~2.5690~~
	Projected Participation	2,750	2,888	3,032~~3,032~~	3,183~~3,183~~	3,343~~3,343~~	15,195~~15,195~~
Residential ENERGY STAR Central A/C	Energy Savings (MWh/year)	1,356.80	1,424.64	1,495.87~~1,495.87~~	1,570.67~~1,570.67~~	1,649.20~~1,649.20~~	7,497.18~~7,497.18~~
	Demand Reduction (MW)	0.6989	0.7339	0.7706~~0.7706~~	0.8091~~0.8091~~	0.8496~~0.8496~~	3.8621~~3.8621~~
	Projected Participation	2,750	2,888	3,032~~3,032~~	3,183~~3,183~~	3,343~~3,343~~	15,195~~15,195~~
Residential ENERGY STAR Most Efficient Ductless Mini-Split Heat Pump (per Outdoor Unit)	Energy Savings (MWh/year)	6,701.37	7,036.44	7,388.26~~7,388.26~~	7,757.68~~7,757.68~~	8,145.56~~8,145.56~~	37,029.31~~37,029.31~~
	Demand Reduction (MW)	0.4596	0.4826	0.5068~~0.5068~~	0.5321~~0.5321~~	0.5587~~0.5587~~	2.5398~~2.5398~~
	Projected Participation	3,000	3,150	3,308~~3,308~~	3,473~~3,473~~	3,647~~3,647~~	16,577~~16,577~~
Residential ECM Furnace Fan	Energy Savings (MWh/year)	1,081.70	1,135.79	1,192.57~~1,192.57~~	1,252.20~~1,252.20~~	1,314.81~~1,314.81~~	5,977.08~~5,977.08~~

Measure	Metric	PY13	PY14	PY15	PY16	PY17	Total
	Demand Reduction (MW)	0.2656	0.2789	0.2928~~0.29 28~~	0.3074~~0.30 74~~	0.3228~~0.32 28~~	1.4675~~1.4675~~
	Projected Participation	5,000	5,250	5,513~~5,513~~	5,788~~5,788~~	6,078~~6,078~~	27,628~~27,628~~
Residential Smart/Learning Thermostat	Energy Savings (MWh/year)	1,988.05	2,058.86	2,133.21~~2,1 33.21~~	2,211.28~~2,2 11.28~~	2,293.25~~2,2 93.25~~	10,684.65~~10,68 4.65~~
	Demand Reduction (MW)	0.0000	0.0000	0.0000~~0.00 00~~	0.0000~~0.00 00~~	0.0000~~0.00 00~~	0.0000~~0.0000~~
	Projected Participation	7,246	7,496	7,759~~7,759~~	8,034~~8,034~~	8,324~~8,324~~	38,858~~38,858~~
Residential ENERGY STAR Integral LED fixture: Indoor	Energy Savings (MWh/year)	613.45	644.12	676.33~~676. 33~~	710.14~~710. 14~~	745.65~~745. 65~~	3,389.69~~3,389.6 9~~
	Demand Reduction (MW)	0.0621	0.0652	0.0685~~0.06 85~~	0.0719~~0.07 19~~	0.0755~~0.07 55~~	0.3431~~0.3431~~
	Projected Participation	12,500	13,125	13,781~~13,7 81~~	14,470~~14,4 70~~	15,194~~15,1 94~~	69,070~~69,070~~
Residential Duct Insulation	Energy Savings (MWh/year)	14.59	15.32	16.09~~16.09~~	16.89~~16.89~~	17.74~~17.74~~	80.63~~80.63~~
	Demand Reduction (MW)	0.0039	0.0041	0.0043~~0.00 43~~	0.0045~~0.00 45~~	0.0047~~0.00 47~~	0.0216~~0.0216~~
	Projected Participation	100	105	110~~110~~	116~~116~~	122~~122~~	553~~553~~
Residential ENERGY STAR Integral LED fixture: Outdoor	Energy Savings (MWh/year)	7.24	7.61	7.99~~7.99~~	8.39~~8.39~~	8.81~~8.81~~	40.03~~40.03~~
	Demand Reduction (MW)	0.0000	0.0000	0.0000~~0.00 00~~	0.0000~~0.00 00~~	0.0000~~0.00 00~~	0.0000~~0.0000~~
	Projected Participation	100	105	110~~110~~	116~~116~~	122~~122~~	553~~553~~
Residential ENERGY STAR Integral LED fixture: Outdoor Recessed Downlight Retrofit Module	Energy Savings (MWh/year)	5.50	5.78	6.06~~6.06~~	6.37~~6.37~~	6.69~~6.69~~	30.39~~30.39~~
	Demand Reduction (MW)	0.0000	0.0000	0.0000~~0.00 00~~	0.0000~~0.00 00~~	0.0000~~0.00 00~~	0.0000~~0.0000~~
	Projected Participation	100	105	110~~110~~	116~~116~~	122~~122~~	553~~553~~
Residential ENERGY STAR Screw-in LED Bulb (Decorative: Globe)	Energy Savings (MWh/year)	1,509.88	1,583.33	1,205.31~~1,6 60.47~~	1,263.54~~1,7 41.46~~	1,324.68~~1,8 26.49~~	6,886.74~~8,321.6 3~~
	Demand Reduction (MW)	0.1922	0.2016	0.1534~~0.21 14~~	0.1609~~0.22 17~~	0.1686~~0.23 25~~	0.8768~~1.0594~~
	Projected Participation	66,800	70,050	53,325~~73,4 63~~	55,902~~77,0 46~~	58,607~~80,8 08~~	304,684~~368,166~~

Measure	Metric	PY13	PY14	PY15	PY16	PY17	Total
Residential ENERGY STAR Screw-in LED Bulb (Decorative: non-globe (e.g., candelabra))	Energy Savings (MWh/year)	2,213.84	2,318.36	1,795.242,428.11	1,879.982,543.34	1,967.812,664.34	10,175.2312,167.98
	Demand Reduction (MW)	0.2818	0.2952	0.22860.3091	0.23930.3238	0.25050.3392	1.29541.5491
	Projected Participation	94,784	99,259	76,862103,958	80,490108,891	84,251114,072	435,646520,964
Residential ENERGY STAR Screw-in LED Bulb (Directional/Reflector)	Energy Savings (MWh/year)	38.51	40.14	31.7541.86	33.0443.65	34.4045.54	177.83209.71
	Demand Reduction (MW)	0.0049	0.0051	0.00400.0053	0.00420.0056	0.00440.0058	0.02260.0267
	Projected Participation	5,900	6,150	4,8636,413	5,0626,688	5,2706,978	27,24532,128
Residential LED Nightlight	Energy Savings (MWh/year)	113.53	119.21	125.17125.17	131.42131.42	138.00138.00	627.32627.32
	Demand Reduction (MW)	0.0000	0.0000	0.00000.0000	0.00000.0000	0.00000.0000	0.00000.0000
	Projected Participation	21,600	22,680	23,81423,814	25,00525,005	26,25526,255	119,354119,354
Residential Advanced Power Strips	Energy Savings (MWh/year)	1,780.68	1,839.74	1,901.761,901.76	1,966.871,966.87	2,035.242,035.24	9,524.309,524.30
	Demand Reduction (MW)	0.1840	0.1901	0.19650.1965	0.20320.2032	0.21030.2103	0.98400.9840
	Projected Participation	20,050	20,715	21,41321,413	22,14622,146	22,91622,916	107,241107,241
Residential Low Flow Faucet Aerator	Energy Savings (MWh/year)	1,344.31	1,404.41	1,467.131,467.51	1,533.371,533.77	1,602.951,603.34	7,352.177,353.35
	Demand Reduction (MW)	0.1945	0.2032	0.21230.2124	0.22190.2219	0.23200.2320	1.06391.0641
	Projected Participation	29,750	31,080	32,46832,468	33,93433,943	35,47435,482	162,706162,732
Residential Low Flow Showerhead	Energy Savings (MWh/year)	1,884.63	1,965.22	2,049.122,049.85	2,137.982,138.71	2,231.282,232.01	10,268.2210,270.41
	Demand Reduction (MW)	0.1631	0.1701	0.17730.1774	0.18500.1851	0.19310.1932	0.88870.8888
	Projected Participation	15,550	16,215	16,90716,913	17,64017,646	18,41018,416	84,72384,741
	Energy Savings (MWh/year)	51.69	54.28	56.9956.99	59.8459.84	62.8362.83	285.63285.63

Measure	Metric	PY13	PY14	PY15	PY16	PY17	Total
Residential Duct Air Sealing	Demand Reduction (MW)	0.0170	0.0179	0.0187~~0.0187~~	0.0197~~0.0197~~	0.0207~~0.0207~~	0.0939~~0.0939~~
	Projected Participation	100	105	110~~110~~	116~~116~~	122~~122~~	553~~553~~
Residential Attic/Ceiling/Roof Insulation	Energy Savings (MWh/year)	3.70	3.89	4.08~~4.08~~	4.28~~4.28~~	4.50~~4.50~~	20.44~~20.44~~
	Demand Reduction (MW)	0.0010	0.0010	0.0011~~0.0011~~	0.0011~~0.0011~~	0.0012~~0.0012~~	0.0053~~0.0053~~
	Projected Participation	100	105	110~~110~~	116~~116~~	122~~122~~	553~~553~~
Residential Insulation/Wrap for Hot Water Pipe	Energy Savings (MWh/year)	8.82	9.26	9.72~~9.72~~	10.21~~10.21~~	10.72~~10.72~~	48.72~~48.72~~
	Demand Reduction (MW)	0.0008	0.0008	0.0008~~0.0008~~	0.0009~~0.0009~~	0.0009~~0.0009~~	0.0042~~0.0042~~
	Projected Participation	1,000	1,050	1,103~~1,103~~	1,158~~1,158~~	1,216~~1,216~~	5,526~~5,526~~
Residential Home Air Sealing/Weatherization	Energy Savings (MWh/year)	315.14	330.90	347.44~~347.44~~	364.81~~364.81~~	383.05~~383.05~~	1,741.34~~1,741.34~~
	Demand Reduction (MW)	0.0155	0.0163	0.0171~~0.0171~~	0.0180~~0.0180~~	0.0188~~0.0188~~	0.0857~~0.0857~~
	Projected Participation	500	525	551~~551~~	579~~579~~	608~~608~~	2,763~~2,763~~
Residential ENERGY STAR Screw-in LED Bulb (Standard)	Energy Savings (MWh/year)	1,085.32	1,120.43	1,157.30~~1,157.30~~	1,196.01~~1,196.01~~	1,236.66~~1,236.66~~	5,795.72~~5,795.72~~
	Demand Reduction (MW)	0.1382	0.1426	0.1473~~0.1473~~	0.1523~~0.1523~~	0.1574~~0.1574~~	0.7379~~0.7379~~
	Projected Participation	34,000	35,100	36,255~~36,255~~	37,468~~37,468~~	38,741~~38,741~~	181,564~~181,564~~
Residential A/R: Removal of Existing Freezer with Replacement	Energy Savings (MWh/year)	660.25	660.25	660.25~~660.25~~	660.25~~660.25~~	660.25~~660.25~~	3,301.26~~3,301.26~~
	Demand Reduction (MW)	0.0798	0.0798	0.0798~~0.0798~~	0.0798~~0.0798~~	0.0798~~0.0798~~	0.3989~~0.3989~~
	Projected Participation	1,125	1,125	1,125~~1,125~~	1,125~~1,125~~	1,125~~1,125~~	5,625~~5,625~~
Residential A/R: Removal of Existing Refrigerator with Replacement	Energy Savings (MWh/year)	936.70	936.70	936.70~~936.70~~	936.70~~936.70~~	936.70~~936.70~~	4,683.48~~4,683.48~~
	Demand Reduction (MW)	0.1132	0.1132	0.1132~~0.1132~~	0.1132~~0.1132~~	0.1132~~0.1132~~	0.5659~~0.5659~~
	Projected Participation	1,200	1,200	1,200~~1,200~~	1,200~~1,200~~	1,200~~1,200~~	6,000~~6,000~~
Residential Thermostatic Restrictor Shower Valve	Energy Savings (MWh/year)	87.15	87.15	87.15~~87.15~~	87.15~~87.15~~	87.15~~87.15~~	435.77~~435.77~~
	Demand Reduction (MW)	0.0075	0.0075	0.0075~~0.0075~~	0.0075~~0.0075~~	0.0075~~0.0075~~	0.0377~~0.0377~~
	Projected Participation	2,150	2,150	2,150~~2,150~~	2,150~~2,150~~	2,150~~2,150~~	10,750~~10,750~~

Measure	Metric	PY13	PY14	PY15	PY16	PY17	Total
Residential Heat Pump Water Heater	Energy Savings (MWh/year)	107.96	107.96	107.96~~107.96~~	107.96~~107.96~~	107.96~~107.96~~	539.79~~539.79~~
	Demand Reduction (MW)	0.0094	0.0094	0.0094~~0.0094~~	0.0094~~0.0094~~	0.0094~~0.0094~~	0.0469~~0.0469~~
	Projected Participation	38	38	38~~38~~	38~~38~~	38~~38~~	190~~190~~
C&I ENERGY STAR Integral LED fixture: Outdoor Recessed Downlight Retrofit Module	Energy Savings (MWh/year)	45.57	45.57	72.28~~45.57~~	72.91~~45.57~~	72.91~~45.57~~	309.25~~227.86~~
	Demand Reduction (MW)	0.0000	0.0000	0.0000~~0.0000~~	0.0000~~0.0000~~	0.0000~~0.0000~~	0.0000~~0.0000~~
	Projected Participation	240	240	381~~240~~	384~~240~~	384~~240~~	1,629~~1,200~~
C&I Interior Daylighting Controls	Energy Savings (MWh/year)	26.95	26.95	44.28~~26.95~~	44.28~~26.95~~	44.28~~26.95~~	186.73~~134.75~~
	Demand Reduction (MW)	0.0053	0.0053	0.0087~~0.0053~~	0.0087~~0.0053~~	0.0087~~0.0053~~	0.0367~~0.0265~~
	Projected Participation	70	70	115~~70~~	115~~70~~	115~~70~~	485~~350~~
C&I Interior Occupancy Controls	Energy Savings (MWh/year)	532.00	532.00	878.79~~532.00~~	874.00~~532.00~~	874.00~~532.00~~	3,690.79~~2,660.00~~
	Demand Reduction (MW)	0.1046	0.1046	0.1728~~0.1046~~	0.1719~~0.1046~~	0.1719~~0.1046~~	0.7258~~0.5231~~
	Projected Participation	2,800	2,800	4,625~~2,800~~	4,600~~2,800~~	4,600~~2,800~~	19,425~~14,000~~
C&I LED Exit Sign	Energy Savings (MWh/year)	518.91	518.91	885.86~~518.91~~	885.86~~518.91~~	885.86~~518.91~~	3,695.40~~2,594.56~~
	Demand Reduction (MW)	0.0806	0.0806	0.1376~~0.0806~~	0.1376~~0.0806~~	0.1376~~0.0806~~	0.5740~~0.4030~~
	Projected Participation	2,100	2,100	3,585~~2,100~~	3,585~~2,100~~	3,585~~2,100~~	14,955~~10,500~~
C&I LED Parking Garage and Canopy Fixtures and Retrofit Kits	Energy Savings (MWh/year)	403.20	403.20	696.96~~403.20~~	696.96~~403.20~~	696.96~~403.20~~	2,897.28~~2,016.00~~
	Demand Reduction (MW)	0.0000	0.0000	0.0000~~0.0000~~	0.0000~~0.0000~~	0.0000~~0.0000~~	0.0000~~0.0000~~
	Projected Participation	840	840	1,452~~840~~	1,452~~840~~	1,452~~840~~	6,036~~4,200~~
C&I LED Outdoor Flood Light Fixtures	Energy Savings (MWh/year)	422.53	422.53	744.63~~422.53~~	744.63~~422.53~~	744.63~~422.53~~	3,078.94~~2,112.65~~
	Demand Reduction (MW)	0.0000	0.0000	0.0000~~0.0000~~	0.0000~~0.0000~~	0.0000~~0.0000~~	0.0000~~0.0000~~
	Projected Participation	467	467	823~~467~~	823~~467~~	823~~467~~	3,403~~2,335~~
C&I ECM Circulation Pump	Energy Savings (MWh/year)	271.66	271.66	494.07~~271.66~~	494.07~~271.66~~	494.07~~271.66~~	2,025.54~~1,358.30~~

Measure	Metric	PY13	PY14	PY15	PY16	PY17	Total
	Demand Reduction (MW)	0.0335	0.0335	0.06090.0335	0.06090.0335	0.06090.0335	0.24980.1675
	Projected Participation	235	235	427235	427235	427235	1,7521,175
Residential ENERGY STAR Most Efficient Ductless Mini-Split Heat Pump (Per Ton)	Energy Savings (MWh/year)	402.63	402.63	402.63402.63	402.63402.63	402.63402.63	2,013.162,013.16
	Demand Reduction (MW)	0.0267	0.0267	0.02670.0267	0.02670.0267	0.02670.0267	0.13330.1333
	Projected Participation	261	261	261261	261261	261261	1,3051,305
C&I Air Cooled Heat Pump	Energy Savings (MWh/year)	13.89	13.89	16.739.81	16.739.81	16.739.81	77.9757.22
	Demand Reduction (MW)	0.0013	0.0013	0.00300.0018	0.00300.0018	0.00300.0018	0.01160.0079
	Projected Participation	21	21	3621	3621	3621	149105
C&I Air Cooled Air Conditioner	Energy Savings (MWh/year)	0.00	0.00	0.000.00	0.000.00	0.000.00	0.000.00
	Demand Reduction (MW)	0.0000	0.0000	0.00000.0000	0.00000.0000	0.00000.0000	0.00000.0000
	Projected Participation	0	0	00	00	00	00
Residential Attic/Ceiling/Roof Insulation - IE Direct Install with Heat Pump	Energy Savings (MWh/year)	10.49	10.49	10.4910.49	10.4910.49	10.4910.49	52.4452.44
	Demand Reduction (MW)	0.0006	0.0006	0.00060.0006	0.00060.0006	0.00060.0006	0.00310.0031
	Projected Participation	20	20	2020	2020	2020	100100
C&I LED Replacement Lamps (Tubes)	Energy Savings (MWh/year)	24.10	24.10	42.5124.10	42.5124.10	42.5124.10	175.72120.52
	Demand Reduction (MW)	0.0057	0.0057	0.01000.0057	0.01000.0057	0.01000.0057	0.04130.0284
	Projected Participation	334	334	589334	589334	589334	2,4351,670
C&I LED Pole/Arm Mounted Parking and Roadway Fixtures and Retrofit Kits	Energy Savings (MWh/year)	110.00	110.00	193.91110.00	192.50110.00	192.50110.00	798.91550.00
	Demand Reduction (MW)	0.0000	0.0000	0.00000.0000	0.00000.0000	0.00000.0000	0.00000.0000
	Projected Participation	100	100	176100	175100	175100	726500
C&I Air Cooled Chiller	Energy Savings (MWh/year)	0.64	0.64	1.080.64	1.080.64	1.080.64	4.523.22
	Demand Reduction (MW)	0.0017	0.0017	0.00290.0017	0.00290.0017	0.00290.0017	0.01220.0087
	Projected Participation	7	7	127	127	127	4935
C&I LED Troffer Fixtures and Retrofit Kits	Energy Savings (MWh/year)	524.88	524.88	907.29524.88	907.29524.88	907.29524.88	3,771.622,624.38

Measure	Metric	PY13	PY14	PY15	PY16	PY17	Total
	Demand Reduction (MW)	0.1264	0.1264	0.2184~~0.1264~~	0.2184~~0.1264~~	0.2184~~0.1264~~	0.9081~~0.6319~~
	Projected Participation	2,800	2,800	4,840~~2,800~~	4,840~~2,800~~	4,840~~2,800~~	20,120~~14,000~~
Residential ENERGY STAR Screw-in LED Bulb (Standard: 3-Way)	Energy Savings (MWh/year)	21.55	21.55	21.55~~21.55~~	21.55~~21.55~~	21.55~~21.55~~	107.73~~107.73~~
	Demand Reduction (MW)	0.0027	0.0027	0.0027~~0.0027~~	0.0027~~0.0027~~	0.0027~~0.0027~~	0.0137~~0.0137~~
	Projected Participation	675	675	675~~675~~	675~~675~~	675~~675~~	3,375~~3,375~~
Residential PTAC	Energy Savings (MWh/year)	16.16	16.16	16.16~~16.16~~	16.16~~16.16~~	16.16~~16.16~~	80.82~~80.82~~
	Demand Reduction (MW)	0.0067	0.0067	0.0067~~0.0067~~	0.0067~~0.0067~~	0.0067~~0.0067~~	0.0335~~0.0335~~
	Projected Participation	28	28	28~~28~~	28~~28~~	28~~28~~	140~~140~~
C&I VSD retrofit on HVAC Pump	Energy Savings (MWh/year)	39.38	39.38	39.38~~39.38~~	39.38~~39.38~~	39.38~~39.38~~	196.92~~196.92~~
	Demand Reduction (MW)	0.0012	0.0012	0.0012~~0.0012~~	0.0012~~0.0012~~	0.0012~~0.0012~~	0.0059~~0.0059~~
	Projected Participation	36	36	36~~36~~	36~~36~~	36~~36~~	180~~180~~
C&I LED Wall Mount Fixtures and Retrofit Kits	Energy Savings (MWh/year)	148.40	148.40	246.34~~148.40~~	246.34~~148.40~~	246.34~~148.40~~	1,035.83~~742.00~~
	Demand Reduction (MW)	0.0068	0.0068	0.0113~~0.0068~~	0.0113~~0.0068~~	0.0113~~0.0068~~	0.0474~~0.0340~~
	Projected Participation	280	280	465~~280~~	465~~280~~	465~~280~~	1,954~~1,400~~
Residential Code Plus Home - Multifamily	Energy Savings (MWh/year)	0.00	0.00	0.00~~0.00~~	0.00~~0.00~~	0.00~~0.00~~	0.00~~0.00~~
	Demand Reduction (MW)	0.0000	0.0000	0.0000~~0.0000~~	0.0000~~0.0000~~	0.0000~~0.0000~~	0.0000~~0.0000~~
	Projected Participation	0	0	0~~0~~	0~~0~~	0~~0~~	0~~0~~
Residential Code Plus Home – Single-family	Energy Savings (MWh/year)	903.50	903.50	903.50~~903.50~~	903.50~~903.50~~	903.50~~903.50~~	4,517.50~~4,517.50~~
	Demand Reduction (MW)	0.6490	0.6490	0.6490~~0.6490~~	0.6490~~0.6490~~	0.6490~~0.6490~~	3.2451~~3.2451~~
	Projected Participation	601	601	601~~601~~	601~~601~~	601~~601~~	3,005~~3,005~~
Residential ENERGY STAR 3.0 Home	Energy Savings (MWh/year)	400.00	400.00	400.00~~400.00~~	400.00~~400.00~~	400.00~~400.00~~	2,000.00~~2,000.00~~
	Demand Reduction (MW)	0.2160	0.2160	0.2160~~0.2160~~	0.2160~~0.2160~~	0.2160~~0.2160~~	1.0799~~1.0799~~
	Projected Participation	200	200	200~~200~~	200~~200~~	200~~200~~	1,000~~1,000~~
	Energy Savings (MWh/year)	1,120.00	1,120.00	1,120.00~~1,120.00~~	1,120.00~~1,120.00~~	1,120.00~~1,120.00~~	5,600.00~~5,600.00~~

Measure	Metric	PY13	PY14	PY15	PY16	PY17	Total
Residential ENERGY STAR 3.0 Home - Multifamily	Demand Reduction (MW)	0.3456	0.3456	0.3456~~0.3456~~	0.3456~~0.3456~~	0.3456~~0.3456~~	1.7279~~1.7279~~
	Projected Participation	800	800	800~~800~~	800~~800~~	800~~800~~	4,000~~4,000~~
Residential Net Zero Energy Home	Energy Savings (MWh/year)	100.00	100.00	100.00~~100.00~~	100.00~~100.00~~	100.00~~100.00~~	500.00~~500.00~~
	Demand Reduction (MW)	0.0151	0.0151	0.0151~~0.0151~~	0.0151~~0.0151~~	0.0151~~0.0151~~	0.0756~~0.0756~~
	Projected Participation	10	10	10~~10~~	10~~10~~	10~~10~~	50~~50~~
Residential Midrise Multifamily Common and Commercial Space	Energy Savings (MWh/year)	7.00	7.00	7.00~~7.00~~	7.00~~7.00~~	7.00~~7.00~~	35.00~~35.00~~
	Demand Reduction (MW)	0.0022	0.0022	0.0022~~0.0022~~	0.0022~~0.0022~~	0.0022~~0.0022~~	0.0108~~0.0108~~
	Projected Participation	1	1	1~~1~~	1~~1~~	1~~1~~	5~~5~~
Residential Mid-rise Multifamily Common and Commercial Space	Energy Savings (MWh/year)	15.00	15.00	15.00~~15.00~~	15.00~~15.00~~	15.00~~15.00~~	75.00~~75.00~~
	Demand Reduction (MW)	0.0022	0.0022	0.0022~~0.0022~~	0.0022~~0.0022~~	0.0022~~0.0022~~	0.0108~~0.0108~~
	Projected Participation	1	1	1~~1~~	1~~1~~	1~~1~~	5~~5~~
Residential A/R: Freezer Recycling	Energy Savings (MWh/year)	1,029.86	1,029.86	1,029.86~~1,029.86~~	1,029.86~~1,029.86~~	1,029.86~~1,029.86~~	5,149.31~~5,149.31~~
	Demand Reduction (MW)	0.1244	0.1244	0.1244~~0.1244~~	0.1244~~0.1244~~	0.1244~~0.1244~~	0.6222~~0.6222~~
	Projected Participation	1,250	1,250	1,250~~1,250~~	1,250~~1,250~~	1,250~~1,250~~	6,250~~6,250~~
Residential A/R: Refrigerator Recycling	Energy Savings (MWh/year)	6,217.39	6,217.39	6,217.39~~6,217.39~~	6,217.39~~6,217.39~~	6,217.39~~6,217.39~~	31,086.94~~31,086.94~~
	Demand Reduction (MW)	0.7513	0.7513	0.7513~~0.7513~~	0.7513~~0.7513~~	0.7513~~0.7513~~	3.7566~~3.7566~~
	Projected Participation	5,935	5,935	5,935~~5,935~~	5,935~~5,935~~	5,935~~5,935~~	29,675~~29,675~~

Measure	Metric	PY13	PY14	PY15	PY16	PY17	Total
Residential A/R: Room AC Retirement	Energy Savings (MWh/year)	148.16	148.16	148.16~~148.16~~	148.16~~148.16~~	148.16~~148.16~~	740.82~~740.82~~
	Demand Reduction (MW)	0.2803	0.2803	0.2803~~0.2803~~	0.2803~~0.2803~~	0.2803~~0.2803~~	1.4017~~1.4017~~
	Projected Participation	800	800	800~~800~~	800~~800~~	800~~800~~	4,000~~4,000~~
Residential A/R Dehumidifier Retirement	Energy Savings (MWh/year)	0.00	0.00	167.37	167.37	167.37	502.10
	Demand Reduction (MW)	0.0000	0.0000	0.0350	0.0350	0.0350	0.1049
	Projected Participation	0	0	187	187	187	561
Residential Adjust Thermostat Education	Energy Savings (MWh/year)	0.00	0.00	156.74	181.21	186.34	524.29
	Demand Reduction (MW)	0.0000	0.0000	0.0262	0.0303	0.0311	0.0876
	Projected Participation	0	0	9,780	11,307	11,627	32,714
Residential ASHP Tune Up	Energy Savings (MWh/year)	0.00	0.00	19.38	19.38	19.38	58.15
	Demand Reduction (MW)	0.0000	0.0000	0.0041	0.0041	0.0041	0.0123
	Projected Participation	0	0	85	85	85	255
Residential Fluorescent in units fixture	Energy Savings (MWh/year)	0.00	0.00	20.65	8.85	26.56	56.06
	Demand Reduction (MW)	0.0000	0.0000	0.0026	0.0011	0.0034	0.0071
	Projected Participation	0	0	700	300	900	1,900
Residential Knee wall Insulation	Energy Savings (MWh/year)	0.00	0.00	1.62	1.62	1.62	4.86
	Demand Reduction (MW)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001
	Projected Participation	0	0	1,000	1,000	1,000	3,000
Residential Custom	Energy Savings (MWh/year)	0.00	0.00	100.00	100.00	100.00	300.00
	Demand Reduction (MW)	0.0000	0.0000	0.0193	0.0193	0.0193	0.0580
	Projected Participation	0	0	100,000	100,000	100,000	300,000
Residential Rim Joist Insulation	Energy Savings (MWh/year)	0.00	0.00	4.42	4.42	4.42	13.25
	Demand Reduction (MW)	0.0000	0.0000	0.0001	0.0001	0.0001	0.0003
	Projected Participation	0	0	1,000	1,000	1,000	3,000
Residential Shorter Showers Education	Energy Savings (MWh/year)	0.00	0.00	12.76	14.76	15.18	42.70
	Demand Reduction (MW)	0.0000	0.0000	0.0011	0.0013	0.0013	0.0037
	Projected Participation	0	0	9,780	11,307	11,627	32,714
Residential Smart Water Control	Energy Savings (MWh/year)	0.00	0.00	0.42	0.42	0.42	1.27
	Demand Reduction (MW)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001
	Projected Participation	0	0	10	10	10	30
Residential Wall Insulation	Energy Savings (MWh/year)	0.00	0.00	1.61	1.61	1.61	4.82
	Demand Reduction (MW)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001
	Projected Participation	0	0	1,000	1,000	1,000	3,000
	Energy Savings (MWh/year)	0.00	0.00	15.47	17.88	18.39	51.73

Measure	Metric	PY13	PY14	PY15	PY16	PY17	Total
Residential Wash Laundry in Cold Water Education	Demand Reduction (MW)	0.0000	0.0000	0.0013	0.0016	0.0016	0.0045
	Projected Participation	0	0	9,780	11,307	11,627	32,714
Residential Window Heat Pump	Energy Savings (MWh/year)	0.00	0.00	37.80	37.80	37.80	113.39
	Demand Reduction (MW)	0.0000	0.0000	0.0042	0.0042	0.0042	0.0125
	Projected Participation	0	0	20	20	20	60
Residential Drain Water Heat Recovery Units	Energy Savings (MWh/year)	0.00	0.00	2.93	2.93	2.93	8.78
	Demand Reduction (MW)	0.0000	0.0000	0.0003	0.0003	0.0003	0.0008
	Projected Participation	0	0	10	10	10	30
Residential CAC Tune up	Energy Savings (MWh/year)	0.00	0.00	1.74	1.74	1.74	5.21
	Demand Reduction (MW)	0.0000	0.0000	0.0012	0.0012	0.0012	0.0036
	Projected Participation	0	0	25	25	25	75
Residential ENERGY STAR ~~Air Purifier~~	Energy Savings (MWh/year)	0.00	0.00	162.32	324.64	324.64	811.61
	Demand Reduction (MW)	0.0000	0.0000	0.0201	0.0402	0.0402	0.1005
	Projected Participation	0	0	554	1,108	1,108	2,770

Estimated Program Budget (Total) by Year

Table 9A. Residential Program: Program Budget

Cost Element		PY13	PY14	PY15	PY16	PY17	Phase IV Total[2]
Total Budget ($000)							
Incentives ($000)	Rebates	$3,964	$4,161	$4,368	$4,586	$4,814	$21,893
	Upstream/Midstream Buydown	$1,392	$1,392	$1,392	$1,392	$1,392	$6,962
	Kits	$0	$0	$0	$0	$0	$0
	Direct Install Materials & Labor	$1,197	$1,213	$1,231	$1,249	$1,268	$6,157
	Incentive Total	**$6,553**	**$6,767**	**$6,991**	**$7,227**	**$7,474**	**$35,012**
Non-Incentives ($000)[1]	Program Design	$73	$73	$73	$73	$73	$366
	Administrative	$439	$439	$439	$439	$439	$2,195
	EDC Delivery Costs	$0	$0	$0	$0	$0	$0
	CSP Delivery Fees	$5,240	$5,399	$5,565	$5,740	$5,924	$27,868
	Marketing	$2,657	$2,657	$2,657	$2,657	$2,657	$13,283
	EM&V	$585	$585	$585	$585	$585	$2,927
	Other (See Section 4.2.3)	$296	$296	$296	$296	$296	$1,479
	Non-Incentive Total	**$9,290**	**$9,449**	**$9,615**	**$9,790**	**$9,974**	**$48,120**
Percent Incentives		41%	42%	42%	42%	43%	42%

Notes:

1 Program design, administrative, EM&V, and "other" are allocated to programs from cross-cutting based on methods described in Table 11. Figure 4 shows program-specific budgets without allocated costs.

2 The residential program offers incentives to customers in the residential, small commercial, and large commercial sectors. Therefore, in order to compare budgets from Table 9 to Table 12, it should be noted that $4,837,414 of the Residential program budget is attributed to the commercial sectors for cost recovery.

Cost Element		PY13	PY14	PY15	PY16	PY17	Phase IV Total[2]
Total Budget ($000)							
Incentives ($000)	Rebates	$3,964	$4,161	$4,437	$4,663	$4,863	$22,088
	Upstream/Midstream Buydown	$1,392	$1,392	$1,000	$1,000	$1,000	$5,784
	Kits	$0	$0	$0	$0	$0	$0
	Direct Install Materials & Labor	$1,197	$1,213	$1,754	$1,804	$1,847	$7,815
	Incentive Total	**$6,553**	**$6,766**	**$7,191**	**$7,467**	**$7,710**	**$35,687**
Non-Incentives ($000)[1]	Program Design	$73	$73	$73	$73	$73	$366
	Administrative	$439	$439	$439	$439	$439	$2,195
	EDC Delivery Costs	$0	$0	$0	$0	$0	$0
	CSP Delivery Fees	$5,240	$5,399	$5,800	$6,038	$6,217	$28,693
	Marketing	$2,657	$2,657	$2,657	$2,657	$2,657	$13,283
	EM&V	$585	$585	$585	$585	$585	$2,927
	Other (See Section 4.2.3)	$296	$296	$296	$296	$296	$1,479
	Non-Incentive Total	**$9,290**	**$9,449**	**$9,850**	**$10,088**	**$10,267**	**$48,944**
Percent Incentives		41%	42%	42%	43%	43%	42%

Notes:

1 Program design, administrative, EM&V, and "other" are allocated to programs from cross-cutting based on methods described in Table 11. Figure 4 shows program-specific budgets without allocated costs.

2 The residential program offers incentives to customers in the residential, small commercial, and large commercial sectors. Therefore, in order to compare budgets from Table 9 to Table 12, it should be noted that $5,837,194 of the Residential program budget is attributed to the commercial sectors for cost recovery.

Estimated Percentage of Sector Budget Attributed to the Program

The Residential program offers incentives to customers in the residential, small commercial, and large commercial sectors. The Residential program accounts for 57.7% of the residential sector, 2.4~~2.8~~% of the small commercial sector and 2.2~~0.9~~% of the large commercial sector spending exclusive of common cost allocation. Small and Large commercial attributions represent commercially metered multifamily building and common area measures rebated through the Residential program. The costs of commercially metered multifamily buildings and common area measures are recovered through the small commercial sector and the large commercial sector cost recovery mechanisms.

Cost-Effectiveness

Table 13A. Residential Program: TRC Benefits Table

Gross Portfolio	NTGR & TRC Ratio			TRC Costs By Program Per Year ($000)				TRC Benefits By Program Per Year ($000)				
Program	Program Year	NTGR	TRC[1]	Incremental Measure Cost		Program Administration Cost	Total TRC Costs	Capacity Benefits	Energy Benefits	Fossil Fuel and Water Benefits	O&M Benefits	Total TRC Benefits
				Paid by EDC	Paid by Participants							
Residential	*PY13*	*1.00*	*1.11*	*$6,553*	*$12,611*	$7,897	$27,061	$7,179	$14,104	$7,549	$1,102	$29,934
Residential	*PY14*	*1.00*	*1.14*	*$6,767*	*$13,105*	$8,056	$27,927	$7,534	$15,137	$8,033	$1,143	$31,847
Residential	*PY15*	*1.00*	*1.18*	*$6,991*	*$13,624*	$8,222	$28,837	$7,921	$16,309	$8,547	$1,186	$33,963
Residential	*PY16*	*1.00*	*1.22*	*$7,227*	*$14,169*	$8,397	$29,792	$8,331	$17,602	$9,120	$1,232	$36,285
Residential	*PY17*	*1.00*	*1.26*	*$7,474*	*$14,741*	$8,581	$30,796	$8,767	$19,022	$9,708	$1,280	$38,777
Residential Total		*1.00*	*1.18*	*$31,731*	*$61,816*	$37,339	$130,886	$35,949	$74,168	$38,816	$5,383	$154,317

Gross Portfolio	NTGR & TRC Ratio			TRC Costs By Program Per Year ($000)				TRC Benefits By Program Per Year ($000)				
Program	Program Year	NTGR	TRC[1]	Incremental Measure Cost		Program Administration Cost	Total TRC Costs	Capacity Benefits	Energy Benefits	Fossil Fuel and Water Benefits	O&M Benefits	Total TRC Benefits
				Paid by EDC	Paid by Participants							
Residential	*PY13*	*1.00*	*1.11*	*$6,553*	*$12,611*	$7,897	$27,061	$7,179	$14,105	$7,549	$1,102	$29,935
Residential	*PY14*	*1.00*	*1.14*	*$6,767*	*$13,105*	$8,056	$27,927	$7,534	$15,137	$8,033	$1,143	$31,847
Residential	*PY15*	*1.00*	*1.13*	*$7,191*	*$14,543*	$8,456	$30,190	$7,941	$16,523	$8,599	$1,093	$34,155
Residential	*PY16*	*1.00*	*1.17*	*$7,467*	*$15,133*	$8,695	$31,295	$8,401	$17,941	$9,173	$1,128	$36,644
Residential	*PY17*	*1.00*	*1.21*	*$7,710*	*$15,734*	$8,873	$32,317	$8,827	$19,348	$9,767	$1,164	$39,106
Residential Total		*1.00*	*1.15*	*$32,313*	*$64,299*	$38,050	$134,662	$36,077	$74,924	$38,957	$5,113	$155,072

Net Portfolio	NTGR & TRC Ratio			TRC Costs By Program Per Year ($000)				TRC Benefits By Program Per Year ($000)				
Program	Program Year	NTGR	TRC[1]	Incremental Measure Cost		Program Administration Cost	Total TRC Costs	Capacity Benefits	Energy Benefits	Fossil Fuel and Water Benefits	O&M Benefits	Total TRC Benefits
				Paid by EDC	Paid by Participants							
Residential	*PY13*	*0.68*	*0.97*	*$6,553*	$6,478	$7,897	$20,928	$4,882	$9,591	$5,133	$749	$20,355
Residential	*PY14*	*0.68*	*1.00*	*$6,767*	$6,746	$8,056	$21,568	$5,123	$10,293	$5,462	$777	$21,656
Residential	*PY15*	*0.68*	*1.04*	*$6,991*	$7,027	$8,222	$22,240	$5,386	$11,090	$5,812	$807	$23,095
Residential	*PY16*	*0.68*	*1.08*	*$7,227*	$7,322	$8,397	$22,946	$5,665	$11,969	$6,202	$838	$24,674
Residential	*PY17*	*0.68*	*1.11*	*$7,474*	$7,632	$8,581	$23,687	$5,962	$12,935	$6,601	$870	$26,368
Residential Total		*0.68*	*1.04*	*$31,731*	$31,881	$37,339	$100,951	$24,445	$50,435	$26,395	$3,661	$104,935

Net Portfolio	NTGR & TRC Ratio			TRC Costs By Program Per Year ($000)				TRC Benefits By Program Per Year ($000)				
Program	Program Year	NTGR	TRC[1]	Incremental Measure Cost		Program Administration Cost	Total TRC Costs	Capacity Benefits	Energy Benefits	Fossil Fuel and Water Benefits	O&M Benefits	Total TRC Benefits
				Paid by EDC	Paid by Participants							
Residential	*PY13*	*0.68*	*0.97*	*$6,553*	$6,478	$7,897	$20,928	$4,882	$9,591	$5,133	$749	$20,356
Residential	*PY14*	*0.68*	*1.00*	*$6,767*	$6,746	$8,056	$21,568	$5,123	$10,293	$5,462	$777	$21,656
Residential	*PY15*	*0.68*	*1.00*	*$7,191*	$7,588	$8,456	$23,235	$5,400	$11,236	$5,847	$743	$23,226
Residential	*PY16*	*0.68*	*1.04*	*$7,467*	$7,901	$8,695	$24,063	$5,713	$12,200	$6,238	$767	$24,918
Residential	*PY17*	*0.68*	*1.07*	*$7,710*	$8,232	$8,873	$24,815	$6,002	$13,157	$6,641	$792	$26,592
Residential Total		*0.68*	*1.02*	*$32,313*	$33,383	$38,050	$103,746	$24,532	$50,949	$26,491	$3,477	$105,449

Bidding Strategy for Peak Demand Reductions into PJM's FCM

PECO will hire a turnkey service provider to handle the strategy and details for bidding into PJM's forward capacity market (FCM). This approach will balance the benefits of bidding to PECO customers against the risk posed to customers by the potential for deficiency charges from PJM. As part of the competitive solicitation process, PECO will seek to minimize the portion of the revenues retained by the turnkey provider. All such revenues, net of any Provider Revenues paid, will be returned to customers as an offset to Plan costs. PECO will submit its proposed contract with the turnkey provider to the Commission consistent with the process for all CSP contracts.

Other Information Deemed Appropriate

None.

Program #2 Title and Program Years During Which Program Will Be Implemented

Residential Home Energy Reports (HERs) program (2021-2026)

Objective(s)

The Residential Home Energy Reports program's objective is to reduce a home's energy use through HERs and online access where customers can view their home energy usage. This program leverages the power of social norming to drive persistent energy savings through smart energy practices.

Target Market

The eligible population and target market include PECO residential electric customers that do not qualify as income-eligible.

Program Description

The Residential Home Energy Reports program involves regularly delivering direct mail or digital HERs that motivate customers to act through contextualized energy-usage information, personal and neighborhood comparisons, and energy savings recommendations based on customers' specific energy-usage patterns and characteristics. HERs will include marketing opportunities for cross-selling other Phase IV energy efficiency programs.

In addition to the information presented on the mailed or emailed HERs, all customers can log onto PECO's website to view their energy usage (energy costs, energy use, neighbor comparison). The website will also help customers determine what technologies use the most energy in their homes, provide information on how to save energy, and enable sign up for energy usage alerts and notifications. The purpose of the website is to encourage customers to learn more about PECO's energy efficiency programs and help them take action to save energy.

Program Sub-Components

The Residential Home Energy Reports program does not contain any components.

Implementation Strategy

The Residential Home Energy Reports program will be implemented by a CSP. The CSP will deliver and manage the website platform and direct mail or digital HERs to customers. Home Energy Reports program participants are grouped in waves, or cohorts. The CSP will launch new waves in addition to maintaining the legacy waves launched prior to Phase IV. In Phase IV, HER waves will have a multi-year measure life after the first year of deployment. Savings will persist with a prescribed decay rate during the second year of deployment or later. The CSP will manage participation waves throughout Phase IV to address measure life and persistence in accordance with the multiyear measure life framework and PECO's goals.

Program Issues and Risks and Risk Management Strategy

The Residential Home Energy Reports program will manage risks by implementing a continuous improvement process such that PECO closely monitors program results and adjusts implementation tactics (including marketing approaches, participation guidelines, incentives, and program resource allocation) to meet the portfolio level targets.

One program risk is COVID-19-related impacts on customer behavior. With more residential customers working and spending more time at home due to the pandemic, the ability for customers to reduce their energy consumption may decrease. The CSP and PECO will manage this risk by tracking savings on a monthly basis, and the CSP can adjust report content and cadence if savings are under target.

Anticipated Costs to Participating Customers

Customers participating in the Residential Home Energy Reports program have anticipated costs of $0 for Phase IV.

Ramp-Up Strategy

Minimal ramp up will be needed for the Residential Home Energy Reports program because this program is already operating in Phase III.

Marketing Strategy

The Residential Home Energy Reports program participants are selected by PECO; customers cannot subscribe themselves. Therefore, there is no marketing of the program to encourage participation.

Eligible Measures and Incentive Strategy

The program measure is the delivery of direct mail or digital HERs to customers. Customers are selected for the program and can choose to opt-out at any time. No incentives are paid to the customers.

Table 7B. Residential HER Program: Eligible Measures

Measure	Unit	Low-Income Measure (Yes/No)	Eligibility Requirements	Incremental Cost	Estimated Useful Life	Incentive Amount or Incentive Range
Home Energy Reports	Household	No	Phase IV TRM	$0/unit	1 or 4 based on Wave Year	$0/unit

Basis for the Proposed Level of Incentives

Rebates are not applicable to the Residential Home Energy Reports program.

Maximum Deadlines for Rebates

Rebates are not applicable to the Residential Home Energy Reports program.

Program Start Date with Key Schedule Milestones

The planned implementation schedule follows:

- March 2021: PECO and the CSPs will kick-off the program pre-launch process. During pre-launch, CSPs will assign key staff and ensure all customer support systems and marketing and outreach is in place.
- June 1, 2021: The program will launch.
- June 2021–May 2026: Programs will operate and adjust to market changes. Savings and budget compared to goals will be reviewed on a regular basis.
- May 31, 2026: Last day of the Phase IV programs.

Assumed Evaluation, Measurement, and Verification (EM&V) Requirements

The evaluation methodology and data collection proposed for the program are consistent with current EM&V practices for PECO's Phase III programs. The EM&V requirements for this program conform to all applicable state protocols, including the SWE Evaluation Framework and the Pennsylvania TRM. PECO will follow the SWE's Evaluation Framework, will utilize a SWE-approved Phase IV evaluation plan, and will utilize an independent evaluator to verify all Plan-related savings and ensure that there is no double-counting of savings for programs that leverage outside funding. Metrics for monitoring program success include, but are not limited to:

- Customer satisfaction with the program
- Energy savings associated with customer behavior change
- Program implementation costs

Data for evaluating the program will come from the following sources:

- Tracking system data
- TRM estimates of measure savings persistence
- Surveys of customers who participate in the program
- Program implementer and PECO staff surveys or interviews
- Evaluation of billing data

Program impacts will be determined using a customer billing data and billing regression analysis.

Evaluating program process success and efficiency across program delivery, administration, implementation, and customer response, includes the following strategies:

- Interviews with utility staff, implementation staff, and customers
- Survey of program participants
- Assess customer understanding, satisfaction, and attitudes about the program

See Section 6.1.4 for more details about market and process evaluations.

Administrative Requirements

PECO will administer the program through a CSP. PECO will ensure major milestones are met and that the program is delivered according to the program design. Requested external staffing levels will be provided upon the completion of the CSP selection and contracting process. PECO will have 4.5 FTEs dedicated to the residential sector.

Savings Targets and Estimated Participation

Table 8B. Residential HER Program: Estimated Savings and Participation

Measure	Metric	PY13	PY14	PY15	PY16	PY17	Total
Home Energy Reports	Energy Savings (MWh/year)	21,507	25,447	22,234	22,012	21,456	112,656
	Demand Reduction (MW)	4.228.39	5.009.93	4.368.67	4.328.59	6.608.37	24.5043.95
	Projected Participation[1]	542,200	379,200	326,400	531,400	488,400	2,267,600

[1]Per Table 7B, the unit basis is "per household".

Estimated Program Budget (Total) by Year

Table 9B. Residential HER Program: Program Budget

Cost Element		PY13	PY14	PY15	PY16	PY17	Phase IV Total
Total Budget ($000)							
Incentives ($000)	Rebates	$0	$0	$0	$0	$0	$0
	Upstream/Midstream Buydown	$0	$0	$0	$0	$0	$0
	Kits	$0	$0	$0	$0	$0	$0
	Direct Install Materials & Labor	$0	$0	$0	$0	$0	$0
	Incentive Total	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**
Non-Incentives ($000)[1]	Program Design	$35	$35	$35	$35	$35	$175
	Administrative	$211	$211	$211	$211	$211	$1,053
	EDC Delivery Costs	$0	$0	$0	$0	$0	$0
	CSP Delivery Fees	$1,850	$2,188	$1,912	$1,893	$1,845	$9,688
	Marketing	$0	$0	$0	$0	$0	$0
	EM&V	$281	$281	$281	$281	$281	$1,404
	Other (See Section 4.2.3)	$190	$190	$190	$190	$190	$949
	Non-Incentive Total	**$2,566**	**$2,905**	**$2,628**	**$2,609**	**$2,561**	**$13,270**
Percent Incentives		0%	0%	0%	0%	0%	0%

Notes:

1 Program design, administrative, marketing, EM&V, and "other" are allocated to programs from cross-cutting based on methods described in Table 11. Figure 4 shows program-specific budgets without allocated costs.

Estimated Percentage of Sector Budget Attributed to the Program

The Residential Home Energy Reports program participates in the residential sector. The Residential Home Energy Reports program accounts for 7.8% of residential sector spending exclusive of common cost allocation.

Cost-Effectiveness

Table 13B. Residential HER Program: TRC Benefits Table

Gross Portfolio	NTGR & TRC Ratio			TRC Costs By Program Per Year ($000)				TRC Benefits By Program Per Year ($000)				
Program	Program Year	NTGR	TRC[1]	Incremental Measure Cost		Program Administration Cost	Total TRC Costs	Capacity Benefits	Energy Benefits	Fossil Fuel and Water Benefits	O&M Benefits	Total TRC Benefits
				Paid by Participants	Paid by EDC							
Residential Home Energy Reports	*PY13*	*1.00*	*1.07*	*$0*	*$0*	$1,850	$1,850	$1,165	$804	$0	$0	$1,970
Residential Home Energy Reports	*PY14*	*1.00*	*2.12*	*$0*	*$0*	$2,188	$2,188	$2,751	$1,885	$0	$0	$4,636
Residential Home Energy Reports	*PY15*	*1.00*	*2.16*	*$0*	*$0*	$1,912	$1,912	$2,452	$1,680	$0	$0	$4,132
Residential Home Energy Reports	*PY16*	*1.00*	*2.21*	*$0*	*$0*	$1,893	$1,893	$2,476	$1,709	$0	$0	$4,185
Residential Home Energy Reports	*PY17*	*1.00*	*2.28*	*$0*	*$0*	$1,845	$1,845	$2,462	$1,737	$0	$0	$4,198
Residential Home Energy Reports Total		*1.00*	*1.95*	*$0*	*$0*	$8,822	$8,822	$10,174	$7,028	$0	$0	$17,202

Gross Portfolio	NTGR & TRC Ratio			TRC Costs By Program Per Year ($000)				TRC Benefits By Program Per Year ($000)				
Program	Program Year	NTGR	TRC[1]	Incremental Measure Cost		Program Administration Cost	Total TRC Costs	Capacity Benefits	Energy Benefits	Fossil Fuel and Water Benefits	O&M Benefits	Total TRC Benefits
				Paid by EDC	Paid by Participants							
Residential Home Energy Reports	*PY13*	*1.00*	*0.75*	*$0*	*$0*	$1,850	$1,850	$586	$804	$0	$0	$1,391
Residential Home Energy Reports	*PY14*	*1.00*	*1.49*	*$0*	*$0*	$2,188	$2,188	$1,384	$1,885	$0	$0	$3,269
Residential Home Energy Reports	*PY15*	*1.00*	*1.52*	*$0*	*$0*	$1,912	$1,912	$1,234	$1,680	$0	$0	$2,913
Residential Home Energy Reports	*PY16*	*1.00*	*1.56*	*$0*	*$0*	$1,893	$1,893	$1,246	$1,709	$0	$0	$2,955
Residential Home Energy Reports	*PY17*	*1.00*	*1.99*	*$0*	*$0*	$1,845	$1,845	$1,941	$1,737	$0	$0	$3,678
Residential Home Energy Reports Total		*1.00*	*1.44*	*$0*	*$0*	$8,822	$8,822	$5,696	$7,028	$0	$0	$12,724

Net Portfolio	NTGR & TRC Ratio			TRC Costs By Program Per Year ($000)				TRC Benefits By Program Per Year ($000)				
Program	Program Year	NTGR	TRC[1]	Incremental Measure Cost		Program Administration Cost	Total TRC Costs	Capacity Benefits	Energy Benefits	Fossil Fuel and Water Benefits	O&M Benefits	Total TRC Benefits
				Paid by Participants	Paid by EDC							
Residential Home Energy Reports	*PY13*	*1.00*	*1.07*	*$0*	$0	$1,850	$1,850	$1,165	$804	$0	$0	$1,970
Residential Home Energy Reports	*PY14*	*1.00*	*2.12*	*$0*	$0	$2,188	$2,188	$2,751	$1,885	$0	$0	$4,636
Residential Home Energy Reports	*PY15*	*1.00*	*2.16*	*$0*	$0	$1,912	$1,912	$2,452	$1,680	$0	$0	$4,132
Residential Home Energy Reports	*PY16*	*1.00*	*2.21*	*$0*	$0	$1,893	$1,893	$2,476	$1,709	$0	$0	$4,185
Residential Home Energy Reports	*PY17*	*1.00*	*2.28*	*$0*	$0	$1,845	$1,845	$2,462	$1,737	$0	$0	$4,198
Residential Home Energy Reports Total		*1.00*	*1.95*	*$0*	$0	$8,822	$8,822	$10,174	$7,028	$0	$0	$17,202

Net Portfolio	NTGR & TRC Ratio			TRC Costs By Program Per Year ($000)				TRC Benefits By Program Per Year ($000)				
Program	Program Year	NTGR	TRC[1]	Incremental Measure Cost		Program Administration Cost	Total TRC Costs	Capacity Benefits	Energy Benefits	Fossil Fuel and Water Benefits	O&M Benefits	Total TRC Benefits
				Paid by EDC	Paid by Participants							
Residential Home Energy Reports	*PY13*	*1.00*	*0.75*	*$0*	$0	$1,850	$1,850	$586	$804	$0	$0	$1,391
Residential Home Energy Reports	*PY14*	*1.00*	*1.49*	*$0*	$0	$2,188	$2,188	$1,384	$1,885	$0	$0	$3,269
Residential Home Energy Reports	*PY15*	*1.00*	*1.52*	*$0*	$0	$1,912	$1,912	$1,234	$1,680	$0	$0	$2,913
Residential Home Energy Reports	*PY16*	*1.00*	*1.56*	*$0*	$0	$1,893	$1,893	$1,246	$1,709	$0	$0	$2,955
Residential Home Energy Reports	*PY17*	*1.00*	*1.99*	*$0*	$0	$1,845	$1,845	$1,941	$1,737	$0	$0	$3,678
Residential Home Energy Reports Total		*1.00*	*1.44*	*$0*	$0	$8,822	$8,822	$5,696	$7,028	$0	$0	$12,724

Bidding Strategy for Peak Demand Reductions into PJM's FCM

PECO will hire a turnkey service provider to handle the strategy and details for bidding into PJM's FCM. This approach will balance the benefits of bidding to PECO customers against the risk posed to customers by the potential for deficiency charges from PJM. PECO will provide more detail once the EE&C plan is final and the bidder is selected. As part of the competitive solicitation process, PECO will seek to minimize the portion of the revenues retained by the turnkey provider. All such revenues, net of any Provider Revenues paid, will be returned to customers as an offset to Plan costs. PECO will submit its proposed contract with the turnkey provider to the Commission consistent with the process for all CSP contracts.

Other Information Deemed Appropriate

None.

3.2.1 *Low-Income Sub-Sector*

Program #1 Title and Program Years During Which Program Will Be Implemented

Income-Eligible program (2021–2026)

Objective(s)

The Income-Eligible program has multiple objectives:

- Increase efficiency and reduce household energy costs for residential customers with a household income less than or equal to 150% of federal poverty level
- Remove old, inefficient refrigerators, freezers, and window AC units from the PECO service area. Window ACs are picked up at the time of large appliance collection

Target Market

The eligible population and target market for the Income-Eligible program includes all PECO residential electric customers with a household income of less than or equal to 150% of the federal poverty level. This program includes income-eligible customers only in single-family housing (one and two unit buildings).

Program Description

The Income-Eligible program is designed to offer PECO's income-eligible customers meaningful opportunities to save energy. The program focuses on customers only in single-family housing (one and two unit buildings). The Residential program contains the Multifamily component, which includes income-eligible customers in multifamily buildings (defined as a building with three or more units), as previously discussed. The customer-friendly direct-installation approach will enable participants to benefit from comprehensive energy efficiency upgrades to a variety of

equipment types while working with a single program, leading to deeper retrofits. The program will provide no-cost upgrades and rebates for equipment. The following section contains detailed descriptions of program components.

Program Sub-Components

The Income-Eligible program contains three components:

- **Single-Family Income-Eligible:** This component will improve the energy efficiency of single-family homes for income-eligible customers to help reduce their electric bills and make their homes more comfortable. All measures will be 100% subsidized.

  To meet each customer's needs, the CSP will offer in-person or virtual free energy checkups. These appointments feature an in-depth inspection of the home, energy usage analysis and recommendations, direct install measures and an energy education session, followed by a custom report and education materials.

  The CSP will also offer free electric heating assessments. These assessments will include all elements of the free energy checkup in addition to combustion safety checks and air flow diagnostics (like blower door testing) and feature building analysis. Comprehensive services will be delivered via an expanded trade ally network.

  The CSP will continue collaborating with other programs to coordinate and deliver comprehensive efficiency services. Complementary programs include the Low Income Usage Reduction program (LIURP), Philadelphia Gas Works, and Philadelphia Water Department.

- **Appliance Recycling:** This component focuses on recycling refrigerators, freezers, and window AC units responsibly. This can be the first introduction to energy efficiency for many people, and the component comes with a cash-back offer, which can encourage customers to participate in other programs. In addition, the Single-Family Income-Eligible component will also identify appliances in need of recycling and will refer them to the Appliance Recycling component. The Appliance Recycling component also can serve as an entry point to other energy efficiency programs. For example, the CSP will be able to deliver marketing materials for other programs, such as the in-home assessment when they pick up a refrigerator for recycling or refer customers to the Marketplace to find other energy efficiency measures.
- **Long-Term Savings:** To encourage the installation of long-term comprehensive measures, PECO will dedicate $1 million to a focused, long-term savings component within the overall income-eligible program. The long-term savings component will include, without limitation, the following measures: insulation, air sealing, duct sealing, heat pumps, air conditioners, thermostats, window repairs, and residential heat pump water heaters and solar water heaters. The program component will also incorporate a 5% adder to the kWh payment made to the implementation CSP when an eligible measure is installed. The $1 million budget will be used for the direct installation costs of eligible measures as well as the cost of the 5% adder. If the total component budget is expended, direct installation of eligible measures can continue subject to the overall Program budget, but without the 5% adder. PECO will track the spending and savings associated with the long-term savings component and provide periodic reports as part of Act 129 stakeholder meetings.

Implementation Strategy

A prime CSP will administer the Income-Eligible program with a team of partners that have a proven record of providing the services offered in this program.

The implementation strategy will vary by program component:

- **Single-Family Income-Eligible:** Free energy checkups (including a virtual option with a CERP) and directly installed measures. Provide HERs and education. Customers with electric heating will be identified and offered a free Electric Heating Assessments, including additional home analysis and energy efficiency measures.
- **Appliance Recycling:** The strategy will be a continuation of the program delivery strategy from Phase III. Recycling services can be scheduled through the telephone or online. Appliance recycling is performed using state-of-the-art recycling services designed to guarantee that all appliances are fully de-manufactured, stripped of hazardous materials and components, stored, transported, and disposed of in a safe and environmentally responsible manner following federal, state, and local laws and regulations.
- **Long-Term Saving:** The implementation strategy will include insulation, air sealing, duct sealing, heat pumps, air conditioners, thermostats, window repairs, and residential heat pump water heaters and solar water heaters. PECO will track the spending and savings and provide periodic reports as part of Act 129 stakeholder meetings. Program results will inform Phase IV program updates and Phase V strategies.

Program Issues and Risks and Risk Management Strategy

The Income-Eligible program will manage risks by implementing a continuous improvement process such that PECO closely monitors program results and adjusts implementation tactics (including marketing approaches, participation guidelines, incentives, and program resource allocation) to meet the portfolio level targets.

One risk is the transition from Phase III to Phase IV. PECO is managing this risk by contracting with an experienced implementation CSP with extensive regulatory and market knowledge in Pennsylvania and prior extensive experience with PECO's energy efficiency programs.

Another risk is an increase in COVID-19 cases and/or market resistance to in-home audits during the COVID-19 crisis. PECO will work with the CSP to offer virtual, no-contact services (e.g., assessments, appliance pickups, inspections) that have proven successful in PECO's territory and to develop a virtual heating test to support the virtual assessment. The CSP will have safety protocols to guide customer contact and employee safety issues. In addition, customers of the In-Home Assessments component will be able to view appointments using the online scheduling portal and pick a time that is best for them. To accommodate nontraditional schedules, customers may choose an evening or Saturday appointment. Customized energy kits may also be delivered directly to customers to ensure that energy savings continue—even remotely.

Anticipated Costs to Participating Customers

Customers participating in the Income-Eligible program have anticipated costs of $0 for Phase IV after incentives.

Ramp-Up Strategy

Minimal ramp up will be needed for the Income-Eligible program because the Single-Family Income-Eligible and Appliance Recycling components are already operating in Phase III.

Marketing Strategy

The prime CSP will be responsible will program marketing, coordinating with PECO's Marketing and Promotions team and the PECO brand advertising agency of record for messaging design and consistency.

Marketing strategies include outbound recruiting calls based on proven processes driven by PECO customer data combined with other purchased marketing data (Data Driven Outreach model), bill inserts, website, marketplace promotion, and digital strategies including social media and email.

Eligible Measures and Incentive Strategy

The measure mix includes a comprehensive mix of end-use technologies such as lighting, HVAC (heat pump, ductless mini-splits, central ACs), appliances, shell (attic insulation, air sealing), duct sealing and insulation, water heating (heat pump water heaters), and plug loads. Homes will be assessed and offered direct-installed no-cost measures.

Table 7C. Income-Eligible Program: Eligible Measures

Measure	Unit	Low-Income Measure (Yes/No)	Eligibility Requirements	Incremental Cost ($/unit)	Estimated Useful Life	Incentive Amount or Incentive Range ($/unit)
Residential A/R: Freezer Recycling	Freezer	Yes	Phase IV TRM	$0.00	4	$0 - $75
Residential A/R: Refrigerator Recycling	Refrigerator	Yes	Phase IV TRM	$0.00	5	$0 - $75
Residential A/R: Room AC Retirement	Unit	Yes	Phase IV TRM	$0.00	3	$0 - $10
Residential Low Flow Faucet Aerator - IE Direct Install	Aerator	Yes	Phase IV TRM	$1.61	10	$0 - $1.61
Residential Low Flow Showerhead - IE Direct Install	Showerhead	Yes	Phase IV TRM	$6.00	9	$0 - $6
Residential Water Heater Temperature Setback	Water Heater Controlled	Yes	Phase IV TRM	$0.00	2	$0 - $0
Residential Insulation/Wrap for Hot Water Pipe	Foot of Insulated Pipe	Yes	Phase IV TRM	$3.00	13	$0 - $2
Residential Thermostatic Restrictor Shower Valve	Shower Valve	Yes	Phase IV TRM	$35.00	15	$0 - $35
Residential Attic/Ceiling/Roof Insulation - IE Direct Install with Heat Pump	100 Square Feet	Yes	Phase IV TRM	$325.00	15	$0 - $325
Residential Furnace Whistle	Whistle	Yes	Phase IV TRM	$1.00	14	$0 - $1
Residential Floor Insulation	100 Square Feet	Yes	Phase IV TRM	$185.00	15	$0 - $185
Residential Rim Joist Insulation	100 Square Feet	Yes	Phase IV TRM	$67.20	15	$0 - $67.2
Residential ENERGY STAR ~~Most Efficient~~High Efficiency Central A/C	Ton	Yes	Phase IV TRM	$1,357.00	15	$0 - $1357

Measure	Unit	Low-Income Measure (Yes/No)	Eligibility Requirements	Incremental Cost ($/unit)	Estimated Useful Life	Incentive Amount or Incentive Range ($/unit)
Residential ENERGY STAR ~~Most Efficient~~ Ductless Mini-Split Heat Pump - IE Direct Install	Ton	Yes	Phase IV TRM	$~~1,5~~600.00	15	$0 - $6000~~1500~~
Residential ECM Furnace Fan	Unit	Yes	Phase IV TRM	$200.00	15	$0 - $200
Residential Heat Pump Water Heater - IE Direct Install	Water heater	Yes	Phase IV TRM	~~$2,0~~$450.00	10	$0 - $4500~~2000~~
Residential ENERGY STAR ~~Most Efficient~~ Air Source Heat Pump~~: Cold Climate~~ - IE Direct Install	Ton	Yes	Phase IV TRM	$~~1,65~~4500.00	15	$0 - $~~165~~4500
Residential Duct Air Sealing	Home	Yes	Phase IV TRM	$744.00	15	$0 - $744
Residential Home Air Sealing/Weatherization	Home	Yes	Phase IV TRM	$440.00	15	$0 - $440
Residential ENERGY STAR Air Purifier	Air Purifier	Yes	Phase IV TRM	$70.00	9	$0 - $70
Residential ENERGY STAR Bathroom Ventilation Fan	Unit	Yes	Phase IV TRM	$200.00	15	$0 - $200
~~Residential Maintenance: ASHP~~ Residential CAC and Heat Pump Maintenance	~~ASHP Unit~~ Per System	~~Yes~~ Yes	~~Phase IV TRM~~ Phase IV TRM	~~$175.00~~ $450	~~3~~ 3	~~$0 - $175~~ $0-$450
Residential Window repair	Window	Yes	Phase IV TRM	$10.00	11	$0 - $10
Residential High Efficiency Solar Water Heater	Water Heater	Yes	Phase IV TRM	$7,414.00	15	$0 - $7414
Residential Advanced Power Strips	Power Strip	Yes	Phase IV TRM	$32.35	5	$0 - $50
Residential ENERGY STAR Screw-in LED Bulb (Decorative: non-globe (e.g., candelabra)) - IE Direct Install	Bulb	Yes	Phase IV TRM	$2.59	15	$0 - $2.59

Measure	Unit	Low-Income Measure (Yes/No)	Eligibility Requirements	Incremental Cost ($/unit)	Estimated Useful Life	Incentive Amount or Incentive Range ($/unit)
Residential ENERGY STAR Screw-in LED Bulb (Directional/Reflector) - IE Direct Install	Bulb	Yes	Phase IV TRM	$4.42	15	$0 - $4.42
Residential ENERGY STAR Screw-in LED Bulb (Standard) - IE Direct Install	Bulb	Yes	Phase IV TRM	$3.07	15	$0 - $3.07
Residential ENERGY STAR Screw-in LED Bulb (Decorative: Globe)	Bulb	Yes	Phase IV TRM	$5.52	15	$0 - $5.52
Residential ENERGY STAR Screw-in LED Bulb (Standard: 3-Way)	Bulb	Yes	Phase IV TRM	$3.07	15	$0 - $3.07
Residential Smart/Learning Thermostat	Thermostat	Yes	Phase IV TRM	$234.33	11	$0 - $300
Residential Deep Energy Retrofit	kWh Saved	Yes	Phase IV TRM	$1.07	13	$0 - $1.07
Residential A/R Dehumidifier Retirement	Per Unit	Yes	Phase IV TRM	$71.25	4	$0 - $71.25
Residential Adjust Thermostat Education	Per Account	Yes	Phase IV TRM	$0.00	1	$0 - $0
Residential ~~Adjust Thermostat~~ Wash Laundry in Cold Water Education	Per Account	Yes	Phase IV TRM	$0.00	1	$0 - $0
Residential Shorter Showers Education	Per Account	Yes	Phase IV TRM	$0.00	1	$0-$0
Residential Smart Water Control	Per Unit	Yes	Phase IV TRM	$199.00	11	$0 - $199
Residential Window Heat Pump	Per Unit	Yes	Phase IV TRM	$2,000.00	18	$0 - $2000

Measure	Unit	Low-Income Measure (Yes/No)	Eligibility Requirements	Incremental Cost ($/unit)	Estimated Useful Life	Incentive Amount or Incentive Range ($/unit)
Residential Drain Water Heat Recovery Units	Per Unit	Yes	Phase IV TRM	$2,000.00	15	$0 - $2000
Residential ENERGY STAR Dehumidifier	Dehumidifier	Yes	Phase IV TRM	$500.00	12	$0 - $500
Residential ENERGY STAR Air Purifier	Air Purifier	Yes	Phase IV TRM	$~~7~~250.00	9	$0 - $~~7~~250

To maximize opportunities for customer energy savings, PECO reserves the right to offer no-cost installation of additional measures that are not listed in Table 7C but are identified in the TRM, Guidance Memos or approved Interim Measure Protocols.

Basis for the Proposed Level of Incentives

All measures will be 100% subsidized and equitably provided to homeowners and tenants with landlord approval.

Maximum Deadlines for Rebates

As Income-Eligible program direct-installation measures are provide at no charge, an application deadline is not applicable to this program.

Program Start Date with Key Schedule Milestones

The planned implementation schedule is as follows:

- March 2021: PECO and the CSPs will kick-off the program pre-launch process. During pre-launch, CSPs will assign key staff and ensure all customer support systems and marketing and outreach is in place.
- June 1, 2021: The programs will launch with some components on a ramp-up period for the first 6 months.
- June 2021–May 2026: Programs will operate and adjust to market changes. Savings and budget compared to goals will be reviewed on a regular basis.
- May 31, 2026: Last day of the Phase IV programs.

If PECO meets the low income carve-out before the end of the phase, PECO will continue to implement the Income-Eligible Program after meeting its low income carve-out subject to the Commission-approved budget for the Income-Eligible Program.

Assumed Evaluation, Measurement, and Verification (EM&V) Requirements

The evaluation methodology and data collection proposed for the Income-Eligible program are consistent with current EM&V practices for PECO's Phase III programs. The EM&V requirements for this program conform to all applicable state protocols, including the SWE Evaluation Framework and the Pennsylvania TRM. PECO will follow the SWE's Evaluation Framework, will utilize a SWE-approved Phase IV evaluation plan, and will utilize an independent evaluator to verify all Plan-related savings and ensure that there is no double-counting of savings for programs that leverage outside funding. Metrics for monitoring program success may include but are not limited to:

- Customer satisfaction with the program and participation trends
- Energy savings associated with installed efficient equipment or removed equipment
- Program implementation costs

- Increase in customer awareness and receptivity to efficiency measures

Data for evaluating the program will come from some or all of the following sources:

- Tracking system data
- Engineering or TRM estimates of measure savings
- Follow-up surveys of customers, retailers, trade allies, and service providers who participate in the program
- Program implementer and PECO staff surveys or interviews
- Evaluation of billing data
- Local weather data

Program impacts will be determined using a variety of data sources and tested techniques, as deemed appropriate for the program and sub-component. These strategies include:

- Field and phone verification, review of program records and incentive applications
- Project reviews referencing per-unit deemed or default energy savings
- Billing analysis
- Installation follow-up phone interviews with program participants to identify: Rebated measures installed and persistence (e.g., are the measures still installed?) and other changes to the business that affect energy usage, such as changes in occupancy or changes in building size

Evaluating program process success and efficiency across program delivery, administration, implementation, and customer response, includes the following strategies. See Section 6.1.4 for more details about market and process evaluations:

- Assessment of marketing and promotional efforts
- Monitoring contractor data-tracking system and implementation procedures to ensure that the program is implemented as designed
- Interviews with utility staff, contractors, equipment vendors, and customers
- Survey of program participants
- Assess customer understanding, satisfaction, and attitudes about the program

Administrative Requirements

PECO will administer the Income-Eligible program through a CSP. PECO will ensure major milestones are met and that the program is delivered according to the program design. Requested external staffing levels will be provided upon the completion of the CSP selection and contracting process. PECO will have 4.5 FTEs dedicated to the residential sector.

Savings Targets and Estimated Participation

Table 8C. Income-Eligible Program: Estimated Savings and Participation

Measure	Metric	PY13	PY14	PY15	PY16	PY17	Total
Residential A/R: Freezer Recycling	Energy Savings (MWh/year)	164.78	164.78	148.51~~164.78~~	148.51~~164.78~~	148.51~~164.78~~	775.10~~823.89~~
	Demand Reduction (MW)	0.0199	0.0199	0.0179~~0.0199~~	0.0179~~0.0199~~	0.0179~~0.0199~~	0.0937~~0.0996~~
	Projected Participation	200	200	180~~200~~	180~~200~~	180~~200~~	941~~1,000~~
Residential A/R: Refrigerator Recycling	Energy Savings (MWh/year)	2,095.16	2,095.16	1,888.47~~2,095.16~~	1,887.74~~2,095.16~~	1,887.74~~2,095.16~~	9,854.27~~10,475.80~~
	Demand Reduction (MW)	0.2532	0.2532	0.2282~~0.2532~~	0.2281~~0.2532~~	0.2281~~0.2532~~	1.1908~~1.2659~~
	Projected Participation	2,000	2,000	1,803~~2,000~~	1,802~~2,000~~	1,802~~2,000~~	9,407~~10,000~~
Residential A/R: Room AC Retirement	Energy Savings (MWh/year)	66.67	66.67	60.10~~66.67~~	60.08~~66.67~~	60.08~~66.67~~	313.61~~333.37~~
	Demand Reduction (MW)	0.1262	0.1262	0.1137~~0.1262~~	0.1137~~0.1262~~	0.1137~~0.1262~~	0.5934~~0.6308~~
	Projected Participation	360	360	325~~360~~	324~~360~~	324~~360~~	1,693~~1,800~~
Residential Low Flow Faucet Aerator - IE Direct Install	Energy Savings (MWh/year)	456.20	456.20	411.03~~456.20~~	411.03~~456.20~~	411.03~~456.20~~	2,145.49~~2,280.98~~
	Demand Reduction (MW)	0.0660	0.0660	0.0595~~0.0660~~	0.0595~~0.0660~~	0.0595~~0.0660~~	0.3105~~0.3301~~
	Projected Participation	3,510	3,510	3,163~~3,510~~	3,163~~3,510~~	3,163~~3,510~~	16,508~~17,550~~
Residential Low Flow Showerhead - IE Direct Install	Energy Savings (MWh/year)	596.03	596.03	537.03~~596.03~~	537.03~~596.03~~	537.03~~596.03~~	2,803.14~~2,980.17~~
	Demand Reduction (MW)	0.0516	0.0516	0.0465~~0.0516~~	0.0465~~0.0516~~	0.0465~~0.0516~~	0.2426~~0.2579~~
	Projected Participation	1,836	1,836	1,654~~1,836~~	1,654~~1,836~~	1,654~~1,836~~	8,635~~9,180~~

Measure	Metric	PY13	PY14	PY15	PY16	PY17	Total
Residential Water Heater Temperature Setback	Energy Savings (MWh/year)	73.46	73.46	66.18~~73.46~~	66.18~~73.46~~	66.18~~73.46~~	345.46~~367.28~~
	Demand Reduction (MW)	0.0064	0.0064	0.0058~~0.0064~~	0.0058~~0.0064~~	0.0058~~0.0064~~	0.0300~~0.0319~~
	Projected Participation	1,224	1,224	1,103~~1,224~~	1,103~~1,224~~	1,103~~1,224~~	5,756~~6,120~~
Residential Insulation/Wrap for Hot Water Pipe	Energy Savings (MWh/year)	35.97	35.97	32.41~~35.97~~	32.41~~35.97~~	32.41~~35.97~~	169.18~~179.87~~
	Demand Reduction (MW)	0.0031	0.0031	0.0028~~0.0031~~	0.0028~~0.0031~~	0.0028~~0.0031~~	0.0147~~0.0156~~
	Projected Participation	4,080	4,080	3,676~~4,080~~	3,676~~4,080~~	3,676~~4,080~~	19,188~~20,400~~
Residential Thermostatic Restrictor Shower Valve	Energy Savings (MWh/year)	142.28	142.28	128.20~~142.28~~	128.20~~142.28~~	128.20~~142.28~~	669.16~~711.42~~
	Demand Reduction (MW)	0.0123	0.0123	0.0111~~0.0123~~	0.0111~~0.0123~~	0.0111~~0.0123~~	0.0579~~0.0616~~
	Projected Participation	3,510	3,510	3,163~~3,510~~	3,163~~3,510~~	3,163~~3,510~~	16,508~~17,550~~
Residential Attic/Ceiling/Roof Insulation - IE Direct Install with Heat Pump	Energy Savings (MWh/year)	560.81	560.81	505.29~~560.81~~	505.29~~560.81~~	505.29~~560.81~~	2,637.47~~2,804.03~~
	Demand Reduction (MW)	0.0331	0.0331	0.0298~~0.0331~~	0.0298~~0.0331~~	0.0298~~0.0331~~	0.1555~~0.1653~~
	Projected Participation	1,069	1,069	964~~1,069~~	964~~1,069~~	964~~1,069~~	5,030~~5,347~~
Residential Furnace Whistle	Energy Savings (MWh/year)	153.70	153.70	138.64~~153.70~~	138.64~~153.70~~	138.64~~153.70~~	723.32~~768.50~~
	Demand Reduction (MW)	0.0649	0.0649	0.0585~~0.0649~~	0.0585~~0.0649~~	0.0585~~0.0649~~	0.3052~~0.3243~~
	Projected Participation	1,420	1,420	1,281~~1,420~~	1,281~~1,420~~	1,281~~1,420~~	6,683~~7,100~~
Residential Floor Insulation	Energy Savings (MWh/year)	23.12	23.12	20.85~~23.12~~	20.83~~23.12~~	20.83~~23.12~~	108.76~~115.60~~
	Demand Reduction (MW)	0.0060	0.0060	0.0054~~0.0060~~	0.0054~~0.0060~~	0.0054~~0.0060~~	0.0281~~0.0299~~
	Projected Participation	680	680	613~~680~~	613~~680~~	613~~680~~	3,199~~3,400~~

Measure	Metric	PY13	PY14	PY15	PY16	PY17	Total
Residential Rim Joist Insulation	Energy Savings (MWh/year)	133.42	133.42	120.34~~133.42~~	120.34~~133.42~~	120.34~~133.42~~	627.86~~667.08~~
	Demand Reduction (MW)	0.0410	0.0410	0.0370~~0.0410~~	0.0370~~0.0410~~	0.0370~~0.0410~~	0.1928~~0.2049~~
	Projected Participation	1,224	1,224	1,104~~1,224~~	1,104~~1,224~~	1,104~~1,224~~	5,760~~6,120~~
Residential ENERGY STAR Most Efficient Central A/C	Energy Savings (MWh/year)	4.30	4.30	3.88~~4.30~~	3.88~~4.30~~	3.88~~4.30~~	20.23~~21.50~~
	Demand Reduction (MW)	0.0016	0.0016	0.0015~~0.0016~~	0.0015~~0.0016~~	0.0015~~0.0016~~	0.0076~~0.0080~~
	Projected Participation	19	19	17~~19~~	17~~19~~	17~~19~~	89~~95~~
Residential ENERGY STAR Most Efficient Ductless Mini-Split Heat Pump - IE Direct Install	Energy Savings (MWh/year)	552.27	552.27	314.24~~552.27~~	314.24~~552.27~~	313.88~~552.27~~	2,046.90~~2,761.34~~
	Demand Reduction (MW)	0.0366	0.0366	0.0208~~0.0366~~	0.0208~~0.0366~~	0.0208~~0.0366~~	0.1355~~0.1828~~
	Projected Participation	358	358	204~~358~~	204~~358~~	203~~358~~	1,327~~1,790~~
Residential ECM Furnace Fan	Energy Savings (MWh/year)	12.12	12.12	10.90~~12.12~~	10.90~~12.12~~	10.90~~12.12~~	56.94~~60.58~~
	Demand Reduction (MW)	0.0030	0.0030	0.0027~~0.0030~~	0.0027~~0.0030~~	0.0027~~0.0030~~	0.0140~~0.0149~~
	Projected Participation	56	56	50~~56~~	50~~56~~	50~~56~~	263~~280~~
Residential Heat Pump Water Heater - IE Direct Install	Energy Savings (MWh/year)	255.69	255.69	230.12~~255.69~~	230.12~~255.69~~	230.12~~255.69~~	1,201.74~~1,278.45~~
	Demand Reduction (MW)	0.0222	0.0222	0.0200~~0.0222~~	0.0200~~0.0222~~	0.0200~~0.0222~~	0.1044~~0.1111~~
	Projected Participation	90	90	81~~90~~	81~~90~~	81~~90~~	423~~450~~
Residential ENERGY STAR Most Efficient Air Source Heat Pump: Cold Climate - IE Direct Install	Energy Savings (MWh/year)	110.48	110.48	106.20~~110.48~~	106.17~~110.48~~	106.17~~110.48~~	539.50~~552.40~~
	Demand Reduction (MW)	0.0135	0.0135	0.0130~~0.0135~~	0.0130~~0.0135~~	0.0130~~0.0135~~	0.0660~~0.0676~~
	Projected Participation	240	240	231~~240~~	231~~240~~	231~~240~~	1,172~~1,200~~

Measure	Metric	PY13	PY14	PY15	PY16	PY17	Total
Residential Duct Air Sealing	Energy Savings (MWh/year)	593.30	593.30	593.30~~593.30~~	593.30~~593.30~~	593.30~~593.30~~	2,966.50~~2,966.50~~
	Demand Reduction (MW)	0.1777	0.1777	0.1777~~0.1777~~	0.1777~~0.1777~~	0.1777~~0.1777~~	0.8884~~0.8884~~
	Projected Participation	1,034	1,034	1,034~~1,034~~	1,034~~1,034~~	1,034~~1,034~~	5,170~~5,170~~
Residential Home Air Sealing/ Weatherization	Energy Savings (MWh/year)	472.71	472.71	472.71~~472.71~~	472.71~~472.71~~	472.71~~472.71~~	2,363.54~~2,363.54~~
	Demand Reduction (MW)	0.0233	0.0233	0.0233~~0.0233~~	0.0233~~0.0233~~	0.0233~~0.0233~~	0.1163~~0.1163~~
	Projected Participation	750	750	750~~750~~	750~~750~~	750~~750~~	3,750~~3,750~~
Residential ENERGY STAR Air Purifier	Energy Savings (MWh/year)	6.74	6.74	376.21~~6.74~~	752.42~~6.74~~	752.42~~6.74~~	1,894.54~~33.70~~
	Demand Reduction (MW)	0.0008	0.0008	0.0466~~0.0008~~	0.0932~~0.0008~~	0.0932~~0.0008~~	0.2346~~0.0042~~
	Projected Participation	23	23	1,284~~23~~	2,568~~23~~	2,568~~23~~	6,466~~115~~
Residential ENERGY STAR Bathroom Ventilation Fan	Energy Savings (MWh/year)	7.41	7.41	7.41~~7.41~~	7.41~~7.41~~	7.41~~7.41~~	37.07~~37.07~~
	Demand Reduction (MW)	0.0009	0.0009	0.0009~~0.0009~~	0.0009~~0.0009~~	0.0009~~0.0009~~	0.0046~~0.0046~~
	Projected Participation	82	82	82~~82~~	82~~82~~	82~~82~~	410~~410~~
Residential Maintenance: ASHP	Energy Savings (MWh/year)	123.17	123.17	123.17~~123.17~~	123.17~~123.17~~	123.17~~123.17~~	615.83~~615.83~~
	Demand Reduction (MW)	0.0250	0.0250	0.0250~~0.0250~~	0.0250~~0.0250~~	0.0250~~0.0250~~	0.1250~~0.1250~~
	Projected Participation	1,092	1,092	1,092~~1,092~~	1,092~~1,092~~	1,092~~1,092~~	5,460~~5,460~~
Residential Window repair	Energy Savings (MWh/year)	81.60	81.60	81.60~~81.60~~	81.60~~81.60~~	81.60~~81.60~~	408.00~~408.00~~
	Demand Reduction (MW)	0.1645	0.1645	0.1645~~0.1645~~	0.1645~~0.1645~~	0.1645~~0.1645~~	0.8225~~0.8225~~
	Projected Participation	2,720	2,720	2,720~~2,720~~	2,720~~2,720~~	2,720~~2,720~~	13,600~~13,600~~

Measure	Metric	PY13	PY14	PY15	PY16	PY17	Total
Residential High Efficiency Solar Water Heater	Energy Savings (MWh/year)	11.85	13.82	11.8511.85	13.8213.82	11.8511.85	63.1863.18
	Demand Reduction (MW)	0.0016	0.0018	0.00160.0016	0.00180.0018	0.00160.0016	0.00840.0084
	Projected Participation	6	7	66	77	66	3232
Residential Advanced Power Strips	Energy Savings (MWh/year)	4,530.36	4,530.36	4,530.364,530.36	4,530.364,530.36	4,530.364,530.36	22,651.7822,651.78
	Demand Reduction (MW)	0.5885	0.5885	0.58850.5885	0.58850.5885	0.58850.5885	2.94232.9423
	Projected Participation	35,000	35,000	35,00035,000	35,00035,000	35,00035,000	175,000175,000
Residential ENERGY STAR Screw-in LED Bulb (Decorative: non-globe (e.g., candelabra)) - IE Direct Install	Energy Savings (MWh/year)	952.87	952.87	714.65952.87	714.65952.87	714.65952.87	4,049.694,764.34
	Demand Reduction (MW)	0.1456	0.1456	0.10920.1456	0.10920.1456	0.10920.1456	0.61870.7279
	Projected Participation	29,540	29,540	22,15529,540	22,15529,540	22,15529,540	125,545147,700
Residential ENERGY STAR Screw-in LED Bulb (Directional/Reflector) - IE Direct Install	Energy Savings (MWh/year)	316.30	316.30	237.23316.30	237.23316.30	237.23316.30	1,344.281,581.51
	Demand Reduction (MW)	0.0483	0.0483	0.03620.0483	0.03620.0483	0.03620.0483	0.20540.2416
	Projected Participation	7,800	7,800	5,8507,800	5,8507,800	5,8507,800	33,15039,000
Residential ENERGY STAR Screw-in LED Bulb (Standard) - IE Direct Install	Energy Savings (MWh/year)	3,583.03	3,583.03	2,687.273,583.03	2,687.273,583.03	2,687.273,583.03	15,227.8717,915.15
	Demand Reduction (MW)	0.5528	0.5528	0.41460.5528	0.41460.5528	0.41460.5528	2.34922.7638
	Projected Participation	76,230	76,230	57,17376,230	57,17376,230	57,17376,230	323,978381,150
Residential ENERGY STAR Screw-in LED Bulb (Decorative: Globe)	Energy Savings (MWh/year)	176.30	176.30	132.23176.30	132.23176.30	132.23176.30	749.29881.51
	Demand Reduction (MW)	0.0224	0.0224	0.01680.0224	0.01680.0224	0.01680.0224	0.09540.1122
	Projected Participation	7,800	7,800	5,8507,800	5,8507,800	5,8507,800	33,15039,000

Measure	Metric	PY13	PY14	PY15	PY16	PY17	Total
Residential ENERGY STAR Screw-in LED Bulb (Standard: 3-Way)	Energy Savings (MWh/year)	74.70	74.70	56.02~~74.70~~	56.02~~74.70~~	56.02~~74.70~~	317.46~~373.48~~
	Demand Reduction (MW)	0.0095	0.0095	0.0071~~0.0095~~	0.0071~~0.0095~~	0.0071~~0.0095~~	0.0404~~0.0475~~
	Projected Participation	2,340	2,340	1,755~~2,340~~	1,755~~2,340~~	1,755~~2,340~~	9,945~~11,700~~
Residential Smart/Learning Thermostat	Energy Savings (MWh/year)	600.68	600.68	600.68~~600.68~~	600.68~~600.68~~	600.68~~600.68~~	3,003.42~~3,003.42~~
	Demand Reduction (MW)	0.0000	0.0000	0.0000~~0.0000~~	0.0000~~0.0000~~	0.0000~~0.0000~~	0.0000~~0.0000~~
	Projected Participation	1,100	1,100	1,100~~1,100~~	1,100~~1,100~~	1,100~~1,100~~	5,500~~5,500~~
Residential Deep Energy Retrofit	Energy Savings (MWh/year)	170.12	170.12	170.12	170.12	170.12	850.61
	Demand Reduction (MW)	0.1106	0.1106	0.1106	0.1106	0.1106	0.5529
	Projected Participation	170,123	170,123	170,123	170,123	170,123	850,613
Residential A/R Dehumidifier Retirement	Energy Savings (MWh/year)	0.00	0.00	80.55	80.55	80.55	241.65
	Demand Reduction (MW)	0.0000	0.0000	0.0168	0.0168	0.0168	0.0505
	Projected Participation	0	0	90	90	90	270
Residential Adjust Thermostat Education	Energy Savings (MWh/year)	0.00	0.00	68.27	54.62	40.96	163.85
	Demand Reduction (MW)	0.0000	0.0000	0.0114	0.0091	0.0068	0.0274
	Projected Participation	0	0	4,260	3,408	2,556	10,224
Residential Fluorescent in units fixture	Energy Savings (MWh/year)	0.00	0.00	0.03	0.03	0.03	0.09
	Demand Reduction (MW)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	Projected Participation	0	0	1	1	1	3

Measure	Metric	PY13	PY14	PY15	PY16	PY17	Total
Residential Smart Water Control	Energy Savings (MWh/year)	0.00	0.00	0.42	0.42	0.42	1.27
	Demand Reduction (MW)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001
	Projected Participation	0	0	10	10	10	30
Residential Window Heat Pump	Energy Savings (MWh/year)	0.00	0.00	18.90	18.90	18.90	56.70
	Demand Reduction (MW)	0.0000	0.0000	0.0021	0.0021	0.0021	0.0063
	Projected Participation	0	0	10	10	10	30
Residential Drain Water Heat Recovery Units	Energy Savings (MWh/year)	0.00	0.00	0.29	0.29	0.29	0.88
	Demand Reduction (MW)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001
	Projected Participation	0	0	1	1	1	3
Residential CAC Tune up	Energy Savings (MWh/year)	0.00	0.00	0.35	0.35	0.35	1.04
	Demand Reduction (MW)	0.0000	0.0000	0.0002	0.0002	0.0002	0.0007
	Projected Participation	0	0	5	5	5	15
Residential ENERGY STAR Dehumidifier	Energy Savings (MWh/year)	0.00	0.00	281.40	482.40	482.40	1,246.20
	Demand Reduction (MW)	0.0000	0.0000	0.0754	0.1293	0.1293	0.3340
	Projected Participation	0	0	1,400	2,400	2,400	6,200
Residential ENERGY STAR Air Purifier	Energy Savings (MWh/year)	0.00	0.00	629.36	752.42	752.42	2,134.21
	Demand Reduction (MW)	0.0000	0.0000	0.0779	0.0932	0.0932	0.2643
	Projected Participation	0	0	2,148	2,568	2,568	7,284

Estimated Program Budget (Total) by Year

Table 9C. Income-Eligible Program: Program Budget

Cost Element		PY13	PY14	PY15	PY16	PY17	Phase IV Total
Total Budget ($000)							
Incentives ($000)	Rebates	$169	$169	$155	$154	$154	$801
	Upstream/Midstream Buydown	$0	$0	$0	$0	$0	$0
	Kits	$0	$0	$0	$0	$0	$0
	Direct Install Materials & Labor	$5,666	$5,674	$5,568	$5,744	$5,736	$28,388
	Incentive Total	**$5,835**	**$5,842**	**$5,722**	**$5,899**	**$5,891**	**$29,189**
Non-Incentives ($000)[1]	Program Design	$26	$26	$26	$26	$26	$132
	Administrative	$159	$159	$159	$159	$159	$793
	EDC Delivery Costs	$0	$0	$0	$0	$0	$0
	CSP Delivery Fees	$1,692	$1,693	$1,648	$1,715	$1,714	$8,462
	Marketing	$959	$959	$959	$959	$959	$4,797
	EM&V	$211	$211	$211	$211	$211	$1,057
	Other (See Section 4.2.3)	$43	$43	$43	$43	$43	$215
	Non-Incentive Total	**$3,091**	**$3,091**	**$3,047**	**$3,114**	**$3,113**	**$15,456**
Percent Incentives		65%	65%	65%	65%	65%	65%

Notes:

1 Program design, administrative, EM&V, and "other" are allocated to programs from cross-cutting based on methods described in Table 11. Figure 4 shows program-specific budgets without allocated costs.

Cost Element		PY13	PY14	PY15	PY16	PY17	Phase IV Total
Total Budget ($000)							
Incentives ($000)	Rebates	$169	$169	$169	$169	$169	$843
	Upstream/Midstream Buydown	$0	$0	$0	$0	$0	$0
	Kits	$0	$0	$0	$0	$0	$0
	Direct Install Materials & Labor	$5,666	$5,674	$5,666	$5,674	$5,666	$28,346
	Incentive Total	**$5,835**	**$5,842**	**$5,835**	**$5,842**	**$5,835**	**$29,189**
Non-Incentives ($000)[1]	Program Design	$26	$26	$26	$26	$26	$132
	Administrative	$159	$159	$159	$159	$159	$793
	EDC Delivery Costs	$0	$0	$0	$0	$0	$0
	CSP Delivery Fees	$1,692	$1,693	$1,692	$1,693	$1,692	$8,462
	Marketing	$959	$959	$959	$959	$959	$4,797
	EM&V	$211	$211	$211	$211	$211	$1,057
	Other (See Section 4.2.3)	$43	$43	$43	$43	$43	$215
	Non-Incentive Total	**$3,091**	**$3,091**	**$3,091**	**$3,091**	**$3,091**	**$15,456**
Percent Incentives		65%	65%	65%	65%	65%	65%

Notes:

1 Program design, administrative, EM&V, and "other" are allocated to programs from cross-cutting based on methods described in Table 11. Figure 4 shows program-specific budgets without allocated costs.

Estimated Percentage of Sector Budget Attributed to the Program

The Income-Eligible program offers incentives to customers in the residential sector. The Income-Eligible program accounts for 34.1% of residential sector spending exclusive of common cost allocation.

Cost-Effectiveness

Table 13C. Income-Eligible Program: TRC Benefits Table

Gross Portfolio	NTGR & TRC Ratio			TRC Costs By Program Per Year ($000)				TRC Benefits By Program Per Year ($000)				
Program	Program Year	NTGR	TRC[1]	Incremental Measure Cost		Program Administration Cost	Total TRC Costs	Capacity Benefits	Energy Benefits	Fossil Fuel and Water Benefits	O&M Benefits	Total TRC Benefits
				Paid by EDC	Paid by Participants							
Income-Eligible	*PY13*	*1.00*	*1.03*	*$5,835*	*$0*	$2,652	$8,487	$2,520	$4,872	$688	$662	$8,741
Income-Eligible	*PY14*	*1.00*	*1.06*	*$5,842*	*$0*	$2,652	$8,494	$2,567	$5,038	$699	$662	$8,966
Income-Eligible	*PY15*	*1.00*	*1.09*	*$5,835*	*$0*	$2,652	$8,487	$2,618	$5,231	$708	$662	$9,220
Income-Eligible	*PY16*	*1.00*	*1.12*	*$5,842*	*$0*	$2,652	$8,494	$2,671	$5,442	$731	$662	$9,507
Income-Eligible	*PY17*	*1.00*	*1.15*	*$5,835*	*$0*	$2,652	$8,487	$2,724	$5,669	$741	$662	$9,796
Income-Eligible Total		*1.00*	*1.09*	*$26,538*	*$0*	$12,055	$38,593	$11,889	$23,780	$3,237	$3,009	$41,914

Gross Portfolio	NTGR & TRC Ratio			TRC Costs By Program Per Year ($000)				TRC Benefits By Program Per Year ($000)				
Program	Program Year	NTGR	TRC[1]	Incremental Measure Cost		Program Administration Cost	Total TRC Costs	Capacity Benefits	Energy Benefits	Fossil Fuel and Water Benefits	O&M Benefits	Total TRC Benefits
				Paid by EDC	Paid by Participants							
Income-Eligible	*PY13*	*1.00*	*1.03*	*$5,835*	*$0*	$2,652	$8,487	$2,520	$4,872	$688	$662	$8,741
Income-Eligible	*PY14*	*1.00*	*1.06*	*$5,842*	*$0*	$2,652	$8,494	$2,567	$5,038	$699	$662	$8,966
Income-Eligible	*PY15*	*1.00*	*1.02*	*$5,722*	*$0*	$2,607	$8,330	$2,483	$4,810	$671	$496	$8,461
Income-Eligible	*PY16*	*1.00*	*1.06*	*$5,899*	*$0*	$2,675	$8,574	$2,653	$5,217	$691	$496	$9,058
Income-Eligible	*PY17*	*1.00*	*1.09*	*$5,891*	*$0*	$2,673	$8,564	$2,705	$5,439	$702	$496	$9,342
Income-Eligible Total		*1.00*	*1.05*	*$26,531*	*$0*	$12,052	$38,583	$11,734	$23,014	$3,137	$2,580	$40,465

Net Portfolio	NTGR & TRC Ratio			TRC Costs By Program Per Year ($000)				TRC Benefits By Program Per Year ($000)				
Program	Program Year	NTGR	TRC[1]	Incremental Measure Cost		Program Administration Cost	Total TRC Costs	Capacity Benefits	Energy Benefits	Fossil Fuel and Water Benefits	O&M Benefits	Total TRC Benefits
				Paid by EDC	Paid by Participants							
Income-Eligible	*PY13*	*1.00*	*1.03*	*$5,835*	$0	$2,652	$8,487	$2,520	$4,872	$688	$662	$8,741
Income-Eligible	*PY14*	*1.00*	*1.06*	*$5,842*	$0	$2,652	$8,494	$2,567	$5,038	$699	$662	$8,966
Income-Eligible	*PY15*	*1.00*	*1.09*	*$5,835*	$0	$2,652	$8,487	$2,618	$5,231	$708	$662	$9,220
Income-Eligible	*PY16*	*1.00*	*1.12*	*$5,842*	$0	$2,652	$8,494	$2,671	$5,442	$731	$662	$9,507
Income-Eligible	*PY17*	*1.00*	*1.15*	*$5,835*	$0	$2,652	$8,487	$2,724	$5,669	$741	$662	$9,796
Income-Eligible Total		*1.00*	*1.09*	*$26,538*	$0	$12,055	$38,593	$11,889	$23,780	$3,237	$3,009	$41,914

Net Portfolio	NTGR & TRC Ratio			TRC Costs By Program Per Year ($000)				TRC Benefits By Program Per Year ($000)				
Program	Program Year	NTGR	TRC[1]	Incremental Measure Cost		Program Administration Cost	Total TRC Costs	Capacity Benefits	Energy Benefits	Fossil Fuel and Water Benefits	O&M Benefits	Total TRC Benefits
				Paid by EDC	Paid by Participants							
Income-Eligible	*PY13*	*1.00*	*1.03*	*$5,835*	$0	$2,652	$8,487	$2,520	$4,872	$688	$662	$8,741
Income-Eligible	*PY14*	*1.00*	*1.06*	*$5,842*	$0	$2,652	$8,494	$2,567	$5,038	$699	$662	$8,966
Income-Eligible	*PY15*	*1.00*	*1.02*	*$5,722*	$0	$2,607	$8,330	$2,483	$4,810	$671	$496	$8,461
Income-Eligible	*PY16*	*1.00*	*1.06*	*$5,899*	$0	$2,675	$8,574	$2,653	$5,217	$731	$496	$9,097
Income-Eligible	*PY17*	*1.00*	*1.09*	*$5,891*	$0	$2,673	$8,564	$2,705	$5,439	$702	$496	$9,342
Income-Eligible Total		*1.00*	*1.05*	*$26,531*	$0	$12,052	$38,583	$11,734	$23,014	$3,171	$2,580	$40,499

Bidding Strategy for Peak Demand Reductions into PJM's FCM

PECO will hire a turnkey service provider to handle the strategy and details for bidding into PJM's FCM. This approach will balance the benefits of bidding to PECO customers against the risk posed to customers by the potential for deficiency charges from PJM. As part of the competitive solicitation process, PECO will seek to minimize the portion of the revenues retained by the turnkey provider. All such revenues, net of any Provider Revenues paid, will be returned to customers as an offset to Plan costs. PECO will submit its proposed contract with the turnkey provider to the Commission consistent with the process for all CSP contracts.

Other Information Deemed Appropriate

None.

Program #2 Title and Program Years During Which Program Will Be Implemented

Income-Eligible Home Energy Reports program (2021–2026)

Objective(s)

The Income-Eligible Home Energy Reports program's objective is to reduce a home's energy use through HERs and online access where customers can view their home energy usage. This program leverages the power of social norming to drive persistent energy savings through smart energy practices.

Target Market

The eligible population and target market for the Income-Eligible Home Energy Reports program includes all PECO residential electric customers with a household income of less than or equal to 150% of the federal poverty level.

Program Description

The Income-Eligible Home Energy Reports program involves regularly delivering direct mail or digital HERs that motivate customers to act through contextualized energy-usage information, personal and neighborhood comparisons, and energy savings recommendations (including low- or no-cost tips) based on customers' specific energy-usage patterns and characteristics. HERs will include marketing opportunities for cross-selling other energy efficiency programs.

In addition to the information presented on the mailed or emailed HERs, customers can log onto PECO's website to view their energy usage (energy costs, energy use, neighbor comparison). The website will also help customers determine what technologies use the most energy in their homes, provide information on how to save energy, and enable sign up for energy usage alerts and notifications. The website's purpose is to encourage customers to learn more about PECO's energy efficiency programs and help them take action to save energy.

Program Sub-Components

The Income-Eligible Home Energy Reports program does not contain any components.

Implementation Strategy

A CSP will implement the Income-Eligible Home Energy Reports program. The CSP will deliver direct mail or digital HERs to customers. It will also manage the website platform.

Program Issues and Risks and Risk Management Strategy

The Income-Eligible Home Energy Reports program will manage risks by implementing a continuous improvement process such that PECO closely monitors program results and adjusts implementation tactics (including marketing approaches, participation guidelines, incentives, and program resource allocation) to meet the portfolio level targets.

One program risk is COVID-19-related impacts on customer behavior. With more residential customers working and spending more time at home due to the pandemic, the ability for customers to reduce their energy consumption may decrease. The CSP and PECO will manage this risk by tracking savings on a monthly basis, and the CSP can adjust report content and cadence if savings are under target.

Anticipated Costs to Participating Customers

Customers participating in the Income-Eligible Home Energy Reports program have anticipated costs of $0 for Phase IV.

Ramp-Up Strategy

Minimal ramp up will be needed for the Income-Eligible Home Energy Reports program because this program is already operating in Phase III.

Marketing Strategy

The Income-Eligible Home Energy Reports program participants are selected by PECO; customers can not subscribe themselves. Therefore, there is no marketing of the program to encourage participation.

Eligible Measures and Incentive Strategy

The program measure is the delivery of direct mail or digital HERs to customers. Customers are selected for the program and can choose to opt-out at any time. No incentives are paid to the customers.

Table 7D. Income-Eligible HER Program: Eligible Measures

Measure	Unit	Low-Income Measure (Yes/No)	Eligibility Requirements	Incremental Cost	Estimated Useful Life	Incentive Amount or Incentive Range
Home Energy Reports	Household	Yes	Phase IV TRM	$0/unit	1 or 4 based on Wave Year	$0/unit

Basis for the Proposed Level of Incentives

Rebates are not applicable to the Residential Home Energy Reports program.

Maximum Deadlines for Rebates

PECO requires 180 days as a maximum length of time for an application to be submitted as any longer may affect reporting and reconciliation timeframes.

Program Start Date with Key Schedule Milestones

The planned implementation schedule is as follows:

- March 2021: PECO and the CSPs will kick-off the program pre-launch process. During pre-launch, CSPs will assign key staff and ensure all customer support systems and marketing and outreach is in place.
- June 1, 2021: The program will launch.
- June 2021–May 2026: Programs will operate and adjust to market changes. Savings and budget compared to goals will be reviewed on a regular basis.
- May 31, 2026: Last day of the Phase IV programs.

If PECO meets the low income carve-out before the end of the phase, PECO will continue to implement the Income-Eligible Program after meeting its low income carve-out subject to the Commission-approved budget for the Income-Eligible Program.

Assumed Evaluation, Measurement, and Verification (EM&V) Requirements

The evaluation methodology and data collection proposed for the Income-Eligible Home Energy Reports program are consistent with current EM&V practices for PECO's Phase III programs. The EM&V requirements for this program conform to all applicable state protocols. PECO will follow the SWE's Evaluation Framework, will utilize a SWE-approved Phase IV evaluation plan, and will utilize an independent evaluator to verify all Plan-related savings and ensure that there is no double-counting of savings for programs that leverage outside funding. Metrics for monitoring program success include, but are not limited to:

- Customer satisfaction with the program
- Energy savings associated with customer behavior change
- Program implementation costs

Data for evaluating the program will come from the following sources:

- Tracking system data
- TRM estimates of measure savings persistence
- Surveys of customers who participate in the program
- Program implementer and PECO staff surveys or interviews
- Evaluation of billing data

Program impacts will be determined using customer billing data and billing regression analysis.

Evaluating program process success and efficiency across program delivery, administration, implementation, and customer response includes the following strategies:

- Interviews with utility staff, implementation staff, and customers
- Survey of program participants
- Assess customer understanding, satisfaction, and attitudes about the program

See Section 6.1.4 for details about market and process evaluations.

Administrative Requirements

PECO will administer the Income-Eligible HER program through a CSP. PECO will ensure major milestones are met and that the program is delivered according to the program design. Requested external staffing levels will be provided upon the completion of the CSP selection and contracting process. PECO will have 4.5 FTEs dedicated to the residential sector.

Savings Targets and Estimated Participation

Table 8D. Income-Eligible HER Program: Estimated Savings and Participation

Measure	Metric	PY13	PY14	PY15	PY16	PY17	Total
Home Energy Reports	Energy Savings (MWh/year)	938.00	1,413.00	938.00	1,413.00	1,032.00	5,734.00

Measure	Metric	PY13	PY14	PY15	PY16	PY17	Total
	Demand Reduction (MW)	0.020.1908	0.020.2874	0.020.1908	0.020.2874	0.030.2099	0.101.1663
	Projected Participation[1]	21,000	18,900	21,000	18,9000	30,800	110,600
[1]Per Table 7D, the unit basis is "per Household".							

Estimated Program Budget (Total) by Year

Table 9D. Income-Eligible HER Program: Program Budget

Cost Element		PY13	PY14	PY15	PY16	PY17	Phase IV Total
Total Budget ($000)							
Incentives ($000)	Rebates	$0	$0	$0	$0	$0	$0
	Upstream/Midstream Buydown	$0	$0	$0	$0	$0	$0
	Kits	$0	$0	$0	$0	$0	$0
	Direct Install Materials & Labor	$0	$0	$0	$0	$0	$0
	Incentive Total	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**
Non-Incentives ($000)[1]	Program Design	$2	$2	$2	$2	$2	$9
	Administrative	$11	$11	$11	$11	$11	$54
	EDC Delivery Costs	$0	$0	$0	$0	$0	$0
	CSP Delivery Fees	$81	$122	$81	$122	$89	$493
	Marketing	$0	$0	$0	$0	$0	$0
	EM&V	$14	$14	$14	$14	$14	$71
	Other (See Section 4.2.3)	$10	$10	$10	$10	$10	$48
	Non-Incentive Total	**$117**	**$158**	**$117**	**$158**	**$125**	**$675**
Percent Incentives		0%	0%	0%	0%	0%	0%
Notes:							
1 Program design, administrative, EM&V, and "other" are allocated to programs from cross-cutting based on methods described in Table 11. Figure 4 shows program-specific budgets without allocated costs.							

Cost Element		PY13	PY14	PY15	PY16	PY17	Phase IV Total
Total Budget ($000)							
Incentives ($000)	Rebates	$0	$0	$0	$0	$0	$0
	Upstream/Midstream Buydown	$0	$0	$0	$0	$0	$0
	Kits	$0	$0	$0	$0	$0	$0
	Direct Install Materials & Labor	$0	$0	$0	$0	$0	$0
	Incentive Total	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**
Non-Incentives ($000)[1]	Program Design	$2	$2	$2	$2	$2	$9
	Administrative	$11	$11	$11	$11	$11	$54
	EDC Delivery Costs	$0	$0	$0	$0	$0	$0
	CSP Delivery Fees	$81	$122	$81	$122	$89	$493
	Marketing	$0	$0	$0	$0	$0	$0
	EM&V	$14	$14	$14	$14	$14	$71
	Other (See Section 4.2.3)	$10	$10	$10	$10	$10	$48
	Non-Incentive Total	**$117**	**$158**	**$117**	**$158**	**$125**	**$675**
Percent Incentives		0%	0%	0%	0%	0%	0%
Notes:							
1 Program design, administrative, EM&V, and "other" are allocated to programs from cross-cutting based on methods described in Table 11. Figure 4 shows program-specific budgets without allocated costs.							

Estimated Percentage of Sector Budget Attributed to the Program

The Income-Eligible Home Energy Reports program participates in the residential sector. The Income-Eligible Home Energy Reports program accounts for 0.4% of residential sector spending exclusive of common cost allocation.

Cost-Effectiveness

Table 13D. Income-Eligible HER Program: TRC Benefits Table

Gross Portfolio	NTGR & TRC Ratio			TRC Costs By Program Per Year ($000)				TRC Benefits By Program Per Year ($000)				
Program	Program Year	NTGR	TRC[1]	Incremental Measure Cost		Program Administration Cost	Total TRC Costs	Capacity Benefits	Energy Benefits	Fossil Fuel and Water Benefits	O&M Benefits	Total TRC Benefits
				Paid by Participants	Paid by EDC							
Income-Eligible Home Energy Reports	*PY13*	*1.00*	*0.60*	*$0*	*$0*	$81	$81	$21	$28	$0	$0	$48
Income-Eligible Home Energy Reports	*PY14*	*1.00*	*1.52*	*$0*	*$0*	$122	$122	$80	$105	$0	$0	$184
Income-Eligible Home Energy Reports	*PY15*	*1.00*	*0.61*	*$0*	*$0*	$81	$81	$21	$28	$0	$0	$50
Income-Eligible Home Energy Reports	*PY16*	*1.00*	*1.58*	*$0*	*$0*	$122	$122	$83	$110	$0	$0	$193
Income-Eligible Home Energy Reports	*PY17*	*1.00*	*1.64*	*$0*	*$0*	$89	$89	$62	$84	$0	$0	$145
Income-Eligible Home Energy Reports Total		*1.00*	*1.24*	*$0*	*$0*	$448	$448	$238	$316	$0	$0	$555

Gross Portfolio	NTGR & TRC Ratio			TRC Costs By Program Per Year ($000)				TRC Benefits By Program Per Year ($000)				
Program	Program Year	NTGR	TRC[1]	Incremental Measure Cost		Program Administration Cost	Total TRC Costs	Capacity Benefits	Energy Benefits	Fossil Fuel and Water Benefits	O&M Benefits	Total TRC Benefits
				Paid by EDC	Paid by Participants							
Income-Eligible Home Energy Reports	*PY13*	*1.00*	*0.36*	*$0*	*$0*	$81	$81	$2	$28	$0	$0	$29
Income-Eligible Home Energy Reports	*PY14*	*1.00*	*0.91*	*$0*	*$0*	$122	$122	$6	$105	$0	$0	$111
Income-Eligible Home Energy Reports	*PY15*	*1.00*	*0.37*	*$0*	*$0*	$81	$81	$2	$28	$0	$0	$30
Income-Eligible Home Energy Reports	*PY16*	*1.00*	*0.96*	*$0*	*$0*	$122	$122	$6	$110	$0	$0	$116
Income-Eligible Home Energy Reports	*PY17*	*1.00*	*1.03*	*$0*	*$0*	$89	$89	$8	$84	$0	$0	$91
Income-Eligible Home Energy Reports Total		*1.00*	*0.75*	*$0*	*$0*	$448	$448	$21	$316	$0	$0	$337

Net Portfolio	NTGR & TRC Ratio			TRC Costs By Program Per Year ($000)				TRC Benefits By Program Per Year ($000)				
Program	Program Year	NTGR	TRC[1]	Incremental Measure Cost		Program Administration Cost	Total TRC Costs	Capacity Benefits	Energy Benefits	Fossil Fuel and Water Benefits	O&M Benefits	Total TRC Benefits
				Paid by Participants	Paid by EDC							
Income-Eligible Home Energy Reports	*PY13*	*1.00*	*0.60*	*$0*	$0	$81	$81	$21	$28	$0	$0	$48
Income-Eligible Home Energy Reports	*PY14*	*1.00*	*1.52*	*$0*	$0	$122	$122	$80	$105	$0	$0	$184
Income-Eligible Home Energy Reports	*PY15*	*1.00*	*0.61*	*$0*	$0	$81	$81	$21	$28	$0	$0	$50
Income-Eligible Home Energy Reports	*PY16*	*1.00*	*1.58*	*$0*	$0	$122	$122	$83	$110	$0	$0	$193
Income-Eligible Home Energy Reports	*PY17*	*1.00*	*1.64*	*$0*	$0	$89	$89	$62	$84	$0	$0	$145
Income-Eligible Home Energy Reports Total		*1.00*	*1.24*	*$0*	$0	$448	$448	$238	$316	$0	$0	$555

Net Portfolio	NTGR & TRC Ratio			TRC Costs By Program Per Year ($000)				TRC Benefits By Program Per Year ($000)				
Program	Program Year	NTGR	TRC[1]	Incremental Measure Cost		Program Administration Cost	Total TRC Costs	Capacity Benefits	Energy Benefits	Fossil Fuel and Water Benefits	O&M Benefits	Total TRC Benefits
				Paid by EDC	Paid by Participants							
Income-Eligible Home Energy Reports	*PY13*	*1.00*	*0.36*	*$0*	$0	$81	$81	$2	$28	$0	$0	$29
Income-Eligible Home Energy Reports	*PY14*	*1.00*	*0.91*	*$0*	$0	$122	$122	$6	$105	$0	$0	$111
Income-Eligible Home Energy Reports	*PY15*	*1.00*	*0.37*	*$0*	$0	$81	$81	$2	$28	$0	$0	$30
Income-Eligible Home Energy Reports	*PY16*	*1.00*	*0.96*	*$0*	$0	$122	$122	$6	$110	$0	$0	$116
Income-Eligible Home Energy Reports	*PY17*	*1.00*	*1.03*	*$0*	$0	$89	$89	$8	$84	$0	$0	$91
Income-Eligible Home Energy Reports Total		*1.00*	*0.75*	*$0*	$0	$448	$448	$21	$316	$0	$0	$337

Bidding Strategy for Peak Demand Reductions into PJM's FCM

PECO will hire a turnkey service provider to handle the strategy and details for bidding into PJM's FCM. This approach will balance the benefits of bidding to PECO customers against the risk posed to customers by the potential for deficiency charges from PJM. PECO will provide more detail once the EE&C plan is final and the bidder is selected. As part of the competitive solicitation process, PECO will seek to minimize the portion of the revenues retained by the turnkey provider. All such revenues, net of any Provider Revenues paid, will be returned to customers as an offset to Plan costs. PECO will submit its proposed contract with the turnkey provider to the Commission consistent with the process for all CSP contracts.

Other Information Deemed Appropriate

None.

3.3 Commercial/Industrial Small Sector

While the SWE separated the C&I sector into small (Section 3.3) and large (Section 3.4) in the plan template, PECO's plan has one Non-Residential program in the C&I sector. The Non-Residential program is eligible for small and large customers. Section 3.4 includes formatted descriptions of the Non-Residential program components.

3.4 Commercial/Industrial Large Sector

Program Title and Program Years During Which Program Will Be Implemented

Non-Residential program (2021-2026)

Objective(s)

The Non-Residential program has multiple objectives:

- Provide customers with easy access to technical support and rebates through multiple engagement options
- Allow small businesses to realize the economic benefits of energy efficiency through comprehensive energy efficiency solutions
- Encourage Non-Residential program customers can make upgrades where they need them most by providing rebates for a wide range of measures

Target Market

All non-residential customer classes,[9] business types, and building types throughout PECO's service territory.

[9] Multifamily master-metered and common space measures are attributed to the small and large commercial sectors and delivered through the Residential program.

Program Description

The Non-Residential program offers a comprehensive and cross-cutting array of opportunities so non-residential customers can reduce their energy consumption and costs. The following section contains detailed descriptions of program components.

Program Sub-Components

This non-residential program will have two core components (prescriptive and custom), each with multiple delivery channels. Both program components employ a market-driven approach in which customers are free to choose where they buy measures and who installs the measures. Both components are available for retrofit and new construction and both components will be offered to all non-residential customer classes throughout PECO's service area.

- **Prescriptive:** The prescriptive component includes measures defined in the Pennsylvania TRM. Many of these measures provide participants both PDRs and energy savings. Incentives will be based on a fixed dollar amount per measure (such as $5 per 4' LED retrofit tube) or based on project savings (such as $0.24/annual kWh saved for direct install lighting). Eligible measures may be available through multiple delivery channels (downstream, midstream, upstream, small business direct install), giving all customers the ability to receive incentives based on their preferred delivery channel. Customers can implement a comprehensive solution by selecting multiple types of prescriptive measures in a single project.
- **Custom:** Custom projects comprise a singular energy/peak reduction measure or combinations of measures that are not covered in the 2021 Pennsylvania TRM and not offered in the prescriptive component. The custom project could also include multiple TRM measures with interactive effects. The custom component meets the Pennsylvania PUC's definition of comprehensive program because it includes large projects (such as combined heat and power, industrial processes, networked lighting controls, new construction, retro-commissioning, and data center projects) that combine many measures with different end uses and whole building approaches. This is a market-driven program component where customers choose their own contractor (or their own staff) to perform the work.

Implementation Strategy

A prime CSP will implement the Non-Residential program. The strategy is to provide a market-driven approach, providing customers with a broad selection of measures, meaningful incentives, and multiple delivery channels. The focus is high value, personalized support to customers as the CSP grows and strengthens a robust and effective trade ally network.

Program Issues and Risks and Risk Management Strategy

The Non-Residential program will manage risks by implementing a continuous improvement process such that PECO closely monitors program results and adjusts implementation tactics (including marketing approaches, participation guidelines, incentives, and program resource allocation) to meet the portfolio level targets.

One program risk is market disruptions related to COVID-19 and others. No face-to-face customer interaction and no site walk-throughs limits the full customer experience and the personal services that PECO can provide. Depending on the market disruption, PECO will adjust incentives and delivery models as necessary. We can also use remote inspection, virtual assistance, and video-enabled tools and systems.

Anticipated Costs to Participating Customers

Customers participating in the Non-Residential program have anticipated costs of $~~256,451,344~~213,688,581 for Phase IV after PECO incentives.

Ramp-Up Strategy

The primary objective is to ensure a smooth, quick, and seamless transition from Phase III to Phase IV, especially from the perspective of customers and market actors. CSPs will align outreach staff with appropriate customer segments and will capitalize on existing relationships to build on success.

Marketing Strategy

PECO will tailor its communications to the needs, motivations, and desires of different industries and stakeholders to help them see the value of implementing energy efficiency measures in their business. The outreach team will employ a multi-channel strategy aligned with marketing and uses robust analytics to reach PECO's customer market segments and trade allies with services and measures to meet their specific needs.

- **National Accounts:** National accounts have portfolios of facilities spread throughout PECO's territory, which enables us to leverage a campaign or initiative for a single customer across multiple facilities. Through already-established customer relationships, we will help guide the organization to the PECO program components where incentives for energy efficiency are easy to navigate and high in value. We will continue to expand our national accounts network by attending industry-specific events for relationship building and networking to promote PECO's programs.
- **Small Business:** We will incentivize trade allies to promote and install high efficiency measures in small businesses to help them achieve savings. We will provide exposure to new technologies, capacity-building opportunities through training and certification, and a targeted coaching initiative aimed at specific market segments such as convenience store businesses or leased retail spaces.
- **Trade Allies:** There are many motivations that drive trade professionals to participate in energy efficiency programs. While financial motivators work well for most, recognition, competition, and providing customers with high value, quality work motivates others to maintain high levels of engagement. To ensure that trade allies remain motivated to continue their high participation levels, PECO will help trade allies and contractors build their business skills with trainings focused on segment- and technology-specific education, and support materials. Highlighting top performers in a variety of categories on a monthly, quarterly, and annual basis will provide large and small trade allies the opportunity to stand out from competitors when marketing their services to customers. Contractors will want to

participate in the programs for the financial benefits brought to their customers and for the additional support, business acumen, and firsthand program knowledge our team has to offer to help them stand out from the competition.

Business messaging will be tailored by the industry vertical and informed by COVID-19-related impacts, highlighting the value of participation for business type while reflecting the realities of the unique situation and opportunity. Messaging will be tiered to support every phase of a customers' journey, with benefit messaging evolving as customers become more familiar with the opportunities available to their business.

Eligible Measures and Incentive Strategy

The measure mix includes a comprehensive mix of end-use technologies such as lighting, HVAC, water heating, plug load, refrigeration, motors, and others that span all customer classes and building types. Incentives are based on previous experience and knowledge of the market in PECO's territory.

Table 7E. Non-Residential Program: Eligible Measures

Measure	Unit	Low-Income Measure (Yes/No)	Eligibility Requirements	Incremental Cost ($/unit)	Estimated Useful Life	Incentive Amount or Incentive Range ($/unit)
C&I Add Doors to Open Refrigerated Cases	Door	No	Phase IV TRM	$92.69	8	$0 - $71
C&I Advanced Power Strips	Per Strip	No	Phase IV TRM	$64.71	5	$0 - $42
C&I Air Cooled Air Conditioner (per Ton)	Ton	No	Phase IV TRM	$393.87	15	$0 - $281
C&I Air Cooled Air Conditioner (per AC)	Per AC	No	Phase IV TRM	$5,086.03	15	$0 - $5363
C&I Air Cooled Chiller	Per Chiller	No	Phase IV TRM	$5,596.67	15	$0 - $4105
C&I Air Cooled Heat Pump (per Ton)	Ton	No	Phase IV TRM	$995.41	15	$0 - $845
C&I Air Cooled Heat Pump (per Pump)	Per Pump	No	Phase IV TRM	$3,856.80	15	$0 - $3672
C&I Air Cooled Refrigeration Condenser	Per Condenser	No	Phase IV TRM	$910.17	15	$0 - $540
C&I Anti-Sweat Heater Controls	Door	No	Phase IV TRM	$76.75	12	$0 - $90
C&I Automatic Door Closers	Door	No	Phase IV TRM	$205.27	8	$0 - $170
C&I Beverage Machine Occupancy Controls	Per Controller	No	Phase IV TRM	$180.13	5	$0 - $120
C&I CHP	kWh Saved	No	Phase IV TRM	$0.50	15	$0 - $0.180
C&I Code Plus Building	kWh Saved	No	Phase IV TRM	$0.44	15	$0 - $0.180
C&I Computer Room Air Conditioner	Per CRAC	No	Phase IV TRM	$1,586.69	15	$0 - $785

Measure	Unit	Low-Income Measure (Yes/No)	Eligibility Requirements	Incremental Cost ($/unit)	Estimated Useful Life	Incentive Amount or Incentive Range ($/unit)
C&I Computer Room Air Handler	Per Ton	No	Phase IV TRM	$46,899.33	15	$0 - $630
C&I Interior Controls Combination	sensor	No	Phase IV TRM	$92.90	8	$0 - $33
C&I Custom Compressed Air	kWh Saved	No	Phase IV TRM	$0.15	15	$0 - $0.180
C&I Custom Data Center	kWh Saved	No	Phase IV TRM	$0.57	15	$0 - $0.180
C&I Custom HVAC	kWh Saved	No	Phase IV TRM	$0.44	15	$0 - $0.180
C&I Custom Lighting	kWh Saved	No	Phase IV TRM	$0.23	15	$0 - $0.180
C&I Custom Motors and Drives	kWh Saved	No	Phase IV TRM	$0.54	13	$0 - $0.180
C&I Custom Other	kWh Saved	No	Phase IV TRM	$0.54	15	$0 - $0.180
C&I Custom Process	kWh Saved	No	Phase IV TRM	$0.57	15	$0 - $0.180
C&I Custom Refrigeration	kWh Saved	No	Phase IV TRM	$0.50	15	$0 - $0.180
C&I Custom Strategic Energy Management	kWh Saved	No	Phase IV TRM	$0.57	15	$0 - $0.180
C&I Cycling Refrigerated Thermal Mass Dryer	Compressor HP	No	Phase IV TRM	$1,158.54	10	$0 - $95
C&I Demand Control Ventilation	kWh Saved	No	Phase IV TRM	$1.33	10	$0 - $0.180
C&I Door Gaskets	Door	No	Phase IV TRM	$254.73	4	$0 - $110

Measure	Unit	Low-Income Measure (Yes/No)	Eligibility Requirements	Incremental Cost ($/unit)	Estimated Useful Life	Incentive Amount or Incentive Range ($/unit)
C&I ENERGY STAR Ductless Mini-Split Heat Pump	Ton	No	Phase IV TRM	$57.63	15	$0 - $52
C&I Early Motor Replacement with Premium Motor	Per Motor	No	Phase IV TRM	$2,137.14	15	$0 - $460
C&I ECM Circulation Fan	Fan	No	Phase IV TRM	$110.51	13	$0 - $50
C&I Economizer	Per Economizer	No	Phase IV TRM	$3,266.37	10	$0 - $370
C&I EMS	kWh Saved	No	Phase IV TRM	$0.27	10	$0 - $0.180
C&I ENERGY STAR Commercial Convection Oven	Unit	No	Phase IV TRM	$1,022.36	12	$0 - $485
C&I ENERGY STAR Commercial Fryers	Unit	No	Phase IV TRM	$317.06	12	$0 - $245
C&I ENERGY STAR Commercial Hot Holding Cabinet	Unit	No	Phase IV TRM	$4,409.45	12	$0 - $585
C&I ENERGY STAR Commercial Steam Cookers	Unit	No	Phase IV TRM	$827.01	12	$0 - $810
C&I Combination Oven	Per Oven	No	Phase IV TRM	$1,081.78	12	$0 - $485
C&I ENERGY STAR Commercial Solid Door Freezer	Unit	No	Phase IV TRM	$327.99	12	$0 - $195
C&I ENERGY STAR Griddle	Per Griddle	No	Phase IV TRM	$389.55	12	$0 - $215

Measure	Unit	Low-Income Measure (Yes/No)	Eligibility Requirements	Incremental Cost ($/unit)	Estimated Useful Life	Incentive Amount or Incentive Range ($/unit)
C&I ENERGY STAR Integral LED fixture: Indoor Portable Lamp/Torchiere	fixture	No	Phase IV TRM	$51.25	15	$0 - $10
C&I ENERGY STAR Integral LED fixture: Indoor Recessed Downlight	fixture	No	Phase IV TRM	$128.49	15	$0 - $52
C&I ENERGY STAR Integral LED fixture: Indoor Recessed Downlight Retrofit Module	fixture	No	Phase IV TRM	$45.19	15	$0 - $33
C&I ENERGY STAR Integral LED fixture: Outdoor Recessed Downlight	fixture	No	Phase IV TRM	$74.58	15	$0 - $27
C&I ENERGY STAR Integral LED fixture: Outdoor Recessed Downlight Retrofit Module	module	No	Phase IV TRM	$179.29	15	$0 - $37
C&I ENERGY STAR Commercial Solid Door Refrigerator	Unit	No	Phase IV TRM	$348.31	12	$0 - $100
C&I ENERGY STAR Screw-in LED Bulb (Decorative: Globe; Smart Bulb)	lamp	No	Phase IV TRM	$111.64	15	$0 - $20
C&I ENERGY STAR Screw-in LED Bulb (Decorative: non-globe (e.g., candelabra); Smart Bulb)	lamp	No	Phase IV TRM	$8.28	15	$0 - $15
C&I Evaporator Fan Controls	Controller	No	Phase IV TRM	$120.50	15	$0 - $130

Measure	Unit	Low-Income Measure (Yes/No)	Eligibility Requirements	Incremental Cost ($/unit)	Estimated Useful Life	Incentive Amount or Incentive Range ($/unit)
C&I Evaporator Coil Defrost Controls	Controller	No	Phase IV TRM	$2,329.17	10	$0 - $155
C&I Evaporator Fan EC Motor for Reach-in Cases	Motor	No	Phase IV TRM	$47.42	15	$0 - $50
C&I Evaporator Fan EC Motor for Walk-in Cases	Motor	No	Phase IV TRM	$89.06	15	$0 - $85
C&I Floating-head Pressure Controls	Per Control	No	Phase IV TRM	$3,339.19	10	$0 - $1260
C&I Heat Pump Water Heater	Per Heater	No	Phase IV TRM	$601.20	10	$0 - $370
C&I Hotel Guest Room Occupancy Sensor	Per Room	No	Phase IV TRM	$94.69	10	$0 - $57
C&I LED Channel Signage	letter	No	Phase IV TRM	$35.62	15	$0 - $28
C&I LED Accent/Track Lighting Fixtures	head	No	Phase IV TRM	$66.19	15	$0 - $5
C&I LED Exit Sign	sign	No	Phase IV TRM	$28.89	15	$0 - $25
C&I LED High-Bay Fixtures	fixture	No	Phase IV TRM	$413.22	6	$0 - $415
C&I LED High-Bay Retrofit Kits	fixture	No	Phase IV TRM	$1,866.88	4	$0 - $456
C&I LED Low-Bay Fixtures	fixture	No	Phase IV TRM	$283.18	6	$0 - $210
C&I LED Low-Bay Retrofit Kits	fixture	No	Phase IV TRM	$196.82	4	$0 - $171
C&I LED Outdoor Flood Light Fixtures	fixture	No	Phase IV TRM	$338.16	6	$0 - $208
C&I LED Parking Garage and Canopy Fixtures and Retrofit Kits	fixture	No	Phase IV TRM	$133.53	6	$0 - $364

Measure	Unit	Low-Income Measure (Yes/No)	Eligibility Requirements	Incremental Cost ($/unit)	Estimated Useful Life	Incentive Amount or Incentive Range ($/unit)
C&I LED Pole/Arm Mounted Parking and Roadway Fixtures and Retrofit Kits	fixture	No	Phase IV TRM	$215.10	6	$0 - $409
C&I LED Refrigeration Case Lighting	Per Door	No	Phase IV TRM	$88.66	8	$0 - $50
C&I LED Replacement Lamps (Tubes)	lamp	No	Phase IV TRM	$15.47	15	$0 - $24
C&I LED Surface and Suspended Linear Fixtures	fixture	No	Phase IV TRM	$42.76	6	$0 - $52
C&I LED Troffer Fixtures and Retrofit Kits	fixture	No	Phase IV TRM	$278.28	15	$0 - $126
C&I LED Wall Mount Fixtures and Retrofit Kits	fixture	No	Phase IV TRM	$279.31	6	$0 - $213
C&I Low-Flow Pre-rinse Spray Valve	Per Spray Valve	No	Phase IV TRM	$13.20	5	$0 - $20
C&I Network Lighting Controls	kWh Saved	No	Phase IV TRM	$0.20	15	$0 - $0.180
C&I New Construction Child	kWh Saved	No	Phase IV TRM	$0.34	15	$0 - $0.180
C&I Night Cover	Per Case	No	Phase IV TRM	$26.02	5	$0 - $30
C&I No-loss Condensate Drains	Drain	No	Phase IV TRM	$493.99	5	$0 - $431
C&I Oversized Condenser with VFD	Ton	No	Phase IV TRM	$40.58	15	$0 - $40
C&I PTAC	Ton	No	Phase IV TRM	$87.06	15	$0 - $61
C&I PC Power Management System	PC Controlled	No	Phase IV TRM	$30.00	5	$0 - $10
C&I Permanent Fixture Removal	watt reduced	No	Phase IV TRM	$132.34	11	$0 - $135

Measure	Unit	Low-Income Measure (Yes/No)	Eligibility Requirements	Incremental Cost ($/unit)	Estimated Useful Life	Incentive Amount or Incentive Range ($/unit)
C&I Retrocommissioning	kWh Saved	No	Phase IV TRM	$0.31	8	$0 - $0.180
C&I Storage Tanks for Load/No Load Screw Compressors	Per Compressor	No	Phase IV TRM	$2,621.33	15	$0 - $2040
C&I Suction Pipe Insulation	Per Refrigeration System	No	Phase IV TRM	$396.92	11	$0 - $465
C&I Uninterruptible Power Supply	Per Unit	No	Phase IV TRM	$16,668.54	15	$0 - $3000
C&I Interior Occupancy Controls	sensor	No	Phase IV TRM	$36.05	8	$0 - $44
C&I Variable Speed Air Compressor	Compressor	No	Phase IV TRM	$49,644.44	10	$0 - $6711
C&I Variable Speed Refrigeration Compressor	Compressor	No	Phase IV TRM	$37,648.74	11	$0 - $2075
C&I VSD retrofit on HVAC Pump	Hot Water Pump	No	Phase IV TRM	$5,602.63	13	$0 - $2520
C&I VSD retrofit on HVAC Fan	Fan	No	Phase IV TRM	$6,940.39	13	$0 - $2150
C&I VSD retrofit on Process Motor	Per Motor	No	Phase IV TRM	$18,044.02	13	$0 - $5800
C&I Water Cooled Centrifugal Chiller	Ton	No	Phase IV TRM	$254.96	15	$0 - $64
C&I Water Cooled Heat Pump	Pump	No	Phase IV TRM	$4,648.47	15	$0 - $691
C&I Water Cooled Positive Displacement or Reciprocating Chiller	Ton	No	Phase IV TRM	$66.47	15	$0 - $73

Measure	Unit	Low-Income Measure (Yes/No)	Eligibility Requirements	Incremental Cost ($/unit)	Estimated Useful Life	Incentive Amount or Incentive Range ($/unit)
C&I Web-Enabled Thermostat	1000 Sq Feet	No	Phase IV TRM	$9,635.64	15	$0 - $4381
C&I Zero Energy Doors	Door	No	Phase IV TRM	$286.88	10	$0 - $100

To maximize opportunities for customer energy savings, PECO reserves the right to offer an incentive of $0.05/first year kWh for any measure that is not listed in Table 7E but is identified in the TRM.

Basis for the Proposed Level of Incentives

The Non-Residential program was designed to allocate at least 50% of all spending to incentives. Incentives for prescriptive measures will generally be based on a fixed dollar amount per measure (such as, dollars per 4' linear LED lamp). This approach is intended to be simple to understand and meaningful for end-use customers and also align with the typical distributor pricing structure.

Incentives for the custom component will be based on savings (such as $0.12/annual kWh saved for industrial process changes in the custom component) because savings are project-based, not widget-based, and savings-based incentives should encourage more savings.

Maximum Deadlines for Rebates

PECO requires 180 days as a maximum length of time for an application to be submitted as any longer may affect reporting and reconciliation timeframes.

Program Start Date with Key Schedule Milestones

The planned implementation schedule is as follows:

- March 2021: PECO and the CSPs will kick-off the program pre-launch process. During pre-launch, CSPs will assign key staff and ensure all customer support systems and marketing and outreach is in place.
- June 1, 2021: The programs will launch with some components on a ramp-up period for the first 6 months.
- June 2021–May 2026: Programs will operate and adjust to market changes. Savings and budget compared to goals will be reviewed on a regular basis.
- May 31, 2026: Last day of the Phase IV programs.

Assumed Evaluation, Measurement, and Verification (EM&V) Requirements

The evaluation methodology and data collection proposed for the Non-Residential program are consistent with current EM&V practices for PECO's Phase III programs. The EM&V requirements for this program conform to all applicable state protocols. PECO will follow the SWE's Evaluation Framework, will utilize a SWE-approved Phase IV evaluation plan, and will utilize an independent evaluator to verify all Plan-related savings and ensure that there is no double-counting of savings for programs that leverage outside funding. Metrics for monitoring program success include, but are not limited to:

- Customer satisfaction with the program, and participation trends
- Energy savings associated with installed efficient equipment or removed equipment
- Program implementation costs
- Increase in customer awareness and receptivity to efficiency measures

Data for evaluating the program will come from the following sources:

- Tracking system data
- Engineering or TRM estimates of measure savings
- Follow-up surveys of customers, retailers, trade allies, and service providers who participate in the program
- Program implementer and PECO staff surveys or interviews
- Evaluation of billing data
- Local weather data

Program impacts will be determined using a variety of data sources and tested techniques. These strategies include:

- Field and phone verification, review of program records and incentive applications
- Project reviews referencing per-unit deemed or default energy savings
- Billing analysis
- Installation follow-up phone interviews with program participants to identify: Rebated measures installed and persistence (e.g., are the measures still installed?) and other changes to the business that affect energy usage, such as changes in occupancy or changes in building size

Evaluating program process success and efficiency across program delivery, administration, implementation, and customer response includes the following strategies.

- Assessment of marketing and promotional efforts
- Monitoring contractor data-tracking system and implementation procedures to ensure that the program is being implemented as designed
- Interviews with utility staff, contractors, equipment vendors, and customers
- Survey of program participants
- Assess customer understanding, satisfaction, and attitudes about the program

See Section 6.1.4 for more details about market and process evaluations.

Administrative Requirements

PECO will administer the program through a CSP. PECO will ensure major milestones are met and that the program is delivered according to the program design. Requested external staffing levels will be provided upon the completion of the CSP selection and contracting process. PECO will have 5 FTEs dedicated to the non-residential sector.

Savings Targets and Estimated Participation

Table 8E. Non-Residential Program: Estimated Savings and Participation

Measure	Metric	PY13	PY14	PY15	PY16	PY17	Total
C&I Add Doors to Open Refrigerated Cases	Energy Savings (MWh/year)	15.49	20.14	49.8024.79	49.8024.79	31.1115.49	166.34100.70
	Demand Reduction (MW)	0.0015	0.0019	0.00470.0023	0.00470.0023	0.00290.0015	0.01580.0095
	Projected Participation	20	26	6432	6432	4020	215130
C&I Advanced Power Strips	Energy Savings (MWh/year)	33.43	44.58	73.8855.72	73.8855.72	44.3333.43	270.09222.88
	Demand Reduction (MW)	0.0000	0.0000	0.00000.0000	0.00000.0000	0.00000.0000	0.00000.0000
	Projected Participation	84	112	186140	186140	11184	679560
C&I Air Cooled Air Conditioner (per Ton)	Energy Savings (MWh/year)	742.56	991.33	1,044.491,242.33	1,044.491,242.33	623.14742.56	4,446.024,961.10
	Demand Reduction (MW)	0.4179	0.5581	0.57350.6991	0.57350.6991	0.34240.4179	2.46552.7922
	Projected Participation	548	731	840918	840918	500548	3,4593,663
C&I Air Cooled Air Conditioner (per AC)	Energy Savings (MWh/year)	1,248.58	1,746.25	1,682.882,131.55	1,682.882,131.55	980.281,248.58	7,340.858,506.51
	Demand Reduction (MW)	0.3542	0.4925	0.47560.6025	0.47560.6025	0.27820.3542	2.07612.4058
	Projected Participation	144	195	190241	190241	113144	833965
C&I Air Cooled Chiller	Energy Savings (MWh/year)	352.97	529.45	744.14705.94	744.14705.94	342.33352.97	2,713.032,647.27

Measure	Metric	PY13	PY14	PY15	PY16	PY17	Total
	Demand Reduction (MW)	0.0442	0.0663	0.10970.0884	0.10970.0884	0.05110.0442	0.38110.3315
	Projected Participation	16	24	3432	3432	1616	123120
C&I Air Cooled Heat Pump	Energy Savings (MWh/year)	349.47	447.32	656.04579.33	656.04579.33	393.69349.47	2,502.572,304.92
	Demand Reduction (MW)	0.0405	0.0518	0.07560.0670	0.07560.0670	0.04540.0405	0.28890.2669
	Projected Participation	78	100	146130	146130	8778	557516
C&I Air Cooled Heat Pump	Energy Savings (MWh/year)	83.44	166.89	204.68194.70	204.68194.70	93.2883.44	752.97723.18
	Demand Reduction (MW)	0.0095	0.0191	0.02340.0223	0.02340.0223	0.01070.0095	0.08610.0827
	Projected Participation	6	12	1514	1514	76	5452
C&I Air Cooled Refrigeration Condenser	Energy Savings (MWh/year)	91.86	122.48	264.30146.97	264.30146.97	166.2991.86	909.22600.13
	Demand Reduction (MW)	0.0094	0.0126	0.02720.0151	0.02720.0151	0.01710.0094	0.09350.0617
	Projected Participation	15	20	4324	4324	2715	14898
C&I Anti-Sweat Heater Controls	Energy Savings (MWh/year)	2,866.60	3,825.74	3,357.934,780.82	3,357.934,780.82	2,013.142,866.60	15,421.3319,120.58
	Demand Reduction (MW)	0.3465	0.4624	0.40590.5779	0.40590.5779	0.24330.3465	1.86402.3112
	Projected Participation	2,116	2,824	2,4793,529	2,4793,529	1,4862,116	11,38314,114
C&I Automatic Door Closers	Energy Savings (MWh/year)	177.70	236.53	622.78296.56	622.78296.56	373.16177.70	2,032.941,185.04
	Demand Reduction (MW)	0.1211	0.1612	0.42440.2021	0.42440.2021	0.25430.1211	1.38540.8076

Measure	Metric	PY13	PY14	PY15	PY16	PY17	Total
	Projected Participation	148	197	519247	519247	311148	1,693987
C&I Beverage Machine Occupancy Controls	Energy Savings (MWh/year)	54.84	74.20	167.3891.94	167.3891.94	98.8254.84	562.62367.76
	Demand Reduction (MW)	0.0000	0.0000	0.00000.0000	0.00000.0000	0.00000.0000	0.00000.0000
	Projected Participation	34	46	10457	10457	6134	349228
C&I CHP	Energy Savings (MWh/year)	3,480.00	4,640.00	3,780.155,800.00	3,780.155,800.00	2,268.093,480.00	17,948.3923,200.00
	Demand Reduction (MW)	0.4435	0.5913	0.48170.7391	0.48170.7391	0.28900.4435	2.28722.9564
	Projected Participation	3,480,000	4,640,000	3,780,1505,800,000	3,780,1505,800,000	2,268,0903,480,000	17,948,3902 3,200,000
C&I Code Plus Building	Energy Savings (MWh/year)	9,599.34	12,799.12	10,777.0915,998.90	10,777.0915,998.90	6,466.259,599.34	50,418.8863,995.60
	Demand Reduction (MW)	2.8158	3.7544	3.16134.6931	3.16134.6931	1.89682.8158	14.789718.7722
	Projected Participation	9,599,340	12,799,119	10,777,08615,998,901	10,777,08615,998,901	6,466,2519,599,340	50,418,8836 3,995,601
C&I Computer Room Air Conditioner	Energy Savings (MWh/year)	84.75	105.94	118.80148.32	118.80148.32	70.0084.75	498.30572.09
	Demand Reduction (MW)	0.0064	0.0080	0.00900.0112	0.00900.0112	0.00530.0064	0.03760.0431
	Projected Participation	4	5	67	67	34	2427
C&I Computer Room Air Handler	Energy Savings (MWh/year)	17.00	34.00	22.1634.00	22.1634.00	11.0817.00	106.41136.01
	Demand Reduction (MW)	0.0099	0.0198	0.01290.0198	0.01290.0198	0.00650.0099	0.06210.0794
	Projected Participation	1	2	12	12	11	68

Measure	Metric	PY13	PY14	PY15	PY16	PY17	Total
C&I Interior Controls Combination	Energy Savings (MWh/year)	46.82	62.09	85.2077.86	85.2077.86	51.2446.82	330.54311.45
	Demand Reduction (MW)	0.0104	0.0138	0.01900.0173	0.01900.0173	0.01140.0104	0.07360.0693
	Projected Participation	564	748	1,026938	1,026938	617564	3,9823,752
C&I Custom Compressed Air	Energy Savings (MWh/year)	1,189.32	1,585.76	1,328.081,982.20	1,328.081,982.20	796.851,189.32	6,228.097,928.81
	Demand Reduction (MW)	0.1543	0.2057	0.17230.2571	0.17230.2571	0.10340.1543	0.80791.0285
	Projected Participation	1,189,322	1,585,762	1,328,0791,982,204	1,328,0791,982,204	796,8471,189,322	6,228,0907,928,814
C&I Custom Data Center	Energy Savings (MWh/year)	349.17	465.55	391.07581.94	391.07581.94	234.64349.17	1,831.502,327.77
	Demand Reduction (MW)	0.0345	0.0460	0.03870.0575	0.03870.0575	0.02320.0345	0.18110.2302
	Projected Participation	349,165	465,553	391,068581,941	391,068581,941	234,641349,165	1,831,4962,327,765
C&I Custom HVAC	Energy Savings (MWh/year)	6,076.98	8,102.64	6,733.8110,128.30	6,733.8110,128.30	4,040.286,076.98	31,687.5240,513.21
	Demand Reduction (MW)	2.4173	3.2231	2.67864.0289	2.67864.0289	1.60722.4173	12.604716.1154
	Projected Participation	6,076,982	8,102,643	6,733,80610,128,303	6,733,80610,128,303	4,040,2846,076,982	31,687,52040,513,213
C&I Custom Lighting	Energy Savings (MWh/year)	2,818.73	3,758.30	2,830.514,697.88	2,830.514,697.88	1,698.302,818.73	13,936.3518,791.51
	Demand Reduction (MW)	0.2579	0.3438	0.25890.4298	0.25890.4298	0.15540.2579	1.27491.7191
	Projected Participation	2,818,727	3,758,303	2,830,5074,697,878	2,830,5074,697,878	1,698,3042,818,727	13,936,34818,791,513

Measure	Metric	PY13	PY14	PY15	PY16	PY17	Total
C&I Custom Motors and Drives	Energy Savings (MWh/year)	2,981.81	3,975.75	3,399.124,969.69	3,399.124,969.69	2,039.472,981.81	15,795.2719,878.76
	Demand Reduction (MW)	0.6943	0.9258	0.79151.1572	0.79151.1572	0.47490.6943	3.67804.6288
	Projected Participation	2,981,814	3,975,752	3,399,1164,969,690	3,399,1164,969,690	2,039,4702,981,814	15,795,26819,878,760
C&I Custom Other	Energy Savings (MWh/year)	18,580.67	24,774.22	20,882.0530,967.78	20,882.0530,967.78	12,529.2318,580.67	97,648.231223,871.12
	Demand Reduction (MW)	2.6294	3.5059	2.95514.3824	2.95514.3824	1.77312.6294	13.818717.5296
	Projected Participation	18,580,668	24,774,223	20,882,05330,967,780	20,882,05330,967,780	12,529,23218,580,668	97,648,228123,871,119
C&I Custom Process	Energy Savings (MWh/year)	300.00	400.00	325.88500.00	325.88500.00	195.53300.00	1,547.282,000.00
	Demand Reduction (MW)	0.0925	0.1234	0.10050.1542	0.10050.1542	0.06030.0925	0.47730.6170
	Projected Participation	300,000	400,000	325,875500,000	325,875500,000	195,525300,000	1,547,2752,000,000
C&I Custom Refrigeration	Energy Savings (MWh/year)	1,795.28	2,393.71	2,348.852,992.13	2,348.852,992.13	1,409.311,795.28	10,296.0011,968.53
	Demand Reduction (MW)	0.2690	0.3587	0.35200.4484	0.35200.4484	0.21120.2690	1.54281.7934
	Projected Participation	1,795,280	2,393,707	2,348,8512,992,133	2,348,8512,992,133	1,409,3111,795,280	10,295,99911,968,533
C&I Custom Strategic Energy Management	Energy Savings (MWh/year)	494.28	659.03	536.91823.79	536.91823.79	322.14494.28	2,549.273,295.17
	Demand Reduction (MW)	0.0631	0.0842	0.06860.1052	0.06860.1052	0.04110.0631	0.32560.4209
	Projected Participation	494,275	659,034	536,907823,793	536,907823,793	322,144494,275	2,549,2673,295,170

Measure	Metric	PY13	PY14	PY15	PY16	PY17	Total
C&I Cycling Refrigerated Thermal Mass Dryer	Energy Savings (MWh/year)	2.55	2.55	1.662.55	1.662.55	1.662.55	10.0812.74
	Demand Reduction (MW)	0.0005	0.0005	0.00030.0005	0.00030.0005	0.00030.0005	0.00180.0023
	Projected Participation	1	1	11	11	11	45
C&I Demand Control Ventilation	Energy Savings (MWh/year)	191.04	254.71	214.55318.39	214.55318.39	128.73191.04	1,003.571,273.57
	Demand Reduction (MW)	0.0000	0.0000	0.00000.0000	0.00000.0000	0.00000.0000	0.00000.0000
	Projected Participation	191,035	254,713	214,546318,392	214,546318,392	128,727191,035	1,003,5661,273,567
C&I Door Gaskets	Energy Savings (MWh/year)	27.89	37.19	56.7146.49	56.7146.49	38.1227.89	216.63185.95
	Demand Reduction (MW)	0.0010	0.0013	0.00200.0016	0.00200.0016	0.00130.0010	0.00760.0065
	Projected Participation	6	8	1210	1210	86	4740
C&I ENERGY STAR Ductless Mini-Split Heat Pump	Energy Savings (MWh/year)	34.02	46.44	52.8357.24	52.8357.24	31.3934.02	217.50228.96
	Demand Reduction (MW)	0.0078	0.0107	0.01220.0132	0.01220.0132	0.00720.0078	0.05020.0528
	Projected Participation	126	172	196212	196212	116126	806848
C&I Early Motor Replacement with Premium Motor	Energy Savings (MWh/year)	41.41	51.76	49.0372.47	49.0372.47	26.9941.41	218.23279.52
	Demand Reduction (MW)	0.0042	0.0053	0.00500.0074	0.00500.0074	0.00280.0042	0.02240.0287
	Projected Participation	8	10	914	914	58	4254

Measure	Metric	PY13	PY14	PY15	PY16	PY17	Total
C&I ECM Circulation Fan	Energy Savings (MWh/year)	18.34	25.35	21.1431.28	21.1431.28	12.3318.34	98.29124.58
	Demand Reduction (MW)	0.0058	0.0080	0.00660.0098	0.00660.0098	0.00390.0058	0.03090.0392
	Projected Participation	34	47	3958	3958	2334	182231
C&I Economizer	Energy Savings (MWh/year)	136.10	163.32	337.53217.76	337.53217.76	210.95136.10	1,185.42871.03
	Demand Reduction (MW)	0.0337	0.0405	0.08360.0539	0.08360.0539	0.05230.0337	0.29370.2158
	Projected Participation	10	12	2516	2516	1610	8764
C&I EMS	Energy Savings (MWh/year)	791.63	1,055.50	991.311,319.38	991.311,319.38	594.79791.63	4,424.535,277.51
	Demand Reduction (MW)	0.0405	0.0540	0.05070.0675	0.05070.0675	0.03040.0405	0.22630.2700
	Projected Participation	791,627	1,055,501	991,3081,319,377	991,3081,319,377	594,786791,627	4,424,5315,277,509
C&I ENERGY STAR Commercial Convection Oven	Energy Savings (MWh/year)	6.60	11.00	25.9715.40	25.9715.40	13.866.60	83.4155.01
	Demand Reduction (MW)	0.0017	0.0028	0.00670.0040	0.00670.0040	0.00360.0017	0.02140.0141
	Projected Participation	3	5	127	127	63	3825
C&I ENERGY STAR Commercial Fryers	Energy Savings (MWh/year)	3.01	3.01	4.153.01	4.153.01	4.153.01	18.4615.07
	Demand Reduction (MW)	0.0007	0.0007	0.00100.0007	0.00100.0007	0.00100.0007	0.00430.0035
	Projected Participation	2	2	32	32	32	1210

Measure	Metric	PY13	PY14	PY15	PY16	PY17	Total
C&I ENERGY STAR Commercial Hot Holding Cabinet	Energy Savings (MWh/year)	25.43	38.14	106.8050.86	106.8050.86	53.4025.43	330.56190.71
	Demand Reduction (MW)	0.0046	0.0069	0.01950.0093	0.01950.0093	0.00970.0046	0.06020.0347
	Projected Participation	4	6	178	178	84	5230
C&I ENERGY STAR Commercial Steam Cookers	Energy Savings (MWh/year)	12.99	25.98	35.7525.98	35.7525.98	8.4712.99	118.93103.92
	Demand Reduction (MW)	0.0040	0.0081	0.01110.0081	0.01110.0081	0.00260.0040	0.03690.0322
	Projected Participation	1	2	32	32	11	98
C&I Combination Oven	Energy Savings (MWh/year)	17.62	24.23	20.1030.84	20.1030.84	11.4917.62	93.54121.15
	Demand Reduction (MW)	0.0039	0.0054	0.00450.0068	0.00450.0068	0.00260.0039	0.02080.0269
	Projected Participation	8	11	914	914	58	4255
C&I ENERGY STAR Commercial Solid Door Freezer	Energy Savings (MWh/year)	70.67	95.49	218.24118.41	218.24118.41	131.8070.67	734.44473.65
	Demand Reduction (MW)	0.0072	0.0097	0.02220.0120	0.02220.0120	0.01340.0072	0.07470.0482
	Projected Participation	37	50	11462	11462	6937	385248
C&I ENERGY STAR Griddle	Energy Savings (MWh/year)	49.34	64.93	169.0680.51	169.0680.51	103.6249.34	556.02324.63
	Demand Reduction (MW)	0.0109	0.0144	0.03750.0179	0.03750.0179	0.02300.0109	0.12330.0720
	Projected Participation	19	25	6531	6531	4019	214125

Measure	Metric	PY13	PY14	PY15	PY16	PY17	Total
C&I ENERGY STAR Integral LED fixture: Indoor Portable Lamp/Torchiere	Energy Savings (MWh/year)	9.94	13.66	13.3517.39	13.3517.39	7.529.94	57.8268.32
	Demand Reduction (MW)	0.0010	0.0014	0.00140.0018	0.00140.0018	0.00080.0010	0.00590.0069
	Projected Participation	48	66	6484	6484	3648	279330
C&I ENERGY STAR Integral LED fixture: Indoor Recessed Downlight	Energy Savings (MWh/year)	1,673.33	2,232.05	2,328.752,789.36	2,328.752,789.36	1,396.881,673.33	9,959.7611,157.43
	Demand Reduction (MW)	0.1497	0.1997	0.20830.2495	0.20830.2495	0.12490.1497	0.89090.9980
	Projected Participation	5,918	7,894	8,2369,865	8,2369,865	4,9405,918	35,22439,460
C&I ENERGY STAR Integral LED fixture: Indoor Recessed Downlight Retrofit Module	Energy Savings (MWh/year)	1,139.48	1,519.95	1,967.011,899.78	1,967.011,899.78	1,179.811,139.48	7,773.277,598.48
	Demand Reduction (MW)	0.1019	0.1359	0.17590.1699	0.17590.1699	0.10550.1019	0.69520.6796
	Projected Participation	3,531	4,710	6,0955,887	6,0955,887	3,6563,531	24,08823,546
C&I ENERGY STAR Integral LED fixture: Outdoor Recessed Downlight	Energy Savings (MWh/year)	49.53	65.95	75.8582.63	75.8582.63	45.3149.53	312.48330.26
	Demand Reduction (MW)	0.0000	0.0000	0.00000.0000	0.00000.0000	0.00000.0000	0.00000.0000
	Projected Participation	193	257	296322	296322	177193	1,2181,287
C&I ENERGY STAR Integral LED fixture: Outdoor Recessed Downlight Retrofit Module	Energy Savings (MWh/year)	80.90	107.99	156.68135.44	156.68135.44	93.8680.90	596.11540.67
	Demand Reduction (MW)	0.0000	0.0000	0.00000.0000	0.00000.0000	0.00000.0000	0.00000.0000
	Projected Participation	221	295	428370	428370	256221	1,6281,477

Measure	Metric	PY13	PY14	PY15	PY16	PY17	Total
C&I ENERGY STAR Commercial Solid Door Refrigerator	Energy Savings (MWh/year)	47.65	61.95	107.2278.28	107.2278.28	65.5647.65	389.59313.82
	Demand Reduction (MW)	0.0061	0.0080	0.01380.0101	0.01380.0101	0.00840.0061	0.05010.0404
	Projected Participation	70	91	158115	158115	9670	572461
C&I ENERGY STAR Screw-in LED Bulb (Decorative: Globe; Smart Bulb)	Energy Savings (MWh/year)	139.07	185.04	154.55231.70	154.55231.70	92.91139.07	726.11926.58
	Demand Reduction (MW)	0.0237	0.0316	0.02640.0395	0.02640.0395	0.01590.0237	0.12390.1581
	Projected Participation	602	801	6691,003	6691,003	402602	3,1434,011
C&I ENERGY STAR Screw-in LED Bulb (Decorative: non-globe (e.g., candelabra); Smart Bulb)	Energy Savings (MWh/year)	948.84	1,264.89	880.401,581.45	880.401,581.45	580.25948.84	4,554.796,325.47
	Demand Reduction (MW)	0.1789	0.2385	0.16600.2982	0.16600.2982	0.10940.1789	0.85871.1926
	Projected Participation	5,596	7,460	5,1929,327	5,1929,327	3,4225,596	26,86337,306
C&I Evaporator Fan Controls	Energy Savings (MWh/year)	13.32	17.76	14.4722.20	14.4722.20	8.6813.32	68.6888.78
	Demand Reduction (MW)	0.0018	0.0024	0.00190.0030	0.00190.0030	0.00120.0018	0.00920.0120
	Projected Participation	3	4	35	35	23	1520
C&I Evaporator Coil Defrost Controls	Energy Savings (MWh/year)	16.40	20.50	24.1925.62	24.1925.62	15.3316.40	100.61104.53
	Demand Reduction (MW)	0.0396	0.0494	0.05840.0618	0.05840.0618	0.03700.0396	0.24270.2522
	Projected Participation	16	20	2425	2425	1516	98102

Measure	Metric	PY13	PY14	PY15	PY16	PY17	Total
C&I Evaporator Fan EC Motor for Reach-in Cases	Energy Savings (MWh/year)	4.35	6.17	6.237.62	6.237.62	3.594.35	26.5730.11
	Demand Reduction (MW)	0.0006	0.0008	0.00080.0010	0.00080.0010	0.00050.0006	0.00350.0040
	Projected Participation	12	17	1721	1721	1012	7383
C&I Evaporator Fan EC Motor for Walk-in Cases	Energy Savings (MWh/year)	24.91	33.57	34.5042.23	34.5042.23	20.3824.91	147.86167.84
	Demand Reduction (MW)	0.0356	0.0480	0.04940.0604	0.04940.0604	0.02920.0356	0.21160.2402
	Projected Participation	46	62	6478	6478	3846	273310
C&I Floating-head Pressure Controls	Energy Savings (MWh/year)	17.59	17.59	11.4617.59	11.4617.59	11.4617.59	69.5787.95
	Demand Reduction (MW)	0.0000	0.0000	0.00000.0000	0.00000.0000	0.00000.0000	0.00000.0000
	Projected Participation	1	1	11	11	11	45
C&I Heat Pump Water Heater	Energy Savings (MWh/year)	376.00	500.00	1,310.40624.00	1,310.40624.00	789.60376.00	4,286.402,500.00
	Demand Reduction (MW)	0.0327	0.0434	0.11390.0542	0.11390.0542	0.06860.0327	0.37250.2172
	Projected Participation	188	250	655312	655312	395188	2,1431,250
C&I Hotel Guest Room Occupancy Sensor	Energy Savings (MWh/year)	1,036.02	1,383.59	2,027.411,728.93	2,027.411,728.93	1,215.581,036.02	7,690.016,913.48
	Demand Reduction (MW)	1.1194	1.4949	2.19051.8680	2.19051.8680	1.31341.1194	8.30877.4697
	Projected Participation	930	1,242	1,8201,552	1,8201,552	1,091930	6,9036,206

Measure	Metric	PY13	PY14	PY15	PY16	PY17	Total
C&I LED Channel Signage	Energy Savings (MWh/year)	2.70	3.91	2.944.51	2.944.51	1.762.70	14.2518.33
	Demand Reduction (MW)	0.0008	0.0012	0.00090.0014	0.00090.0014	0.00050.0008	0.00430.0056
	Projected Participation	9	13	1015	1015	69	4761
C&I LED Accent/Track Lighting Fixtures	Energy Savings (MWh/year)	119.59	159.30	259.80199.02	259.80199.02	156.21119.59	954.70796.51
	Demand Reduction (MW)	0.0229	0.0305	0.04970.0381	0.04970.0381	0.02990.0229	0.18270.1525
	Projected Participation	533	710	1,158887	1,158887	696533	4,2553,550
C&I LED Exit Sign	Energy Savings (MWh/year)	251.28	334.80	567.45418.56	567.45418.56	340.56251.28	2,061.541,674.49
	Demand Reduction (MW)	0.0391	0.0520	0.08820.0651	0.08820.0651	0.05290.0391	0.32040.2603
	Projected Participation	1,056	1,407	2,3851,759	2,3851,759	1,4311,056	8,6647,037
C&I LED High-Bay Fixtures	Energy Savings (MWh/year)	13,482.29	17,980.66	20,171.5122,476.46	20,171.5122,476.46	12,099.5513,482.29	83,905.5189,898.15
	Demand Reduction (MW)	3.0800	4.1076	4.60815.1346	4.60815.1346	2.76413.0800	19.167820.5368
	Projected Participation	10,511	14,018	15,72617,523	15,72617,523	9,43310,511	65,41470,086
C&I LED High-Bay Retrofit Kits	Energy Savings (MWh/year)	1,751.70	2,335.13	3,558.342,918.57	3,558.342,918.57	2,135.271,751.70	13,338.7811,675.66
	Demand Reduction (MW)	0.4102	0.5468	0.83320.6834	0.83320.6834	0.50000.4102	3.12342.7339
	Projected Participation	1,255	1,673	2,5492,091	2,5492,091	1,5301,255	9,5578,365

Measure	Metric	PY13	PY14	PY15	PY16	PY17	Total
C&I LED Low-Bay Fixtures	Energy Savings (MWh/year)	133.39	178.13	189.13222.87	189.13222.87	113.27133.39	803.04890.64
	Demand Reduction (MW)	0.0212	0.0283	0.03000.0354	0.03000.0354	0.01800.0212	0.12750.1414
	Projected Participation	161	215	228269	228269	137161	9691,075
C&I LED Low-Bay Retrofit Kits	Energy Savings (MWh/year)	3.11	4.15	9.656.22	9.656.22	4.823.11	31.3822.82
	Demand Reduction (MW)	0.0009	0.0012	0.00280.0018	0.00280.0018	0.00140.0009	0.00910.0066
	Projected Participation	6	8	1912	1912	96	6144
C&I LED Outdoor Flood Light Fixtures	Energy Savings (MWh/year)	1,859.94	2,478.51	3,105.733,100.11	3,105.733,100.11	1,862.991,859.94	12,412.9112,398.61
	Demand Reduction (MW)	0.0131	0.0174	0.02060.0219	0.02060.0219	0.01240.0131	0.08420.0875
	Projected Participation	1,687	2,247	2,7952,812	2,7952,812	1,6761,687	11,20011,245
C&I LED Parking Garage and Canopy Fixtures and Retrofit Kits	Energy Savings (MWh/year)	2,112.92	2,813.49	2,739.033,527.01	2,739.033,527.01	1,640.742,112.92	12,045.2114,093.35
	Demand Reduction (MW)	0.0000	0.0000	0.00000.0000	0.00000.0000	0.00000.0000	0.00000.0000
	Projected Participation	2,471	3,289	3,2404,121	3,2404,121	1,9432,471	14,18416,473
C&I LED Pole/Arm Mounted Parking and Roadway Fixtures and Retrofit Kits	Energy Savings (MWh/year)	17,101.37	22,795.45	44,518.8828,500.14	47,018.8828,500.14	22,213.9317,102.77	153,648.5213,999.86
	Demand Reduction (MW)	0.0000	0.0000	0.00000.0000	0.00000.0000	0.00000.0000	0.00000.0000
	Projected Participation	17,877	23,825	25,79929,791	25,79929,791	15,48217,878	108,782119,162

Measure	Metric	PY13	PY14	PY15	PY16	PY17	Total
C&I LED Refrigeration Case Lighting	Energy Savings (MWh/year)	744.28	992.19	853.361,242.72	853.481,242.72	510.53744.28	3,953.844,966.21
	Demand Reduction (MW)	0.2003	0.2667	0.22770.3341	0.22780.3341	0.13630.2003	1.05881.3356
	Projected Participation	2,073	2,763	2,3633,459	2,3643,459	1,4152,073	10,97813,827
C&I LED Replacement Lamps (Tubes)	Energy Savings (MWh/year)	31,343.57	41,791.22	55,312.4352,239.08	55,525.7652,239.08	33,884.5931,343.57	217,857.582 08,956.52
	Demand Reduction (MW)	7.3736	9.8314	13.012312.2893	13.062512.2893	7.97147.3736	51.251149.1572
	Projected Participation	389,060	518,744	686,410648,430	689,040648,430	420,442389,060	2,703,6962,593,724
C&I LED Surface and Suspended Linear Fixtures	Energy Savings (MWh/year)	4,385.70	5,846.93	6,781.817,309.05	6,781.817,309.05	4,069.374,385.70	27,865.6129,236.43
	Demand Reduction (MW)	0.7581	1.0107	1.17231.2634	1.17231.2634	0.70340.7581	4.81675.0537
	Projected Participation	19,917	26,553	30,79933,193	30,79933,193	18,48019,917	126,548132,773
C&I LED Troffer Fixtures and Retrofit Kits	Energy Savings (MWh/year)	10,003.70	13,337.24	16,442.8616,671.34	16,442.8616,671.34	9,866.7510,003.70	66,093.4266,687.32
	Demand Reduction (MW)	2.4086	3.2112	3.95904.0140	3.95904.0140	2.37562.4086	15.913316.0563
	Projected Participation	35,660	47,543	58,61459,428	58,61459,428	35,17235,660	235,602237,719
C&I LED Wall Mount Fixtures and Retrofit Kits	Energy Savings (MWh/year)	2,963.66	3,950.94	4,052.774,938.33	4,052.774,938.33	2,431.822,963.66	17,451.9619,754.92
	Demand Reduction (MW)	0.1160	0.1547	0.15870.1933	0.15870.1933	0.09530.1160	0.68340.7733
	Projected Participation	4,139	5,519	5,6686,897	5,6686,897	3,4014,139	24,39427,591

Measure	Metric	PY13	PY14	PY15	PY16	PY17	Total
C&I Low-Flow Pre-rinse Spray Valve	Energy Savings (MWh/year)	49.29	65.72	82.1582.15	82.1582.15	49.2949.29	328.60328.60
	Demand Reduction (MW)	0.0096	0.0128	0.01600.0160	0.01600.0160	0.00960.0096	0.06400.0640
	Projected Participation	318	424	530530	530530	318318	2,1202,120
C&I Network Lighting Controls	Energy Savings (MWh/year)	3,750.00	5,000.00	4,340.076,250.00	4,340.076,250.00	2,604.043,750.00	20,034.1725,000.00
	Demand Reduction (MW)	0.8566	1.1422	0.99141.4277	0.99141.4277	0.59490.8566	4.57665.7110
	Projected Participation	3,750,000	5,000,000	4,340,0666,250,000	4,340,0666,250,000	2,604,0403,750,000	20,034,17325,000,000
C&I New Construction Child	Energy Savings (MWh/year)	6,357.78	8,477.04	8,600.0510,596.30	8,600.0510,596.30	5,160.036,357.78	37,194.9442,385.18
	Demand Reduction (MW)	0.0687	0.0915	0.09290.1144	0.09290.1144	0.05570.0687	0.40170.4577
	Projected Participation	6,357,778	8,477,037	8,600,04710,596,295	8,600,04710,596,295	5,160,0296,357,778	37,194,93942,385,183
C&I Night Cover	Energy Savings (MWh/year)	2.84	3.78	6.124.73	6.124.73	3.532.84	22.3918.92
	Demand Reduction (MW)	0.0000	0.0000	0.00000.0000	0.00000.0000	0.00000.0000	0.00000.0000
	Projected Participation	9	12	1915	1915	119	7160
C&I No-loss Condensate Drains	Energy Savings (MWh/year)	6.66	6.66	11.328.88	11.328.88	9.106.66	45.0537.72
	Demand Reduction (MW)	0.0018	0.0018	0.00310.0024	0.00310.0024	0.00250.0018	0.01220.0102
	Projected Participation	3	3	54	54	43	2017

Measure	Metric	PY13	PY14	PY15	PY16	PY17	Total
C&I Oversized Condenser with VFD	Energy Savings (MWh/year)	0.72	0.72	0.470.72	0.470.72	0.470.72	2.843.59
	Demand Reduction (MW)	0.0002	0.0002	0.00010.0002	0.00010.0002	0.00010.0002	0.00070.0009
	Projected Participation	1	1	11	11	11	45
C&I PTAC	Energy Savings (MWh/year)	256.09	342.25	510.92426.02	510.92426.02	306.65256.09	1,926.821,706.47
	Demand Reduction (MW)	0.1065	0.1424	0.21250.1772	0.21250.1772	0.12760.1065	0.80150.7099
	Projected Participation	428	572	854712	854712	512428	3,2202,852
C&I PC Power Management System	Energy Savings (MWh/year)	97.20	129.60	105.58162.00	105.58162.00	63.3597.20	501.326648.00
	Demand Reduction (MW)	0.0049	0.0065	0.00530.0081	0.00530.0081	0.00320.0049	0.02510.0324
	Projected Participation	720	960	7821,200	7821,200	469720	3,7134,800
C&I Permanent Fixture Removal	Energy Savings (MWh/year)	3,364.00	4,486.00	4,366.195,607.00	4,366.195,607.00	2,619.443,364.00	19,201.8122,428.00
	Demand Reduction (MW)	0.5155	0.6874	0.66900.8591	0.66900.8591	0.40140.5155	2.94223.4365
	Projected Participation	3,364	4,486	4,3665,607	4,3665,607	2,6193,364	19,20222,428
C&I Retrocommissioning	Energy Savings (MWh/year)	6,470.46	8,627.29	7,233.1310,784.11	7,233.1310,784.11	4,339.886,470.46	33,903.8843,136.43
	Demand Reduction (MW)	3.8700	5.1600	4.32626.4500	4.32626.4500	2.59573.8700	20.278125.8002
	Projected Participation	6,470,464	8,627,286	7,233,12810,784,108	7,233,12810,784,108	4,339,8766,470,464	33,903,88343,136,430

Measure	Metric	PY13	PY14	PY15	PY16	PY17	Total
C&I Storage Tanks for Load/No Load Screw Compressors	Energy Savings (MWh/year)	23.16	46.32	30.1946.32	30.1946.32	15.0923.16	144.95185.28
	Demand Reduction (MW)	0.0047	0.0093	0.00610.0093	0.00610.0093	0.00300.0047	0.02920.0373
	Projected Participation	1	2	12	12	11	68
C&I Suction Pipe Insulation	Energy Savings (MWh/year)	7.66	12.25	15.6212.25	15.6212.25	9.347.66	60.5052.07
	Demand Reduction (MW)	0.0019	0.0030	0.00380.0030	0.00380.0030	0.00230.0019	0.01470.0126
	Projected Participation	5	8	108	108	65	4034
C&I Uninterruptible Power Supply	Energy Savings (MWh/year)	36.06	36.06	23.5036.06	23.5036.06	23.5036.06	142.61180.28
	Demand Reduction (MW)	0.0093	0.0093	0.00600.0093	0.00600.0093	0.00600.0093	0.03670.0464
	Projected Participation	1	1	11	11	11	45
C&I Interior Occupancy Controls	Energy Savings (MWh/year)	1,933.49	2,577.92	2,667.103,222.90	2,667.103,222.90	1,599.901,933.49	11,445.5012,890.70
	Demand Reduction (MW)	0.6477	0.8636	0.89351.0797	0.89351.0797	0.53600.6477	3.83434.3185
	Projected Participation	10,582	14,109	14,59717,639	14,59717,639	8,75610,582	62,64170,551
C&I Variable Speed Air Compressor	Energy Savings (MWh/year)	948.27	1,458.88	1,191.791,750.65	1,191.791,750.65	643.44948.27	5,434.176,856.72
	Demand Reduction (MW)	0.2133	0.3281	0.26810.3937	0.26810.3937	0.14470.2133	1.22221.5422
	Projected Participation	13	20	1624	1624	913	7494

Measure	Metric	PY13	PY14	PY15	PY16	PY17	Total
C&I Variable Speed Refrigeration Compressor	Energy Savings (MWh/year)	18.87	18.87	18.8718.87	18.8718.87	18.8718.87	94.3494.34
	Demand Reduction (MW)	0.0000	0.0000	0.00000.0000	0.00000.0000	0.00000.0000	0.00000.0000
	Projected Participation	1	1	11	11	11	55
C&I VSD retrofit on HVAC Pump	Energy Savings (MWh/year)	200.49	257.77	253.93343.70	253.93343.70	140.64200.49	1,106.761,346.15
	Demand Reduction (MW)	0.0088	0.0114	0.01070.0146	0.01070.0146	0.00620.0088	0.04780.0581
	Projected Participation	7	9	912	912	57	3947
C&I VSD retrofit on HVAC Fan	Energy Savings (MWh/year)	2,173.36	2,832.70	2,451.243,565.29	2,451.243,565.29	1,501.532,173.36	11,410.0714,310.00
	Demand Reduction (MW)	0.1415	0.1845	0.15970.2322	0.15970.2322	0.09780.1415	0.74310.9320
	Projected Participation	89	116	100146	100146	6189	467586
C&I VSD retrofit on Process Motor	Energy Savings (MWh/year)	1,054.28	1,449.63	1,477.841,844.99	1,477.841,844.99	847.761,054.28	6,307.347,248.17
	Demand Reduction (MW)	0.8204	1.1145	1.13751.4195	1.13751.4195	0.65920.8204	4.86935.5943
	Projected Participation	16	22	2228	2228	1316	96110
C&I Water Cooled Centrifugal Chiller	Energy Savings (MWh/year)	117.36	156.73	127.65195.86	127.65195.86	76.49117.36	605.87783.15
	Demand Reduction (MW)	0.0271	0.0362	0.02950.0452	0.02950.0452	0.01770.0271	0.14000.1809
	Projected Participation	561	749	610936	610936	366561	2,8963,743

Measure	Metric	PY13	PY14	PY15	PY16	PY17	Total
C&I Water Cooled Heat Pump	Energy Savings (MWh/year)	637.04	853.90	941.371,070.77	941.371,070.77	561.29637.04	3,934.974,269.51
	Demand Reduction (MW)	0.1053	0.1411	0.15550.1769	0.15550.1769	0.09270.1053	0.65020.7054
	Projected Participation	94	126	139158	139158	8394	581630
C&I Water Cooled Positive Displacement or Reciprocating Chiller	Energy Savings (MWh/year)	73.28	96.93	96.99121.80	96.99121.80	58.4273.28	422.60487.09
	Demand Reduction (MW)	0.0171	0.0226	0.02260.0284	0.02260.0284	0.01360.0171	0.09850.1135
	Projected Participation	195	258	259324	259324	156195	1,1271,296
C&I Web-Enabled Thermostat	Energy Savings (MWh/year)	155.66	200.14	255.23266.85	255.23266.85	147.92155.66	1,014.181,045.16
	Demand Reduction (MW)	0.0082	0.0106	0.01350.0141	0.01350.0141	0.00780.0082	0.05370.0553
	Projected Participation	14	18	2324	2324	1314	9194
C&I Zero Energy Doors	Energy Savings (MWh/year)	32.29	43.30	42.3652.84	42.3652.84	25.9032.29	186.20213.54
	Demand Reduction (MW)	0.0045	0.0060	0.00590.0073	0.00590.0073	0.00360.0045	0.02580.0296
	Projected Participation	44	59	5872	5872	3544	254291

Estimated Program Budget (Total) by Year

Table 9E. Non-Residential Program: Program Budget

Cost Element		PY13	PY14	PY15	PY16	PY17	Phase IV Total[2]
Total Budget ($000)							
Incentives ($000)	Rebates	$13,035	$17,411	$21,765	$21,765	$13,035	$87,011
	Upstream/Midstream Buydown	$6,640	$8,866	$11,081	$11,081	$6,640	$44,309
	Kits	$0	$0	$0	$0	$0	$0
	Direct Install Materials & Labor	$7,648	$10,194	$12,748	$12,748	$7,648	$50,986
	Incentive Total	**$27,323**	**$36,472**	**$45,594**	**$45,594**	**$27,323**	**$182,307**
Non-Incentives ($000)[1]	Program Design	$364	$364	$364	$364	$364	$1,818
	Administrative	$2,181	$2,181	$2,181	$2,181	$2,181	$10,905
	EDC Delivery Costs	$0	$0	$0	$0	$0	$0
	CSP Delivery Fees	$11,366	$11,855	$14,821	$14,821	$8,879	$61,742
	Marketing	$904	$904	$904	$904	$904	$4,520
	EM&V	$2,908	$2,908	$2,908	$2,908	$2,908	$14,540
	Other (See Section 4.2.3)	$1,966	$1,966	$1,966	$1,966	$1,966	$9,832
	Non-Incentive Total	**$19,689**	**$20,178**	**$23,144**	**$23,144**	**$17,202**	**$103,357**
Percent Incentives		58%	64%	66%	66%	61%	64%

Notes:

1 Program design, administrative, EM&V, and "other" are allocated to programs from cross-cutting based on methods described in Table 11. Figure 4 shows program-specific budgets without allocated costs.

2 The residential program offers incentives to customers in the residential, small commercial, and large commercial sectors. Therefore, in order to compare budgets from Table 9 to Table 12, it should be noted that $3,440,595 of the Residential program budget is attributed to the small commercial sector and $1,396,818 is attributed to the large commercial sector for cost recovery.

Cost Element		PY13	PY14	PY15	PY16	PY17	Phase IV Total[2]
Total Budget ($000)							
Incentives ($000)	Rebates	$13,035	$17,411	$21,539	$22,309	$11,509	$85,803
	Upstream/Midstream Buydown	$6,640	$8,866	$10,921	$10,947	$6,635	$44,010
	Kits	$0	$0	$0	$0	$0	$0
	Direct Install Materials & Labo	$7,648	$10,194	$12,750	$12,750	$7,650	$50,993
	Incentive Total	**$27,323**	**$36,472**	**$45,211**	**$46,007**	**$25,794**	**$180,807**
Non-Incentives ($000)	Program Design	$358	$358	$358	$358	$358	$1,789
	Administrative	$2,147	$2,147	$2,147	$2,147	$2,147	$10,736
	EDC Delivery Costs	$0	$0	$0	$0	$0	$0
	CSP Delivery Fees	$11,366	$11,855	$14,845	$14,994	$8,682	$61,742
	Marketing	$904	$904	$904	$904	$904	$4,520
	EM&V	$2,863	$2,863	$2,863	$2,863	$2,863	$14,314
	Other (See Section 4.2.3)	$1,936	$1,936	$1,936	$1,936	$1,936	$9,679
	Non-Incentive Total	**$19,574**	**$20,063**	**$23,052**	**$23,202**	**$16,889**	**$102,781**
Percent Incentives		58%	65%	66%	66%	60%	64%

Notes:

1 Program design, administrative, EM&V, and "other" are allocated to programs from cross-cutting based on methods described in Table 11. Figure 4 shows program-specific budgets without allocated costs.

2 The residential program offers incentives to customers in the residential, small commercial, and large commercial sectors. Therefore, in order to compare budgets from Table 9 to Table 12, it should be noted that $3,440,595 of the Residential program budget is attributed to the small commercial sector and $1,396,818 is attributed to the large commercial sector for cost recovery.

Estimated Percentage of Sector Budget Attributed to the Program

The Non-Residential program offers incentives to customers in the small commercial and large commercial sectors. The Non-Residential program accounts for ~~97.2~~97.6% of small commercial and ~~99.1~~97.7% of large commercial sector spending exclusive of common cost allocation.

Cost-effectiveness

Table 13E. Non-Residential Program: TRC Benefits Table

Gross Portfolio	NTGR & TRC Ratio			TRC Costs By Program Per Year ($000)				TRC Benefits By Program Per Year ($000)				
Program	Program Year	NTGR	TRC[1]	Incremental Measure Cost		Program Administration Cost	Total TRC Costs	Capacity Benefits	Energy Benefits	Fossil Fuel and Water Benefits	O&M Benefits	Total TRC Benefits
				Paid by EDC	Paid by Participants							
Non-residential	*PY13*	*1.00*	*1.12*	*$27,323*	*$38,377*	$12,270	$77,970	$28,818	$57,651	-$3,271	$4,485	$87,684
Non-residential	*PY14*	*1.00*	*1.20*	*$36,472*	*$51,359*	$12,759	$100,590	$39,236	$79,663	-$4,508	$5,980	$120,372
Non-residential	*PY15*	*1.00*	*1.19*	*$45,211*	*$55,931*	$15,749	$116,891	$46,896	$90,451	-$5,241	$7,448	$139,553
Non-residential	*PY16*	*1.00*	*1.22*	*$46,007*	*$56,309*	$15,898	$118,214	$47,904	$94,539	-$5,187	$7,465	$144,721
Non-residential	*PY17*	*1.00*	*1.30*	*$25,794*	*$32,849*	$9,586	$68,229	$29,446	$58,189	-$3,282	$4,527	$88,880
Non-residential Total		*1.00*	*1.20*	*$164,029*	*$213,689*	$60,326	$438,043	$174,329	$345,101	-$19,499	$27,109	$527,040

Gross Portfolio	NTGR & TRC Ratio			TRC Costs By Program Per Year ($000)				TRC Benefits By Program Per Year ($000)				
Program	Program Year	NTGR	TRC[1]	Incremental Measure Cost		Program Administration Cost	Total TRC Costs	Capacity Benefits	Energy Benefits	Fossil Fuel and Water Benefits	O&M Benefits	Total TRC Benefits
				Paid by EDC	Paid by Participants							
Non-residential	*PY13*	*1.00*	*1.12*	*$27,323*	*$38,377*	$12,270	$77,970	$28,818	$57,651	-$3,271	$4,485	$87,684
Non-residential	*PY14*	*1.00*	*1.20*	*$36,472*	*$51,359*	$12,759	$100,590	$39,236	$79,663	-$4,508	$5,980	$120,372
Non-residential	*PY15*	*1.00*	*1.24*	*$45,594*	*$64,169*	$15,725	$125,488	$50,012	$103,400	-$5,866	$7,476	$155,022
Non-residential	*PY16*	*1.00*	*1.28*	*$45,594*	*$64,169*	$15,725	$125,488	$51,012	$107,458	-$5,793	$7,476	$160,153
Non-residential	*PY17*	*1.00*	*1.31*	*$27,323*	*$38,377*	$9,783	$75,484	$31,149	$66,975	-$3,633	$4,485	$98,977
Non-residential Total		*1.00*	*1.23*	*$165,278*	*$232,498*	$60,317	$458,093	$181,241	$375,235	-$20,878	$27,110	$562,708

Net Portfolio	NTGR & TRC Ratio			TRC Costs By Program Per Year ($000)				TRC Benefits By Program Per Year ($000)				
Program	Program Year	NTGR	TRC[1]	Incremental Measure Cost		Program Administration Cost	Total TRC Costs	Capacity Benefits	Energy Benefits	Fossil Fuel and Water Benefits	O&M Benefits	Total TRC Benefits
				Paid by EDC	Paid by Participants							
Non-residential	*PY13*	*0.76*	*1.07*	*$27,323*	$22,609	$12,270	$62,202	$21,902	$43,815	-$2,486	$3,409	$66,640
Non-residential	*PY14*	*0.76*	*1.15*	*$36,472*	$30,280	$12,759	$79,511	$29,820	$60,544	-$3,426	$4,545	$91,483
Non-residential	*PY15*	*0.76*	*1.15*	*$45,211*	$31,657	$15,749	$92,617	$35,641	$68,743	-$3,983	$5,660	$106,061
Non-residential	*PY16*	*0.76*	*1.17*	*$46,007*	$31,753	$15,898	$93,658	$36,407	$71,849	-$3,942	$5,674	$109,988
Non-residential	*PY17*	*0.76*	*1.25*	*$25,794*	$18,775	$9,586	$54,155	$22,379	$44,224	-$2,494	$3,440	$67,549
Non-residential Total		*0.76*	*1.15*	*$164,029*	$123,036	$60,326	$347,391	$132,490	$262,277	-$14,819	$20,603	$400,550

Net Portfolio	NTGR & TRC Ratio			TRC Costs By Program Per Year ($000)				TRC Benefits By Program Per Year ($000)				
Program	Program Year	NTGR	TRC[1]	Incremental Measure Cost		Program Administration Cost	Total TRC Costs	Capacity Benefits	Energy Benefits	Fossil Fuel and Water Benefits	O&M Benefits	Total TRC Benefits
				Paid by EDC	Paid by Participants							
Non-residential	*PY13*	*0.76*	*1.07*	*$27,323*	$22,609	$12,270	$62,202	$21,902	$43,815	-$2,486	$3,409	$66,640
Non-residential	*PY14*	*0.76*	*1.15*	*$36,472*	$30,280	$12,759	$79,511	$29,820	$60,544	-$3,426	$4,545	$91,483
Non-residential	*PY15*	*0.76*	*1.19*	*$45,594*	$37,826	$15,725	$99,145	$38,009	$78,584	-$4,458	$5,682	$117,817
Non-residential	*PY16*	*0.76*	*1.23*	*$45,594*	$37,826	$15,725	$99,145	$38,769	$81,668	-$4,403	$5,682	$121,716
Non-residential	*PY17*	*0.76*	*1.26*	*$27,323*	$22,609	$9,783	$59,716	$23,673	$50,901	-$2,761	$3,409	$75,223
Non-residential Total		*0.76*	*1.18*	*$165,278*	$137,032	$60,317	$362,627	$137,743	$285,179	-$15,867	$20,603	$427,658

Bidding Strategy for Peak Demand Reductions into PJM's FCM

PECO will hire a turnkey service provider to handle the strategy and details for bidding into PJM's FCM. This approach will balance the benefits of bidding to PECO customers against the risk posed to customers by the potential for deficiency charges from PJM. PECO will provide more detail once the EE&C plan is final and the bidder is selected. As part of the competitive solicitation process, PECO will seek to minimize the portion of the revenues retained by the turnkey provider. All such revenues, net of any Provider Revenues paid, will be returned to customers as an offset to Plan costs. PECO will submit its proposed contract with the turnkey provider to the Commission consistent with the process for all CSP contracts.

Other Information Deemed Appropriate

None.

3.5 Government/Nonprofit/Institutional Sector

Municipal government, nonprofits, and institutions will have a specific assigned outreach representative for engagement in the prescriptive and custom components of the Non-Residential program. Outreach will coordinate with PECO's economic development, large customer services team and government affairs to work collaboratively to engage and educate these customers on the value of energy efficiency and participation in PECO programs. Many municipal governments use energy master planning to better understand how they use and manage energy. PECO's outreach team will directly support implementation of those plans using its Non-Residential program incentives.

4. Program Management and Implementation Strategies

This section provides a detailed description of how PECO plans to manage and implement programs, including its approach to and use of CSPs.

4.1 Overview of PECO Management and Implementation Strategies

Led by the PECO's program management team, each CSP will work closely with PECO senior marketing specialists and the PECO brand advertising agency of record to make PECO's energy efficiency programs successful. The responsibilities of each role follow.

4.1.1 *Services to Be Provided by EDC, Consultants, Trade Allies, and CSPs*

This section describes the services to be provided by key program stakeholders, including PECO Program Managers, PECO's Marketing Team, CSPs, Data Vendors, Evaluators, Trade Allies, and Market Actors.

PECO Program Managers

- Oversee the Prime CSP's performance and service obligations and make sure the Prime CSP's delivery aligns with the approved EE&C plan.
- Oversee and actively manage the Prime CSP's performance.
- Approve Prime CSP payments (non-incentive payments) on a monthly and annual basis and incentive payments on a weekly or otherwise basis.
- Manage the overall CSP contract.
- Oversee program-level marketing with the CSP in coordination with the PECO marketing and promotions team.
- Work with Prime CSPs to manage and direct the sales process and approach.
- Engage with customers as needed when issues are escalated by the customer, trade ally, and/or CSP.

PECO Marketing and Promotions Team/PECO Senior Marketing Specialists

- Manage the portfolio's broad awareness campaign with the advertising agency and coordinate the CSPs and PECO brand advertising agency on advertising and marketing participant engagement strategies.
- Coordinate the education outreach strategy, content, and community event participation.
- Manage and track customer awareness and satisfaction studies.
- Ensure delivery of premium customer/participant experiences by providing oversight of customer support infrastructure.

PECO Brand Agency of Record

The PECO brand advertising agency of record will design and lead the overall advertising plan for all programs. This will include the programs' look and feel, messaging, and advertising channels. The PECO brand agency of record will coordinate through the PECO senior marketing specialists and CSPs on program-specific materials. (Note: The advertising agency will not be responsible for identifying and tracking leads. CSPs will identify, follow up with, and track leads.)

CSPs

- Deliver energy efficiency savings and associated PDRs on time and on budget while making it easy for customers to participate.
- Maintain high customer satisfaction.
- Develop and adjust program implementation strategies in collaboration with PECO program managers.
- Develop and maintain market actor networks (retailers, distributors, manufacturers, project developers).
- Develop program marketing and coordinate with the PECO Marketing and Promotions team and PECO brand advertising agency of record for design and consistency in messaging.
- Program outreach and lead generation (including development and distribution of program materials, neighborhood canvassing, trade ally and association networking, customer support infrastructure/lead conversion).
- Manage audits (including customer screening, hiring, training and monitoring of auditors and contractors, measure direct installation, and customer audit reports).
- Distribute efficient measure giveaways or energy kits, if applicable.
- Pick up and recycle appliances (and other equipment), if applicable.
- Process incentives (receive, review, and verify applications and pay rebates).
- Track program performance and implement continuous improvement.
- Report program activities while adhering to PECO and regulatory data reporting requirements and responding to internal or external requests.
- Continuously improve forecasting accuracy.
- Achieve income-eligible carve-out targets.
- Coordinate with other related activities and partnerships (e.g., Marketplace).
- Support market actors (e.g., trade allies, contractors).
- Support any program amendment process should program goals or budget need adjustment to suit the portfolio.
- Provide weekly transactional data to PECO for execution of customer satisfaction survey tools.
- Adapt program implementation strategies to continue program operations and achieve program goals through market disruptions such as COVID-19, economic recovery, etc.

Data Vendor

The database vendor will develop and maintain an appropriate tracking system for the programs to compile and aggregate data from PECO and CSPs, using generally accepted data input and validation techniques. The data vendor will also collaborate with PECO, CSPs, and evaluators to develop and provide summary and detailed reports.

Evaluators

The independent evaluation contractor is responsible for the portfolio's EM&V and will verify that programs meet goals and are operated consistently with the approved plan. They will interface with the SWE to ensure measurement and verification protocols are aligned with the state's requirements and periodically provide PECO feedback on the identified areas where delivery performance could be improved. Independent evaluation contractors will also support PECO with semiannual and annual compliance reports.

Trade Allies

Through the right combination of trade ally management, marketing, education, data analytics, and outreach, trade ally networks will be motivated to increase performance and provide valuable feedback for program design and implementation. CSPs will engage existing trade allies and reach out to potential new trade ally participants prior to the start of Phase IV to provide a portfolio-wide trade ally database focused on:

- Maintaining active trade ally participation requirement status
- Identifying underperformers to focus campaigns for increased production
- Engaging contractors to participate
- Providing all participating trade allies with program information and announcements

Trade ally outreach may also include monthly program newsletters with updates, quarterly trade ally report cards with metrics, and annual trade ally events to provide education on programs and technologies, sales training, and networking opportunities for those with complementary business models.

Market Actors

The CSPs will engage market actors as partners in program outreach and marketing. Specific market actors and their roles include:

- **Influencers:** Community organizations, associations, and mavens that customers follow, join, or rely on for advice. They are trusted partners with unique connections to their constituents—targeted PECO customers. Examples include condominium boards for multifamily tenants and property managers, home care services, community Weatherization Assistance program agencies and food banks serving income-eligible customers, and HERS Raters and Home Builders Associations for new construction.
- **Contractors and design firms:** Professionals who specify energy and demand savings equipment, sell and install planned or emergency replacement high-efficiency equipment.

- **Distributors and manufacturers:** Stakeholders who stock and price-to-move high-efficiency equipment as well as participants in a residential and non-residential midstream or upstream program component. CSPs will build relationships through national distribution and manufacturer networks, associations, and organizations.
- **Multicultural alliances and neighborhood associations:** Partners that can assist with reaching customers with English as a second language, providing content and collateral that resonate given the nuances of their language and cultural norms; access to neighborhood meetings to present the value proposition of multiple programs; potential workforce development partners to recruit local contractors and individual program staff.
- **Government agencies:** Local township sponsored community events enabling direct customer engagement for cross promotion of multiple programs; recycling centers and township websites encouraging PECO refrigerator and freezer recycling programs; and financial assistance programs that can aid customers along the energy efficiency continuum.

4.1.2 *Risk Categories and Risk Mitigation Strategies*

Section 3 includes risks for individual programs. There are also risks inherent in the delivery of any energy efficiency portfolio. PECO is taking several key steps to manage those risks:

- Selecting programs that are diversified in design and implementation strategy including some program components that are relatively simple, flexible, and have a history of delivering results in Pennsylvania and other states (e.g., upstream and midstream retail programs) combined with comprehensive program offerings that strive for deeper energy savings.

- Developing a plan with multiple program components and a broad mix of measures to avoid over reliance on any single measure.

- Forecasting to exceed the overall energy and demand savings targets to hedge unknown performance across the entire portfolio.

4.1.2.1 Performance Risk

PECO managed performance risk by using a robust CSP RFP process for selecting CSPs with proven experience to implement the approved Plan. PECO used a disciplined RFP evaluation and selection process to ensure we engage experienced CSPs in the delivery of the programs (requiring CSP proposals to demonstrate a proven track record of performance). CSP contracts, where possible, will include performance clauses to ensure CSPs have a strong financial incentive to succeed.

PECO program managers will be responsible for continual oversight of CSP performance against the plan and will promptly implement corrective actions if goals are not being met. Lastly, PECO will continue to meet with stakeholders and other Pennsylvania EDCs to share learnings and draw on program experience across the state to continuously improve the programs in its portfolio.

4.1.2.2 Technology Risk

The EE&C plan incentivizes customers for purchasing and installing known technologies and products with established TRM energy and demand savings. The TRM provides the standards for determining the prescriptive or deemed energy savings. Using this approach removes much of the technology risk from the Plan's prescriptive energy efficiency measures and results in a more cost-effective measurement and verification process.

PECO's CSPs will calculate custom project savings on an individual project basis, using the existing (or code-required) equipment as the baseline of energy use. CSPs will conduct pre- and post-inspections, where appropriate, to verify equipment and operating conditions. Incentive payment estimates will be based on standard engineering and energy calculation principles and final payments will be based on the confirmed savings.

4.1.2.3 Market Risk

PECO worked diligently to develop a strong portfolio of programs, benchmarked for success in comparable jurisdictions, and developed with input from key stakeholders. Uncovering barriers to participation and developing approaches that address these barriers facilitates program success. PECO has gained significant experience and market connections in the process of delivering its Phase I, II, and III programs. Informed by this experience, some of PECO's strategies to reduce market risk include the following:

1. **CSP Collaboration:** PECO developed the plan collaboratively with CSPs to ensure it is market-grounded, reducing the risk that the plan is not achievable in the market environment.
2. **Customer Education:** Education and awareness is an integral component of every program. This will include program awareness and the benefits of becoming more energy efficient.
3. **Trade Ally Coordination:** All trade allies will be offered training opportunities and provided with appropriate materials and technical support. The intent will be to ensure program awareness and knowledge, to provide strategies for selling energy efficiency and peak demand reduction to their customers, and to educate the trade allies on the how these programs will help them further their business goals.
4. **Program Promotion:** PECO and its contractors will implement a strong promotional advertising campaign to drive awareness and call on customers to act.
5. **Product Promotion:** POP material will be placed in participating retail stores, customers will be able to easily participate using instant rebates.
6. **Streamlined Participation:** Program eligibility and streamlined application processes will make participation as easy as possible for customers.

4.1.2.4 Evaluation Risk

PECO will use several strategies to minimize evaluation risk. Eliminating evaluation risk begins with program design to ensure all assumptions and EM&V protocols are agreed upon in advance. PECO will work closely with the SWE to ensure consistent assumptions and processes are used.

The TRM provides a known set of assumptions for most prescriptive measures. PECO's independent EM&V contractor will conduct a disciplined verification activity for each program to ensure measures that customers received incentives for have been installed. PECO and its EM&V contractor will use industry standards and state-approved methods to perform the measurement and verification process.

4.1.3 *Human Resource and Contractor Resource Constraints*

Flexibility in resource staffing is needed to effectively implement the EE&C plan. PECO will manage human ~~resource~~ resources and contractor resource constraints through deliberate staffing and training. CSP staff that will implement the programs are primarily located in PECO's service area. Each CSP has laid out a succession plan in the event of staff changes, including backups for staff roles.

Internally, the organization will be overseen by PECO's Energy and Marketing Services team and will be further broken out in the marketing department by the following groups: Residential Energy Efficiency programs, C&I programs, Measurement and Verification, Business Planning and Promotions.

4.1.4 *Early Warning Systems to Indicate Progress Toward Goals and Process for Adjustment*

PECO has several methods for monitoring progress toward goals and ensuring that corrective actions are taken:

- Program managers will closely monitor the programs through direct interface with the CSPs and through the demand side management program tracking database. PECO will develop and monitor performance indicators for each program on a monthly basis. Regular review of performance metrics and feedback from CSPs will allow program managers to identify potential issues and take prompt corrective actions.
- Regular program evaluation will identify issues that may impede a program's ability to effectively reach its goals. The EM&V contractor will conduct evaluations to make sure that issues are identified early in the program cycle. It will be PECO's EM&V team's responsibility to ensure program managers consider recommended improvements and incorporate them into the program design as warranted.
- PECO will monitor efforts to update building and appliance codes that may affect the building or equipment baselines and develop strategies to adapt these changes into any affected program's design. Whether codes and standards changes or evaluation results, PECO will quickly react to actual or potential changes in the TRM to ensure that programs are claiming appropriate energy savings.

4.1.5 *Implementation Schedules with Milestones*

The planned implementation schedule follows:

- March 2021: PECO and the CSPs will kick-off the program pre-launch process. During pre-launch, CSPs will assign key staff and ensure all customer support systems and marketing and outreach is in place.
- June 1, 2021: The programs will launch with some components on a ramp-up period for the first 6 months.
- June 2021–May 2026: Programs will operate and adjust to market changes. Savings and budget compared to goals will be reviewed on a regular basis.
- May 31, 2026: Last day of the Phase IV programs.

4.1.6 *Stakeholder Engagement*

PECO plans to regularly engage with stakeholders, including community organizations, groups, and individuals serving income-eligible populations to help ensure the plan design is implemented consistently with the vision presented in this plan. PECO will continue to be an active and engaged participant in PUC-sponsored meetings and activities and will initiate stakeholder input sessions with PECO's customer groups and partners.

The CSPs will also engage:

- **Multicultural alliances and neighborhood associations:** Partners that can assist with reaching customers with English as a second language, providing content and collateral that resonate given the nuances of their language and cultural norms; access to neighborhood meetings to present the value proposition of multiple programs; potential workforce development partners to recruit local contractors and individual program staff.
- **Local community-based organizations:** Bucks County Opportunity Council, Delaware and Philadelphia County Housing Authorities, government organizations like Philadelphia Energy Authority, and advocates such as the Housing Alliance.

4.2 Executive Management Structure

This section describes PECO's structure for addressing portfolio strategy, planning, review of program metrics, internal and external communications, budgeting and financial management, program implementation, procurement, program tracking and reporting, and Quality Assurance/Quality Control (QA/QC). Figure 8 includes the management team responsible for implementing PECO's EE&C plan.

4.2.1 *PECO Structure for Addressing Portfolio Strategy*

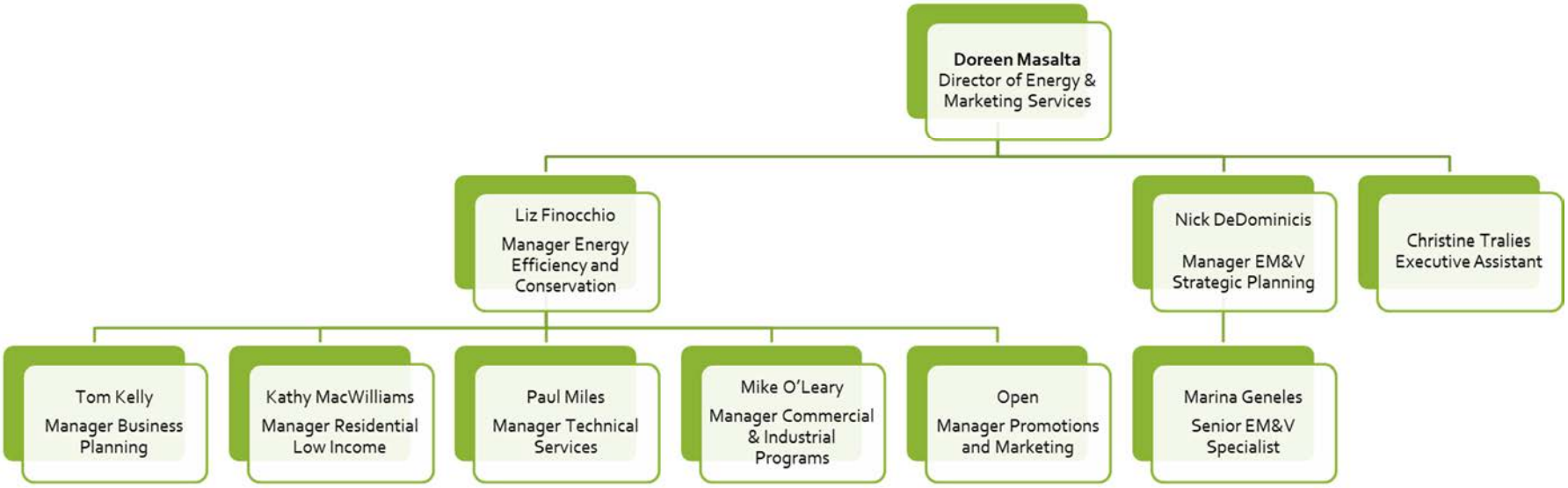
Responsibility for the entire portfolio of programs resides within a single organization, with executive-level leadership provided by the Director of Energy and Marketing Services. Individual Managers are assigned responsibility for each market sector and key functional support areas. This executive team is responsible for overall portfolio strategy and planning.

Primary program management is organized by market sector: commercial and industrial, and residential and low-income. Individual Program Managers are assigned to each program and have overall responsibility for the programs with support from the functional support groups:

promotions and marketing, technical services, business planning, and EM&V. They provide specialized support services to the program managers in the following areas:

- Promotions and marketing ~~coordinates~~ coordinate all internal and external communications.
- Business planning is responsible for all financial aspects of the portfolio. This includes budget and financial management as well as maintaining the portfolio tracking database to provide performance tracking and reporting.
- EM&V oversees the evaluation contractor and interfaces with the SWE.

Figure 8. PECO Proposed EE&C Organization



4.2.2 *Approach for Overseeing the Performance of CSPs and Other Providers*

PECO will compensate CSPs for what has compliance value. PECO must meet MWh and MW savings goals. Therefore, PECO will compensate CSPs for MWh and MW savings that achieve those goals ($/verified MWh). Each CSP's goal is to meet 105% of the regulatory target annually and for the phase.

In addition to paying CSPs based on their performance, PECO will incorporate key performance metrics into its contracts with the CSPs. Individual program managers will monitor performance closely through the tracking system that will measure key indicators such as participation, costs, savings, adherence to plan, participant experience, and other indicators. The program manager will work closely with the CSP to understand how the program is performing and if changes may be needed to make the program more successful.

PECO will also assess customer and market actor satisfaction with programs through each program's EM&V process. Independent evaluation contractors will provide each PECO program manager with feedback on this dimension of each CSPs' performance.

4.2.3 *Basis for Administrative Budget (non-incentive costs)*

Administrative costs (non-incentive costs) in PY 13–PY 17 will be factored into the overall portfolio benefit-cost analysis. These costs include all non-incentive costs and are aligned with the budget categories in Table 9 for each program. To determine the administrative budget, PECO followed the PUC's Implementation Order to have a minimum of 50% of the total budget go to incentives. PECO then benchmarked the Phase III budget to determine PECO and non-PECO administrative budget. Administrative cost categories include:

- **Program Design:** Includes all costs related to designing the Phase V program, assuming there will be a Phase V, including updating avoided costs or load shape research.
- **Administrative:** Represents PECO employees required to develop, oversee, and execute all programs in the portfolio. This cost category also includes expenses associated for PECO staff energy efficiency and peak demand reduction training, industry conference sponsorships, and participation.
- **CSP Delivery Fees:** Includes all costs to implement the plan, including program implementation and database management. this category includes a customer service call center to support Phase IV implementation.
- **Marketing:** Represents broad marketing, education, and outreach efforts to promote the overall portfolio of energy efficiency and peak demand reduction programs as well as specific and targeted marketing strategies for specific programs and solutions. This will include expenditures on radio, newspaper, social media, and sponsorships promoting the program portfolio.
- **EM&V:** Represents costs associated with third-party independent EM&V for the full portfolio process and impact evaluation activities, including continuous improvement activities.
- **Other:** Includes technical support, research and development (R&D), and unforeseen circumstances which are possible but cannot be predicted at the time of developing this plan.

- *Technical support* includes updating and expanding the data tracking system for overall tracking and reporting of energy efficiency and PDR savings, EM&V research activities, and benchmarking studies.
- *R&D* includes market research in response to market transformations, and pilot projects. This pilot work will be capped at 2% in accordance with the statute put forth by the PUC that states no more than 2% of funds shall be allocated for experimental equipment or devices. PECO will begin the pilots by May 31, 2022. Both the Residential pilot and the Non-Residential pilot term will be at least 24 months (including time for program design and evaluation) and PECO will share results with stakeholders.
  - Residential R&D: PECO will dedicate up to $4.125 million of its total Plan Residential Research and Development budget to explore innovative residential and income-eligible measures and program offerings, including the residential and income-eligible pilots. As part of the pilots, PECO will test the use of tiered incentives for home retrofits. This will include evaluating customer response to different price signals including bonus incentives for multiple measures, and tiers whereby long-lived measures receive higher incentives than short-lived measures.
    - PECO will dedicate no less than $500,000 of its total Residential Research and Development budget to the design and implementation of a residential pilot to study the use of various techniques and incentives to drive customers to pursue more comprehensive projects.
    - PECO will also dedicate a minimum of $400,000 and maximum of $500,000 of its total Plan Residential Research and Development budget to an income-eligible health and safety pilot to assess whether addressing health and safety barriers in income-eligible homes would allow PECO to provide increased efficiency measures to income-eligible customers while advancing its overall energy savings goals. The pilot term will be 12-18 months. Once the pilot results have been analyzed, the Company will present pilot findings to PECO Act 129 stakeholders and discuss any recommended changes to energy efficiency offerings in PECO's Phase IV Plan as a result of the pilot findings.
  - Non-Residential R&D: PECO will dedicate no less than $1 million of its total Non-Residential Research and Development budget to the design and implementation of a non-residential pilot. The pilots will study the use of various techniques and incentives to drive customers to pursue more comprehensive projects where energy efficiency measures across multiple end uses are installed. Out of the total $1 million Non-Residential dedication, $430,000 will be dedicated to Small Commercial/ Industrial and $570,000 will be dedicated to Large Commercial/Industrial. As part of the pilots, PECO will test the use of tiered incentives for building retrofits. This will include evaluating customer response to different price signals including bonus incentives for multiple measures, and tiers whereby long-lived measures receive higher incentives than short-lived measures.

Like non-incentive costs, incentive costs are aligned with the budget categories in Table 9 for each program. Incentive costs include rebates, midstream and upstream buydown, kits, and direct install materials and labor.

4.3 Conservation Service Providers (CSPs)

4.3.1 *Selected CSPs*

PECO issued RFPs and is in the process of selecting and contracting CSPs for implementing and evaluating the Phase IV programs. The selected implementation CSPs and independent evaluator, their qualifications, and basis for selection will be shared with the PUC. Each CSP and evaluation contract is deemed confidential and proprietary, each will be filed with the PUC separately. No CSP contract will be effective until approved by the PUC.

PECO has selected ANB as the data vendor to collect and manage all program data and enable PECO to responsively model and forecast participation, monitor and adjust its energy efficiency and PDR portfolio, track key program indicators, develop market intelligence reports, and seamlessly transmit up-to-date, accurate portfolio data for compliance requirements. Since ANB was PECO's data vendor in Phase III, they offer less disruption from training and onboarding. Additionally,

- ANB's upgraded system, eTrack+, has robust reporting functionality enabling PECO to fully access and manipulate our data without creating a support ticket
- ANB's data quality assurance has been unmatched and indispensable previously.

4.3.2 *Describe the Work and Measures Being Performed by CSPs*

CSPs will implement the energy efficiency programs using their experience and capabilities from implementing previous PECO programs and other programs across the country. Each of the selected CSPs will be responsible for implementation services detailed in the individual program descriptions in Section 3.

4.3.3 *Describe Any Pending RFPs to Be Issued for Additional CSPs*

PECO is planning to issue at a minimum the following RFPs:

PECO will issue a RFP for a vendor to supply PJM bidding services. The RFP will be a competitive solicitation for a turnkey provider of these services. PECO expects the provider to handle all details of bidding into the Reliability Pricing Model, including the selection of measures and programs, submitting documentation as required by PJM, and the actual bidding services. PECO further expects the provider will assume all risk associated with bidding (to include potential deficiency charges, audit risk, and M&V compliance risk) in return for some portion of the revenues generated by bidding into the PJM capacity market.

5. Reporting and Tracking Systems

This section describes the reporting and critical data management and tracking systems PECO will use to implement programs, and which the PUC and PECO's evaluation contractor will need to access.

5.1 Reporting

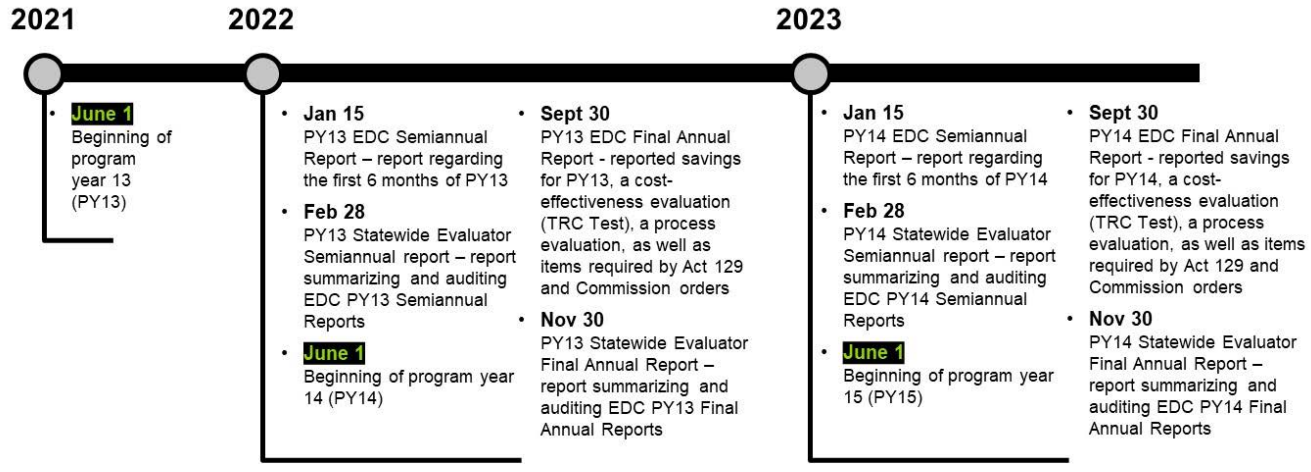
The evaluation contractor will be responsible for interfacing with the SWE to determine the required data collection and reporting requirements and ensure that all data collection and reporting requirements are satisfied by the data vendor and CSPs.

The evaluation contractor will support development of PECO's semiannual and annual reports as prescribed in the SWE's Final Implementation Order for each program year of Phase IV.

1. Semiannual Reports: These reports capture program activity for the first half of each program year and are filed by January 15 of each year.

2. Annual Reports: These final annual reports will be filed no later than September 30th, 120 days after the end of each full program year. Final annual reports for each program year will include reported and verified savings, a cost-effectiveness evaluation (TRC test), process evaluation results, and items required by Act 129 and PUC orders.

3. Reporting Schedule: All PECO Act 129 EE&C Phase IV reports will be filed with the PUC's Secretary's Bureau, with a copy provided to the SWE. Further, all reports will be posted to the PECO website. Reporting for each program year of Phase IV will follow the example proposed schedule for PY13 and PY14 outlined in the Final Implementation Order:



5.2 Project Management Tracking Systems

This section presents the data management system requirements that PECO anticipates will meet internal and external (SWE) needs.

5.2.1 *Data Tracking System Overview*

PECO's data tracking system collects and stores comprehensive and consistent program and invoice data from CSPs. The data management system will track metrics that facilitate effective project tracking and regulatory reporting. This data will also support PECO's QA process and EM&V requirements. Protecting sensitive data, personally identifiable information, personal information, intellectual property, and data from theft and damage is integrated into PECO's data management process.

The data tracking system includes a user interface for entering, reviewing, and extracting program and invoice data. The data tracking system will support PECO's tracking of:

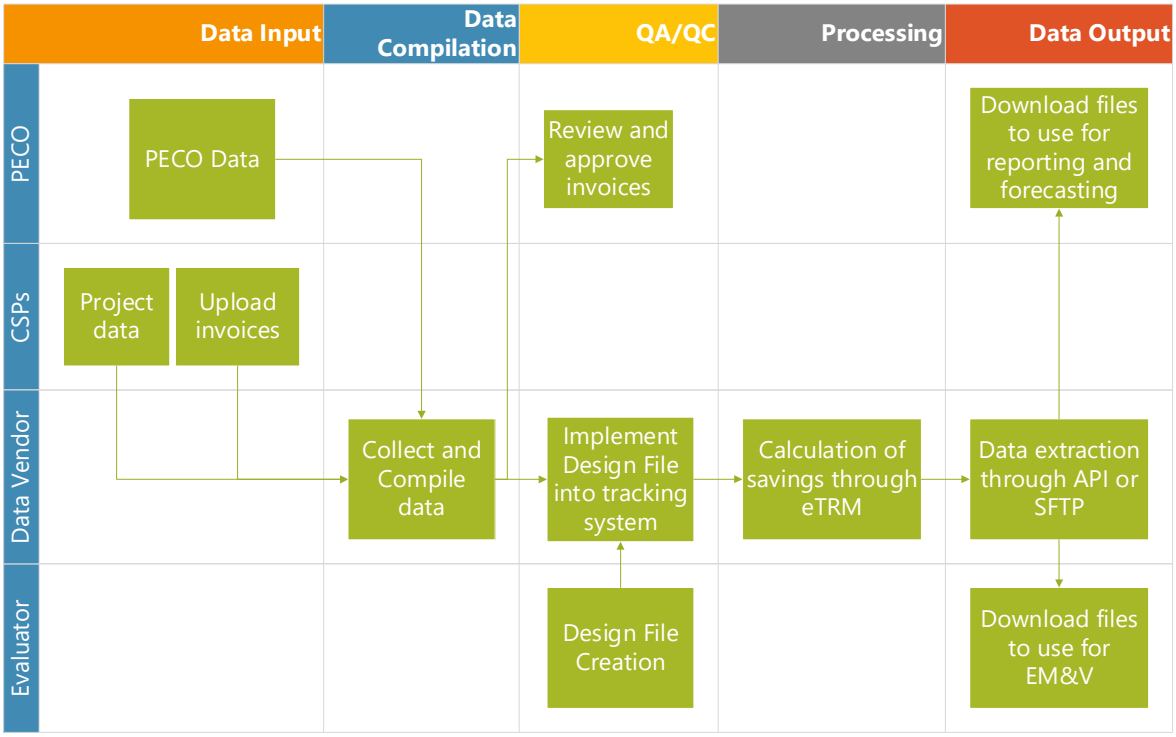
- Incentive commitments
- Incentives paid
- Reported kilowatt-hours and kilowatts achieved
- Implementation costs
- Administrative costs
- Cost forecasts

PECO's data management tracking system and approach to data management will ensure consistent data inputs across the different CSPs throughout Phase IV. There are four key contributors/users involved with data tracking, each with an important role in ensuring tracking data quality:

- **Database Vendor:** The database vendor will develop and maintain an appropriate tracking system for the programs to compile and aggregate data from PECO and CSPs, using generally accepted data input and validation techniques.
- **CSPs:** CSPs will be responsible for inputting program data into the tracking database in accordance with the data protocols.
- **PECO Program Managers:** PECO program managers will track and review data for their individual programs.
- **Evaluator:** The independent evaluation contractor will conduct process and impact evaluations for each program. These evaluations will review the tracking data inputs for accuracy and adherence to data protocols produce verified savings estimates and provide recommendations for program improvement. The independent evaluation contractor will provide a design file to the data vendor ahead of Phase IV with data completeness, consistency, and accuracy checks. CSPs are required to update data that does not pass the design file criteria.

Figure 9 depicts the data management, QA, and evaluation processes that PECO, the data vendor, CSPs, and independent evaluation contractor will use to ensure accurate data tracking.

Figure 9. Program Documentation and EM&V



PECO's approach addresses five areas critical to ensuring program implementation quality:

1. **Selection of CSPs that implement programs:** PECO is in the process of selecting and contracting CSPs with demonstrated experience implementing data management protocols and a commitment to maintaining data quality and integrity. Contracts will be awarded based on a pay for performance contracting mechanism.

2. **Program implementation and documentation protocols:** PECO and the CSPs will develop specific protocols and procedures for each program. These will govern all aspects of the program implementation, from procedures for conducting site visits to data input.

3. **Verification and documentation of activities and savings:** Verification of project eligibility and actual installation of measures is important. Documentation of purchases and installations will ensure that programs are implemented in top quality fashion and will provide the basis for defensible program evaluations.

4. **Program evaluation:** PECO will contract an experienced EM&V vendor to conduct an independent assessment of each program's performance. This contractor will develop a comprehensive evaluation plan for conducting process and impact evaluations. The EM&V contractor will work with the SWE to ensure that the evaluations are conducted according to state requirements.

5. **Evaluation-based program adjustments:** PECO will use the findings and recommendations resulting from the impact and process evaluations to adjust program implementation as necessary to ensure that the programs are implemented in accordance with recognized best practices, maintain participant satisfaction, and contribute to PECO's successful attainment of its portfolio savings goals.

5.2.2 *Software Format, Data Exchange Format, and Database Structure*

The data tracking system will interact with PECO's existing systems. PECO will provide an initial population of customer, premise, and account data that will be used to qualify customers for programs. Additional data will be entered by the CSP or PECO to complete the application process. In addition to any pertinent data, the data tracking system will likely also track application status, so PECO will be able to identify progress at each point from initiation to completion. PECO will provide a full set of customer data information on a regular basis to update CSP records.

5.2.3 *Describe How CSPs Will Integrate with the Tracking System*

CSPs will have a secure log-in to access the tracking system. After logging in, the CSP can enter and submit projects (with required data) for PECO's review, approval, or request for additional information or modifications. Following any required revisions and PECO's approval of a submitted project, projects are maintained within the tracking system. Approved projects are then processed within the tracking system to generate reported savings.

CSPs can also enter project data for in-process or incomplete projects. Prior to seeking PECO's review and approval, the CSP will have ongoing access to the tracking system to make necessary updates if inconsistencies are found or update the status of projects once completed and once omissions are resolved.

CSPs will enter information into the tracking system for individual projects and through batch-methods for several projects. Project batches will typically be associated with monthly invoices. CSPs will interact with the tracking system on a monthly basis or more frequently.

The project data submitted and updated by CSPs includes but is not limited to:

- Measure information and equipment specifications
- Inputs for deemed or partially TRM calculations
- Project status
- Invoices, including project costs and incentives
- Other project details stored in files and not directly entered into tracking system (e.g., PDFs for custom C&I projects)
- Customer data from PECO's internal customer system

5.2.4 *Access for Commission and Statewide Plan Evaluator*

PECO's energy efficiency information will be available for review by the PUC and SWE upon request. As part of the customer validation process for application enrollment, PECO will provide select customer account data to the data management system vendor. This data is highly confidential and must be protected against unauthorized access or disclosure. In addition, all data collected from CSPs related to PECO's programs will be considered confidential and subject to the same protections. Security processes and protocols will be established to secure all data from unauthorized access. PECO and the data management system vendor will jointly develop processes for data backup and disaster recovery.

6. Quality Assurance and Evaluation, Measurement and Verification

This section describes how PECO's QA/QC and verification and internal evaluation process will be conducted and how this will integrate with SWE activities.

6.1 Quality Assurance/Quality Control

PECO will incorporate QA/QC into the implementation of this EE&C plan. The plan proposes an infrastructure for monitoring program activity that identifies key components and explicitly identifies the relationships among them. The importance of this is to establish the role that each contributor will have and to facilitate communication between the implementation CSPs, the database vendor, independent evaluation contractor, and the SWE.

6.1.1 *Overall Approach to Quality Assurance/Quality Control*

To implement the programs and solutions in this plan, PECO will leverage the experience of program implementation professionals by selecting CSPs with the following qualifications:

- Demonstrated experience implementing programs for the specific target market associated with the program.
- Demonstrated understanding of the measures and features of the program and solutions the CSP will implement.
- Existing relationships and experience establishing relationships with upstream equipment suppliers and contractors, as appropriate for the program.
- Experience in providing or coordinating training by other qualified providers about the program, solutions, and measures to delivery channels (e.g., equipment suppliers, contractors, auditors) and the target participant market.
- Capabilities for processing incentives.

The CSPs' approach to quality control and continuous improvement will include:

- **Program tracking:** Scorecards, weekly and monthly forecasting reports, and operations meetings will be used to monitor and track program progress against program goals and

metrics. The scorecards will be reviewed monthly to provide updates and identify action items to keep the program on track.

- **Responding to customer:** Contractor and trade ally feedback is important. CSPs will have a tiered response procedure to ensure the highest level of customer support is delivered. Any suggestions or complaints are logged into their customer contact log and resolved at the appropriate level. Complaints are escalated as required following a deliberate and documented process.
- **Equipment installation inspections:** CSPs will conduct random in-process and post inspections while ensuring the quantity of inspections are distributed fairly among the program segments according to their most recent performance. Post inspections will include client interviews and a methodical visual inspection (where possible and feasible) to verify that measures have been installed correctly and as reported. Post inspections will also confirm that those measures comply with program specifications and that those measures are serving their intended function. This enables personnel to understand and comply with program requirements and provides an opportunity to address any deficiencies early on. Post inspections will be performed as soon as possible after completion of work in a home or building. Prompt QA/QC follow-up creates a greater likelihood of customer cooperation and reinforces the importance of quality and customer satisfaction in the programs. Finally, inspectors will review the appropriateness and accuracy of recommendations made by energy advisors and others.

PECO will also leverage the experience of an independent EM&V contractor who will conduct unbiased estimations of verified gross energy impacts on all programs. Estimations of verified gross energy impacts will be based on statistically significant verified savings measured as described in the EM&V contractor's EM&V plan, developed prior to Phase IV program implementation.

The contractor's EM&V plan will contain a detailed evaluation methodology for each program, including definition of the impact and process evaluation methods, and the data needed to support them (design file). The EM&V Plan will provide the implementation CSP with the data to track and the Database Vendor with the data to house. Having the evaluation Plan completed and available to PECO and CSP staff for each program will help ensure that the implementers maintain appropriate and high-quality records so that savings can be verified.

6.1.2 *Procedures for Measure and Project Installation Verification, QA/QC and Savings Documentation*

Although the procedures for measure and project installation verification, quality assurance and control, and savings documentation will vary by program and measures, PECO anticipates independent evaluation contractors applying the following process to impact evaluations:

- Choose a random sample of participants for evaluations, using statistical methods consistent with established state protocols.
- Verifications will be either onsite, by phone, or online survey instrument, tailored to the measure and program type.
- Gather pre-evaluation data and prepare data collection documents.

- Verify measure and project installation and collect pertinent data such as equipment nameplate.
- Cross-reference equipment data with customer application data contained in the data management system for accuracy.
- Observe and note equipment operational tests and quality of the equipment installation.
- For prescriptive measures, calculate measure savings using the methodologies and algorithms detailed in the TRM.
- For custom measures, use energy simulation modeling (such as eQuest or DOE-2) or pre-/post-measure metering to determine measure savings.

6.1.3 *Process for Collecting and Addressing Participant, Contractor and Trade Ally Feedback*

PECO anticipates applying the following general process to collect participant, contractor, and trade ally feedback:

- Independent evaluation contractors will interview contractors, trade allies, and other market actors to gauge their satisfaction with PECO's programs and identify areas for improvement.
- Independent evaluation contractors will identify the appropriate survey mode (e.g., telephone, in-person, or online) for capturing participant feedback.
- Independent evaluation contractors will survey a random sample of participants to gather fast program feedback and assess satisfaction with the program.
- Independent evaluation contractors will follow all guidelines outlined in the SWE's Evaluation Framework.[10]

6.1.4 *Market and Process Evaluations*

PECO's prime CSPs will regularly evaluate their programs to help maintain best practices and continually improve. Additionally, PECO's independent evaluation contractors will conduct annual market and process evaluations for each program throughout the program's entirety. Market and process evaluations may include program materials review, tracking database analysis, implementation team interviews, surveys or interviews with participating and nonparticipating customers, contractors, and trade allies.

Market and process evaluations will examine:

- Program design
- Implementation protocols and procedures

[10] Guidelines will be sourced from the most relevant Framework document posted to the PA PUC's website (https://www.puc.pa.gov/filing-resources/issues-laws-regulations/act-129/act-129-statewide-evaluator-swe/). PECO expects the SWE to publish an update to the Phase III Evaluation Framework (the most recent Framework at the time of this plan's drafting) for Phase IV. Guidance will draw from that document when available.

- Marketing materials and strategies
- Outreach and recruitment activities
- Documentation and compliance with incentive eligibility requirements
- Processing and timely payment of incentives
- Market characteristics
- Net energy and demand savings

PECO will use process evaluation results to improve program design (e.g., modify measures offered, eligibility requirements) and implementation procedures (e.g., modify recruitment, advertising methods, monitoring, database maintenance). The frequency and schedule of the process evaluations will be determined for each program individually.

6.1.5 *Strategy for Coordinating with Statewide Evaluator*

PECO's EM&V manager and its independent evaluation contractor will engage with the SWE through scheduled working group meetings and through ad hoc meetings and communications. Throughout Phases I, II, and III, PECO worked with the SWE to ensure its program evaluations aligned with PUC requirements, clarified policy questions, and contributed data and recommendations to assist the SWE and the PUC to establish policy. PECO anticipates extending this productive relationship in Phase IV.

To the extent feasible and appropriate, PECO will consult with the SWE to ensure its data management system contains information relevant and needed for evaluation of the programs. It also will ensure that PECO's EM&V contractor uses the most appropriate methods for determining the impacts of the EE&C plan's programs.

7. Cost Recovery Mechanism

This section provides descriptions and estimated values for PECO's cost recovery mechanism.

7.1 Total Annual Revenues for Phase IV

PECO's annual retail revenue as of December 31, 2006, totals $4,273,858,275. Applying the 2% annual limit set forth in Act 129 to this amount produces a total allowable annual level of expenditures of $85,477,166 per year or $427,385,828 over the five program years of the Phase IV Plan.

Figure 10 details how the total 2006 annual retail revenues were derived.[11] The electricity sales from all of PECO's customers (FERC Accounts 440.0 through 446.0) and other operating income (FERC Accounts 450.0 through 456.1) were summed. In addition, as required by the Implementation Order, the total annual retail revenue was adjusted to include "…generation revenues collected by an EDC for an electric generation supplier (EGS) that use consolidated billing." The revenues thus derived were then adjusted to remove several "non-retail" (i.e.,

[11] The calculation is based on Schedule 400 - Income Statement contained in PECO's 2006 Electric Annual Revenue Report to the PUC.

wholesale) revenue items, which include, sales for resales (447.0), other electric revenues (456.0) and revenues from wholesale transmission (456.1).

Figure 10. Calculation of 2006 Annual Revenue

Amount	Description
$4,371,215,020*	Total revenue as of 12/31/06
$92,390,366†	Adjustment for "shopping" customers
$(189,747,111)‡	Wholesale revenue adjustment
$4,273,858,275§	Total retail revenue
$85,477,166‖	Annual spend (2% of revenue)
$427,385,828#	Five-year total spend

*Source: PUC Annual Report-400 Income Statement

† Source: PECO records

‡ Source: PUC AR Accounts 447, 456.0, 456.1

§ Sum of total revenue, adjustment for "shopping" customers, and wholesale revenue adjustment

‖ Total retail revenue times 0.02

Annual spend times five program years

7.2 Description of Phase IV Plan in Accordance with 66 Pa. C.S. § 1307 and 2806.1

Act 129 requires that the EE&C plan include a cost recovery mechanism to fund EE&C measures and to ensure the recovery of prudent and reasonable costs, including administrative costs. See 66 Pa.C.S. § 2806.1(b)(1)(i)(H). Act 129 also requires an analysis of administrative costs. See 66 Pa.C.S.§2806.1(b)(1)(i)(K). The Phase IV Implementation Order defines administrative costs as including "but not... limited to, costs relating to plan and program development, CSP non-incentive program delivery fees, cost-benefit analysis, measurement and verification and reporting."[12] Based on this definition, PECO's EE&C Phase IV administrative costs (e.g., non-incentive costs) include those as described in Section 4.2.3.

[12] EE&C Phase IV Final Implementation Order, p. 121.

7.3 Data Tables

Table 10. Sector-Specific Summary of EE&C Costs

Residential Portfolio (including Low-Income)							
EE&C Program [2]	**Cost Elements ($) [3]**			**Total Cost**	**Expected Acquisition Cost [4] ($/MWh)**	**Levelized Cost [5] ($/MWh)**	**Expected Acquisition Cost ($/MW)**
	Incentives	*CSP Delivery Fees*	*Marketing*				
Residential	$33,432,441	$26,001,775	$12,387,520	$71,821,736	$341	$30	$2,188,696
Income-Eligible	$29,188,965	$8,462,035	$4,801,845	$42,452,845	$460	$47	$3,021,771
Residential Home Energy Reports	$0	$9,688,416	$0	$9,688,416	$86	$24	$395,446
Income-Eligible Home Energy Reports	$0	$493,124	$0	$493,124	$86	$28	$4,931,232
Sector Total	$62,621,406	$44,645,350	$17,189,365	$124,456,121	$295	$33	$1,741,526

Notes:

[1] Prepare and submit a separate table for ***each*** customer sector.

[2] List each EE&C program by name. Add rows as necessary.

[3] List all cost elements for each program that can be directly identified as relating exclusively to the specific customer sector addressed in this table. Any cost elements that are applicable to multiple sectors, or are common across all sectors, are to be listed in Table 11 (relating to Common Costs). Because cost elements may vary for each EDC and program, the EDC should designate cost elements at its discretion, and the Commission will review and evaluate the prudence and reasonableness of all costs shown.

[4] The numerator in the acquisition cost calculation is the full EDC cost, free of any allocation. Acquisition costs are first-year.

[5] Levelized costs should be lifetime. Appendix A of the 2021 TRC Test Order provides formulas to calculate levelized cost. See 2021 TRC Test Final Order, at Docket No. M-2019-3006868, entered December 19, 2019. http://www.puc.pa.gov/pcdocs/1648126.docx

Residential Portfolio (including Low-Income)							
EE&C Program [2]	**Cost Elements ($)** [3]			**Total Cost**	**Expected Acquisition Cost** [4] **($/MWh)**	**Levelized Cost** [5] **($/MWh)**	**Expected Acquisition Cost ($/MW)**
	Incentives	*CSP Delivery Fees*	*Marketing*				
Residential	$33,432,441	$26,001,775	$12,387,520	$71,821,736	$338	$39	$2,181,633
Income-Eligible	$29,188,965	$8,462,035	$4,801,845	$42,452,845	$459	$59	$3,037,000
Residential Home Energy Reports	$0	$9,688,416	$0	$9,688,416	$86	$26	$220,429
Income-Eligible Home Energy Reports	$0	$493,124	$0	$493,124	$86	$30	$422,808
Sector Total	$62,621,406	$44,645,350	$17,189,365	$124,456,122	$294	$42	$1,352,513

Notes:

[1] Prepare and submit a separate table for ***each*** customer sector.

[2] List each EE&C program by name. Add rows as necessary.

[3] List all cost elements for each program that can be directly identified as relating exclusively to the specific customer sector addressed in this table. Any cost elements that are applicable to multiple sectors, or are common across all sectors, are to be listed in Table 11 (relating to Common Costs). Because cost elements may vary for each EDC and program, the EDC should designate cost elements at its discretion, and the Commission will review and evaluate the prudence and reasonableness of all costs shown.

[4] The numerator in the acquisition cost calculation is the full EDC cost, free of any allocation. Acquisition costs are first-year.

[5] Levelized costs should be lifetime. Appendix A of the 2021 TRC Test Order provides formulas to calculate levelized cost. See 2021 TRC Test Final Order, at Docket No. M-2019-3006868, entered December 19, 2019. http://www.puc.pa.gov/pcdocs/1648126.docx

Commercial/Industrial Small Portfolio							
EE&C Program [2]	**Cost Elements ($) [3]**			**Total Cost**	**Expected Acquisition Cost [4] ($/MWh)**	**Levelized Cost [5] ($/MWh)**	**Expected Acquisition Cost ($/MW)**
	Incentives	*CSP Delivery Fees*	*Marketing*				
Non-residential	$81,502,080	$23,315,422	$1,706,818	$106,524,320	$242	$28	$1,325,441
Residential (Commercailly metered MF buildings)	$1,126,266	$1,326,194	$632,761	$3,085,220	$276	$34	$2,332,262
Sector Total	$82,628,346	$24,641,616	$2,339,579	$109,609,541	$243	$28	$1,341,744
Notes:							
[1] Prepare and submit a separate table for ***each*** customer sector.							
[2] List each EE&C program by name. Add rows as necessary.							
[3] List all cost elements for each program that can be directly identified as relating exclusively to the specific customer sector addressed in this table. Any cost elements that are applicable to multiple sectors, or are common across all sectors, are to be listed in Table 11 (relating to Common Costs). Because cost elements may vary for each EDC and program, the EDC should designate cost elements at its discretion, and the Commission will review and evaluate the prudence and reasonableness of all costs shown.							
[4] The numerator in the acquisition cost calculation is the full EDC cost, free of any allocation. Acquisition costs are first-year.							
[5] Levelized costs should be lifetime. Appendix A of the 2021 TRC Test Order provides formulas to calculate levelized cost. See 2021 TRC Test Final Order, at Docket No. M-2019-3006868, entered December 19, 2019. http://www.puc.pa.gov/pcdocs/1648126.docx							

Commercial/Industrial Large Portfolio							
EE&C Program [2]	**Cost Elements ($) [3]**			**Total Cost**	**Expected Acquisition Cost [4] ($/MWh)**	**Levelized Cost [5] ($/MWh)**	**Expected Acquisition Cost ($/MW)**
	Incentives	*CSP Delivery Fees*	*Marketing*				
Non-residential	$100,804,475	$38,426,562	$2,813,182	$142,044,219	$196	$21	$928,572
Residential (Commercailly metered MF buildings)	$453,625	$540,474	$257,874	$1,251,973	$275	$34	$2,281,953
Sector Total	$101,258,100	$38,967,036	$3,071,056	$143,296,192	$196	$21	$933,408
Notes:							
[1] Prepare and submit a separate table for ***each*** customer sector.							
[2] List each EE&C program by name. Add rows as necessary.							
[3] List all cost elements for each program that can be directly identified as relating exclusively to the specific customer sector addressed in this table. Any cost elements that are applicable to multiple sectors, or are common across all sectors, are to be listed in Table 11 (relating to Common Costs). Because cost elements may vary for each EDC and program, the EDC should designate cost elements at its discretion, and the Commission will review and evaluate the prudence and reasonableness of all costs shown.							
[4] The numerator in the acquisition cost calculation is the full EDC cost, free of any allocation. Acquisition costs are first-year.							
[5] Levelized costs should be lifetime. Appendix A of the 2021 TRC Test Order provides formulas to calculate levelized cost. See 2021 TRC Test Final Order, at Docket No. M-2019-3006868, entered December 19, 2019. http://www.puc.pa.gov/pcdocs/1648126.docx							

Commercial/Industrial Small Portfolio							
EE&C Program [2]	**Cost Elements ($) [3]**			**Total Cost**	**Expected Acquisition Cost [4] ($/MWh)**	**Levelized Cost [5] ($/MWh)**	**Expected Acquisition Cost ($/MW)**
	Incentives	*CSP Delivery Fees*	*Marketing*				
Non-residential	$97,263,380	$28,103,802	$2,170,328	$127,537,510	$239	$22	$1,315,732
Residential (Commercially metered MF buildings)	$1,126,266	$1,326,194	$632,761	$3,085,221	$276	$27	$2,327,961
Sector Total	$98,389,646	$29,429,996	$2,803,089	$130,622,731	$239	$22	$1,329,385

Notes:

[1] Prepare and submit a separate table for ***each*** customer sector.

[2] List each EE&C program by name. Add rows as necessary.

[3] List all cost elements for each program that can be directly identified as relating exclusively to the specific customer sector addressed in this table. Any cost elements that are applicable to multiple sectors, or are common across all sectors, are to be listed in Table 11 (relating to Common Costs). Because cost elements may vary for each EDC and program, the EDC should designate cost elements at its discretion, and the Commission will review and evaluate the prudence and reasonableness of all costs shown.

[4] The numerator in the acquisition cost calculation is the full EDC cost, free of any allocation. Acquisition costs are first-year.

[5] Levelized costs should be lifetime. Appendix A of the 2021 TRC Test Order provides formulas to calculate levelized cost. See 2021 TRC Test Final Order, at Docket No. M-2019-3006868, entered December 19, 2019. http://www.puc.pa.gov/pcdocs/1648126.docx

Commercial/Industrial Large Portfolio							
EE&C Program [2]	**Cost Elements ($) [3]**			**Total Cost**	**Expected Acquisition Cost [4] ($/MWh)**	**Levelized Cost [5] ($/MWh)**	**Expected Acquisition Cost ($/MW)**
	Incentives	*CSP Delivery Fees*	*Marketing*				
Non-residential	$83,543,175	$33,638,182	$2,349,672	$119,531,029	$211	$17	$1,048,126
Residential (Commercailly metered MF buildings)	$1,128,625	$1,365,474	$257,874	$2,751,973	$248	$24	$2,075,641
Sector Total	$84,671,800	$35,003,656	$2,607,546	$122,283,002	$211	$17	$1,059,934
Notes:							
[1] Prepare and submit a separate table for ***each*** customer sector.							
[2] List each EE&C program by name. Add rows as necessary.							
[3] List all cost elements for each program that can be directly identified as relating exclusively to the specific customer sector addressed in this table. Any cost elements that are applicable to multiple sectors, or are common across all sectors, are to be listed in Table 11 (relating to Common Costs). Because cost elements may vary for each EDC and program, the EDC should designate cost elements at its discretion, and the Commission will review and evaluate the prudence and reasonableness of all costs shown.							
[4] The numerator in the acquisition cost calculation is the full EDC cost, free of any allocation. Acquisition costs are first-year.							
[5] Levelized costs should be lifetime. Appendix A of the 2021 TRC Test Order provides formulas to calculate levelized cost. See 2021 TRC Test Final Order, at Docket No. M-2019-3006868, entered December 19, 2019. http://www.puc.pa.gov/pcdocs/1648126.docx							

Figure 11. Cost Recovery Summary

Cost Recovery Sector	Budget ($)				
	Incentives	CSP Delivery Fees	Common Costs	Marketing	Total
Residential (Including Low-Income)	$12,071,848	$8,511,762	$2,485,649	$3,429,727	$26,498,985
Commercial/Industrial -- Small	$12,345,431	$4,495,821	$2,832,939	$473,611	$20,147,801
Commercial/Industrial -- Large	$15,145,496	$7,145,119	$4,619,840	$616,663	$27,527,118
Municipal Lighting	$147,922	$76,117	$66,368	$0	$290,406
PY13 Total	***$39,710,696***	***$20,228,819***	***$10,004,795***	***$4,520,000***	***$74,464,311***
Residential (Including Low-Income)	$12,293,037	$9,039,785	$2,485,649	$3,433,723	$27,252,193
Commercial/Industrial -- Small	$16,409,744	$4,686,280	$2,830,359	$471,011	$24,397,394
Commercial/Industrial -- Large	$20,180,911	$7,451,424	$4,618,074	$615,266	$32,865,676
Municipal Lighting	$196,976	$79,224	$70,713	$0	$346,914
PY14 Total	***$49,080,668***	***$21,256,714***	***$10,004,795***	***$4,520,000***	***$84,862,177***
Residential (Including Low-Income)	$12,372,046	$8,781,469	$2,485,649	$3,441,972	$27,081,135
Commercial/Industrial -- Small	$26,553,705	$7,649,362	$3,479,216	$619,489	$38,301,773
Commercial/Industrial -- Large	$18,916,959	$7,750,893	$3,960,695	$458,539	$31,087,087
Municipal Lighting	$281,286	$103,481	$79,235	$0	$464,002
PY15 Total	***$58,123,997***	***$24,285,205***	***$10,004,795***	***$4,520,000***	***$96,933,997***
Residential (Including Low-Income)	$12,824,554	$9,108,017	$2,485,649	$3,441,972	$27,860,192
Commercial/Industrial -- Small	$26,938,094	$7,718,668	$3,479,577	$619,489	$38,755,827
Commercial/Industrial -- Large	$19,323,957	$7,831,584	$3,960,695	$458,539	$31,574,776
Municipal Lighting	$285,675	$104,062	$78,874	$0	$468,612
PY16 Total	***$59,372,280***	***$24,762,331***	***$10,004,795***	***$4,520,000***	***$98,659,407***
Residential (Including Low-Income)	$13,059,922	$9,204,318	$2,485,649	$3,441,972	$28,191,860
Commercial/Industrial -- Small	$15,438,183	$4,620,668	$3,490,096	$619,489	$24,168,436
Commercial/Industrial -- Large	$10,735,992	$4,659,542	$3,960,695	$458,539	$19,814,769
Municipal Lighting	$161,114	$61,405	$68,355	$0	$290,874
PY17 Total	***$39,395,211***	***$18,545,933***	***$10,004,795***	***$4,520,000***	***$72,465,939***
5-Year Total	***$245,682,852***	***$109,079,002***	***$50,023,976***	***$22,600,000***	***$427,385,830***

Cost Recovery Sector	Budget ($)				
	Incentives	CSP Delivery Fees	Common Costs	Marketing	Total
Residential (Including Low-Income)	$12,071,848	$8,511,762	$2,485,649	$3,429,727	$26,498,985
Commercial/Industrial – Small	$12,345,431	$4,495,821	$2,832,939	$473,611	$20,147,801
Commercial/Industrial – Large	$15,145,496	$7,145,119	$4,619,840	$616,663	$27,527,118
Municipal Lighting	$147,922	$76,117	$66,368	$0	$290,406
PY13 Total	***$39,710,696***	***$20,228,819***	***$10,004,795***	***$4,520,000***	***$74,464,311***
Residential (Including Low-Income)	$12,293,037	$9,039,785	$2,485,649	$3,433,723	$27,252,193
Commercial/Industrial – Small	$16,409,744	$4,686,280	$2,830,359	$471,011	$24,397,394
Commercial/Industrial – Large	$20,180,911	$7,451,424	$4,618,074	$615,266	$32,865,676
Municipal Lighting	$196,976	$79,224	$70,713	$0	$346,914
PY14 Total	***$49,080,668***	***$21,256,714***	***$10,004,795***	***$4,520,000***	***$84,862,177***
Residential (Including Low-Income)	$12,510,087	$8,877,515	$2,485,649	$3,437,947	$27,311,197
Commercial/Industrial – Small	$20,455,340	$5,802,249	$2,827,637	$467,881	$29,553,107
Commercial/Industrial – Large	$25,208,856	$9,292,384	$4,616,264	$614,173	$39,731,676
Municipal Lighting	$246,174	$98,830	$75,246	$0	$420,250
PY15 Total	***$58,420,457***	***$24,070,978***	***$10,004,795***	***$4,520,000***	***$97,016,230***
Residential (Including Low-Income)	$12,753,188	$9,062,789	$2,485,649	$3,441,972	$27,743,598
Commercial/Industrial – Small	$20,455,340	$5,810,579	$2,827,842	$465,021	$29,558,782
Commercial/Industrial – Large	$25,208,856	$9,295,779	$4,616,401	$613,007	$39,734,043
Municipal Lighting	$246,174	$98,830	$74,904	$0	$419,908
PY16 Total	***$58,663,559***	***$24,267,977***	***$10,004,795***	***$4,520,000***	***$97,456,331***
Residential (Including Low-Income)	$12,993,246	$9,153,500	$2,485,649	$3,445,997	$28,078,392
Commercial/Industrial – Small	$12,345,782	$3,599,117	$2,833,808	$462,055	$19,240,763
Commercial/Industrial – Large	$15,145,496	$5,617,237	$4,620,424	$611,948	$25,995,105
Municipal Lighting	$147,947	$59,660	$64,914	$0	$272,522
PY17 Total	***$40,632,472***	***$18,429,514***	***$10,004,795***	***$4,520,000***	***$73,586,781***
5-Year Total	***$246,507,852***	***$108,254,002***	***$50,023,976***	***$22,600,000***	***$427,385,830***

Table 11. Allocation of Common Costs to Applicable Customer Sector

Common Cost Element [1]	Total Cost ($)	Basis for Cost Allocation [2]	Sector Cost Allocation ($)		
			Residential (Including Low-Income)	Commercial/ Industrial -- Small (Including Municipal Lighting)	Commercial/ Industrial -- Large (Including Municipal Lighting)
Program Design	$2,500,000	Res: Original Approved Plan C&I: Phase 1st-Year MWh	$657,938	$804,563	$1,037,499
Administrative	$15,000,000		$3,947,628	$4,827,381	$6,224,992
EM&V	$20,000,000		$5,263,503	$6,436,507	$8,299,989
Other (See Section 4.2.3)	$12,523,976		$2,559,175	$4,352,359	$5,612,442
Totals	$50,023,976		$12,428,244	$16,420,810	$21,174,922

Notes:

[1] List all identified cost elements that are determined to be applicable to multiple customer sectors, or are common across all sectors. **Because cost elements may vary for each EDC and program, the EDC should designate cost elements at its discretion, and the Commission will review and evaluate the prudence and reasonableness of all costs shown.**

[2] Cost Allocation adjustments have been made in the commercial sector, between large and small segments in accordance with the methodology of proportionality of projected 1st-year MWh savings.

Common Cost Element [1]	Total Cost ($)	Basis for Cost Allocation [2]	Sector Cost Allocation ($)		
			Residential (Including Low-Income)	Commercial/ Industrial -- Small (Including Municipal Lighting)	Commercial/ Industrial -- Large (Including Municipal Lighting)
Program Design	$2,500,000	1st-Year MWh	$657,938	$703,769	$1,138,293
Administrative	$15,000,000	1st-Year MWh	$3,947,628	$4,222,616	$6,829,757
EM&V	$20,000,000	1st-Year MWh	$5,263,503	$5,630,154	$9,106,342
Other (See Section 4.2.3)	$12,523,976	1st-Year MWh	$2,559,175	$3,807,103	$6,157,698
Totals	$50,023,976		$12,428,243	$14,363,643	$23,232,089

Notes:

[1] List all identified cost elements that are determined to be applicable to multiple customer sectors, or are common across all sectors. **Because cost elements may vary for each EDC and program, the EDC should designate cost elements at its discretion, and the Commission will review and evaluate the prudence and reasonableness of all costs shown.**

[2] Provide a brief explanation of the methodology used to allocate each common cost element to the applicable customer sectors.

Table 12. Summary of Portfolio EE&C Costs

Portfolio	Total Sector Portfolio-specific Costs [1]	Total Common Costs [2]	Total of All Costs
Residential (Including Low-Income)	$124,456,121	$12,428,244	$136,884,365
Commercial/Industrial -- Small (Including Municipal Lighting)	$130,622,731	$16,420,810	$147,043,541
Commercial/Industrial -- Large (Including Municipal Lighting)	$122,283,002	$21,174,922	$143,457,924
Totals	$377,361,854	$50,023,976	$427,385,830

Notes:

[1] Cost figures are to be carried over from the last column (**"Totals"**) of Table 10.

[2] Cost figures are to be carried over from the bottom row (**"Totals"**) of Table 11.

Portfolio	Total Sector Portfolio-specific Costs [1]	Total Common Costs [2]	Total of All Costs
Residential (Including Low-Income)	$124,456,122	$12,428,243	$136,884,365
Commercial/Industrial -- Small (Including Municipal Lighting)	$109,609,541	$14,363,643	$123,973,183
Commercial/Industrial -- Large (Including Municipal Lighting)	$143,296,192	$23,232,089	$166,528,281
Totals	$377,361,854	$50,023,976	$427,385,830

Notes:

[1] Cost figures are to be carried over from the last column ("**Totals**") of Table 10.

[2] Cost figures are to be carried over from the bottom row ("**Totals**") of Table 11.

7.4 Tariffs and Section 1307 Cost Recovery Mechanism for Phase IV Plan

7.5 Tariffs

As part of the implementation of PECO's Phase IV EE&C Plan, PECO proposes to use a cost recovery mechanism similar to the one it used to recover the cost of its Phase III Plan See PECO Statement No. 3, Exhibit RAS-1, for a copy of the proposed supplement to PECO's Electric Service Tariff that contains the tariff provisions designed to implement the cost recovery mechanism for PECO's proposed EE&C Phase IV Plan.

A high-level summary description of the Phase IV cost recovery mechanism was provided in Section 1.9. Additional details on the Phase IV cost recovery mechanism, calculations of the charge and supporting cost documentation are provided in this section.

7.5.1 *Cost Recovery Mechanism*

PECO proposes to recover the cost of its EE&C Phase IV Plan through an Energy Efficiency & Conservation Program Charge (EEPC) similar to the one used in Phase III. The Phase III EEPC was designed to comply with Section 1307 of the Public Utility Code and, as the Commission required, was reconcilable and non-by passable. As required by the Commission in PECO's EE&C Phase III Final Implementation Orders, Docket Nos. M-2015-2515691, the EEPC was not a separate line item on residential customers' bills and was not included in the price to compare. Instead, residential customers' distribution rates were adjusted by the amount of the charge calculated for each rate class. For small commercial customers, the EEPC was based on energy use or kWh. For large commercial customers, the charge was based on a PJM Peak Load Contribution. The EEPC was listed as a separate item on small and large commercial customers' bills and was not included in the price to compare. For EE&C Phase IV Plan, PECO proposes to follow the same format as used in Phase III .

The cost recovery mechanism proposed for Phase IV is shown at page 45 of the proposed supplement to PECO's Electric Service Tariff submitted as PECO Exhibit RAS-1. The tariff language describes the cost recovery method, the formula for calculating the charge and the charges specific to each rate class.

The Phase IV EEPC will recover all of the fixed capital costs (depreciation and pre-tax return) and operating expenses, not otherwise recovered in base rates, to design and implement the EE&C programs incorporated in its Phase IV EE&C plan. These costs include, among others, the cost of information technology (IT) needed to design and implement the EE&C programs; the costs of customer outreach and program promotion; incremental labor costs incurred to manage and administer the EE&C programs on an ongoing basis; the cost to measure and verify EE&C program results; and the cost of incentives offered to customers to participate in the approved EE&C programs.

PECO Exhibit RAS-2 contains a summary of the projected expenditures for each of the Programs across these rate classes.

In accordance with the Final Phase IV Final Implementation Order, PECO is required to establish a cost recovery methodology for Phase IV that is designed to recover, on an annual basis, projected program costs that it anticipates will be incurred over each surcharge application year. In addition, PECO is required to reconcile actual expenses incurred with actual revenues received for the reconciliation period. For PY 13, the cost recovery rates are being calculated based on the projected total program expenditures allocated to each rate class for that program year plus the reconciliation amount for PY 2020 and any costs remaining from previous periods.[13] To develop the recovery charge for each rate class for PY 13, the total expenditure for that class was divided by the appropriate projected class billing units for the period from June 1, 2021 through May 31, 2022. Subsequently, PECO will develop Phase IV recovery rates annually based on the projected program expenditures for that program year plus reconciliation amounts for previous periods. The charge that was calculated per billing unit for each rate class was grossed up to provide for recovery of Pennsylvania Gross Receipts Tax. This calculation produces a charge that, net of Pennsylvania Gross Receipts Tax, will recover the projected total expenditures over the recovery period.

The Phase IV Implementation Order also requires PECO to remove the SWE costs from the EE&C Phase IV budget in the same manner as was done in Phase III.[14] PECO will, therefore, track the Phase IV SWE costs separately from its EE&C costs but will still recover such costs through its Phase IV EEPC.

The Phase IV SWE costs will be determined through an RFP bidding process. Until the final SWE costs are known, PECO has included an estimate.

PECO Exhibit RAS-3 contains the detailed calculations for the development of the EEPC charges for each class as well as the SWE costs, which are reflected as a separate line item.

7.5.2 *True-Up*

As noted above, PECO's Phase IV EEPC will be reconciled on an annual basis to account for any under- or over-recovery from the prior year. As the Phase IV Order specifies,[15] PECO will reconcile its total actual recoverable EE&C Plan expenditures incurred through March 31, 2021, with its actual EE&C Plan revenues received through March 31, 2021. The net over- or under-recovery shall be reflected (without interest) as a separate line item of the E factor calculation of the Phase IV rates to become effective June 1, 2021. These rates will also include, as a separate line item, PECO's projection of its expenses related to Phase III program implementation incurred in April and May 2021, including, projected expenses to finalize any measures installed and commercially operable on or before May 31, 2021; projected expenses to finalize any contracts; and other Phase III administrative obligations. The difference between PECO's projected and actual expenses and EEPC revenue for the months of April and May 2021 will be presented as clearly identified, separate line items in the reconciliation statement for the period April 1, 2021 through March 31, 2022.

[13] EE&C Phase IV Final Implementation Order, p.142 and 143.

[14] EE&C Phase IV Implementation Order, p. 123.

[15] EE&C Phase IV Implementation Order, p. 143.

7.5.3 *Cost Allocation and Recovery Period*

PECO's cost recovery mechanism for its EE&C Plan is designed to ensure that measures are paid for by the same customer class(es) that receive the associated measures' EE&C benefits. This is accomplished by creating separate EE&C charges for the residential class, the Small C&I class, the Large C&I class, and the Municipal Lighting class that are based on only the cost of the measures that apply to each class.

See PECO Exhibits RAS-2 and RAS-3, which list the program costs by rate class and for the spreadsheet that shows how the EEPC was developed for each customer class according to the method just described.

PECO proposes to start the recovery period for Phase IV with bills sent to customers during July 2021 (June usage) and will continue through bills sent to customers in June 2026 (May usage).

7.6 Accounting for Phase IV Costs versus Prior Phase Costs

In accordance with the Phase IV Filing Template provided with the Commission's Secretarial Letter dated September 9, 2020 at Docket No. M-2020-3015228, PECO must provide a description of how it will account for Phase IV costs separately from costs incurred in prior phases.[16] To satisfy this requirement, PECO will do the following:

- Account for the Phase IV costs and revenues on its books separately from prior phases, by setting up new general ledger accounts for Phase IV costs and revenues so that there will be no comingling of prior phase costs and Phase IV costs or funds in PECO's accounting records.
- Clearly and separately identify and track prior phase costs and revenues in the EEPC cost recovery and reconciliation mechanism so that Phase IV costs will be reconciled against the Phase IV funds collected. See the description of the cost recovery mechanism in the proposed supplement to PECO's Electric Service Tariff provided as PECO Exhibit RAS-1.

7.7 Proceeds from PJM FCM and Cost Recovery

Per the Phase IV Implementation Order, the revenue from PDR resources that are bid into and clear in the PJM FCM will be used to reduce EE&C Phase IV Plan surcharges and collections from the customer classes from which the savings were acquired. These will be clearly identified in the 66 Pa. 1307(e) cost recovery reconciliation statement as cost reductions while any deficiency charges will be identified as cost increases. FCM proceeds or penalties will not be treated as "defacto" increases or reductions in the EE&C Phase IV budget and will not to be included in the 2% spending cap.[17]

[16] EE&C Phase IV Filing Template Secretarial Letter, issued September 9, 2020.

[17] EE&C Phase IV Implementation Order, pp.138,141,142.

8. Cost-Effectiveness

PECO evaluated its Phase IV program portfolio for cost-effectiveness. Overall, the portfolio is cost-effective over the 5-year Phase IV period. This section describes the cost-effectiveness criteria and analyses undertaken.

8.1 Avoided Costs

The following sections report on the avoided capacity and energy costs that were used to conduct the cost-effectiveness analysis. PECO developed data inputs to support the avoided cost analysis based on direction from the PUC in the TRC Order.

PECO used the SWE's Avoided Cost Calculator to develop avoided cost inputs as directed in the PUC TRC Order. The final PECO Avoided Cost Calculator is included in Appendix E.

8.2 Confirm Use of 3% Real Discount Rate

PECO used a real discount of 3% for cost test modeling as directed in the PUC TRC Order.

8.3 Cost-Effectiveness Analysis Approach

The cost-effectiveness results reported in this plan adhere to the PUC specifications as defined in the 2021 TRC Order[18] issued on December 19, 2019. PECO calculated the TRC result for each program and for the portfolio. Notable elements of the TRC Order applied here include the following:

- Measure life is constrained to a maximum of 15 years
- Gross and net energy and demand savings are used for benefit-cost purposes
- Quantifiable savings in fossil fuels, water consumption, and O&M benefits are included as benefits in the TRC calculation,[19] in addition to energy and demand savings

At the measure level, the TRC test compares the lifetime benefits of each applicable measure (avoided cost times savings) with each measure's lifetime costs (incremental capital and installation costs and O&M costs). PECO calculates lifetime benefits by multiplying each measure's annual savings by the avoided cost for each year and discounting the dollar savings to present value equivalent basis. Measure savings, costs, and lifetimes are obtained as part of the measure characterization. At the program level, the TRC test factors in the measure level benefit-cost components, plus the CSP and PECO common and delivery costs. The TRC test at the portfolio level includes the costs and benefits at the measure and program level, plus the added portfolio-wide common costs. The total present value of benefits is divided by the total present value of costs. Where the ratio is greater than or equal to 1, the measure, program, or portfolio is deemed cost-effective.

[18] 2021 TRC Test Final Order - Final order on the TRC Test for Phase IV of Act 129. From the Public Meeting of December 19, 2019, at Docket No. M-2019-3006868. Entered December 19, 2019.

[19] 2021 Total Resource Cost (TRC) Test, Docket No. M-2019-3006868 (Public Meeting held December 19, 2019)

8.4 Data Tables

Table 13A contains data tables as required by the PUC's EE&C plan template.

Table 13. TRC Benefits Table

Gross Portfolio	NTGR & TRC Ratio			TRC Costs By Program Per Year ($000)				TRC Benefits By Program Per Year ($000)				
Program	Program Year	NTGR	TRC[1]	Incremental Measure Cost		Program Administration Cost	Total TRC Costs	Capacity Benefits	Energy Benefits	Fossil Fuel and Water Benefits	O&M Benefits	Total TRC Benefits
				Paid by EDC	Paid by Participants							
Residential	*PY13*	*1.00*	*1.11*	*$6,553*	*$12,611*	$7,896	$27,060	$7,179	$14,105	$7,549	$1,102	$29,935
Residential	*PY14*	*1.00*	*1.14*	*$6,767*	*$13,105*	$8,055	$27,926	$7,534	$15,137	$8,033	$1,143	$31,847
Residential	*PY15*	*1.00*	*1.13*	*$7,191*	*$14,545*	$8,455	$30,189	$7,941	$16,523	$8,599	$1,093	$34,155
Residential	*PY16*	*1.00*	*1.17*	*$7,467*	*$15,133*	$8,694	$31,294	$8,401	$17,941	$9,173	$1,128	$36,644
Residential	*PY17*	*1.00*	*1.21*	*$7,710*	*$15,734*	$8,872	$32,316	$8,827	$19,348	$9,767	$1,164	$39,106
Residential Total		*1.00*	*1.15*	*$32,313*	*$64,299*	$38,045	$134,658	$36,077	$74,924	$38,957	$5,113	$155,072
Income-Eligible	*PY13*	*1.00*	*1.03*	*$5,835*	*$0*	$2,653	$8,488	$2,520	$4,872	$688	$662	$8,741
Income-Eligible	*PY14*	*1.00*	*1.06*	*$5,842*	*$0*	$2,653	$8,495	$2,567	$5,038	$699	$662	$8,966
Income-Eligible	*PY15*	*1.00*	*1.02*	*$5,722*	*$0*	$2,608	$8,331	$2,483	$4,810	$671	$496	$8,461
Income-Eligible	*PY16*	*1.00*	*1.06*	*$5,899*	*$0*	$2,676	$8,575	$2,653	$5,217	$691	$496	$9,058
Income-Eligible	*PY17*	*1.00*	*1.09*	*$5,891*	*$0*	$2,674	$8,565	$2,705	$5,439	$702	$496	$9,342
Income-Eligible Total		*1.00*	*1.05*	*$26,531*	*$0*	$12,057	$38,588	$11,734	$23,014	$3,137	$2,580	$40,465
Non-residential	*PY13*	*1.00*	*1.12*	*$27,323*	*$38,377*	$12,270	$77,970	$28,818	$57,651	-$3,271	$4,485	$87,684
Non-residential	*PY14*	*1.00*	*1.20*	*$36,472*	*$51,359*	$12,759	$100,590	$39,236	$79,663	-$4,508	$5,980	$120,372
Non-residential	*PY15*	*1.00*	*1.19*	*$45,211*	*$55,951*	$15,749	$116,891	$46,896	$90,451	-$5,241	$7,448	$139,553
Non-residential	*PY16*	*1.00*	*1.22*	*$46,007*	*$56,309*	$15,898	$118,214	$47,904	$94,539	-$5,187	$7,465	$144,721
Non-residential	*PY17*	*1.00*	*1.30*	*$25,794*	*$32,849*	$9,586	$68,229	$29,446	$58,189	-$3,282	$4,527	$88,880
Non-residential Total		*1.00*	*1.20*	*$164,029*	*$213,689*	$60,326	$438,043	$174,329	$345,101	-$19,499	$27,109	$527,040
Residential Home Energy Reports	*PY13*	*1.00*	*0.75*	*$0*	*$0*	$1,850	$1,850	$586	$804	$0	$0	$1,391
Residential Home Energy Reports	*PY14*	*1.00*	*1.49*	*$0*	*$0*	$2,188	$2,188	$1,384	$1,885	$0	$0	$3,269
Residential Home Energy Reports	*PY15*	*1.00*	*1.52*	*$0*	*$0*	$1,912	$1,912	$1,234	$1,680	$0	$0	$2,913
Residential Home Energy Reports	*PY16*	*1.00*	*1.56*	*$0*	*$0*	$1,893	$1,893	$1,246	$1,709	$0	$0	$2,955
Residential Home Energy Reports	*PY17*	*1.00*	*1.99*	*$0*	*$0*	$1,845	$1,845	$1,941	$1,737	$0	$0	$3,678
Residential Home Energy Reports Total		*1.00*	*1.44*	*$0*	*$0*	$8,822	$8,822	$5,696	$7,028	$0	$0	$12,724
Income-Eligible Home Energy Reports	*PY13*	*1.00*	*0.36*	*$0*	*$0*	$81	$81	$2	$28	$0	$0	$29
Income-Eligible Home Energy Reports	*PY14*	*1.00*	*0.91*	*$0*	*$0*	$122	$122	$6	$105	$0	$0	$111
Income-Eligible Home Energy Reports	*PY15*	*1.00*	*0.37*	*$0*	*$0*	$81	$81	$2	$28	$0	$0	$30
Income-Eligible Home Energy Reports	*PY16*	*1.00*	*0.96*	*$0*	*$0*	$122	$122	$6	$110	$0	$0	$116
Income-Eligible Home Energy Reports	*PY17*	*1.00*	*1.03*	*$0*	*$0*	$89	$89	$8	$84	$0	$0	$91
Income-Eligible Home Energy Reports Total		*1.00*	*0.75*	*$0*	*$0*	$448	$448	$21	$316	$0	$0	$337
Total[2]		*1.00*	*1.19*	*$222,873*	*$277,988*	$119,697	$620,558	$227,857	$450,384	$22,595	$34,802	$735,638

Notes:

[1] The TRC ratio will reflect the lifetime TRC, not an annual TRC ratio.

[2] Total TRC ratio for programs does not include common costs. See Figure 5 for portfolio total TRC analysis.

Gross Portfolio	NTGR & TRC Ratio			TRC Costs By Program Per Year ($000)				TRC Benefits By Program Per Year ($000)				
Program	Program Year	NTGR	TRC[1]	Incremental Measure Cost		Program Administration Cost	Total TRC Costs	Capacity Benefits	Energy Benefits	Fossil Fuel and Water Benefits	O&M Benefits	Total TRC Benefits
				Paid by EDC	Paid by Participants							
Residential	*PY13*	*1.00*	*1.11*	*$6,553*	*$12,611*	$7,897	$27,061	$7,179	$14,104	$7,549	$1,102	$29,934
Residential	*PY14*	*1.00*	*1.14*	*$6,767*	*$13,105*	$8,056	$27,927	$7,534	$15,137	$8,033	$1,143	$31,847
Residential	*PY15*	*1.00*	*1.18*	*$6,991*	*$13,624*	$8,222	$28,837	$7,921	$16,309	$8,547	$1,186	$33,963
Residential	*PY16*	*1.00*	*1.22*	*$7,227*	*$14,169*	$8,397	$29,792	$8,331	$17,602	$9,120	$1,232	$36,285
Residential	*PY17*	*1.00*	*1.26*	*$7,474*	*$14,741*	$8,581	$30,796	$8,767	$19,022	$9,708	$1,280	$38,777
Residential Total		*1.00*	*1.18*	*$31,731*	*$61,816*	$37,339	$130,886	$35,949	$74,168	$38,816	$5,383	$154,317
Income-Eligible	*PY13*	*1.00*	*1.03*	*$5,835*	*$0*	$2,652	$8,487	$2,520	$4,872	$688	$662	$8,741
Income-Eligible	*PY14*	*1.00*	*1.06*	*$5,842*	*$0*	$2,652	$8,494	$2,567	$5,038	$699	$662	$8,966
Income-Eligible	*PY15*	*1.00*	*1.09*	*$5,835*	*$0*	$2,652	$8,487	$2,618	$5,231	$708	$662	$9,220
Income-Eligible	*PY16*	*1.00*	*1.12*	*$5,842*	*$0*	$2,652	$8,494	$2,671	$5,442	$731	$662	$9,507
Income-Eligible	*PY17*	*1.00*	*1.15*	*$5,835*	*$0*	$2,652	$8,487	$2,724	$5,669	$741	$662	$9,796
Income-Eligible Total		*1.00*	*1.09*	*$26,538*	*$0*	$12,055	$38,593	$11,889	$23,780	$3,237	$3,009	$41,914
Non-residential	*PY13*	*1.00*	*1.12*	*$27,323*	*$38,377*	$12,270	$77,970	$28,818	$57,651	-$3,271	$4,485	$87,684
Non-residential	*PY14*	*1.00*	*1.20*	*$36,472*	*$51,359*	$12,759	$100,590	$39,236	$79,663	-$4,508	$5,980	$120,372
Non-residential	*PY15*	*1.00*	*1.24*	*$45,594*	*$64,169*	$15,725	$125,488	$50,012	$103,400	-$5,866	$7,476	$155,022
Non-residential	*PY16*	*1.00*	*1.28*	*$45,594*	*$64,169*	$15,725	$125,488	$51,012	$107,458	-$5,793	$7,476	$160,153
Non-residential	*PY17*	*1.00*	*1.31*	*$27,323*	*$38,377*	$9,783	$75,484	$31,149	$66,975	-$3,633	$4,485	$98,977
Non-residential Total		*1.00*	*1.23*	*$165,278*	*$232,498*	$60,317	$458,093	$181,241	$375,235	-$20,878	$27,110	$562,708
Residential Home Energy Reports	*PY13*	*1.00*	*1.07*	*$0*	*$0*	$1,850	$1,850	$1,165	$804	$0	$0	$1,970
Residential Home Energy Reports	*PY14*	*1.00*	*2.12*	*$0*	*$0*	$2,188	$2,188	$2,751	$1,885	$0	$0	$4,636
Residential Home Energy Reports	*PY15*	*1.00*	*2.16*	*$0*	*$0*	$1,912	$1,912	$2,452	$1,680	$0	$0	$4,132
Residential Home Energy Reports	*PY16*	*1.00*	*2.21*	*$0*	*$0*	$1,893	$1,893	$2,476	$1,709	$0	$0	$4,185
Residential Home Energy Reports	*PY17*	*1.00*	*2.28*	*$0*	*$0*	$1,845	$1,845	$2,462	$1,737	$0	$0	$4,198
Residential Home Energy Reports Total		*1.00*	*1.95*	*$0*	*$0*	$8,822	$8,822	$10,174	$7,028	$0	$0	$17,202
Income-Eligible Home Energy Reports	*PY13*	*1.00*	*0.60*	*$0*	*$0*	$81	$81	$21	$28	$0	$0	$48
Income-Eligible Home Energy Reports	*PY14*	*1.00*	*1.52*	*$0*	*$0*	$122	$122	$80	$105	$0	$0	$184
Income-Eligible Home Energy Reports	*PY15*	*1.00*	*0.61*	*$0*	*$0*	$81	$81	$21	$28	$0	$0	$50
Income-Eligible Home Energy Reports	*PY16*	*1.00*	*1.58*	*$0*	*$0*	$122	$122	$83	$110	$0	$0	$193
Income-Eligible Home Energy Reports	*PY17*	*1.00*	*1.64*	*$0*	*$0*	$89	$89	$62	$84	$0	$0	$145
Income-Eligible Home Energy Reports Total		*1.00*	*1.24*	*$0*	*$0*	$448	$448	$238	$316	$0	$0	$555
Total[2]		*1.00*	*1.22*	*$223,547*	*$294,314*	$118,980	$636,841	$239,491	$480,528	$21,175	$35,502	$776,696

Notes:

[1] The TRC ratio will reflect the lifetime TRC, not an annual TRC ratio.

[2] Total TRC ratio for programs does not include common costs. See Figure 5 for portfolio total TRC analysis.

Net Portfolio	NTGR & TRC Ratio			TRC Costs By Program Per Year ($000)				TRC Benefits By Program Per Year ($000)				
Program	Program Year	NTGR	TRC[1]	Incremental Measure Cost		Program Administration Cost	Total TRC Costs	Capacity Benefits	Energy Benefits	Fossil Fuel and Water Benefits	O&M Benefits	Total TRC Benefits
				Paid by EDC	Paid by Participants							
Residential	*PY13*	*0.68*	*0.97*	*$6,553*	$6,478	$7,896	$20,927	$4,882	$9,591	$5,133	$749	$20,356
Residential	*PY14*	*0.68*	*1.00*	*$6,767*	$6,746	$8,055	$21,567	$5,123	$10,293	$5,462	$777	$21,656
Residential	*PY15*	*0.68*	*1.00*	*$7,191*	$7,588	$8,455	$23,234	$5,400	$11,236	$5,847	$743	$23,226
Residential	*PY16*	*0.68*	*1.04*	*$7,467*	$7,901	$8,694	$24,062	$5,713	$12,200	$6,238	$767	$24,918
Residential	*PY17*	*0.68*	*1.07*	*$7,710*	$8,232	$8,872	$24,814	$6,002	$13,157	$6,641	$792	$26,592
Residential Total		*0.68*	*1.02*	*$32,313*	$33,384	$38,045	$103,742	$24,532	$50,949	$26,491	$3,477	$105,449
Income-Eligible	*PY13*	*1.00*	*1.03*	*$5,835*	$0	$2,653	$8,488	$2,520	$4,872	$688	$662	$8,741
Income-Eligible	*PY14*	*1.00*	*1.06*	*$5,842*	$0	$2,653	$8,495	$2,567	$5,038	$699	$662	$8,966
Income-Eligible	*PY15*	*1.00*	*1.02*	*$5,722*	$0	$2,608	$8,331	$2,483	$4,810	$671	$496	$8,461
Income-Eligible	*PY16*	*1.00*	*1.06*	*$5,899*	$0	$2,676	$8,575	$2,653	$5,217	$731	$496	$9,097
Income-Eligible	*PY17*	*1.00*	*1.09*	*$5,891*	$0	$2,674	$8,565	$2,705	$5,439	$702	$496	$9,342
Income-Eligible Total		*1.00*	*1.05*	*$26,531*	$0	$12,057	$38,588	$11,734	$23,014	$3,171	$2,580	$40,499
Non-residential	*PY13*	*0.76*	*1.07*	*$27,525*	$22,609	$12,270	$62,202	$21,902	$43,815	-$2,486	$3,409	$66,640
Non-residential	*PY14*	*0.76*	*1.15*	*$36,472*	$30,280	$12,759	$79,511	$29,820	$60,544	-$3,426	$4,545	$91,483
Non-residential	*PY15*	*0.76*	*1.15*	*$45,211*	$31,657	$15,749	$92,617	$35,641	$68,743	-$3,983	$5,660	$106,061
Non-residential	*PY16*	*0.76*	*1.17*	*$46,007*	$31,753	$15,898	$93,658	$36,407	$71,849	-$3,942	$5,674	$109,988
Non-residential	*PY17*	*0.76*	*1.25*	*$25,794*	$18,775	$9,586	$54,155	$22,379	$44,224	-$2,494	$3,440	$67,549
Non-residential Total		*0.76*	*1.15*	*$164,029*	$123,036	$60,326	$347,391	$132,490	$262,277	-$14,819	$20,603	$400,550
Residential Home Energy Reports	*PY13*	*1.00*	*0.75*	*$0*	$0	$1,850	$1,850	$586	$804	$0	$0	$1,391
Residential Home Energy Reports	*PY14*	*1.00*	*1.49*	*$0*	$0	$2,188	$2,188	$1,384	$1,885	$0	$0	$3,269
Residential Home Energy Reports	*PY15*	*1.00*	*1.52*	*$0*	$0	$1,912	$1,912	$1,234	$1,680	$0	$0	$2,913
Residential Home Energy Reports	*PY16*	*1.00*	*1.56*	*$0*	$0	$1,893	$1,893	$1,246	$1,709	$0	$0	$2,955
Residential Home Energy Reports	*PY17*	*1.00*	*1.99*	*$0*	$0	$1,845	$1,845	$1,941	$1,737	$0	$0	$3,678
Residential Home Energy Reports Total		*1.00*	*1.44*	*$0*	$0	$8,822	$8,822	$5,696	$7,028	$0	$0	$12,724
Income-Eligible Home Energy Reports	*PY13*	*1.00*	*0.36*	*$0*	$0	$81	$81	$2	$28	$0	$0	$29
Income-Eligible Home Energy Reports	*PY14*	*1.00*	*0.91*	*$0*	$0	$122	$122	$6	$105	$0	$0	$111
Income-Eligible Home Energy Reports	*PY15*	*1.00*	*0.37*	*$0*	$0	$81	$81	$2	$28	$0	$0	$30
Income-Eligible Home Energy Reports	*PY16*	*1.00*	*0.96*	*$0*	$0	$122	$122	$6	$110	$0	$0	$116
Income-Eligible Home Energy Reports	*PY17*	*1.00*	*1.03*	*$0*	$0	$89	$89	$8	$84	$0	$0	$91
Income-Eligible Home Energy Reports Total		*1.00*	*0.75*	*$0*	$0	$448	$448	$21	$316	$0	$0	$337
Total[2]		*0.76*	*1.12*	*$222,873*	$156,420	$119,697	$498,990	$174,474	$343,584	$14,843	$26,660	$559,560

Notes:

[1] The TRC ratio will reflect the lifetime TRC, not an annual TRC ratio.

[2] Total TRC ratio for programs does not include common costs. See Figure 5 for portfolio total TRC analysis.

Net Portfolio	NTGR & TRC Ratio			TRC Costs By Program Per Year ($000)				TRC Benefits By Program Per Year ($000)				
Program	Program Year	NTGR	TRC[1]	Incremental Measure Cost		Program Administration Cost	Total TRC Costs	Capacity Benefits	Energy Benefits	Fossil Fuel and Water Benefits	O&M Benefits	Total TRC Benefits
				Paid by EDC	Paid by Participants							
Residential	*PY15*	*0.68*	*1.04*	*$6,991*	$7,027	$8,222	$22,240	$5,386	$11,090	$5,812	$807	$23,095
Residential	*PY16*	*0.68*	*1.08*	*$7,227*	$7,322	$8,397	$22,946	$5,665	$11,969	$6,202	$838	$24,674
Residential	*PY17*	*0.68*	*1.11*	*$7,474*	$7,632	$8,581	$23,687	$5,962	$12,935	$6,601	$870	$26,368
Residential Total		*0.68*	*1.04*	*$31,731*	$31,881	$37,339	$100,951	$24,445	$50,435	$26,395	$3,661	$104,935
Income-Eligible	*PY13*	*1.00*	*1.03*	*$5,835*	$0	$2,652	$8,487	$2,520	$4,872	$688	$662	$8,741
Income-Eligible	*PY14*	*1.00*	*1.06*	*$5,842*	$0	$2,652	$8,494	$2,567	$5,038	$699	$662	$8,966
Income-Eligible	*PY15*	*1.00*	*1.09*	*$5,835*	$0	$2,652	$8,487	$2,618	$5,231	$708	$662	$9,220
Income-Eligible	*PY16*	*1.00*	*1.12*	*$5,842*	$0	$2,652	$8,494	$2,671	$5,442	$731	$662	$9,507
Income-Eligible	*PY17*	*1.00*	*1.15*	*$5,835*	$0	$2,652	$8,487	$2,724	$5,669	$741	$662	$9,796
Income-Eligible Total		*1.00*	*1.09*	*$26,538*	$0	$12,055	$38,593	$11,889	$23,780	$3,237	$3,009	$41,914
Non-residential	*PY13*	*0.76*	*1.07*	*$27,325*	$22,609	$12,270	$62,202	$21,902	$43,815	-$2,486	$3,409	$66,640
Non-residential	*PY14*	*0.76*	*1.15*	*$36,472*	$30,280	$12,759	$79,511	$29,820	$60,544	-$3,426	$4,545	$91,483
Non-residential	*PY15*	*0.76*	*1.19*	*$45,594*	$37,826	$15,725	$99,145	$38,009	$78,584	-$4,458	$5,682	$117,817
Non-residential	*PY16*	*0.76*	*1.23*	*$45,594*	$37,826	$15,725	$99,145	$38,769	$81,668	-$4,403	$5,682	$121,716
Non-residential	*PY17*	*0.76*	*1.26*	*$27,325*	$22,609	$9,783	$59,716	$23,673	$50,901	-$2,761	$3,409	$75,223
Non-residential Total		*0.76*	*1.18*	*$165,278*	$137,032	$60,317	$362,627	$137,743	$285,179	-$15,867	$20,603	$427,658
Residential Home Energy Reports	*PY13*	*1.00*	*1.07*	*$0*	$0	$1,850	$1,850	$1,165	$804	$0	$0	$1,970
Residential Home Energy Reports	*PY14*	*1.00*	*2.12*	*$0*	$0	$2,188	$2,188	$2,751	$1,885	$0	$0	$4,636
Residential Home Energy Reports	*PY15*	*1.00*	*2.16*	*$0*	$0	$1,912	$1,912	$2,452	$1,680	$0	$0	$4,132
Residential Home Energy Reports	*PY16*	*1.00*	*2.21*	*$0*	$0	$1,893	$1,893	$2,476	$1,709	$0	$0	$4,185
Residential Home Energy Reports	*PY17*	*1.00*	*2.28*	*$0*	$0	$1,845	$1,845	$2,462	$1,737	$0	$0	$4,198
Residential Home Energy Reports Total		*1.00*	*1.95*	*$0*	$0	$8,822	$8,822	$10,174	$7,028	$0	$0	$17,202
Income-Eligible Home Energy Reports	*PY13*	*1.00*	*0.60*	*$0*	$0	$81	$81	$21	$28	$0	$0	$48
Income-Eligible Home Energy Reports	*PY14*	*1.00*	*1.52*	*$0*	$0	$122	$122	$80	$105	$0	$0	$184
Income-Eligible Home Energy Reports	*PY15*	*1.00*	*0.61*	*$0*	$0	$81	$81	$21	$28	$0	$0	$50
Income-Eligible Home Energy Reports	*PY16*	*1.00*	*1.58*	*$0*	$0	$122	$122	$83	$110	$0	$0	$193
Income-Eligible Home Energy Reports	*PY17*	*1.00*	*1.64*	*$0*	$0	$89	$89	$62	$84	$0	$0	$145
Income-Eligible Home Energy Reports Total		*1.00*	*1.24*	*$0*	$0	$448	$448	$238	$316	$0	$0	$555
Total[2]		*0.76*	*1.16*	*$223,547*	$168,913	$118,980	$511,440	$184,490	$366,737	$13,764	$27,273	$592,265

Notes:

[1] The TRC ratio will reflect the lifetime TRC, not an annual TRC ratio.

[2] Total TRC ratio for programs does not include common costs. See Figure 5 for portfolio total TRC analysis.

9. Plan Compliance Information and Other Key Issues

This section contains miscellaneous compliance items required in legislation and addresses key issues in EE&C plan, portfolio, and program design.

9.1 Plan Compliance Issues

9.1.1 *Description of Plan*

As Section 3 of this document details, PECO's EE&C plan provides energy efficiency programs to each of its customer classes, including two specific programs for income-eligible households.[20] PECO's programs are equitably provided across its customer classes consistent with the PUC's Implementation Order.

9.1.2 *Statement Delineating the EE&C Plan*

PECO's plan (Section 3), is projected to achieve at least 1,380,837 MWh and 256 MW by the end of Phase IV. The Phase's total energy and demand savings will be calculated as the sum of the five implementation years' first year measure savings, per the Final Implementation Order.

The EE&C plan is projected to achieve Phase IV's energy and demand savings requirements through the use of a broad array of financial incentives. These incentives will be provided to PECO's customers through CSPs, installation companies, and trade allies (e.g., HVAC contractors and retail stores).

9.1.3 *Low-Income Requirements*

PECO's plan will meet the low-income requirements by building upon its Income-Eligible programs in Phase III. The Final Implementation Order highlights the importance of collaboration between LIURP and Act 129 for all utilities. The prime CSP for the Residential Program will continue its existing partnerships with the LIURP, Philadelphia Gas Works, and Philadelphia Water Department. To meet the required demand reduction targets, PECO envisions a much higher participation level of electrically heated homes in Phase IV. The plan includes free energy checkups with no cost install measures and free electric heat assessments with no cost measures. PECO's plan is designed to exceed the minimum requirement that 80,089 MWh come from the two dedicated Income-Eligible programs and the income-eligible portion of multifamily through the Residential program.[21]

9.1.4 *Spending on Experimental Equipment or Devices Limited to 2%*

Technology is constantly changing. Given the 5-year length of Phase IV, it is impossible to predict with 100% accuracy all the viable equipment and devices that may come to market. New

[20] Consistent with Act 129, PECO's income-eligible household definition is households at or below 150% of the Federal poverty income guidelines. See 66 Pa.C.S. 2806.1(b)(1)(i)(B).

[21] See PECO's discussion in Sections 3 and 4 of this document for a detailed description of its EE&C programs and its implementation strategy.

implementation offerings are developed in the industry every year, some of which may be viable for PECO's customers. The plan reserves some funds under R&D (within the "Other" budget category) to enable inclusion of viable technologies or implementation strategies that may come to market during the phase. Spending on experimental equipment or devices will be limited to no more than 2% of the budget per the Final Implementation Order. The remaining R&D funds may be used for adding approaches or nonexperimental measures to the plan as appropriate.

9.1.5 *Competitively Neutral to All Electric Distribution Customers*

PECO's energy efficiency program suite will be available to all PECO customers, regardless of whether they receive generation supply from PECO as a default service provider or from an EGS.

9.2 Other Key Issues

9.2.1 *Describe How this EE&C Plan Will Lead to Long-Term, Sustainable Energy Efficiency Savings in the EDC's Service Territory and in Pennsylvania*

PECO's EE&C plan was developed to meet or exceed the requirements of Act 129 and the Final Implementation Order. In developing the Phase IV EE&C Plan, PECO combined its own experience implementing programs in Phases I, II, and III with lessons learned from utility demand side management programs in other jurisdictions around the country and worked with CSPs to design the programs. The proposed plan includes a variety of proven programs and components effective across all customer classes. PECO believes that providing programs along with comprehensive education will lead to long-term sustainability through ongoing customer participation.

9.2.2 *Describe How this EE&C Plan Will Leverage and Utilize Other Financial Resources, Including Funds from Other Public and Private Sector Energy Efficiency and Solar Energy Programs*

PECO's website provides information and web links on a variety of third-party resources, such as the Database of State Incentives for Renewables & Efficiency, Federal Housing Administration and Veterans Administration Energy Efficient Mortgage programs, and state and federal tax incentives for efficiency improvements and renewable energy projects.

9.2.3 *Describe How the EDC Will Address Customer Education for Its Programs*

To educate customers on energy efficiency, PECO will conduct outreach to schools, work with community partners, speak with groups, staff tables at events, and reach diverse communities. It also will send emails to customers, distribute program materials, and canvas neighborhoods. PECO has strong relationships with numerous community organizations who, through annual sponsorships and other partner specific programs, help spread word to their constituents about energy efficiency.

To help educate customers about heat pumps, PECO will include heat pump specific technology content within its customer newsletter (bill insert) twice a year as part of seasonal

readiness communications. Content will include the benefits of heat pump technology and proper maintenance instructions. PECO will provide a post installation email to customers with instructions on proper temperature settings and an overview of how heat pump technology works with tips regarding minimization of auxiliary heat systems and proper maintenance (sourced by Energy Star®.) PECO will also work with the Electrical Association of Philadelphia (EAP) to develop a heat pump specific education curriculum including right-sizing, proper installation, and customer instruction, as part of the EAP education series. PECO will host one virtual and one in-person (post-pandemic) session for its contractor network each year throughout the phase.

9.2.4 *Indicate How the EDC Will Provide a List of All Eligible Federal and State Funding Programs Available to Ratepayers for Energy Efficiency and Conservation*

PECO includes information regarding all known federal and state funding programs available to ratepayers on its company website. PECO will continue to provide this information via the website in Phase IV.

9.2.5 *Describe How the EDC Will Provide the Public with Information About the Results from the Programs*

PECO will periodically issue press releases to inform the public of the progress of its EE&C plan and refer the public to where reports about PECO's Act 129 results are posted on the PUC's website. PECO will only provide information to the public after the SWE completes its review and approves PECO's annual reports.

Appendix A. CSP Contracts

PECO has bid out most CSP contracts. See Section 4.3.3 for a list of pending RFPs to be issued for additional CSPs. Each winning CSP resulting in a signed contract will be filed with the PUC as required. No CSP contract will be effective until it is approved by the PUC.

Appendix B. Program by Program Savings, Costs, and TRC Results

Table 10 Sector-Specific Summary of EE&C Costs

Residential Portfolio (including Low-Income)							
EE&C Program [2]	**Cost Elements ($)** [3]			**Total Cost**	**Expected Acquisition Cost** [4] **($/MWh)**	**Levelized Cost** [5] **($/MWh)**	**Expected Acquisition Cost ($/MW)**
	Incentives	*CSP Delivery Fees*	*Marketing*				
Residential	$33,432,441	$26,001,775	$12,387,520	$71,821,736	$338	$39	$2,181,633
Income-Eligible	$29,188,965	$8,462,035	$4,801,845	$42,452,845	$459	$59	$3,037,000
Residential Home Energy Reports	$0	$9,688,416	$0	$9,688,416	$86	$26	$220,429
Income-Eligible Home Energy Reports	$0	$493,124	$0	$493,124	$86	$30	$422,808
Sector Total	$62,621,406	$44,645,350	$17,189,365	$124,456,122	$294	$42	$1,352,513

Notes:

[1] Prepare and submit a separate table for ***each*** customer sector.

[2] List each EE&C program by name. Add rows as necessary.

[3] List all cost elements for each program that can be directly identified as relating exclusively to the specific customer sector addressed in this table. Any cost elements that are applicable to multiple sectors, or are common across all sectors, are to be listed in Table 11 (relating to Common Costs). Because cost elements may vary for each EDC and program, the EDC should designate cost elements at its discretion, and the Commission will review and evaluate the prudence and reasonableness of all costs shown.

[4] The numerator in the acquisition cost calculation is the full EDC cost, free of any allocation. Acquisition costs are first-year.

[5] Levelized costs should be lifetime. Appendix A of the 2021 TRC Test Order provides formulas to calculate levelized cost. See 2021 TRC Test Final Order, at Docket No. M-2019-3006868, entered December 19, 2019. http://www.puc.pa.gov/pcdocs/1648126.docx

Residential Portfolio (including Low-Income)							
EE&C Program [2]	**Cost Elements ($) [3]**			**Total Cost**	**Expected Acquisition Cost [4] ($/MWh)**	**Levelized Cost [5] ($/MWh)**	**Expected Acquisition Cost ($/MW)**
	Incentives	*CSP Delivery Fees*	*Marketing*				
Residential	$33,432,441	$26,001,775	$12,387,520	$71,821,736	$341	$30	$2,188,696
Income-Eligible	$29,188,965	$8,462,035	$4,801,845	$42,452,845	$460	$47	$3,021,771
Residential Home Energy Reports	$0	$9,688,416	$0	$9,688,416	$86	$24	$395,446
Income-Eligible Home Energy Reports	$0	$493,124	$0	$493,124	$86	$28	$4,931,232
Sector Total	$62,621,406	$44,645,350	$17,189,365	$124,456,121	$295	$33	$1,741,526

Notes:

[1] Prepare and submit a separate table for ***each*** customer sector.

[2] List each EE&C program by name. Add rows as necessary.

[3] List all cost elements for each program that can be directly identified as relating exclusively to the specific customer sector addressed in this table. Any cost elements that are applicable to multiple sectors, or are common across all sectors, are to be listed in Table 11 (relating to Common Costs). Because cost elements may vary for each EDC and program, the EDC should designate cost elements at its discretion, and the Commission will review and evaluate the prudence and reasonableness of all costs shown.

[4] The numerator in the acquisition cost calculation is the full EDC cost, free of any allocation. Acquisition costs are first-year.

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Commercial/Industrial Small Portfolio							
EE&C Program [2]	**Cost Elements ($) [3]**			**Total Cost**	**Expected Acquisition Cost [4] ($/MWh)**	**Levelized Cost [5] ($/MWh)**	**Expected Acquisition Cost ($/MW)**
	Incentives	*CSP Delivery Fees*	*Marketing*				
Non-residential	$81,502,080	$23,315,422	$1,706,818	$106,524,320	$242	$28	$1,325,441
Residential (Commercailly metered MF buildings)	$1,126,266	$1,326,194	$632,761	$3,085,220	$276	$34	$2,332,262
Sector Total	$82,628,346	$24,641,616	$2,339,579	$109,609,541	$243	$28	$1,341,744

Notes:

[1] Prepare and submit a separate table for ***each*** customer sector.

[2] List each EE&C program by name. Add rows as necessary.

[3] List all cost elements for each program that can be directly identified as relating exclusively to the specific customer sector addressed in this table. Any cost elements that are applicable to multiple sectors, or are common across all sectors, are to be listed in Table 11 (relating to Common Costs). Because cost elements may vary for each EDC and program, the EDC should designate cost elements at its discretion, and the Commission will review and evaluate the prudence and reasonableness of all costs shown.

[4] The numerator in the acquisition cost calculation is the full EDC cost, free of any allocation. Acquisition costs are first-year.

[5] Levelized costs should be lifetime. Appendix A of the 2021 TRC Test Order provides formulas to calculate levelized cost. See 2021 TRC Test Final Order, at Docket No. M-2019-3006868, entered December 19, 2019. http://www.puc.pa.gov/pcdocs/1648126.docx

Commercial/Industrial Small Portfolio							
EE&C Program [2]	**Cost Elements ($) [3]**			**Total Cost**	**Expected Acquisition Cost [4] ($/MWh)**	**Levelized Cost [5] ($/MWh)**	**Expected Acquisition Cost ($/MW)**
	Incentives	*CSP Delivery Fees*	*Marketing*				
Non-residential	$97,263,380	$28,103,802	$2,170,328	$127,537,510	$239	$22	$1,315,732
Residential (Commercailly metered MF buildings)	$1,126,266	$1,326,194	$632,761	$3,085,221	$276	$27	$2,327,961
Sector Total	$98,389,646	$29,429,996	$2,803,089	$130,622,731	$239	$22	$1,329,385

Notes:

[1] Prepare and submit a separate table for ***each*** customer sector.

[2] List each EE&C program by name. Add rows as necessary.

[3] List all cost elements for each program that can be directly identified as relating exclusively to the specific customer sector addressed in this table. Any cost elements that are applicable to multiple sectors, or are common across all sectors, are to be listed in Table 11 (relating to Common Costs). Because cost elements may vary for each EDC and program, the EDC should designate cost elements at its discretion, and the Commission will review and evaluate the prudence and reasonableness of all costs shown.

[4] The numerator in the acquisition cost calculation is the full EDC cost, free of any allocation. Acquisition costs are first-year.

[5] Levelized costs should be lifetime. Appendix A of the 2021 TRC Test Order provides formulas to calculate levelized cost. See 2021 TRC Test Final Order, at Docket No. M-2019-3006868, entered December 19, 2019. http://www.puc.pa.gov/pcdocs/1648126.docx

Commercial/Industrial Large Portfolio							
EE&C Program [2]	**Cost Elements ($) [3]**			**Total Cost**	**Expected Acquisition Cost [4] ($/MWh)**	**Levelized Cost [5] ($/MWh)**	**Expected Acquisition Cost ($/MW)**
	Incentives	*CSP Delivery Fees*	*Marketing*				
Non-residential	$100,804,475	$38,426,562	$2,813,182	$142,044,219	$196	$21	$928,572
Residential (Commercailly metered MF buildings)	$453,625	$540,474	$257,874	$1,251,973	$275	$34	$2,281,953
Sector Total	$101,258,100	$38,967,036	$3,071,056	$143,296,192	$196	$21	$933,408
Notes:							
[1] Prepare and submit a separate table for ***each*** customer sector.							
[2] List each EE&C program by name. Add rows as necessary.							
[3] List all cost elements for each program that can be directly identified as relating exclusively to the specific customer sector addressed in this table. Any cost elements that are applicable to multiple sectors, or are common across all sectors, are to be listed in Table 11 (relating to Common Costs). Because cost elements may vary for each EDC and program, the EDC should designate cost elements at its discretion, and the Commission will review and evaluate the prudence and reasonableness of all costs shown.							
[4] The numerator in the acquisition cost calculation is the full EDC cost, free of any allocation. Acquisition costs are first-year.							
[5] Levelized costs should be lifetime. Appendix A of the 2021 TRC Test Order provides formulas to calculate levelized cost. See 2021 TRC Test Final Order, at Docket No. M-2019-3006868, entered December 19, 2019. http://www.puc.pa.gov/pcdocs/1648126.docx							

Commercial/Industrial Large Portfolio							
EE&C Program [2]	**Cost Elements ($) [3]**			**Total Cost**	**Expected Acquisition Cost [4] ($/MWh)**	**Levelized Cost [5] ($/MWh)**	**Expected Acquisition Cost ($/MW)**
	Incentives	*CSP Delivery Fees*	*Marketing*				
Non-residential	$83,543,175	$33,638,182	$2,349,672	$119,531,029	$211	$17	$1,048,126
Residential (Commercailly metered MF buildings)	$1,128,625	$1,365,474	$257,874	$2,751,973	$248	$24	$2,075,641
Sector Total	$84,671,800	$35,003,656	$2,607,546	$122,283,002	$211	$17	$1,059,934
Notes:							
[1] Prepare and submit a separate table for ***each*** customer sector.							
[2] List each EE&C program by name. Add rows as necessary.							
[3] List all cost elements for each program that can be directly identified as relating exclusively to the specific customer sector addressed in this table. Any cost elements that are applicable to multiple sectors, or are common across all sectors, are to be listed in Table 11 (relating to Common Costs). Because cost elements may vary for each EDC and program, the EDC should designate cost elements at its discretion, and the Commission will review and evaluate the prudence and reasonableness of all costs shown.							
[4] The numerator in the acquisition cost calculation is the full EDC cost, free of any allocation. Acquisition costs are first-year.							
[5] Levelized costs should be lifetime. Appendix A of the 2021 TRC Test Order provides formulas to calculate levelized cost. See 2021 TRC Test Final Order, at Docket No. M-2019-3006868, entered December 19, 2019. http://www.puc.pa.gov/pcdocs/1648126.docx							

Table 11 Allocation of Common Costs to Applicable Customer Sector

Common Cost Element [1]	Total Cost ($)	Basis for Cost Allocation [2]	Sector Cost Allocation ($)		
			Residential (Including Low-Income)	Commercial/ Industrial -- Small (Including Municipal Lighting)	Commercial/ Industrial -- Large (Including Municipal Lighting)
Program Design	$2,500,000	1st-Year MWh	$657,938	$703,769	$1,138,293
Administrative	$15,000,000	1st-Year MWh	$3,947,628	$4,222,616	$6,829,757
EM&V	$20,000,000	1st-Year MWh	$5,263,503	$5,630,154	$9,106,342
Other (See Section 4.2.3)	$12,523,976	1st-Year MWh	$2,559,175	$3,807,103	$6,157,698
Totals	$50,023,976		$12,428,243	$14,363,643	$23,232,089

Notes:

[1] List all identified cost elements that are determined to be applicable to multiple customer sectors, or are common across all sectors. **Because cost elements may vary for each EDC and program, the EDC should designate cost elements at its discretion, and the Commission will review and evaluate the prudence and reasonableness of all costs shown.**

[2] Provide a brief explanation of the methodology used to allocate each common cost element to the applicable customer sectors.

Common Cost Element [1]	Total Cost ($)	Basis for Cost Allocation [2]	Sector Cost Allocation ($)		
			Residential (Including Low-Income)	Commercial/ Industrial -- Small (Including Municipal Lighting)	Commercial/ Industrial -- Large (Including Municipal Lighting)
Program Design	$2,500,000	Res: Original Approved Plan C&I: Phase 1st-Year MWh	$657,938	$804,563	$1,037,499
Administrative	$15,000,000		$3,947,628	$4,827,381	$6,224,992
EM&V	$20,000,000		$5,263,503	$6,436,507	$8,299,989
Other (See Section 4.2.3)	$12,523,976		$2,559,175	$4,352,359	$5,612,442
Totals	$50,023,976		$12,428,244	$16,420,810	$21,174,922

Notes:

[1] List all identified cost elements that are determined to be applicable to multiple customer sectors, or are common across all sectors. **Because cost elements may vary for each EDC and program, the EDC should designate cost elements at its discretion, and the Commission will review and evaluate the prudence and reasonableness of all costs shown.**

[2] Cost Allocation adjustments have been made in the commercial sector, between large and small segments in accordance with the methodology of proportionality of projected 1st-year MWh savings.

Table 12. Summary of Portfolio EE&C Costs

Portfolio	Total Sector Portfolio-specific Costs [1]	Total Common Costs [2]	Total of All Costs
Residential (Including Low-Income)	$124,456,122	$12,428,243	$136,884,365
Commercial/Industrial -- Small (Including Municipal Lighting)	$109,609,541	$14,363,643	$123,973,183
Commercial/Industrial -- Large (Including Municipal Lighting)	$143,296,192	$23,232,089	$166,528,281
Totals	$377,361,854	$50,023,976	$427,385,830

Notes:

[1] Cost figures are to be carried over from the last column (**"Totals"**) of Table 10.

[2] Cost figures are to be carried over from the bottom row (**"Totals"**) of Table 11.

Portfolio	Total Sector Portfolio-specific Costs [1]	Total Common Costs [2]	Total of All Costs
Residential (Including Low-Income)	$124,456,121	$12,428,244	$136,884,365
Commercial/Industrial -- Small (Including Municipal Lighting)	$130,622,731	$16,420,810	$147,043,541
Commercial/Industrial -- Large (Including Municipal Lighting)	$122,283,002	$21,174,922	$143,457,924
Totals	$377,361,854	$50,023,976	$427,385,830

Notes:

[1] Cost figures are to be carried over from the last column (**"Totals"**) of Table 10.

[2] Cost figures are to be carried over from the bottom row (**"Totals"**) of Table 11.

Table 13 TRC Benefits Table by Year

Gross Portfolio	NTGR & TRC Ratio			TRC Costs By Program Per Year ($000)				TRC Benefits By Program Per Year ($000)				
Program	Program Year	NTGR	TRC[1]	Incremental Measure Cost		Program Administration Cost	Total TRC Costs	Capacity Benefits	Energy Benefits	Fossil Fuel and Water Benefits	O&M Benefits	Total TRC Benefits
				Paid by EDC	Paid by Participants							
Residential	*PY15*	*1.00*	*1.18*	*$6,991*	*$13,624*	$8,222	$28,837	$7,921	$16,309	$8,547	$1,186	$33,963
Residential	*PY16*	*1.00*	*1.22*	*$7,227*	*$14,169*	$8,397	$29,792	$8,331	$17,602	$9,120	$1,232	$36,285
Residential	*PY17*	*1.00*	*1.26*	*$7,474*	*$14,741*	$8,581	$30,796	$8,767	$19,022	$9,708	$1,280	$38,777
Residential Total		*1.00*	*1.18*	*$31,731*	*$61,816*	$37,339	$130,886	$35,949	$74,168	$38,816	$5,383	$154,317
Income-Eligible	*PY13*	*1.00*	*1.03*	*$5,835*	*$0*	$2,652	$8,487	$2,520	$4,872	$688	$662	$8,741
Income-Eligible	*PY14*	*1.00*	*1.06*	*$5,842*	*$0*	$2,652	$8,494	$2,567	$5,038	$699	$662	$8,966
Income-Eligible	*PY15*	*1.00*	*1.09*	*$5,835*	*$0*	$2,652	$8,487	$2,618	$5,231	$708	$662	$9,220
Income-Eligible	*PY16*	*1.00*	*1.12*	*$5,842*	*$0*	$2,652	$8,494	$2,671	$5,442	$731	$662	$9,507
Income-Eligible	*PY17*	*1.00*	*1.15*	*$5,835*	*$0*	$2,652	$8,487	$2,724	$5,669	$741	$662	$9,796
Income-Eligible Total		*1.00*	*1.09*	*$26,538*	*$0*	$12,055	$38,593	$11,889	$23,780	$3,237	$3,009	$41,914
Non-residential	*PY13*	*1.00*	*1.12*	*$27,323*	*$38,377*	$12,270	$77,970	$28,818	$57,651	-$3,271	$4,485	$87,684
Non-residential	*PY14*	*1.00*	*1.20*	*$36,472*	*$51,359*	$12,759	$100,590	$39,236	$79,663	-$4,508	$5,980	$120,372
Non-residential	*PY15*	*1.00*	*1.24*	*$45,594*	*$64,169*	$15,725	$125,488	$50,012	$103,400	-$5,866	$7,476	$155,022
Non-residential	*PY16*	*1.00*	*1.28*	*$45,594*	*$64,169*	$15,725	$125,488	$51,012	$107,458	-$5,793	$7,476	$160,153
Non-residential	*PY17*	*1.00*	*1.31*	*$27,323*	*$38,377*	$9,783	$75,484	$31,149	$66,975	-$3,633	$4,485	$98,977
Non-residential Total		*1.00*	*1.23*	*$165,278*	*$232,498*	$60,317	$458,093	$181,241	$375,235	-$20,878	$27,110	$562,708
Residential Home Energy Reports	*PY13*	*1.00*	*1.07*	*$0*	*$0*	$1,850	$1,850	$1,165	$804	$0	$0	$1,970
Residential Home Energy Reports	*PY14*	*1.00*	*2.12*	*$0*	*$0*	$2,188	$2,188	$2,751	$1,885	$0	$0	$4,636
Residential Home Energy Reports	*PY15*	*1.00*	*2.16*	*$0*	*$0*	$1,912	$1,912	$2,452	$1,680	$0	$0	$4,132
Residential Home Energy Reports	*PY16*	*1.00*	*2.21*	*$0*	*$0*	$1,893	$1,893	$2,476	$1,709	$0	$0	$4,185
Residential Home Energy Reports	*PY17*	*1.00*	*2.28*	*$0*	*$0*	$1,845	$1,845	$2,462	$1,737	$0	$0	$4,198
Residential Home Energy Reports Total		*1.00*	*1.95*	*$0*	*$0*	$8,822	$8,822	$10,174	$7,028	$0	$0	$17,202
Income-Eligible Home Energy Reports	*PY13*	*1.00*	*0.60*	*$0*	*$0*	$81	$81	$21	$28	$0	$0	$48
Income-Eligible Home Energy Reports	*PY14*	*1.00*	*1.52*	*$0*	*$0*	$122	$122	$80	$105	$0	$0	$184
Income-Eligible Home Energy Reports	*PY15*	*1.00*	*0.61*	*$0*	*$0*	$81	$81	$21	$28	$0	$0	$50
Income-Eligible Home Energy Reports	*PY16*	*1.00*	*1.58*	*$0*	*$0*	$122	$122	$83	$110	$0	$0	$193
Income-Eligible Home Energy Reports	*PY17*	*1.00*	*1.64*	*$0*	*$0*	$89	$89	$62	$84	$0	$0	$145
Income-Eligible Home Energy Reports Total		*1.00*	*1.24*	*$0*	*$0*	$448	$448	$238	$316	$0	$0	$555
Total[2]		*1.00*	*1.22*	*$223,547*	*$294,314*	$118,980	$636,841	$239,491	$480,528	$21,175	$35,502	$776,696

Notes:

[1] The TRC ratio will reflect the lifetime TRC, not an annual TRC ratio.

[2] Total TRC ratio for programs does not include common costs. See Figure 5 for portfolio total TRC analysis.

Gross Portfolio	NTGR & TRC Ratio			TRC Costs By Program Per Year ($000)				TRC Benefits By Program Per Year ($000)				
Program	Program Year	NTGR	TRC[1]	Incremental Measure Cost		Program Administration Cost	Total TRC Costs	Capacity Benefits	Energy Benefits	Fossil Fuel and Water Benefits	O&M Benefits	Total TRC Benefits
				Paid by EDC	Paid by Participants							
Residential	*PY13*	*1.00*	*1.11*	*$6,553*	*$12,611*	$7,896	$27,060	$7,179	$14,105	$7,549	$1,102	$29,935
Residential	*PY14*	*1.00*	*1.14*	*$6,767*	*$13,105*	$8,055	$27,926	$7,534	$15,137	$8,033	$1,143	$31,847
Residential	*PY15*	*1.00*	*1.13*	*$7,191*	*$14,545*	$8,455	$30,189	$7,941	$16,523	$8,599	$1,093	$34,155
Residential	*PY16*	*1.00*	*1.17*	*$7,467*	*$15,133*	$8,694	$31,294	$8,401	$17,941	$9,173	$1,128	$36,644
Residential	*PY17*	*1.00*	*1.21*	*$7,710*	*$15,734*	$8,872	$32,316	$8,827	$19,348	$9,767	$1,164	$39,106
Residential Total		*1.00*	*1.15*	*$32,313*	*$64,299*	$38,045	$134,658	$36,077	$74,924	$38,957	$5,113	$155,072
Income-Eligible	*PY13*	*1.00*	*1.03*	*$5,835*	*$0*	$2,653	$8,488	$2,520	$4,872	$688	$662	$8,741
Income-Eligible	*PY14*	*1.00*	*1.06*	*$5,842*	*$0*	$2,653	$8,495	$2,567	$5,038	$699	$662	$8,966
Income-Eligible	*PY15*	*1.00*	*1.02*	*$5,722*	*$0*	$2,608	$8,331	$2,483	$4,810	$671	$496	$8,461
Income-Eligible	*PY16*	*1.00*	*1.06*	*$5,899*	*$0*	$2,676	$8,575	$2,653	$5,217	$691	$496	$9,058
Income-Eligible	*PY17*	*1.00*	*1.09*	*$5,891*	*$0*	$2,674	$8,565	$2,705	$5,439	$702	$496	$9,342
Income-Eligible Total		*1.00*	*1.05*	*$26,531*	*$0*	$12,057	$38,588	$11,734	$23,014	$3,137	$2,580	$40,465
Non-residential	*PY13*	*1.00*	*1.12*	*$27,323*	*$38,377*	$12,270	$77,970	$28,818	$57,651	-$3,271	$4,485	$87,684
Non-residential	*PY14*	*1.00*	*1.20*	*$36,472*	*$51,359*	$12,759	$100,590	$39,236	$79,663	-$4,508	$5,980	$120,372
Non-residential	*PY15*	*1.00*	*1.19*	*$45,211*	*$55,951*	$15,749	$116,891	$46,896	$90,451	-$5,241	$7,448	$139,553
Non-residential	*PY16*	*1.00*	*1.22*	*$46,007*	*$56,309*	$15,898	$118,214	$47,904	$94,539	-$5,187	$7,465	$144,721
Non-residential	*PY17*	*1.00*	*1.30*	*$25,794*	*$32,849*	$9,586	$68,229	$29,446	$58,189	-$3,282	$4,527	$88,880
Non-residential Total		*1.00*	*1.20*	*$164,029*	*$213,689*	$60,326	$438,043	$174,329	$345,101	-$19,499	$27,109	$527,040
Residential Home Energy Reports	*PY13*	*1.00*	*0.75*	*$0*	*$0*	$1,850	$1,850	$586	$804	$0	$0	$1,391
Residential Home Energy Reports	*PY14*	*1.00*	*1.49*	*$0*	*$0*	$2,188	$2,188	$1,384	$1,885	$0	$0	$3,269
Residential Home Energy Reports	*PY15*	*1.00*	*1.52*	*$0*	*$0*	$1,912	$1,912	$1,234	$1,680	$0	$0	$2,913
Residential Home Energy Reports	*PY16*	*1.00*	*1.56*	*$0*	*$0*	$1,893	$1,893	$1,246	$1,709	$0	$0	$2,955
Residential Home Energy Reports	*PY17*	*1.00*	*1.99*	*$0*	*$0*	$1,845	$1,845	$1,941	$1,737	$0	$0	$3,678
Residential Home Energy Reports Total		*1.00*	*1.44*	*$0*	*$0*	$8,822	$8,822	$5,696	$7,028	$0	$0	$12,724
Income-Eligible Home Energy Reports	*PY13*	*1.00*	*0.36*	*$0*	*$0*	$81	$81	$2	$28	$0	$0	$29
Income-Eligible Home Energy Reports	*PY14*	*1.00*	*0.91*	*$0*	*$0*	$122	$122	$6	$105	$0	$0	$111
Income-Eligible Home Energy Reports	*PY15*	*1.00*	*0.37*	*$0*	*$0*	$81	$81	$2	$28	$0	$0	$30
Income-Eligible Home Energy Reports	*PY16*	*1.00*	*0.96*	*$0*	*$0*	$122	$122	$6	$110	$0	$0	$116
Income-Eligible Home Energy Reports	*PY17*	*1.00*	*1.03*	*$0*	*$0*	$89	$89	$8	$84	$0	$0	$91
Income-Eligible Home Energy Reports Total		*1.00*	*0.75*	*$0*	*$0*	$448	$448	$21	$316	$0	$0	$337
Total[2]		*1.00*	*1.19*	*$222,873*	*$277,988*	$119,697	$620,558	$227,857	$450,384	$22,595	$34,802	$735,638

Notes:

[1] The TRC ratio will reflect the lifetime TRC, not an annual TRC ratio.

[2] Total TRC ratio for programs does not include common costs. See Figure 5 for portfolio total TRC analysis.

Net Portfolio	NTGR & TRC Ratio			TRC Costs By Program Per Year ($000)				TRC Benefits By Program Per Year ($000)				
Program	Program Year	NTGR	TRC[1]	Incremental Measure Cost		Program Administration Cost	Total TRC Costs	Capacity Benefits	Energy Benefits	Fossil Fuel and Water Benefits	O&M Benefits	Total TRC Benefits
				Paid by EDC	Paid by Participants							
Residential	*PY15*	*0.68*	*1.04*	*$6,991*	$7,027	$8,222	$22,240	$5,386	$11,090	$5,812	$807	$23,095
Residential	*PY16*	*0.68*	*1.08*	*$7,227*	$7,322	$8,397	$22,946	$5,665	$11,969	$6,202	$838	$24,674
Residential	*PY17*	*0.68*	*1.11*	*$7,474*	$7,632	$8,581	$23,687	$5,962	$12,935	$6,601	$870	$26,368
Residential Total		*0.68*	*1.04*	*$31,731*	$31,881	$37,339	$100,951	$24,445	$50,435	$26,395	$3,661	$104,935
Income-Eligible	*PY13*	*1.00*	*1.03*	*$5,835*	$0	$2,652	$8,487	$2,520	$4,872	$688	$662	$8,741
Income-Eligible	*PY14*	*1.00*	*1.06*	*$5,842*	$0	$2,652	$8,494	$2,567	$5,038	$699	$662	$8,966
Income-Eligible	*PY15*	*1.00*	*1.09*	*$5,835*	$0	$2,652	$8,487	$2,618	$5,231	$708	$662	$9,220
Income-Eligible	*PY16*	*1.00*	*1.12*	*$5,842*	$0	$2,652	$8,494	$2,671	$5,442	$731	$662	$9,507
Income-Eligible	*PY17*	*1.00*	*1.15*	*$5,835*	$0	$2,652	$8,487	$2,724	$5,669	$741	$662	$9,796
Income-Eligible Total		*1.00*	*1.09*	*$26,558*	$0	$12,055	$38,593	$11,889	$23,780	$3,237	$3,009	$41,914
Non-residential	*PY13*	*0.76*	*1.07*	*$27,325*	$22,609	$12,270	$62,202	$21,902	$43,815	-$2,486	$3,409	$66,640
Non-residential	*PY14*	*0.76*	*1.15*	*$36,472*	$30,280	$12,759	$79,511	$29,820	$60,544	-$3,426	$4,545	$91,483
Non-residential	*PY15*	*0.76*	*1.19*	*$45,594*	$37,826	$15,725	$99,145	$38,009	$78,584	-$4,458	$5,682	$117,817
Non-residential	*PY16*	*0.76*	*1.23*	*$45,594*	$37,826	$15,725	$99,145	$38,769	$81,668	-$4,403	$5,682	$121,716
Non-residential	*PY17*	*0.76*	*1.26*	*$27,325*	$22,609	$9,783	$59,716	$23,673	$50,901	-$2,761	$3,409	$75,223
Non-residential Total		*0.76*	*1.18*	*$165,278*	$137,032	$60,317	$362,627	$137,743	$285,179	-$15,867	$20,603	$427,658
Residential Home Energy Reports	*PY13*	*1.00*	*1.07*	*$0*	$0	$1,850	$1,850	$1,165	$804	$0	$0	$1,970
Residential Home Energy Reports	*PY14*	*1.00*	*2.12*	*$0*	$0	$2,188	$2,188	$2,751	$1,885	$0	$0	$4,636
Residential Home Energy Reports	*PY15*	*1.00*	*2.16*	*$0*	$0	$1,912	$1,912	$2,452	$1,680	$0	$0	$4,132
Residential Home Energy Reports	*PY16*	*1.00*	*2.21*	*$0*	$0	$1,893	$1,893	$2,476	$1,709	$0	$0	$4,185
Residential Home Energy Reports	*PY17*	*1.00*	*2.28*	*$0*	$0	$1,845	$1,845	$2,462	$1,737	$0	$0	$4,198
Residential Home Energy Reports Total		*1.00*	*1.95*	*$0*	$0	$8,822	$8,822	$10,174	$7,028	$0	$0	$17,202
Income-Eligible Home Energy Reports	*PY13*	*1.00*	*0.60*	*$0*	$0	$81	$81	$21	$28	$0	$0	$48
Income-Eligible Home Energy Reports	*PY14*	*1.00*	*1.52*	*$0*	$0	$122	$122	$80	$105	$0	$0	$184
Income-Eligible Home Energy Reports	*PY15*	*1.00*	*0.61*	*$0*	$0	$81	$81	$21	$28	$0	$0	$50
Income-Eligible Home Energy Reports	*PY16*	*1.00*	*1.58*	*$0*	$0	$122	$122	$83	$110	$0	$0	$193
Income-Eligible Home Energy Reports	*PY17*	*1.00*	*1.64*	*$0*	$0	$89	$89	$62	$84	$0	$0	$145
Income-Eligible Home Energy Reports Total		*1.00*	*1.24*	*$0*	$0	$448	$448	$238	$316	$0	$0	$555
Total[2]		*0.76*	*1.16*	*$225,547*	$168,913	$118,980	$511,440	$184,490	$366,737	$13,764	$27,273	$592,265

Notes:

[1] The TRC ratio will reflect the lifetime TRC, not an annual TRC ratio.

[2] Total TRC ratio for programs does not include common costs. See Figure 5 for portfolio total TRC analysis.

Net Portfolio	NTGR & TRC Ratio			TRC Costs By Program Per Year ($000)				TRC Benefits By Program Per Year ($000)				
Program	Program Year	NTGR	TRC[1]	Incremental Measure Cost		Program Administration Cost	Total TRC Costs	Capacity Benefits	Energy Benefits	Fossil Fuel and Water Benefits	O&M Benefits	Total TRC Benefits
				Paid by EDC	Paid by Participants							
Residential	*PY13*	*0.68*	*0.97*	*$6,553*	$6,478	$7,896	$20,927	$4,882	$9,591	$5,133	$749	$20,356
Residential	*PY14*	*0.68*	*1.00*	*$6,767*	$6,746	$8,055	$21,567	$5,123	$10,293	$5,462	$777	$21,656
Residential	*PY15*	*0.68*	*1.00*	*$7,191*	$7,588	$8,455	$23,234	$5,400	$11,236	$5,847	$743	$23,226
Residential	*PY16*	*0.68*	*1.04*	*$7,467*	$7,901	$8,694	$24,062	$5,713	$12,200	$6,238	$767	$24,918
Residential	*PY17*	*0.68*	*1.07*	*$7,710*	$8,232	$8,872	$24,814	$6,002	$13,157	$6,641	$792	$26,592
Residential Total		*0.68*	*1.02*	*$32,313*	$33,384	$38,045	$103,742	$24,532	$50,949	$26,491	$3,477	$105,449
Income-Eligible	*PY13*	*1.00*	*1.03*	*$5,835*	$0	$2,653	$8,488	$2,520	$4,872	$688	$662	$8,741
Income-Eligible	*PY14*	*1.00*	*1.06*	*$5,842*	$0	$2,653	$8,495	$2,567	$5,038	$699	$662	$8,966
Income-Eligible	*PY15*	*1.00*	*1.02*	*$5,722*	$0	$2,608	$8,331	$2,483	$4,810	$671	$496	$8,461
Income-Eligible	*PY16*	*1.00*	*1.06*	*$5,899*	$0	$2,676	$8,575	$2,653	$5,217	$731	$496	$9,097
Income-Eligible	*PY17*	*1.00*	*1.09*	*$5,891*	$0	$2,674	$8,565	$2,705	$5,439	$702	$496	$9,342
Income-Eligible Total		*1.00*	*1.05*	*$26,531*	$0	$12,057	$38,588	$11,734	$23,014	$3,171	$2,580	$40,499
Non-residential	*PY13*	*0.76*	*1.07*	*$27,525*	$22,609	$12,270	$62,202	$21,902	$43,815	-$2,486	$3,409	$66,640
Non-residential	*PY14*	*0.76*	*1.15*	*$36,472*	$30,280	$12,759	$79,511	$29,820	$60,544	-$3,426	$4,545	$91,483
Non-residential	*PY15*	*0.76*	*1.15*	*$45,211*	$31,657	$15,749	$92,617	$35,641	$68,743	-$3,983	$5,660	$106,061
Non-residential	*PY16*	*0.76*	*1.17*	*$46,007*	$31,753	$15,898	$93,658	$36,407	$71,849	-$3,942	$5,674	$109,988
Non-residential	*PY17*	*0.76*	*1.25*	*$25,794*	$18,775	$9,586	$54,155	$22,379	$44,224	-$2,494	$3,440	$67,549
Non-residential Total		*0.76*	*1.15*	*$164,029*	$123,036	$60,326	$347,391	$132,490	$262,277	-$14,819	$20,603	$400,550
Residential Home Energy Reports	*PY13*	*1.00*	*0.75*	*$0*	$0	$1,850	$1,850	$586	$804	$0	$0	$1,391
Residential Home Energy Reports	*PY14*	*1.00*	*1.49*	*$0*	$0	$2,188	$2,188	$1,384	$1,885	$0	$0	$3,269
Residential Home Energy Reports	*PY15*	*1.00*	*1.52*	*$0*	$0	$1,912	$1,912	$1,234	$1,680	$0	$0	$2,913
Residential Home Energy Reports	*PY16*	*1.00*	*1.56*	*$0*	$0	$1,893	$1,893	$1,246	$1,709	$0	$0	$2,955
Residential Home Energy Reports	*PY17*	*1.00*	*1.99*	*$0*	$0	$1,845	$1,845	$1,941	$1,737	$0	$0	$3,678
Residential Home Energy Reports Total		*1.00*	*1.44*	*$0*	$0	$8,822	$8,822	$5,696	$7,028	$0	$0	$12,724
Income-Eligible Home Energy Reports	*PY13*	*1.00*	*0.36*	*$0*	$0	$81	$81	$2	$28	$0	$0	$29
Income-Eligible Home Energy Reports	*PY14*	*1.00*	*0.91*	*$0*	$0	$122	$122	$6	$105	$0	$0	$111
Income-Eligible Home Energy Reports	*PY15*	*1.00*	*0.37*	*$0*	$0	$81	$81	$2	$28	$0	$0	$30
Income-Eligible Home Energy Reports	*PY16*	*1.00*	*0.96*	*$0*	$0	$122	$122	$6	$110	$0	$0	$116
Income-Eligible Home Energy Reports	*PY17*	*1.00*	*1.03*	*$0*	$0	$89	$89	$8	$84	$0	$0	$91
Income-Eligible Home Energy Reports Total		*1.00*	*0.75*	*$0*	$0	$448	$448	$21	$316	$0	$0	$337
Total[2]		*0.76*	*1.12*	*$222,873*	$156,420	$119,697	$498,990	$174,474	$343,584	$14,843	$26,660	$559,560

Notes:

[1] The TRC ratio will reflect the lifetime TRC, not an annual TRC ratio.

[2] Total TRC ratio for programs does not include common costs. See Figure 5 for portfolio total TRC analysis.

Appendix C. Calculation Methods and Assumptions

Total Resource Cost Test Calculation Methods

Benefit-cost analysis of PECO's portfolio of energy efficiency programs was conducted through the use of a comprehensive benefit-cost screening tool. The tool utilizes the most recent savings values and inputs from the Pennsylvania TRM when available, supplemented by inputs gathered from other Technical Reference Manuals and industry literature as necessary for those measures that are not in the Pennsylvania TRM. The tool uses inputs at the individual measure level (electric savings, incremental cost, participation levels, avoided costs, and energy costs) to calculate measure level savings and cost-effectiveness. The savings at the measure level are subtotaled for each program and sector and finally for the utility as a whole. At the program and sector level the model also calculates program level cost-effectiveness, program incentive and non-incentive costs, total program costs, and cost of conserved energy. The outputs are compared against target savings goals, spending caps, and cost-effectiveness limits.

The TRC test was the primary test used to analyze the cost-effectiveness of PECO's energy efficiency portfolio. The TRC test measures the total net resource expenditures of an energy efficiency program from the point of view of the utility and its ratepayers. Resource costs include changes in supply and participant costs. A program that passes this test (i.e., a ratio greater than 1) is viewed as beneficial to the utility and its customers because the savings in electric costs outweigh the costs incurred by the utility and its customers. Of particular note, per the PA PUC guidelines, measure lifetime is capped at 15 years, and non-electric benefits are included in the savings calculations (e.g. complementary natural gas savings from an electric efficiency measure). The following section outlines Guidehouse's methodology for conducting the cost-effectiveness analysis including an explanation of inputs and assumptions.

Incremental Measure Costs

Estimates of incremental measure costs were developed using the Pennsylvania TRM and a number of secondary sources including, Database for Energy Efficient Resources, Mid-Atlantic TRM, Efficiency Vermont TRM, other measure databases for other utilities and municipalities and databases of emerging technologies. Additionally, expert judgement from PECO's implementation contractors was used to refine saving and cost estimates where appropriate, such as for direct install measures where actual costs may be used.

Incentive Costs

Incentive amounts for each measure were initially determined using industry standard benchmarks of portion of incremental measure cost covered by the incentive, typically in the range of 20%-50%, but at times up to 100%. These initial estimates were further refined based on careful consideration of the market for each measure or set of measures.

Utility Administrative Costs

Program administrative non-incentive costs were estimated for each program. Initial estimates were developed using industry standard benchmarks of admin costs per kWh saved and per incentive. These initial estimates were refined through discussion with implementation

contractors, incorporating considerations of each programs' unique market conditions. Common costs such as EM&V, technical support, and tracking system costs were estimated for each program portfolio using industry standard benchmarks, supplemented by past experience.

Measure Level Total Resource Cost Test Calculation

= Measure Level TRC Benefits / Measure Level TRC Costs

Where:

Measure Level TRC Benefits

= -PV (Discount Rate, Measure Life, (AVCOS Demand * Coincident Demand Savings * LLF) + [(Summer-On kWh Savings * Summer-On kWh AVCOS) + (Summer-Off kWh Savings * Summer-Off kWh AVCOS) + (Winter-On kWh Savings * Winter-On kWh AVCOS) + (Winter-Off kWh Savings * Winter-Off kWh AVCOS)* LLF] + (Natural Gas Savings * Natural Gas AVCOS *LLF) + (Water Savings * Water AVCOS) + O&M Savings) * NTG

Where:

PV = Present value Discount Rate

Measure Life = variable (15 year max)

LLF = Line Loss Factor

O&M = Operation and Maintenance

Measure Level TRC Cost

= Incremental Measure Cost * NTG

Program Level Total Resource Cost Test Calculation

= Program Level TRC Benefits / Program Level TRC Costs

Where:

Program Level TRC Benefits = sum (Measure Level TRC Benefits)

Program Level TRC Costs = sum (Measure Level TRC Costs) + Program Admin Costs

Where:

Program Admin Costs = Sum of Annual Program Costs

Including:

- Program Delivery Costs
- Program Marketing Costs

Portfolio Level Total Resource Cost Test Calculation

= Portfolio Level TRC Benefits / Portfolio Level TRC Costs

Where:

Portfolio Level TRC Benefit = sum (Program Level TRC Benefits)

Portfolio Level TRC Costs = sum (Program Level TRC Costs) + Common Costs

Where:

Common Cost:

- General Ed & Awareness
- Utility Administration
- Technical Support
- EM&V
- Contingency

Appendix D. Glossary of Terms and Definitions

ACT 129: House Bill 2200 signed into law by Governor Rendell which created an Energy Efficiency and Conservation program requiring utilities with at least 100,000 customers to reduce their electric consumption and demand in their service territories.

Achievable Potential: The amount of energy consumption that efficiency can realistically be expected to displace assuming the most aggressive program scenario possible (such as providing end-users with payments for the entire incremental cost of more efficient equipment). This is often referred to as maximum achievable potential. Achievable potential takes into account real-world barriers to convincing end-users to adopt efficiency measures, the non-measure costs of delivering programs (for administration, marketing, tracking systems, monitoring and evaluation, etc.), and the capability of programs and administrators to ramp up program activity over time.

Applicability Factor: The fraction of the applicable dwelling units that are technically feasible for conversion to the efficient technology from an engineering perspective (e.g., it may not be possible to install CFL bulbs in all light sockets in a home because the CFL bulbs may not fit in every socket in a home).

Annual Report: The Annual report includes all activity associated with energy efficiency and demand response energy reduction programs for a given year and is filed no later than October 30th, following the last day of a full program year.

Base Case Equipment End-Use Intensity: The electricity used per customer per year by each base-case technology in each market segment. This is the consumption of the electric energy using equipment that the efficient technology replaces or affects. For example, purposes only, if the efficient measure were a high efficiency lamp (CFL), the base end-use intensity would be the annual kWh use per bulb per household associated with an incandescent light bulb that provides equivalent lumens to the CFL.

Base Case Factor: The fraction of the end-use electric energy that is applicable for the efficient technology in a given market segment. For example, for residential lighting, this would be the fraction of all residential electric customers that have electric lighting in their household.

Baseline: Condition that would have occurred without implementation of the subject project or program.

Common Costs: Overhead costs shared by all programs associated with plan implementation such as IT, legal, mass marketing, etc.

Coincidence Factor: The fraction of connected load expected to be “on” and using electricity coincident with the system peak period.

Cost-Effectiveness: A measure of the relevant economic effects resulting from the implementation of an energy efficiency measure. If the present value of lifetime benefits outweighs the present value of lifetime costs, the measure is said to be cost-effective.

Cumulative Annual: Refers to the overall savings occurring in a given year from both new participants and savings continuing to result from past participation with measures that are still in place. Cumulative annual does not always equal the sum of all prior year incremental values as some measures have relatively short measure lives and, as a result, their savings drop off over time.

Conservation Service Provider (CSP): Is an entity that provides services to PECO on behalf of its Energy Efficiency and Conservation Plan and will have an overall responsibility for the implementation of the contracted programs.

Demand Response: The ability to provide peak load capacity through demand management (load control) programs. This methodology focuses on curtailment of loads during peak demand times thus avoiding the requirement to find new sources of generation capacity.

Deemed Savings: An estimate of an energy savings or energy-demand savings outcome (gross savings) for a single unit of an installed energy efficiency measure

Early Replacement: Refers to an efficiency measure or efficiency program that seeks to encourage the replacement of functional equipment before the end of its operating life with higher-efficiency units

Economic Potential: The subset of the technical potential screen that is economically cost-effective as compared to conventional supply-side energy resources. Both technical and economic potential screens are theoretical numbers that assume immediate implementation of efficiency measures, with no regard for the gradual “ramping up” process of real-life programs. In addition, they ignore market barriers to ensuring actual implementation of efficiency. Finally, they only consider the costs of efficiency measures themselves, ignoring any programmatic costs (such as marketing, analysis, administration) that would be necessary to capture them.

End-Use: A category of equipment or service that consumes energy (e.g., lighting, refrigeration, heating, process heat).

Evaluation Measurement & Verification Contractor: Qualified energy efficiency program evaluation entity that provides evaluation services to PECO’s Energy Efficiency and Conservation Plan.

Energy Efficiency & Conservation Plan: A collection of similar programs addressing the same market, technology, or mechanisms; or the set of all programs conducted by one organization.

Energy Efficiency: Using less energy to provide the same or an improved level of service to the energy consumer in an economically efficient way. Sometimes “conservation” is used as a synonym, but that term is usually taken to mean using less of a resource even if this results in a lower service level (e.g., setting a thermostat lower or reducing lighting levels). This recognizes that energy efficiency includes using less energy at any time, including at times of peak demand through demand response and peak shaving efforts.

Eligible Measures: Types of measures that qualify for program incentives and include a summary of efficiency specifications (e.g., ENERGY STAR qualified products).

ENERGY STAR: A minimum standard for high quality and efficiency measures such as lighting and equipment.

Free Driver: Individuals or businesses that adopt an energy efficient product or service because of an EE/DR program but are difficult to identify either because they do not receive an incentive or are not aware of exposure to the program.

Free Rider: Participants in an EE/PDR program who would have adopted an EE/PDR technology or improvement in the absence of a program of financial incentive.

Incremental: Savings or costs in a given year associated only with new installations happening in year.

Impact Evaluation: Is the estimation of effects from the implementation of one or more EE/PDR programs. Most program impact projections contain ex-ante estimates of savings. These estimates are what the program is expected to save as a result of its implementation efforts and are often used for program planning and contracting purposes and for prioritizing program funding choices. In contrast, the impact evaluation focuses on identifying and estimating the amount of energy and demand the program actually provides.

Implementation Strategy: Activities involved in program delivery education and training. Some programs primarily work downstream at the customer level, where others involve upstream partnerships with trade allies.

Incentives: Rebates offered to program participants, CSPs and trade allies to deliver the program.

Incremental Costs: Non-incentive costs that are associated with delivering savings

Lost-Opportunity: Refers to an efficiency measure or efficiency program that seeks to encourage the selection of higher-efficiency equipment or building practices than would typically be chosen at the time of a purchase or design decision.

Load Shapes: Energy forecasting in effort to understand how more efficient products like air conditioning and lighting can help control overall and peak demand.

Market Transformation: An approach in which a program attempts to influence “upstream” service and equipment provider market channels and what they offer end customers, along with educating and informing end customers directly. The emphasis is on influencing market channels and key market factors other than end customers.

Marketing Strategy: Identifies the way a program will be marketed to customers; via a trade ally outreach component targeting retailers/contractors/home builders.

Measure: Any action taken to increase efficiency, whether through changes in equipment, control strategies, or behavior. Examples are higher-efficiency central air conditioners, occupancy sensor control of lighting, and retro-commissioning. In some cases, bundles of technologies or practices may be modeled as single measures. For example, an ENERGY STAR™ home package may be treated as a single measure.

Measure Life: The number of years (or hours) that the new energy efficient equipment is expected to function. Measure life is also commonly referred to as useful life.

Megawatt (MW): A unit of electrical output, equal to one million watts or one thousand kilowatts. It is typically used to refer to the output of a power plant.

Megawatt-hour (MWh): One thousand kilowatt-hours, or one million watt-hours. One MWh is equal to the use of 1,000,000 watts of power in one hour.

Net-to-gross (NTG) Ratio: A factor representing net program savings divided by gross program savings that is applied to gross program impacts to convert them into net program load impacts

Non-Incentive Costs: Administrative costs associated with program delivery and overhead.

Quarterly Report: Reports that capture program activity for the quarter and are filed 45 days after the close of each quarter.

Peak Demand Reduction: Reductions in peak electricity demand due to the installation of equipment or behavior changes. The peak demand period for Act 129 programs is non-holiday weekdays June through September from 2:00 p.m. to 6:00 p.m. Eastern Daylight Time.

Portfolio: A combination of programs among all customer classes targeted for energy efficiency and Demand reduction plans by a utility.

Process Evaluation: Is a systematic assessment of an EE/PDR program for the purposes of documenting program operations at the time of the examination and identifying improvements that can be made to increase the program's efficiency or effectiveness for acquiring energy resources.

Program: A mechanism for encouraging EE/DR. May be funded by a variety of sources and pursued by a wide range of approaches. Typically includes multiple measures.

Program Year: Defined as a year commencing June 1 of the named year and concluding on May 31st of the following year. For example, Program Year 2016 commences on June 1, 2016 and concludes on May 31, 2017.

Program Potential: The efficiency potential possible given specific program funding levels and designs. Often, program potential studies are referred to as "achievable" in contrast to "maximum achievable."

Program Budget: Annual budget and allocations for major budget categories (e.g., incentives, administration, marketing, delivery, evaluation).

Persistence: Is the measure still in place; are the savings persisting/continuing.

Remaining Factor: The fraction of applicable units that have not yet been converted to the electric EE/PDR measure; that is, one minus the fraction of units that already have the EE/PDR measure installed.

Realization Rate: Ratio of evaluated to forecasted savings.

Resource Acquisition: An approach in which end customers are the primary target of program offerings (e.g., using rebates to influence customers' purchases of end-use equipment).

Retrofit: Refers to an efficiency measure or efficiency program that seeks to encourage the replacement of functional equipment before the end of its operating life with higher-efficiency units (also called "early retirement") or the installation of additional controls, equipment, or materials in existing facilities for purposes of reducing energy consumption (e.g., increased insulation, low flow devices, lighting occupancy controls, economizer ventilation systems).

Recovery Mechanism: Recovering Act 129 costs via ratepayer surcharges.

Savings Factor: The percentage reduction in electricity consumption resulting from application of the efficient technology used in the formulas for technical potential screens.

Statewide Evaluator: A state appointed evaluation agency that performs measurement and verification analysis of cost-effectiveness on the work done by and with the contracted EM&V provider on behalf of the utility as well as develops measurement and evaluation protocol.

Spillover: Types of actions participants and non-participants have taken on their own.

Target Market: Types of customers the program is looking to reach. The target market can be defined broadly (e.g., residential/C&I) or narrowly (e.g., single family homes at least 20 years old) depending on the scope of the program.

Technical Potential: The theoretical maximum amount of energy use that could be displaced by efficiency, disregarding all non-engineering constraints such as cost-effectiveness and the willingness of end-users to adopt the efficiency measures. It is often estimated as a "snapshot" in time assuming immediate implementation of all technologically feasible energy saving measures, with additional efficiency opportunities assumed as they arise from activities such as new construction.

Technical Reference Manual (TRM): Standards used to measure and verify applicable Demand Side Management/Energy Efficiency measures used by the utility to meet the ACT 129 consumption and peak demand reduction targets.

Total Resource Test (TRC): Is the cost-effectiveness test defined by the PUC in order to evaluate the effectiveness of all programs that are part of PECO's Energy Efficiency and Conservation Plan.

Trade Ally: Any third-party who promotes the sale of and/or installs qualifying high-efficiency equipment for the customer is considered a trade ally. Participating trade allies include equipment contractors, equipment trade allies, equipment manufacturers and distributors, energy service companies, and engineering or architectural firms.

Tracking System: Is defined as a database system that tracks a number of items that facilitate effective project tracking and regulatory reporting. The data also supports PECO's Quality Assurance process as well as EM&V requirements as part of the EE&C Plan.

Utility Cost Test: Compares the utility costs and benefits of energy efficiency.

Appendix E. Avoided Cost Calculator

PECO created the avoided costs on September 30, 2020 after gathering publicly available data sets as inputs to support the avoided cost analysis. PECO followed direction from the PUC in the TRC Order. We have organized the information according to the tabs in the PUC's Excel avoided cost calculator.

General Instructions

Pennsylvania Act 129 IV Avoided Energy and Capacity Cost Calculator
This calculator is to be utilized with the Pennsylvania Act 129 Phase IV Total Resource Cost (TRC) test Order. This calculator, developed by the State Wide Evaluator (SWE), executes the methodology outlined within the TRC Order to develop avoided energy and capacity costs for TRC calculations. Please refer to the Phase IV TRC Order for additional methodology narrative and source references. For Phase IV, the start year shall be set to program year 13 (2021/2022). The user shall gather publicly available data sets as inputs. This calculator includes the costs of compliance with the Pennsylvania Alternative Energy Portfolio Standard (AEPS) within the avoided energy cost calculations.

Legend	
	Inputs - where no value is available, utilize text "No Value" and not a zero or null value
	Calculation Cell - do not edit
	Results for Segment 1 - Years 1 through 4
	Results for Segment 2 - Years 5 through 10
	Results for Segment 3 - Years 11 through 20

Data Needed	TRC Order Section	Input Tab
EDC Name		General Inputs
Start Year		General Inputs
Inflation Rate	A.7 Page 8	General Inputs
Plant Heat Rates	B.2.b.v Page 15	General Inputs
NYMEX Electric Futures at PJM Western Hub	B.2.a Page 13	Elec Futures
PJM State of Market EDC Zone Locational Adjustment	B.2.a Page 13	Elec Futures
NYMEX Natural Gas Futures at Henry Hub	B.2.b.i Page 14	NG Futures
EIA AEO Mid Atlantic Natural Gas Price Forecast in Real Dollars	B.2.b.iii Page 15	NG Futures
NYMEX Natural Gas Adjustments at Transco 6 (Non-NY) or Tetco M-3	B.2.b.ii Page 14	Adjustments
PJM Base Residual Auction Results	B.6 Page 17	Generation Capacity
Transmission and Distribution Capacity Costs	B.7 Page 18	T&D Capacity
AEPS Avoided Costs	B.8 Page 20	AEPS

Monetary Issues:	All output dollars are nominal

Calendarization Issues:	The PA Act 129 calendar follows the PJM calendar, which starts in the month of June and ends in the month of May. For a measure installed within a PA Act 129 program year, the avoided energy costs are based on the calendar year of the last months in the PJM calendar. For instance, a measure installed in PA Act 129 program year 13 (6/1/2021-5/31/2022), the avoided energy costs will be calculated based on 12 months of data from the calendar year 2022.

General Inputs

General		
Company Name	PECO	
Start Year (Program)	13	2022
Discount Rate	5%	TRC Order A.4 page 8
Inflation Rate	2%	TRC Order A.4 page 8
AEPS Avoided Cost ($/MWh)	$0.83	TRC Order B.8 page 20
Plant Specifications		
	Heat Rate (Btu/kWh)	
Low Efficiency Plant	11,176	TRC Order B.2.b.v page 15
High Efficiency Plant	7,649	TRC Order B.2.b.v page 15
Electric Distribution Companies		NYMEX NG Futures Source
Duquesne Light Co	DLC	Tetco M-3
Metropolitan Edison Co	Met-Ed	Transco 6 (Non-NY)
PECO Energy Co	PECO	Transco 6 (Non-NY)
Pennsylvania Electric Co	Penelec	Tetco M-3
Pennsylvania Power Co	Penn Power	Tetco M-3
PPL Utilities	PPL	Transco 6 (Non-NY)
West Penn Power Co	West Penn	Tetco M-3
Seasonal Definitions		
Jan	Winter	
Feb	Winter	
Mar	Shoulder	
Apr	Shoulder	
May	Summer	
Jun	Summer	
Jul	Summer	
Aug	Summer	
Sep	Summer	
Oct	Shoulder	
Nov	Shoulder	
Dec	Winter	

Calendar				
Act 129 PY	PY Start	PY End	Avoided Energy YR	AEPS Cost
13	2021	2022	2022	$0.83
14	2022	2023	2023	$0.85
15	2023	2024	2024	$0.87
16	2024	2025	2025	$0.89
17	2025	2026	2026	$0.90
18	2026	2027	2027	$0.92
19	2027	2028	2028	$0.94
20	2028	2029	2029	$0.96
21	2029	2030	2030	$0.98
22	2030	2031	2031	$1.00
23	2031	2032	2032	$1.02
24	2032	2033	2033	$1.04
25	2033	2034	2034	$1.06
26	2034	2035	2035	$1.08
27	2035	2036	2036	$1.10
28	2036	2037	2037	$1.12
29	2037	2038	2038	$1.14
30	2038	2039	2039	$1.17
31	2039	2040	2040	$1.19
32	2040	2041	2041	$1.21
33	2041	2042	2042	$1.24
34	2042	2043	2043	$1.26
35	2043	2044	2044	$1.29
36	2044	2045	2045	$1.32
37	2045	2046	2046	$1.34
38	2046	2047	2047	$1.37
39	2047	2048	2048	$1.40
40	2048	2049	2049	$1.42
41	2049	2050	2050	$1.45
42	2050	2051	2051	$1.48

Outputs

PA ACT 129 Program Year	Year	PECO Zone Summer On-Peak ($/MWh)	PECO Zone Summer Off-Peak ($/MWh)	PECO Zone Winter On-Peak ($/MWh)	PECO Zone Winter Off-Peak ($/MWh)	PECO Zone Shoulder On-Peak ($/MWh)	PECO Zone Shoulder Off-Peak ($/MWh)	Generation Capacity ($/kW/ year)	Transmission Capacity ($/kW/ year)	Distribution Capacity ($/kW/ year)	Avoided Natural Gas Fuel Costs ($/ MMBTU)	
13	2022	$28.79	$20.49	$38.37	$30.71	$28.39	$22.37	$60.70	$4.00	$44.30	$2.72	Segment 1
14	2023	$28.53	$20.90	$37.89	$31.33	$27.93	$22.81	$60.73	$4.08	$45.19	$2.57	
15	2024	$29.10	$21.32	$38.64	$31.95	$28.49	$23.27	$61.94	$4.16	$46.09	$2.56	
16	2025	$29.69	$21.74	$39.42	$32.59	$29.06	$23.74	$63.18	$4.24	$47.01	$2.59	
17	2026	$29.95	$21.66	$39.64	$32.46	$29.06	$23.48	$64.44	$4.33	$47.95	$2.75	Segment 2
18	2027	$31.87	$23.00	$43.09	$34.93	$31.25	$25.05	$65.73	$4.42	$48.91	$2.96	
19	2028	$33.91	$24.42	$46.85	$37.61	$33.57	$26.71	$67.05	$4.50	$49.89	$3.18	
20	2029	$35.78	$25.72	$50.17	$39.99	$35.65	$28.21	$68.39	$4.59	$50.89	$3.39	
21	2030	$37.46	$26.90	$53.11	$42.12	$37.56	$29.59	$69.76	$4.69	$51.90	$3.57	
22	2031	$39.33	$28.21	$56.52	$44.57	$39.64	$31.09	$71.15	$4.78	$52.94	$3.77	
23	2032	$41.78	$29.91	$61.25	$47.92	$42.41	$33.06	$72.57	$4.88	$54.00	$4.05	Segment 3
24	2033	$43.36	$31.02	$64.09	$49.99	$44.14	$34.33	$74.03	$4.97	$55.08	$4.22	
25	2034	$44.85	$32.06	$66.70	$51.89	$45.75	$35.51	$75.51	$5.07	$56.18	$4.38	
26	2035	$45.20	$32.33	$66.86	$52.13	$46.02	$35.79	$77.02	$5.17	$57.31	$4.40	
27	2036	$45.65	$32.67	$67.23	$52.51	$46.41	$36.14	$78.56	$5.28	$58.45	$4.44	
28	2037	$46.83	$33.50	$69.15	$53.95	$47.65	$37.08	$80.13	$5.38	$59.62	$4.56	
29	2038	$47.87	$34.24	$70.75	$55.18	$48.72	$37.90	$81.73	$5.49	$60.81	$4.66	
30	2039	$48.69	$34.83	$71.87	$56.08	$49.54	$38.55	$83.37	$5.60	$62.03	$4.74	
31	2040	$49.83	$35.64	$73.67	$57.45	$50.73	$39.45	$85.03	$5.71	$63.27	$4.85	
32	2041	$51.00	$36.47	$75.51	$58.85	$51.94	$40.38	$86.73	$5.83	$64.54	$4.97	

Elec Futures

Record Field	Period	Month	Year	Prices as of 9/30/20 (NYMEX, provided by Ventyx Velocity Suite). NYMEX: PJM Western Hub On-peak ($/MWh)	Prices as of 9/30/20 (NYMEX, provided by Ventyx Velocity Suite). NYMEX: PJM Western Hub Off-peak ($/MWh)		PECO Zone Adjusted On-Peak ($/MWh)	PECO Zone Adjusted Off-Peak ($/MWh)
1	Jan-21	Jan	2021	$44.03	$34.35		$42.07	$32.82
2	Feb-21	Feb	2021	$41.15	$32.15		$39.32	$30.72
3	Mar-21	Mar	2021	$34.35	$27.11		$32.82	$25.90
4	Apr-21	Apr	2021	$30.30	$22.89		$28.95	$21.87
5	May-21	May	2021	$30.58	$21.73		$29.22	$20.76
6	Jun-21	Jun	2021	$29.55	$20.40		$28.24	$19.49
7	Jul-21	Jul	2021	$34.36	$22.51		$32.83	$21.51
8	Aug-21	Aug	2021	$31.82	$21.21		$30.40	$20.27
9	Sep-21	Sep	2021	$30.79	$21.25		$29.42	$20.30
10	Oct-21	Oct	2021	$30.10	$22.52		$28.76	$21.52
11	Nov-21	Nov	2021	$30.85	$22.52		$29.48	$21.52
12	Dec-21	Dec	2021	$33.09	$26.06		$31.62	$24.90
13	Jan-22	Jan	2022	$45.00	$35.72		$43.00	$34.13
14	Feb-22	Feb	2022	$42.00	$32.98		$40.13	$31.51
15	Mar-22	Mar	2022	$31.71	$26.54		$30.30	$25.36
16	Apr-22	Apr	2022	$27.65	$21.36		$26.42	$20.41
17	May-22	May	2022	$27.25	$20.07		$26.04	$19.18
18	Jun-22	Jun	2022	$27.20	$20.02		$25.99	$19.13
19	Jul-22	Jul	2022	$32.75	$22.56		$31.29	$21.56
20	Aug-22	Aug	2022	$30.15	$20.64		$28.81	$19.72
21	Sep-22	Sep	2022	$28.94	$19.57		$27.65	$18.70
22	Oct-22	Oct	2022	$27.95	$20.72		$26.71	$19.80
23	Nov-22	Nov	2022	$28.05	$21.52		$26.80	$20.56
24	Dec-22	Dec	2022	$30.85	$25.11		$29.48	$23.99
25	Jan-23	Jan	2023	$44.35			$42.38	$34.81
26	Feb-23	Feb	2023	$41.60			$39.75	$32.14
27	Mar-23	Mar	2023	$31.33			$29.94	$25.87
28	Apr-23	Apr	2023	$27.49			$26.27	$20.82
29	May-23	May	2023	$27.44			$26.22	$19.56
30	Jun-23	Jun	2023	$26.79			$25.60	$19.51
31	Jul-23	Jul	2023	$32.37			$30.93	$21.99
32	Aug-23	Aug	2023	$29.63			$28.31	$20.12
33	Sep-23	Sep	2023	$28.63			$27.36	$19.07
34	Oct-23	Oct	2023	$27.14			$25.93	$20.19
35	Nov-23	Nov	2023	$27.39			$26.17	$20.97
36	Dec-23	Dec	2023	$30.33			$28.98	$24.47
37	Jan-24	Jan	2024				$43.22	$35.51
38	Feb-24	Feb	2024				$40.54	$32.79
39	Mar-24	Mar	2024				$30.53	$26.38
40	Apr-24	Apr	2024				$26.79	$21.23
41	May-24	May	2024				$26.74	$19.95
42	Jun-24	Jun	2024				$26.11	$19.90
43	Jul-24	Jul	2024				$31.55	$22.43
44	Aug-24	Aug	2024				$28.88	$20.52
45	Sep-24	Sep	2024				$27.90	$19.45
46	Oct-24	Oct	2024				$26.45	$20.60
47	Nov-24	Nov	2024				$26.69	$21.39
48	Dec-24	Dec	2024				$29.56	$24.96
49	Jan-25	Jan	2025				$44.09	$36.22
50	Feb-25	Feb	2025				$41.35	$33.44
51	Mar-25	Mar	2025				$31.15	$26.91
52	Apr-25	Apr	2025				$27.33	$21.66
53	May-25	May	2025				$27.28	$20.35
54	Jun-25	Jun	2025				$26.63	$20.30
55	Jul-25	Jul	2025				$32.18	$22.88
56	Aug-25	Aug	2025				$29.46	$20.93
57	Sep-25	Sep	2025				$28.46	$19.84
58	Oct-25	Oct	2025				$26.98	$21.01
59	Nov-25	Nov	2025				$27.23	$21.82
60	Dec-25	Dec	2025				$30.15	$25.46
End of Segment I								

Real-Time, Load-Weighted LMPs ($/MWH) [see footnote, as the reported Western Hub price is not load-weighted]				
	Western Hub	PECO Zone	Basis Factor	
2018	$36.95	$36.36	98%	2018 should be used, per 10/5/20 email from Patrick Burns. Source: 2019 PJM State of the Market Report (https://www.monitoringanalytics.com/reports/PJM_State_of_the_Market/2019/2019-som-pjm-volume2.pdf).
2019	$26.70	$24.75	93%	2019 should be used, per 10/5/20 email from Patrick Burns. Source: 2019 PJM State of the Market Report (https://www.monitoringanalytics.com/reports/PJM_State_of_the_Market/2019/2019-som-pjm-volume2.pdf).
Average			96%	
Source: State of the Market Report for PJM				

Footnote: As stated in the 2019 PJM State of the Market Report, load-weighted hub prices are no longer reported: "The real-time components of LMP are the simple average of the hourly components for each hub. Some hubs include only generation buses and do not include load buses. The real-time components of LMP were previously reported as the real-time load-weighted average of the hourly components of LMP." Per a 10/9/20 call with Patrick Burns, for this iteration of the ACC, we can use the ratio of the reported load-weighted PECO Zone price to the reported simple average Western Hub price. It is recognized that this is apples-to-oranges, and this can be addressed in the next iteration of the ACC.

NG Futures

EIA AEO Mid-Atlantic Data																				
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042
$2.89	$2.91	$3.03	$3.22	$3.27	$3.34	$3.35	$3.30	$3.24	$3.22	$3.26	$3.33	$3.39	$3.34	$3.30	$3.32	$3.33	$3.32	$3.33	$3.35	$3.37
$2.95	$3.03	$3.21	$3.49	$3.61	$3.76	$3.85	$3.87	$3.87	$3.92	$4.05	$4.22	$4.38	$4.40	$4.44	$4.56	$4.66	$4.74	$4.85	$4.97	$5.10

Source: https://www.eia.gov/outlooks/aeo/supplement/excel/suptab_3.2.xlsx

				Prices as of 9/30/20 (NYMEX, provided by Ventyx Velocity Suite).			
Record Field	Period	Month	Year	NYMEX: Henry Hub Natural Gas Price ($/MMBTU)	NYMEX: PECO Natural Gas Price $/MMBTU	EIA AEO Gas Prices	PECO Natural Gas Price ($/MMBTU)
1	Jan-21	Jan	2021	$3.27	$5.13	$0.00	$5.13
2	Feb-21	Feb	2021	$3.22	$4.97	$0.00	$4.97
3	Mar-21	Mar	2021	$3.10	$3.19	$0.00	$3.19
4	Apr-21	Apr	2021	$2.79	$2.61	$0.00	$2.61
5	May-21	May	2021	$2.75	$2.33	$0.00	$2.33
6	Jun-21	Jun	2021	$2.77	$2.38	$0.00	$2.38
7	Jul-21	Jul	2021	$2.81	$2.46	$0.00	$2.46
8	Aug-21	Aug	2021	$2.82	$2.47	$0.00	$2.47
9	Sep-21	Sep	2021	$2.80	$2.21	$0.00	$2.21
10	Oct-21	Oct	2021	$2.83	$2.32	$0.00	$2.32
11	Nov-21	Nov	2021	$2.89	$2.67	$0.00	$2.67
12	Dec-21	Dec	2021	$3.03	$3.44	$0.00	$3.44
13	Jan-22	Jan	2022	$3.13	$4.99	$5.43	$4.99
14	Feb-22	Feb	2022	$3.08	$4.83	$5.25	$4.83
15	Mar-22	Mar	2022	$2.90	$2.99	$3.20	$2.99
16	Apr-22	Apr	2022	$2.46	$2.28	$2.46	$2.28
17	May-22	May	2022	$2.40	$1.98	$2.14	$1.98
18	Jun-22	Jun	2022	$2.42	$2.03	$2.20	$2.03
19	Jul-22	Jul	2022	$2.45	$2.11	$2.29	$2.11
20	Aug-22	Aug	2022	$2.46	$2.11	$2.30	$2.11
21	Sep-22	Sep	2022	$2.45	$1.85	$2.01	$1.85
22	Oct-22	Oct	2022	$2.47	$1.95	$2.12	$1.95
23	Nov-22	Nov	2022	$2.55	$2.33	$2.55	$2.33
24	Dec-22	Dec	2022	$2.73	$3.14	$3.47	$3.14
25	Jan-23	Jan	2023	$2.85	$4.75	$5.57	$4.75
26	Feb-23	Feb	2023	$2.81	$4.59	$5.39	$4.59
27	Mar-23	Mar	2023	$2.65	$2.74	$3.28	$2.74
28	Apr-23	Apr	2023	$2.32	$2.14	$2.52	$2.14
29	May-23	May	2023	$2.28	$1.86	$2.19	$1.86
30	Jun-23	Jun	2023	$2.32	$1.92	$2.26	$1.92
31	Jul-23	Jul	2023	$2.35	$2.00	$2.35	$2.00
32	Aug-23	Aug	2023	$2.36	$2.00	$2.35	$2.00
33	Sep-23	Sep	2023	$2.35	$1.74	$2.06	$1.74
34	Oct-23	Oct	2023	$2.37	$1.85	$2.18	$1.85
35	Nov-23	Nov	2023	$2.46	$2.24	$2.61	$2.24
36	Dec-23	Dec	2023	$2.66	$3.08	$3.56	$3.08
37	Jan-24	Jan	2024	$2.79	$4.72	$5.91	$4.72
38	Feb-24	Feb	2024	$2.75	$4.57	$5.72	$4.57
39	Mar-24	Mar	2024	$2.60	$2.69	$3.48	$2.69
40	Apr-24	Apr	2024	$2.30	$2.11	$2.68	$2.11
41	May-24	May	2024	$2.27	$1.84	$2.33	$1.84
42	Jun-24	Jun	2024	$2.31	$1.90	$2.40	$1.90
43	Jul-24	Jul	2024	$2.35	$1.99	$2.49	$1.99
44	Aug-24	Aug	2024	$2.36	$2.00	$2.50	$2.00
45	Sep-24	Sep	2024	$2.36	$1.74	$2.18	$1.74
46	Oct-24	Oct	2024	$2.39	$1.86	$2.31	$1.86
47	Nov-24	Nov	2024	$2.48	$2.25	$2.77	$2.25
48	Dec-24	Dec	2024	$2.68	$3.11	$3.78	$3.11
49	Jan-25	Jan	2025	$2.81	$4.79	$6.42	$4.79
50	Feb-25	Feb	2025	$2.78	$4.63	$6.21	$4.63

				Prices as of 9/30/20 (NYMEX, provided by Ventyx Velocity Suite).			
Record Field	Period	Month	Year	NYMEX: Henry Hub Natural Gas Price ($/MMBTU)	NYMEX: PECO Natural Gas Price $/MMBTU	EIA AEO Gas Prices	PECO Natural Gas Price ($/MMBTU)
51	Mar-25	Mar	2025	$2.64	$2.73	$3.78	$2.73
52	Apr-25	Apr	2025	$2.33	$2.14	$2.91	$2.14
53	May-25	May	2025	$2.31	$1.87	$2.53	$1.87
54	Jun-25	Jun	2025	$2.34	$1.93	$2.60	$1.93
55	Jul-25	Jul	2025	$2.38	$2.01	$2.71	$2.01
56	Aug-25	Aug	2025	$2.39	$2.02	$2.71	$2.02
57	Sep-25	Sep	2025	$2.38	$1.75	$2.37	$1.75
58	Oct-25	Oct	2025	$2.41	$1.86	$2.51	$1.86
59	Nov-25	Nov	2025	$2.49	$2.26	$3.01	$2.26
60	Dec-25	Dec	2025	$2.68	$3.12	$4.10	$3.12
61	Jan-26	Jan	2026	$2.81	$4.82	$6.65	$5.08
62	Feb-26	Feb	2026	$2.77	$4.66	$6.43	$4.92
63	Mar-26	Mar	2026	$2.64	$2.74	$3.91	$2.90
64	Apr-26	Apr	2026	$2.34	$2.14	$3.02	$2.27
65	May-26	May	2026	$2.32	$1.87	$2.62	$1.98
66	Jun-26	Jun	2026	$2.36	$1.93	$2.70	$2.04
67	Jul-26	Jul	2026	$2.39	$2.02	$2.80	$2.13
68	Aug-26	Aug	2026	$2.39	$2.02	$2.81	$2.13
69	Sep-26	Sep	2026	$2.39	$1.75	$2.46	$1.85
70	Oct-26	Oct	2026	$2.41	$1.85	$2.60	$1.96
71	Nov-26	Nov	2026	$2.49	$2.26	$3.12	$2.38
72	Dec-26	Dec	2026	$2.70	$3.14	$4.25	$3.30
73	Jan-27	Jan	2027	$2.82	$4.87	$6.92	$5.46
74	Feb-27	Feb	2027	$2.78	$4.71	$6.70	$5.28
75	Mar-27	Mar	2027	$2.66	$2.76	$4.08	$3.13
76	Apr-27	Apr	2027	$2.36	$2.16	$3.14	$2.44
77	May-27	May	2027	$2.35	$1.89	$2.73	$2.13
78	Jun-27	Jun	2027	$2.39	$1.96	$2.81	$2.20
79	Jul-27	Jul	2027	$2.42	$2.04	$2.92	$2.29
80	Aug-27	Aug	2027	$2.43	$2.05	$2.93	$2.30
81	Sep-27	Sep	2027	$2.43	$1.78	$2.56	$2.00
82	Oct-27	Oct	2027	$2.47	$1.90	$2.71	$2.13
83	Nov-27	Nov	2027	$2.55	$2.31	$3.25	$2.58
84	Dec-27	Dec	2027	$2.73	$3.18	$4.43	$3.54
85	Jan-28	Jan	2028	$2.86	$4.95	$7.09	$5.86
86	Feb-28	Feb	2028	$2.82	$4.78	$6.86	$5.67
87	Mar-28	Mar	2028	$2.70	$2.79	$4.17	$3.38
88	Apr-28	Apr	2028	$2.40	$2.19	$3.21	$2.63
89	May-28	May	2028	$2.38	$1.92	$2.79	$2.29
90	Jun-28	Jun	2028	$2.42	$1.98	$2.87	$2.37
91	Jul-28	Jul	2028	$2.47	$2.08	$2.99	$2.47
92	Aug-28	Aug	2028	$2.48	$2.09	$3.00	$2.48
93	Sep-28	Sep	2028	$2.49	$1.83	$2.62	$2.17
94	Oct-28	Oct	2028	$2.53	$1.95	$2.77	$2.30
95	Nov-28	Nov	2028	$2.61	$2.37	$3.32	$2.78
96	Dec-28	Dec	2028	$2.79	$3.26	$4.53	$3.80
97	Jan-29	Jan	2029	$2.92	$5.05	$7.12	$6.23
98	Feb-29	Feb	2029	$2.88	$4.89	$6.89	$6.03
99	Mar-29	Mar	2029	$2.77	$2.87	$4.19	$3.63
100	Apr-29	Apr	2029	$2.47	$2.26	$3.23	$2.81
101	May-29	May	2029	$2.45	$1.97	$2.81	$2.45
102	Jun-29	Jun	2029	$2.49	$2.04	$2.89	$2.52
103	Jul-29	Jul	2029	$2.53	$2.13	$3.00	$2.63
104	Aug-29	Aug	2029	$2.54	$2.14	$3.01	$2.64
105	Sep-29	Sep	2029	$2.54	$1.86	$2.63	$2.30
106	Oct-29	Oct	2029	$2.58	$1.99	$2.78	$2.44
107	Nov-29	Nov	2029	$2.66	$2.41	$3.34	$2.94
108	Dec-29	Dec	2029	$2.85	$3.32	$4.55	$4.02
109	Jan-30	Jan	2030	$2.98	$5.15	$7.13	$6.56
110	Feb-30	Feb	2030	$2.94	$4.98	$6.89	$6.35

				Prices as of 9/30/20 (NYMEX, provided by Ventyx Velocity Suite).			
Record Field	Period	Month	Year	NYMEX: Henry Hub Natural Gas Price ($/MMBTU)	NYMEX: PECO Natural Gas Price $/MMBTU	EIA AEO Gas Prices	PECO Natural Gas Price ($/MMBTU)
111	Mar-30	Mar	2030	$2.83	$2.93	$4.20	$3.83
112	Apr-30	Apr	2030	$2.52	$2.31	$3.23	$2.97
113	May-30	May	2030	$2.50	$2.01	$2.81	$2.58
114	Jun-30	Jun	2030	$2.53	$2.08	$2.89	$2.66
115	Jul-30	Jul	2030	$2.57	$2.17	$3.00	$2.76
116	Aug-30	Aug	2030	$2.61	$2.21	$3.01	$2.78
117	Sep-30	Sep	2030	$2.63	$1.94	$2.63	$2.43
118	Oct-30	Oct	2030	$2.68	$2.08	$2.79	$2.58
119	Nov-30	Nov	2030	$2.75	$2.49	$3.34	$3.10
120	Dec-30	Dec	2030	$2.90	$3.39	$4.56	$4.22
121	Jan-31	Jan	2031	$3.03	$5.25	$7.22	$6.94
122	Feb-31	Feb	2031	$2.99	$5.08	$6.99	$6.71
123	Mar-31	Mar	2031	$2.89	$2.99	$4.25	$4.07
124	Apr-31	Apr	2031	$2.59	$2.37	$3.27	$3.15
125	May-31	May	2031	$2.57	$2.07	$2.85	$2.74
126	Jun-31	Jun	2031	$2.60	$2.13	$2.93	$2.81
127	Jul-31	Jul	2031	$2.64	$2.23	$3.04	$2.93
128	Aug-31	Aug	2031	$2.68	$2.27	$3.05	$2.94
129	Sep-31	Sep	2031	$2.70	$1.99	$2.67	$2.57
130	Oct-31	Oct	2031	$2.74	$2.13	$2.82	$2.72
131	Nov-31	Nov	2031	$2.81	$2.55	$3.39	$3.27
132	Dec-31	Dec	2031	$2.97	$3.46	$4.62	$4.45
133	Jan-32	Jan	2032	$3.09	$5.36	$7.45	$7.45
134	Feb-32	Feb	2032	$3.05	$5.18	$7.21	$7.21
135	Mar-32	Mar	2032	$2.95	$3.06	$4.39	$4.39
136	Apr-32	Apr	2032	$2.65	$2.43	$3.38	$3.38
137	May-32	May	2032	$2.63	$2.12	$2.94	$2.94
138	Jun-32	Jun	2032	$2.67	$2.19	$3.02	$3.02
139	Jul-32	Jul	2032	$2.71	$2.28	$3.14	$3.14
140	Aug-32	Aug	2032	$2.75	$2.32	$3.15	$3.15
141	Sep-32	Sep	2032	$2.76	$2.04	$2.75	$2.75
142	Oct-32	Oct	2032	$2.81	$2.18	$2.91	$2.91
143	Nov-32	Nov	2032	$2.88	$2.61	$3.50	$3.50
144	Dec-32	Dec	2032	$3.03	$3.54	$4.77	$4.77
145	Jan-33	Jan	2033	No Value	No Value	$7.77	$7.77
146	Feb-33	Feb	2033			$7.52	$7.52
147	Mar-33	Mar	2033			$4.57	$4.57
148	Apr-33	Apr	2033			$3.52	$3.52
149	May-33	May	2033			$3.06	$3.06
150	Jun-33	Jun	2033			$3.15	$3.15
151	Jul-33	Jul	2033			$3.27	$3.27
152	Aug-33	Aug	2033			$3.28	$3.28
153	Sep-33	Sep	2033			$2.87	$2.87
154	Oct-33	Oct	2033			$3.04	$3.04
155	Nov-33	Nov	2033			$3.64	$3.64
156	Dec-33	Dec	2033			$4.97	$4.97
157	Jan-34	Jan	2034			$8.06	$8.06
158	Feb-34	Feb	2034			$7.80	$7.80
159	Mar-34	Mar	2034			$4.75	$4.75
160	Apr-34	Apr	2034			$3.66	$3.66
161	May-34	May	2034			$3.18	$3.18
162	Jun-34	Jun	2034			$3.27	$3.27
163	Jul-34	Jul	2034			$3.40	$3.40
164	Aug-34	Aug	2034			$3.41	$3.41
165	Sep-34	Sep	2034			$2.98	$2.98

				Prices as of 9/30/20 (NYMEX, provided by Ventyx Velocity Suite).			
Record Field	Period	Month	Year	NYMEX: Henry Hub Natural Gas Price ($/MMBTU)	NYMEX: PECO Natural Gas Price $/MMBTU	EIA AEO Gas Prices	PECO Natural Gas Price ($/MMBTU)
166	Oct-34	Oct	2034			$3.15	$3.15
167	Nov-34	Nov	2034			$3.78	$3.78
168	Dec-34	Dec	2034			$5.15	$5.15
169	Jan-35	Jan	2035			$8.10	$8.10
170	Feb-35	Feb	2035			$7.84	$7.84
171	Mar-35	Mar	2035			$4.77	$4.77
172	Apr-35	Apr	2035			$3.68	$3.68
173	May-35	May	2035			$3.19	$3.19
174	Jun-35	Jun	2035			$3.29	$3.29
175	Jul-35	Jul	2035			$3.41	$3.41
176	Aug-35	Aug	2035			$3.43	$3.43
177	Sep-35	Sep	2035			$2.99	$2.99
178	Oct-35	Oct	2035			$3.17	$3.17
179	Nov-35	Nov	2035			$3.80	$3.80
180	Dec-35	Dec	2035			$5.18	$5.18
181	Jan-36	Jan	2036			$8.16	$8.16
182	Feb-36	Feb	2036			$7.90	$7.90
183	Mar-36	Mar	2036			$4.81	$4.81
184	Apr-36	Apr	2036			$3.70	$3.70
185	May-36	May	2036			$3.22	$3.22
186	Jun-36	Jun	2036			$3.31	$3.31
187	Jul-36	Jul	2036			$3.44	$3.44
188	Aug-36	Aug	2036			$3.45	$3.45
189	Sep-36	Sep	2036			$3.02	$3.02
190	Oct-36	Oct	2036			$3.19	$3.19
191	Nov-36	Nov	2036			$3.83	$3.83
192	Dec-36	Dec	2036			$5.22	$5.22
193	Jan-37	Jan	2037			$8.39	$8.39
194	Feb-37	Feb	2037			$8.11	$8.11
195	Mar-37	Mar	2037			$4.94	$4.94
196	Apr-37	Apr	2037			$3.80	$3.80
197	May-37	May	2037			$3.31	$3.31
198	Jun-37	Jun	2037			$3.40	$3.40
199	Jul-37	Jul	2037			$3.53	$3.53
200	Aug-37	Aug	2037			$3.55	$3.55
201	Sep-37	Sep	2037			$3.10	$3.10
202	Oct-37	Oct	2037			$3.28	$3.28
203	Nov-37	Nov	2037			$3.93	$3.93
204	Dec-37	Dec	2037			$5.36	$5.36
205	Jan-38	Jan	2038			$8.58	$8.58
206	Feb-38	Feb	2038			$8.30	$8.30
207	Mar-38	Mar	2038			$5.05	$5.05
208	Apr-38	Apr	2038			$3.89	$3.89
209	May-38	May	2038			$3.38	$3.38
210	Jun-38	Jun	2038			$3.48	$3.48
211	Jul-38	Jul	2038			$3.61	$3.61
212	Aug-38	Aug	2038			$3.63	$3.63
213	Sep-38	Sep	2038			$3.17	$3.17
214	Oct-38	Oct	2038			$3.35	$3.35
215	Nov-38	Nov	2038			$4.02	$4.02
216	Dec-38	Dec	2038			$5.48	$5.48
217	Jan-39	Jan	2039			$8.72	$8.72
218	Feb-39	Feb	2039			$8.44	$8.44
219	Mar-39	Mar	2039			$5.13	$5.13
220	Apr-39	Apr	2039			$3.95	$3.95
221	May-39	May	2039			$3.44	$3.44
222	Jun-39	Jun	2039			$3.54	$3.54
223	Jul-39	Jul	2039			$3.67	$3.67
224	Aug-39	Aug	2039			$3.69	$3.69
225	Sep-39	Sep	2039			$3.22	$3.22

Prices as of 9/30/20 (NYMEX, provided by Ventyx Velocity Suite).

Record Field	Period	Month	Year	NYMEX: Henry Hub Natural Gas Price ($/MMBTU)	NYMEX: PECO Natural Gas Price $/MMBTU	EIA AEO Gas Prices	PECO Natural Gas Price ($/MMBTU)
226	Oct-39	Oct	2039			$3.41	$3.41
227	Nov-39	Nov	2039			$4.09	$4.09
228	Dec-39	Dec	2039			$5.57	$5.57
229	Jan-40	Jan	2040			$8.93	$8.93
230	Feb-40	Feb	2040			$8.64	$8.64
231	Mar-40	Mar	2040			$5.26	$5.26
232	Apr-40	Apr	2040			$4.05	$4.05
233	May-40	May	2040			$3.52	$3.52
234	Jun-40	Jun	2040			$3.62	$3.62
235	Jul-40	Jul	2040			$3.76	$3.76
236	Aug-40	Aug	2040			$3.78	$3.78
237	Sep-40	Sep	2040			$3.30	$3.30
238	Oct-40	Oct	2040			$3.49	$3.49
239	Nov-40	Nov	2040			$4.19	$4.19
240	Dec-40	Dec	2040			$5.71	$5.71
241	Jan-41	Jan	2041			$9.15	$9.15
242	Feb-41	Feb	2041			$8.85	$8.85
243	Mar-41	Mar	2041			$5.38	$5.38
244	Apr-41	Apr	2041			$4.15	$4.15
245	May-41	May	2041			$3.61	$3.61
246	Jun-41	Jun	2041			$3.71	$3.71
247	Jul-41	Jul	2041			$3.85	$3.85
248	Aug-41	Aug	2041			$3.87	$3.87
249	Sep-41	Sep	2041			$3.38	$3.38
250	Oct-41	Oct	2041			$3.58	$3.58
251	Nov-41	Nov	2041			$4.29	$4.29
252	Dec-41	Dec	2041			$5.85	$5.85
253	Jan-42	Jan	2042			$9.39	$9.39
254	Feb-42	Feb	2042			$9.08	$9.08
255	Mar-42	Mar	2042			$5.53	$5.53
256	Apr-42	Apr	2042			$4.26	$4.26
257	May-42	May	2042			$3.70	$3.70
258	Jun-42	Jun	2042			$3.81	$3.81
259	Jul-42	Jul	2042			$3.96	$3.96
260	Aug-42	Aug	2042			$3.97	$3.97
261	Sep-42	Sep	2042			$3.47	$3.47
262	Oct-42	Oct	2042			$3.67	$3.67
263	Nov-42	Nov	2042			$4.40	$4.40
264	Dec-42	Dec	2042			$6.00	$6.00

Avoided AC

Record Field	Period	Month	Year	Season	PECO Zone Adjusted On-Peak ($/MWh)	PECO Zone Adjusted Off-Peak ($/MWh)	PECO Zone NG Converted On-Peak ($/MWh)	PECO Zone NG Converted Off-Peak ($/MWh)	PECO Zone Spark Spread On-Peak ($/MWh)	PECO Zone Spark Spread Off-Peak ($/MWh)	PECO Zone On-Peak ($/MWh)	PECO Zone Off-Peak ($/MWh)
1	Jan-21	Jan	2021	Winter	$42.07	$32.82	$57.29	$39.21	n/a	n/a	$42.07	$32.82
2	Feb-21	Feb	2021	Winter	$39.32	$30.72	$55.53	$38.00	n/a	n/a	$39.32	$30.72
3	Mar-21	Mar	2021	Shoulder	$32.82	$25.90	$35.61	$24.37	n/a	n/a	$32.82	$25.90
4	Apr-21	Apr	2021	Shoulder	$28.95	$21.87	$29.19	$19.98	n/a	n/a	$28.95	$21.87
5	May-21	May	2021	Summer	$29.22	$20.76	$26.06	$17.84	n/a	n/a	$29.22	$20.76
6	Jun-21	Jun	2021	Summer	$28.24	$19.49	$26.64	$18.24	n/a	n/a	$28.24	$19.49
7	Jul-21	Jul	2021	Summer	$32.83	$21.51	$27.54	$18.85	n/a	n/a	$32.83	$21.51
8	Aug-21	Aug	2021	Summer	$30.40	$20.27	$27.60	$18.89	n/a	n/a	$30.40	$20.27
9	Sep-21	Sep	2021	Summer	$29.42	$20.30	$24.72	$16.92	n/a	n/a	$29.42	$20.30
10	Oct-21	Oct	2021	Shoulder	$28.76	$21.52	$25.95	$17.76	n/a	n/a	$28.76	$21.52
11	Nov-21	Nov	2021	Shoulder	$29.48	$21.52	$29.87	$20.44	n/a	n/a	$29.48	$21.52
12	Dec-21	Dec	2021	Winter	$31.62	$24.90	$38.42	$26.29	n/a	n/a	$31.62	$24.90
13	Jan-22	Jan	2022	Winter	$43.00	$34.13	$55.73	$38.14	-$12.73	-$4.01	$43.00	$34.13
14	Feb-22	Feb	2022	Winter	$40.13	$31.51	$53.95	$36.93	-$13.82	-$5.41	$40.13	$31.51
15	Mar-22	Mar	2022	Shoulder	$30.30	$25.36	$33.39	$22.85	-$3.09	$2.51	$30.30	$25.36
16	Apr-22	Apr	2022	Shoulder	$26.42	$20.41	$25.46	$17.43	$0.96	$2.98	$26.42	$20.41
17	May-22	May	2022	Summer	$26.04	$19.18	$22.13	$15.14	$3.91	$4.03	$26.04	$19.18
18	Jun-22	Jun	2022	Summer	$25.99	$19.13	$22.69	$15.53	$3.30	$3.60	$25.99	$19.13
19	Jul-22	Jul	2022	Summer	$31.29	$21.56	$23.53	$16.10	$7.77	$5.45	$31.29	$21.56
20	Aug-22	Aug	2022	Summer	$28.81	$19.72	$23.60	$16.15	$5.21	$3.57	$28.81	$19.72
21	Sep-22	Sep	2022	Summer	$27.65	$18.70	$20.72	$14.18	$6.93	$4.52	$27.65	$18.70
22	Oct-22	Oct	2022	Shoulder	$26.71	$19.80	$21.85	$14.95	$4.86	$4.85	$26.71	$19.80
23	Nov-22	Nov	2022	Shoulder	$26.80	$20.56	$26.03	$17.81	$0.78	$2.75	$26.80	$20.56
24	Dec-22	Dec	2022	Winter	$29.48	$23.99	$35.11	$24.03	-$5.63	-$0.04	$29.48	$23.99
25	Jan-23	Jan	2023	Winter	$42.38	$34.81	$53.04	$36.30	-$10.66	-$1.49	$42.38	$34.81
26	Feb-23	Feb	2023	Winter	$39.75	$32.14	$51.29	$35.10	-$11.54	-$2.96	$39.75	$32.14
27	Mar-23	Mar	2023	Shoulder	$29.94	$25.87	$30.65	$20.98	-$0.71	$4.89	$29.94	$25.87
28	Apr-23	Apr	2023	Shoulder	$26.27	$20.82	$23.87	$16.34	$2.40	$4.48	$26.27	$20.82
29	May-23	May	2023	Summer	$26.22	$19.56	$20.76	$14.21	$5.46	$5.35	$26.22	$19.56
30	Jun-23	Jun	2023	Summer	$25.60	$19.51	$21.43	$14.66	$4.17	$4.85	$25.60	$19.51
31	Jul-23	Jul	2023	Summer	$30.93	$21.99	$22.31	$15.27	$8.62	$6.72	$30.93	$21.99
32	Aug-23	Aug	2023	Summer	$28.31	$20.12	$22.38	$15.32	$5.93	$4.80	$28.31	$20.12
33	Sep-23	Sep	2023	Summer	$27.36	$19.07	$19.47	$13.32	$7.89	$5.75	$27.36	$19.07
34	Oct-23	Oct	2023	Shoulder	$25.93	$20.19	$20.67	$14.15	$5.26	$6.05	$25.93	$20.19
35	Nov-23	Nov	2023	Shoulder	$26.17	$20.97	$24.99	$17.11	$1.18	$3.87	$26.17	$20.97
36	Dec-23	Dec	2023	Winter	$28.98	$24.47	$34.43	$23.56	-$5.45	$0.91	$28.98	$24.47
37	Jan-24	Jan	2024	Winter	$43.22	$35.51	$52.74	$36.09	-$9.51	-$0.59	$43.22	$35.51
38	Feb-24	Feb	2024	Winter	$40.54	$32.79	$51.02	$34.92	-$10.48	-$2.13	$40.54	$32.79
39	Mar-24	Mar	2024	Shoulder	$30.53	$26.38	$30.11	$20.61	$0.43	$5.78	$30.53	$26.38
40	Apr-24	Apr	2024	Shoulder	$26.79	$21.23	$23.56	$16.13	$3.23	$5.11	$26.79	$21.23
41	May-24	May	2024	Summer	$26.74	$19.95	$20.56	$14.07	$6.18	$5.88	$26.74	$19.95
42	Jun-24	Jun	2024	Summer	$26.11	$19.90	$21.28	$14.57	$4.83	$5.34	$26.11	$19.90
43	Jul-24	Jul	2024	Summer	$31.55	$22.43	$22.27	$15.24	$9.27	$7.18	$31.55	$22.43
44	Aug-24	Aug	2024	Summer	$28.88	$20.52	$22.35	$15.30	$6.53	$5.22	$28.88	$20.52
45	Sep-24	Sep	2024	Summer	$27.90	$19.45	$19.46	$13.32	$8.45	$6.14	$27.90	$19.45
46	Oct-24	Oct	2024	Shoulder	$26.45	$20.60	$20.74	$14.20	$5.71	$6.40	$26.45	$20.60
47	Nov-24	Nov	2024	Shoulder	$26.69	$21.39	$25.16	$17.22	$1.54	$4.18	$26.69	$21.39
48	Dec-24	Dec	2024	Winter	$29.56	$24.96	$34.73	$23.77	-$5.17	$1.20	$29.56	$24.96
49	Jan-25	Jan	2025	Winter	$44.09	$36.22	$53.48	$36.60	-$9.39	-$0.38	$44.09	$36.22
50	Feb-25	Feb	2025	Winter	$41.35	$33.44	$51.77	$35.43	-$10.42	-$1.99	$41.35	$33.44
51	Mar-25	Mar	2025	Shoulder	$31.15	$26.91	$30.52	$20.89	$0.63	$6.02	$31.15	$26.91
52	Apr-25	Apr	2025	Shoulder	$27.33	$21.66	$23.91	$16.36	$3.42	$5.29	$27.33	$21.66
53	May-25	May	2025	Summer	$27.28	$20.35	$20.87	$14.28	$6.41	$6.07	$27.28	$20.35
54	Jun-25	Jun	2025	Summer	$26.63	$20.30	$21.56	$14.76	$5.07	$5.54	$26.63	$20.30
55	Jul-25	Jul	2025	Summer	$32.18	$22.88	$22.52	$15.41	$9.66	$7.46	$32.18	$22.88
56	Aug-25	Aug	2025	Summer	$29.46	$20.93	$22.56	$15.44	$6.90	$5.49	$29.46	$20.93
57	Sep-25	Sep	2025	Summer	$28.46	$19.84	$19.56	$13.39	$8.90	$6.45	$28.46	$19.84
58	Oct-25	Oct	2025	Shoulder	$26.98	$21.01	$20.81	$14.25	$6.17	$6.76	$26.98	$21.01
59	Nov-25	Nov	2025	Shoulder	$27.23	$21.82	$25.21	$17.25	$2.02	$4.57	$27.23	$21.82
60	Dec-25	Dec	2025	Winter	$30.15	$25.46	$34.87	$23.86	-$4.72	$1.60	$30.15	$25.46

Record Field	Period	Month	Year	Season	PECO Zone Adjusted On-Peak ($/MWh)	PECO Zone Adjusted Off-Peak ($/MWh)	PECO Zone NG Converted On-Peak ($/MWh)	PECO Zone NG Converted Off-Peak ($/MWh)	PECO Zone Spark Spread On-Peak ($/MWh)	PECO Zone Spark Spread Off-Peak ($/MWh)	PECO Zone On-Peak ($/MWh)	PECO Zone Off-Peak ($/MWh)
61	Jan-26	Jan	2026	Winter			$56.78	$38.86	-$12.66	-$2.98	$44.11	$35.88
62	Feb-26	Feb	2026	Winter			$54.94	$37.60	-$13.73	-$4.53	$41.22	$33.07
63	Mar-26	Mar	2026	Shoulder			$32.47	$22.22	-$2.06	$4.00	$30.41	$26.22
64	Apr-26	Apr	2026	Shoulder			$25.36	$17.35	$1.81	$4.04	$27.17	$21.39
65	May-26	May	2026	Summer			$22.11	$15.13	$5.07	$5.08	$27.18	$20.21
66	Jun-26	Jun	2026	Summer			$22.84	$15.63	$4.04	$4.57	$26.88	$20.20
67	Jul-26	Jul	2026	Summer			$23.78	$16.28	$8.87	$6.59	$32.65	$22.86
68	Aug-26	Aug	2026	Summer			$23.83	$16.31	$6.03	$4.53	$29.86	$20.84
69	Sep-26	Sep	2026	Summer			$20.64	$14.12	$8.02	$5.56	$28.66	$19.68
70	Oct-26	Oct	2026	Shoulder			$21.92	$15.00	$5.48	$5.90	$27.39	$20.89
71	Nov-26	Nov	2026	Shoulder			$26.62	$18.22	$1.06	$3.58	$27.67	$21.80
72	Dec-26	Dec	2026	Winter			$36.88	$25.24	-$6.00	$0.47	$30.88	$25.71
73	Jan-27	Jan	2027	Winter			$61.01	$41.75	-$12.92	-$3.04	$48.09	$38.72
74	Feb-27	Feb	2027	Winter			$58.99	$40.37	-$14.00	-$4.62	$44.99	$35.75
75	Mar-27	Mar	2027	Shoulder			$35.02	$23.97	-$2.10	$4.08	$32.92	$28.05
76	Apr-27	Apr	2027	Shoulder			$27.25	$18.65	$1.85	$4.12	$29.10	$22.77
77	May-27	May	2027	Summer			$23.80	$16.29	$5.17	$5.18	$28.97	$21.47
78	Jun-27	Jun	2027	Summer			$24.60	$16.84	$4.13	$4.66	$28.73	$21.50
79	Jul-27	Jul	2027	Summer			$25.62	$17.53	$9.05	$6.72	$34.67	$24.25
80	Aug-27	Aug	2027	Summer			$25.69	$17.58	$6.15	$4.62	$31.83	$22.20
81	Sep-27	Sep	2027	Summer			$22.38	$15.32	$8.18	$5.67	$30.56	$20.99
82	Oct-27	Oct	2027	Shoulder			$23.85	$16.32	$5.59	$6.01	$29.43	$22.33
83	Nov-27	Nov	2027	Shoulder			$28.79	$19.70	$1.08	$3.65	$29.87	$23.36
84	Dec-27	Dec	2027	Winter			$39.55	$27.07	-$6.12	$0.48	$33.43	$27.55
85	Jan-28	Jan	2028	Winter			$65.54	$44.85	-$13.18	-$3.10	$52.36	$41.76
86	Feb-28	Feb	2028	Winter			$63.38	$43.38	-$14.28	-$4.72	$49.10	$38.66
87	Mar-28	Mar	2028	Shoulder			$37.83	$25.89	-$2.14	$4.17	$35.69	$30.05
88	Apr-28	Apr	2028	Shoulder			$29.38	$20.11	$1.89	$4.20	$31.27	$24.31
89	May-28	May	2028	Summer			$25.61	$17.53	$5.28	$5.29	$30.89	$22.81
90	Jun-28	Jun	2028	Summer			$26.44	$18.10	$4.21	$4.76	$30.65	$22.85
91	Jul-28	Jul	2028	Summer			$27.57	$18.87	$9.23	$6.85	$36.80	$25.72
92	Aug-28	Aug	2028	Summer			$27.70	$18.96	$6.27	$4.71	$33.97	$23.67
93	Sep-28	Sep	2028	Summer			$24.21	$16.57	$8.35	$5.78	$32.55	$22.35
94	Oct-28	Oct	2028	Shoulder			$25.74	$17.62	$5.70	$6.13	$31.44	$23.75
95	Nov-28	Nov	2028	Shoulder			$31.02	$21.23	$1.10	$3.73	$32.12	$24.96
96	Dec-28	Dec	2028	Winter			$42.51	$29.09	-$6.24	$0.49	$36.27	$29.58
97	Jan-29	Jan	2029	Winter			$69.66	$47.68	-$13.44	-$3.16	$56.23	$44.52
98	Feb-29	Feb	2029	Winter			$67.39	$46.12	-$14.57	-$4.81	$52.82	$41.31
99	Mar-29	Mar	2029	Shoulder			$40.51	$27.73	-$2.18	$4.25	$38.33	$31.98
100	Apr-29	Apr	2029	Shoulder			$31.45	$21.52	$1.92	$4.29	$33.37	$25.81
101	May-29	May	2029	Summer			$27.37	$18.73	$5.38	$5.39	$32.75	$24.12
102	Jun-29	Jun	2029	Summer			$28.20	$19.30	$4.29	$4.85	$32.49	$24.15
103	Jul-29	Jul	2029	Summer			$29.35	$20.09	$9.41	$6.99	$38.77	$27.08
104	Aug-29	Aug	2029	Summer			$29.46	$20.16	$6.40	$4.80	$35.85	$24.97
105	Sep-29	Sep	2029	Summer			$25.71	$17.60	$8.51	$5.90	$34.22	$23.49
106	Oct-29	Oct	2029	Shoulder			$27.29	$18.68	$5.81	$6.26	$33.11	$24.94
107	Nov-29	Nov	2029	Shoulder			$32.85	$22.49	$1.12	$3.80	$33.97	$26.29
108	Dec-29	Dec	2029	Winter			$44.96	$30.77	-$6.37	$0.50	$38.60	$31.27
109	Jan-30	Jan	2030	Winter			$73.34	$50.20	-$13.71	-$3.22	$59.63	$46.97
110	Feb-30	Feb	2030	Winter			$70.95	$48.56	-$14.86	-$4.91	$56.09	$43.65
111	Mar-30	Mar	2030	Shoulder			$42.86	$29.33	-$2.23	$4.33	$40.63	$33.66
112	Apr-30	Apr	2030	Shoulder			$33.17	$22.70	$1.96	$4.37	$35.13	$27.07
113	May-30	May	2030	Summer			$28.85	$19.74	$5.49	$5.50	$34.34	$25.24
114	Jun-30	Jun	2030	Summer			$29.70	$20.33	$4.38	$4.95	$34.08	$25.28
115	Jul-30	Jul	2030	Summer			$30.90	$21.15	$9.60	$7.13	$40.50	$28.28
116	Aug-30	Aug	2030	Summer			$31.10	$21.28	$6.52	$4.90	$37.62	$26.19
117	Sep-30	Sep	2030	Summer			$27.20	$18.61	$8.68	$6.02	$35.88	$24.63
118	Oct-30	Oct	2030	Shoulder			$28.86	$19.75	$5.93	$6.38	$34.79	$26.14
119	Nov-30	Nov	2030	Shoulder			$34.64	$23.71	$1.14	$3.88	$35.79	$27.59
120	Dec-30	Dec	2030	Winter			$47.18	$32.29	-$6.49	$0.51	$40.68	$32.80

Record Field	Period	Month	Year	Season	PECO Zone Adjusted On-Peak ($/MWh)	PECO Zone Adjusted Off-Peak ($/MWh)	PECO Zone NG Converted On-Peak ($/MWh)	PECO Zone NG Converted Off-Peak ($/MWh)	PECO Zone Spark Spread On-Peak ($/MWh)	PECO Zone Spark Spread Off-Peak ($/MWh)	PECO Zone On-Peak ($/MWh)	PECO Zone Off-Peak ($/MWh)
121	Jan-31	Jan	2031	Winter			$77.56	$53.08	-$13.98	-$3.29	$63.57	$49.79
122	Feb-31	Feb	2031	Winter			$75.04	$51.36	-$15.16	-$5.00	$59.88	$46.35
123	Mar-31	Mar	2031	Shoulder			$45.50	$31.14	-$2.27	$4.42	$43.23	$35.56
124	Apr-31	Apr	2031	Shoulder			$35.15	$24.06	$2.00	$4.46	$37.16	$28.52
125	May-31	May	2031	Summer			$30.57	$20.92	$5.60	$5.61	$36.17	$26.53
126	Jun-31	Jun	2031	Summer			$31.46	$21.53	$4.47	$5.05	$35.92	$26.58
127	Jul-31	Jul	2031	Summer			$32.70	$22.38	$9.79	$7.27	$42.50	$29.66
128	Aug-31	Aug	2031	Summer			$32.86	$22.49	$6.65	$5.00	$39.51	$27.49
129	Sep-31	Sep	2031	Summer			$28.73	$19.66	$8.86	$6.14	$37.59	$25.80
130	Oct-31	Oct	2031	Shoulder			$30.44	$20.83	$6.05	$6.51	$36.49	$27.34
131	Nov-31	Nov	2031	Shoulder			$36.52	$25.00	$1.17	$3.95	$37.69	$28.95
132	Dec-31	Dec	2031	Winter			$49.75	$34.05	-$6.62	$0.52	$43.12	$34.57
133	Jan-32	Jan	2032	Winter			$83.31	$57.02	-$14.26	-$3.35	$69.05	$53.67
134	Feb-32	Feb	2032	Winter			$80.61	$55.17	-$15.46	-$5.10	$65.15	$50.06
135	Mar-32	Mar	2032	Shoulder			$49.05	$33.57	-$2.32	$4.51	$46.73	$38.08
136	Apr-32	Apr	2032	Shoulder			$37.79	$25.86	$2.04	$4.55	$39.83	$30.41
137	May-32	May	2032	Summer			$32.85	$22.48	$5.71	$5.72	$38.56	$28.20
138	Jun-32	Jun	2032	Summer			$33.79	$23.12	$4.56	$5.15	$38.34	$28.27
139	Jul-32	Jul	2032	Summer			$35.11	$24.03	$9.99	$7.42	$45.09	$31.45
140	Aug-32	Aug	2032	Summer			$35.22	$24.11	$6.79	$5.10	$42.01	$29.20
141	Sep-32	Sep	2032	Summer			$30.78	$21.07	$9.03	$6.26	$39.81	$27.32
142	Oct-32	Oct	2032	Shoulder			$32.56	$22.29	$6.17	$6.64	$38.73	$28.93
143	Nov-32	Nov	2032	Shoulder			$39.08	$26.75	$1.19	$4.03	$40.27	$30.78
144	Dec-32	Dec	2032	Winter			$53.26	$36.45	-$6.75	$0.53	$46.51	$36.98
145	Jan-33	Jan	2033	Winter			$86.84	$59.43	-$14.55	-$3.42	$72.29	$56.01
146	Feb-33	Feb	2033	Winter			$84.02	$57.50	-$15.77	-$5.21	$68.25	$52.30
147	Mar-33	Mar	2033	Shoulder			$51.12	$34.99	-$2.36	$4.60	$48.76	$39.59
148	Apr-33	Apr	2033	Shoulder			$39.39	$26.96	$2.08	$4.64	$41.47	$31.60
149	May-33	May	2033	Summer			$34.24	$23.43	$5.83	$5.84	$40.06	$29.27
150	Jun-33	Jun	2033	Summer			$35.22	$24.10	$4.65	$5.25	$39.86	$29.36
151	Jul-33	Jul	2033	Summer			$36.59	$25.04	$10.19	$7.57	$46.78	$32.61
152	Aug-33	Aug	2033	Summer			$36.71	$25.13	$6.92	$5.20	$43.63	$30.33
153	Sep-33	Sep	2033	Summer			$32.08	$21.96	$9.22	$6.38	$41.30	$28.34
154	Oct-33	Oct	2033	Shoulder			$33.94	$23.23	$6.29	$6.77	$40.24	$30.00
155	Nov-33	Nov	2033	Shoulder			$40.73	$27.88	$1.21	$4.11	$41.95	$31.99
156	Dec-33	Dec	2033	Winter			$55.52	$38.00	-$6.89	$0.54	$48.63	$38.54
157	Jan-34	Jan	2034	Winter			$90.10	$61.66	-$14.84	-$3.49	$75.26	$58.18
158	Feb-34	Feb	2034	Winter			$87.18	$59.66	-$16.08	-$5.31	$71.09	$54.35
159	Mar-34	Mar	2034	Shoulder			$53.04	$36.30	-$2.41	$4.69	$50.63	$40.99
160	Apr-34	Apr	2034	Shoulder			$40.87	$27.97	$2.13	$4.73	$42.99	$32.70
161	May-34	May	2034	Summer			$35.52	$24.31	$5.94	$5.95	$41.47	$30.26
162	Jun-34	Jun	2034	Summer			$36.54	$25.01	$4.74	$5.36	$41.28	$30.37
163	Jul-34	Jul	2034	Summer			$37.97	$25.98	$10.39	$7.72	$48.36	$33.70
164	Aug-34	Aug	2034	Summer			$38.09	$26.07	$7.06	$5.30	$45.15	$31.37
165	Sep-34	Sep	2034	Summer			$33.29	$22.78	$9.40	$6.51	$42.69	$29.29
166	Oct-34	Oct	2034	Shoulder			$35.22	$24.10	$6.42	$6.91	$41.64	$31.01
167	Nov-34	Nov	2034	Shoulder			$42.26	$28.92	$1.24	$4.20	$43.50	$33.12
168	Dec-34	Dec	2034	Winter			$57.60	$39.42	-$7.03	$0.55	$50.57	$39.98
169	Jan-35	Jan	2035	Winter			$90.55	$61.98	-$15.13	-$3.56	$75.42	$58.42
170	Feb-35	Feb	2035	Winter			$87.62	$59.97	-$16.41	-$5.42	$71.21	$54.55
171	Mar-35	Mar	2035	Shoulder			$53.31	$36.49	-$2.46	$4.79	$50.85	$41.27
172	Apr-35	Apr	2035	Shoulder			$41.07	$28.11	$2.17	$4.83	$43.24	$32.94
173	May-35	May	2035	Summer			$35.70	$24.43	$6.06	$6.07	$41.76	$30.51
174	Jun-35	Jun	2035	Summer			$36.73	$25.14	$4.83	$5.46	$41.56	$30.60
175	Jul-35	Jul	2035	Summer			$38.16	$26.12	$10.60	$7.87	$48.76	$33.99
176	Aug-35	Aug	2035	Summer			$38.28	$26.20	$7.20	$5.41	$45.49	$31.61
177	Sep-35	Sep	2035	Summer			$33.45	$22.90	$9.59	$6.64	$43.04	$29.54
178	Oct-35	Oct	2035	Shoulder			$35.40	$24.23	$6.55	$7.05	$41.94	$31.27
179	Nov-35	Nov	2035	Shoulder			$42.48	$29.07	$1.26	$4.28	$43.74	$33.35
180	Dec-35	Dec	2035	Winter			$57.89	$39.62	-$7.17	$0.56	$50.73	$40.19

Record Field	Period	Month	Year	Season	PECO Zone Adjusted On-Peak ($/MWh)	PECO Zone Adjusted Off-Peak ($/MWh)	PECO Zone NG Converted On-Peak ($/MWh)	PECO Zone NG Converted Off-Peak ($/MWh)	PECO Zone Spark Spread On-Peak ($/MWh)	PECO Zone Spark Spread Off-Peak ($/MWh)	PECO Zone On-Peak ($/MWh)	PECO Zone Off-Peak ($/MWh)
181	Jan-36	Jan	2036	Winter			$91.24	$62.45	-$15.44	-$3.63	$75.81	$58.82
182	Feb-36	Feb	2036	Winter			$88.28	$60.42	-$16.73	-$5.53	$71.55	$54.90
183	Mar-36	Mar	2036	Shoulder			$53.72	$36.76	-$2.51	$4.88	$51.21	$41.64
184	Apr-36	Apr	2036	Shoulder			$41.38	$28.32	$2.21	$4.92	$43.60	$33.25
185	May-36	May	2036	Summer			$35.97	$24.62	$6.18	$6.19	$42.16	$30.81
186	Jun-36	Jun	2036	Summer			$37.00	$25.33	$4.93	$5.57	$41.94	$30.90
187	Jul-36	Jul	2036	Summer			$38.45	$26.31	$10.81	$8.03	$49.26	$34.35
188	Aug-36	Aug	2036	Summer			$38.57	$26.40	$7.35	$5.52	$45.92	$31.92
189	Sep-36	Sep	2036	Summer			$33.71	$23.07	$9.78	$6.77	$43.49	$29.85
190	Oct-36	Oct	2036	Shoulder			$35.66	$24.41	$6.68	$7.19	$42.34	$31.60
191	Nov-36	Nov	2036	Shoulder			$42.80	$29.29	$1.29	$4.37	$44.09	$33.66
192	Dec-36	Dec	2036	Winter			$58.33	$39.92	-$7.31	$0.57	$51.02	$40.50
193	Jan-37	Jan	2037	Winter			$93.73	$64.15	-$15.75	-$3.70	$77.99	$60.45
194	Feb-37	Feb	2037	Winter			$90.69	$62.07	-$17.07	-$5.64	$73.62	$56.43
195	Mar-37	Mar	2037	Shoulder			$55.18	$37.77	-$2.56	$4.98	$52.62	$42.75
196	Apr-37	Apr	2037	Shoulder			$42.51	$29.10	$2.26	$5.02	$44.77	$34.12
197	May-37	May	2037	Summer			$36.95	$25.29	$6.31	$6.32	$43.26	$31.61
198	Jun-37	Jun	2037	Summer			$38.01	$26.02	$5.03	$5.69	$43.04	$31.70
199	Jul-37	Jul	2037	Summer			$39.50	$27.03	$11.03	$8.19	$50.52	$35.22
200	Aug-37	Aug	2037	Summer			$39.63	$27.12	$7.49	$5.63	$47.12	$32.75
201	Sep-37	Sep	2037	Summer			$34.63	$23.70	$9.97	$6.91	$44.60	$30.61
202	Oct-37	Oct	2037	Shoulder			$36.64	$25.08	$6.81	$7.33	$43.45	$32.41
203	Nov-37	Nov	2037	Shoulder			$43.97	$30.09	$1.31	$4.45	$45.28	$34.54
204	Dec-37	Dec	2037	Winter			$59.92	$41.01	-$7.46	$0.59	$52.47	$41.60
205	Jan-38	Jan	2038	Winter			$95.86	$65.61	-$16.06	-$3.78	$79.80	$61.83
206	Feb-38	Feb	2038	Winter			$92.75	$63.48	-$17.41	-$5.75	$75.34	$57.73
207	Mar-38	Mar	2038	Shoulder			$56.43	$38.62	-$2.61	$5.08	$53.82	$43.70
208	Apr-38	Apr	2038	Shoulder			$43.48	$29.76	$2.30	$5.12	$45.78	$34.88
209	May-38	May	2038	Summer			$37.79	$25.87	$6.43	$6.44	$44.23	$32.31
210	Jun-38	Jun	2038	Summer			$38.88	$26.61	$5.13	$5.80	$44.01	$32.41
211	Jul-38	Jul	2038	Summer			$40.39	$27.64	$11.25	$8.36	$51.64	$36.00
212	Aug-38	Aug	2038	Summer			$40.52	$27.74	$7.64	$5.74	$48.17	$33.48
213	Sep-38	Sep	2038	Summer			$35.41	$24.24	$10.17	$7.05	$45.59	$31.29
214	Oct-38	Oct	2038	Shoulder			$37.47	$25.64	$6.95	$7.48	$44.42	$33.12
215	Nov-38	Nov	2038	Shoulder			$44.96	$30.77	$1.34	$4.54	$46.30	$35.31
216	Dec-38	Dec	2038	Winter			$61.28	$41.94	-$7.61	$0.60	$53.68	$42.54
217	Jan-39	Jan	2039	Winter			$97.43	$66.69	-$16.38	-$3.85	$81.05	$62.83
218	Feb-39	Feb	2039	Winter			$94.27	$64.52	-$17.76	-$5.86	$76.52	$58.66
219	Mar-39	Mar	2039	Shoulder			$57.36	$39.26	-$2.66	$5.18	$54.70	$44.44
220	Apr-39	Apr	2039	Shoulder			$44.19	$30.25	$2.35	$5.22	$46.54	$35.47
221	May-39	May	2039	Summer			$38.41	$26.29	$6.56	$6.57	$44.98	$32.86
222	Jun-39	Jun	2039	Summer			$39.52	$27.05	$5.23	$5.92	$44.75	$32.96
223	Jul-39	Jul	2039	Summer			$41.06	$28.10	$11.47	$8.52	$52.53	$36.62
224	Aug-39	Aug	2039	Summer			$41.19	$28.19	$7.80	$5.86	$48.99	$34.05
225	Sep-39	Sep	2039	Summer			$36.00	$24.64	$10.38	$7.19	$46.37	$31.83
226	Oct-39	Oct	2039	Shoulder			$38.08	$26.07	$7.09	$7.63	$45.17	$33.69
227	Nov-39	Nov	2039	Shoulder			$45.70	$31.28	$1.37	$4.63	$47.07	$35.91
228	Dec-39	Dec	2039	Winter			$62.29	$42.63	-$7.76	$0.61	$54.53	$43.24
229	Jan-40	Jan	2040	Winter			$99.80	$68.30	-$16.71	-$3.93	$83.09	$64.37
230	Feb-40	Feb	2040	Winter			$96.56	$66.09	-$18.11	-$5.98	$78.45	$60.11
231	Mar-40	Mar	2040	Shoulder			$58.75	$40.21	-$2.71	$5.28	$56.04	$45.49
232	Apr-40	Apr	2040	Shoulder			$45.26	$30.98	$2.39	$5.33	$47.66	$36.31
233	May-40	May	2040	Summer			$39.35	$26.93	$6.69	$6.70	$46.04	$33.63
234	Jun-40	Jun	2040	Summer			$40.47	$27.70	$5.34	$6.03	$45.81	$33.73
235	Jul-40	Jul	2040	Summer			$42.05	$28.78	$11.70	$8.69	$53.76	$37.47
236	Aug-40	Aug	2040	Summer			$42.19	$28.88	$7.95	$5.97	$50.14	$34.85
237	Sep-40	Sep	2040	Summer			$36.87	$25.23	$10.59	$7.33	$47.46	$32.57
238	Oct-40	Oct	2040	Shoulder			$39.01	$26.70	$7.23	$7.78	$46.24	$34.48
239	Nov-40	Nov	2040	Shoulder			$46.81	$32.04	$1.39	$4.73	$48.21	$36.76
240	Dec-40	Dec	2040	Winter			$63.80	$43.67	-$7.91	$0.62	$55.89	$44.29

Record Field	Period	Month	Year	Season	PECO Zone Adjusted On-Peak ($/MWh)	PECO Zone Adjusted Off-Peak ($/MWh)	PECO Zone NG Converted On-Peak ($/MWh)	PECO Zone NG Converted Off-Peak ($/MWh)	PECO Zone Spark Spread On-Peak ($/MWh)	PECO Zone Spark Spread Off-Peak ($/MWh)	PECO Zone On-Peak ($/MWh)	PECO Zone Off-Peak ($/MWh)
241	Jan-41	Jan	2041	Winter			$102.22	$69.96	-$17.04	-$4.01	$85.18	$65.95
242	Feb-41	Feb	2041	Winter			$98.90	$67.69	-$18.48	-$6.10	$80.43	$61.59
243	Mar-41	Mar	2041	Shoulder			$60.18	$41.19	-$2.77	$5.39	$57.41	$46.58
244	Apr-41	Apr	2041	Shoulder			$46.36	$31.73	$2.44	$5.44	$48.80	$37.17
245	May-41	May	2041	Summer			$40.30	$27.58	$6.83	$6.84	$47.13	$34.42
246	Jun-41	Jun	2041	Summer			$41.46	$28.37	$5.44	$6.15	$46.90	$34.53
247	Jul-41	Jul	2041	Summer			$43.07	$29.48	$11.94	$8.87	$55.01	$38.35
248	Aug-41	Aug	2041	Summer			$43.21	$29.58	$8.11	$6.09	$51.33	$35.67
249	Sep-41	Sep	2041	Summer			$37.76	$25.85	$10.80	$7.48	$48.56	$33.33
250	Oct-41	Oct	2041	Shoulder			$39.96	$27.35	$7.37	$7.93	$47.33	$35.28
251	Nov-41	Nov	2041	Shoulder			$47.95	$32.82	$1.42	$4.82	$49.37	$37.64
252	Dec-41	Dec	2041	Winter			$65.35	$44.73	-$8.07	$0.63	$57.28	$45.36
253	Jan-42	Jan	2042	Winter			$104.91	$71.80	-$17.38	-$4.09	$87.53	$67.72
254	Feb-42	Feb	2042	Winter			$101.51	$69.48	-$18.84	-$6.22	$82.67	$63.25
255	Mar-42	Mar	2042	Shoulder			$61.76	$42.27	-$2.82	$5.50	$58.94	$47.77
256	Apr-42	Apr	2042	Shoulder			$47.58	$32.57	$2.49	$5.54	$50.07	$38.11
257	May-42	May	2042	Summer			$41.36	$28.31	$6.96	$6.97	$48.33	$35.28
258	Jun-42	Jun	2042	Summer			$42.55	$29.12	$5.55	$6.28	$48.10	$35.40
259	Jul-42	Jul	2042	Summer			$44.21	$30.26	$12.18	$9.04	$56.38	$39.30
260	Aug-42	Aug	2042	Summer			$44.35	$30.36	$8.27	$6.22	$52.63	$36.57
261	Sep-42	Sep	2042	Summer			$38.76	$26.53	$11.01	$7.63	$49.77	$34.16
262	Oct-42	Oct	2042	Shoulder			$41.01	$28.07	$7.52	$8.09	$48.53	$36.16
263	Nov-42	Nov	2042	Shoulder			$49.21	$33.68	$1.45	$4.92	$50.66	$38.60
264	Dec-42	Dec	2042	Winter			$67.07	$45.91	-$8.23	$0.65	$58.84	$46.55

The changes here are acceptable per 10/6/20 email from Patrick Burns.

Generation Capacity

PJM BRA Results				
PJM BRA $/MW-day				Change made per 6/25/20 email from Patrick Burns.
EDC	2019/2020	2020/2021	2021/2022	Changes made per 6/25/20 email from Patrick Burns.
DLC				
Met-Ed				
PECO	$116.54	$188.41	$166.31	
Penelec				
Penn Power				
PPL				
West Penn				

$/kW-year					
EDC	2019/2020	2020/2021	2021/2022	3 year average	Changes made per 6/25/20 email from Patrick Burns.
DLC	$0.00	$0.00	$0.00	$0.00	
Met-Ed	$0.00	$0.00	$0.00	$0.00	
PECO	$45.14	$71.55	$61.92	$59.54	
Penelec	$0.00	$0.00	$0.00	$0.00	
Penn Power	$0.00	$0.00	$0.00	$0.00	
PPL	$0.00	$0.00	$0.00	$0.00	
West Penn	$0.00	$0.00	$0.00	$0.00	

Avoided Generation Capacity Forecast in Nominal Dollars ($/kW-year)									
Act 129 PY	DY/PY Start	DY/PY End	DLC	Met-Ed	PECO	Penelec	Penn Power	PPL	West Penn	
13	2021	2022	$0.00	$0.00	$60.70	$0.00	$0.00	$0.00	$0.00	Changes made per 6/25/20 email from Patrick Burns, and per 10/6/20 email from Patrick Burns.
14	2022	2023	$0.00	$0.00	$60.73	$0.00	$0.00	$0.00	$0.00	Changes made per 6/25/20 email from Patrick Burns.
15	2023	2024	$0.00	$0.00	$61.94	$0.00	$0.00	$0.00	$0.00	Changes made per 6/25/20 email from Patrick Burns.
16	2024	2025	$0.00	$0.00	$63.18	$0.00	$0.00	$0.00	$0.00	
17	2025	2026	$0.00	$0.00	$64.44	$0.00	$0.00	$0.00	$0.00	
18	2026	2027	$0.00	$0.00	$65.73	$0.00	$0.00	$0.00	$0.00	
19	2027	2028	$0.00	$0.00	$67.05	$0.00	$0.00	$0.00	$0.00	
20	2028	2029	$0.00	$0.00	$68.39	$0.00	$0.00	$0.00	$0.00	
21	2029	2030	$0.00	$0.00	$69.76	$0.00	$0.00	$0.00	$0.00	
22	2030	2031	$0.00	$0.00	$71.15	$0.00	$0.00	$0.00	$0.00	
23	2031	2032	$0.00	$0.00	$72.57	$0.00	$0.00	$0.00	$0.00	
24	2032	2033	$0.00	$0.00	$74.03	$0.00	$0.00	$0.00	$0.00	
25	2033	2034	$0.00	$0.00	$75.51	$0.00	$0.00	$0.00	$0.00	
26	2034	2035	$0.00	$0.00	$77.02	$0.00	$0.00	$0.00	$0.00	
27	2035	2036	$0.00	$0.00	$78.56	$0.00	$0.00	$0.00	$0.00	
28	2036	2037	$0.00	$0.00	$80.13	$0.00	$0.00	$0.00	$0.00	
29	2037	2038	$0.00	$0.00	$81.73	$0.00	$0.00	$0.00	$0.00	
30	2038	2039	$0.00	$0.00	$83.37	$0.00	$0.00	$0.00	$0.00	
31	2039	2040	$0.00	$0.00	$85.03	$0.00	$0.00	$0.00	$0.00	
32	2040	2041	$0.00	$0.00	$86.73	$0.00	$0.00	$0.00	$0.00	
33	2041	2042	$0.00	$0.00	$88.47	$0.00	$0.00	$0.00	$0.00	
34	2042	2043	$0.00	$0.00	$90.24	$0.00	$0.00	$0.00	$0.00	

T&D Capacity

Avoided Transmission Capacity Forecast in Nominal Dollars ($/kW-year)										Avoided Distrbution Capacity Forecast in Nominal Dollars ($/kW-year)						
Act 129 PY	DY/PY Start	DY/PY End	DLC	Met-Ed	PECO	Penelec	Penn Power	PPL	West Penn	DLC	Met-Ed	PECO	Penelec	Penn Power	PPL	West Penn
13	2021	2022			$4.00							$44.30				
14	2022	2023	$0.00	$0.00	$4.08	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$45.19	$0.00	$0.00	$0.00	$0.00
15	2023	2024	$0.00	$0.00	$4.16	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$46.09	$0.00	$0.00	$0.00	$0.00
16	2024	2025	$0.00	$0.00	$4.24	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$47.01	$0.00	$0.00	$0.00	$0.00
17	2025	2026	$0.00	$0.00	$4.33	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$47.95	$0.00	$0.00	$0.00	$0.00
18	2026	2027	$0.00	$0.00	$4.42	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$48.91	$0.00	$0.00	$0.00	$0.00
19	2027	2028	$0.00	$0.00	$4.50	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$49.89	$0.00	$0.00	$0.00	$0.00
20	2028	2029	$0.00	$0.00	$4.59	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$50.89	$0.00	$0.00	$0.00	$0.00
21	2029	2030	$0.00	$0.00	$4.69	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$51.90	$0.00	$0.00	$0.00	$0.00
22	2030	2031	$0.00	$0.00	$4.78	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$52.94	$0.00	$0.00	$0.00	$0.00
23	2031	2032	$0.00	$0.00	$4.88	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$54.00	$0.00	$0.00	$0.00	$0.00
24	2032	2033	$0.00	$0.00	$4.97	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$55.08	$0.00	$0.00	$0.00	$0.00
25	2033	2034	$0.00	$0.00	$5.07	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$56.18	$0.00	$0.00	$0.00	$0.00
26	2034	2035	$0.00	$0.00	$5.17	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$57.31	$0.00	$0.00	$0.00	$0.00
27	2035	2036	$0.00	$0.00	$5.28	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$58.45	$0.00	$0.00	$0.00	$0.00
28	2036	2037	$0.00	$0.00	$5.38	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$59.62	$0.00	$0.00	$0.00	$0.00
29	2037	2038	$0.00	$0.00	$5.49	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$60.81	$0.00	$0.00	$0.00	$0.00
30	2038	2039	$0.00	$0.00	$5.60	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$62.03	$0.00	$0.00	$0.00	$0.00
31	2039	2040	$0.00	$0.00	$5.71	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$63.27	$0.00	$0.00	$0.00	$0.00
32	2040	2041	$0.00	$0.00	$5.83	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$64.54	$0.00	$0.00	$0.00	$0.00

Transmission and Distribution Cost Study (November 4, 2014)

Based on its review of transmission and distribution plans and load forecast data used to develop avoided costs in Table 3, Navigant expects avoided costs for the years 2019 through 2023 will follow a similar trend, and therefore assume $48/kW-Year accurately represent PECOs' total avoided cost for the entire 10-year forecast (2014 through 2023.)

Table 3. Total Avoided Costs

Year	Coincident Peak	Annual Increase CP (MW)	Growth Rate	Non-Coincident Peak	Annual Increase NCP (MW)	Distribution Avoided Cost ($/kW-Yr)	Transmission Avoided Cost ($/kW-Yr)	Total Avoided Cost ($/kW-Yr)
2013	8720			9279				
2014	8843	123	1.014	9410	131	$ 51.8	$ 7.6	$ 59.3
2015	9032	189	1.021	9611	201	$ 29.1	$ 3.2	$ 32.3
2016	9147	115	1.013	9733	122	$ 37.9	$ 5.4	$ 43.3
2017	9237	90	1.010	9829	96	$ 66.1	$ 3.1	$ 69.1
2018	9330	93	1.010	9928	99	$ 36.7	$ 0.6	$ 37.2
5-Year Ave		**122**	**1.014**		**130**	**$ 44.3**	**$ 4.0**	**$ 48.3**

Source: PECO data, inflation data from U.S. Bureau of Labor Statistics Electric Power Distribution Produce Price Index 2008-2013, Navigant analysis.

Adjustments

Prices as of 9/30/20. Price data from Intercontinental Exchange per 9/21/20 email from Patrick Burns.

Record Field	Period	Month	Year	Transco 6 (Non-NY)		Locational Adjustment	Load Shape	Spark Spread On-Peak ($/MWh)	Spark Spread Off-Peak ($/MWh)
1	Jan-21	Jan	2021	$1.8400	Jan	$1.86	184.0%	-$11.70	-$2.75
2	Feb-21	Feb	2021	$1.8450	Feb	$1.75	178.0%	-$12.68	-$4.19
3	Mar-21	Mar	2021	$0.2900	Mar	$0.09	108.3%	-$1.90	$3.70
4	Apr-21	Apr	2021	-$0.2750	Apr	-$0.18	83.4%	$1.68	$3.73
5	May-21	May	2021	-$0.4275	May	-$0.42	72.5%	$4.69	$4.69
6	Jun-21	Jun	2021	-$0.4675	Jun	-$0.39	74.6%	$3.74	$4.22
7	Jul-21	Jul,	2021	-$0.3475	Jul	-$0.35	77.5%	$8.19	$6.09
8	Aug-21	Aug	2021	-$0.4175	Aug	-$0.35	77.8%	$5.57	$4.18
9	Sep-21	Sep	2021	-$0.5675	Sep	-$0.59	68.0%	$7.41	$5.13
10	Oct-21	Oct	2021	-$0.5850	Oct	-$0.51	71.9%	$5.06	$5.45
11	Nov-21	Nov	2021	-$0.2200	Nov	-$0.22	86.3%	$0.98	$3.31
12	Dec-21	Dec	2021	$0.4825	Dec	$0.41	117.6%	-$5.54	$0.44
13	Jan-22	Jan	2022	$1.9175					
14	Feb-22	Feb	2022	$1.7700					
15	Mar-22	Mar	2022	$0.2600					
16	Apr-22	Apr	2022	-$0.2200					
17	May-22	May	2022	-$0.3625					
18	Jun-22	Jun	2022	-$0.3750					
19	Jul-22	Jul,	2022	-$0.3025					
20	Aug-22	Aug	2022	-$0.3200					
21	Sep-22	Sep	2022	-$0.6075					
22	Oct-22	Oct	2022	-$0.5575					
23	Nov-22	Nov	2022	-$0.1750					
24	Dec-22	Dec	2022	$0.5050					
25	Jan-23	Jan	2023	$1.8000					
26	Feb-23	Feb	2023	$1.7250					
27	Mar-23	Mar	2023	-$0.0850					
28	Apr-23	Apr	2023	-$0.1450					
29	May-23	May	2023	-$0.4700					
30	Jun-23	Jun	2023	-$0.4050					
31	Jul-23	Jul,	2023	-$0.3875					
32	Aug-23	Aug	2023	-$0.3725					
33	Sep-23	Sep	2023	-$0.5750					
34	Oct-23	Oct	2023	-$0.4650					
35	Nov-23	Nov	2023	-$0.2575					
36	Dec-23	Dec	2023	$0.3200					
37	Jan-24	Jan	2024	$1.9850					
38	Feb-24	Feb	2024	$1.8850					
39	Mar-24	Mar	2024	$0.0925					
40	Apr-24	Apr	2024	-$0.1425					
41	May-24	May	2024	-$0.5125					
42	Jun-24	Jun	2024	-$0.4625					
43	Jul-24	Jul,	2024	-$0.4425					
44	Aug-24	Aug	2024	-$0.4275					
45	Sep-24	Sep	2024	-$0.6450					
46	Oct-24	Oct	2024	-$0.5125					
47	Nov-24	Nov	2024	$0.1600					
48	Dec-24	Dec	2024	$0.5350					

Futures Daily Market Report for Financial Gas
30-Sep-2020

COMMODITY NAME	CONTRACT MONTH	DAILY PRICE RANGE				SETTLE		VOLUME AND OI TOTALS						
		OPEN#	HIGH	LOW	CLOSE#	PRICE	CHANGE	TOTAL VOLUME	OI	CHANGE	EFP	EFS	BLOCK VOLUME	SPREAD VOLUME
TPB-Transco Zone 6 (non NY) Basis Future														
TPB	Oct20					-0.9700	0.0000	0	14,432	0	0	0	0	0
TPB	Nov20	-0.2900	-0.2900	-0.2900	-0.2900	-0.2750	0.0100	150	9,598	0	0	0	0	60
TPB	Dec20					0.4275	-0.0100	434	9,883	372	0	0	0	372
TPB	Jan21					1.8400	-0.0050	62	10,172	-31	0	0	0	0

AEPS

Load (MWh) 1000

Credit	Tier Req (weight)	Price		Required Credits	Cost
Solar	0.5%	$55.00		5	$275
Tier I	8.0%	$6.30		80	$504
Tier II	10.0%	$0.55		100	$55
			Total	**185**	**$834**

Weighted Avg. Price (Per Credit)
$4.51

Weighted Avg. Price (Per MWh)
$0.83

Alternative Enery Credit Prices as of 06/20/19			
Tier	Reporting Year	Marex Spectron (Bid price)	Marex Spectron (Offer price)
Solar	2018	$32.50	$40.00
	2019	$38.00	$45.00
	2020	$47.50	$55.00
	2021	$50.00	$60.00
	2022	$50.00	$60.00
Tier I	2019	$5.55	$5.70
	2020	$5.90	$6.15
	2021	$6.10	$6.50
	2022	$6.40	$6.90
Tier II	2019	$0.45	$0.65
	2020	$0.45	$0.65
	2021	$0.45	$0.65
	2022	$0.40	$0.60