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November 30, 2020

VIA ELECTRONIC FILING

Rosemary Chiavetta, Secretary
Pennsylvania Public Utility Commission
400 North Street, 2nd Floor
Harrisburg, PA 17120

**RE: Duquesne Light Company
Phase IV Energy Efficiency and Conservation Plan
Docket Nos. P-2020-_____ and M-2020_____**

Dear Secretary Chiavetta:

Enclosed for filing on behalf of Duquesne Light Company (“Duquesne Light” or “Company”) is its Phase IV Energy Efficiency and Conservation Plan (“Phase IV Plan”). Duquesne Light is filing its Phase IV Plan in accordance with Act 129 of 2008 (“Act 129”), 66 Pa.C.S. §§2806.1 and 2806.2, and the Implementation Order issued on June 18, 2020 by the Pennsylvania Public Utility Commission (“Commission”) in Docket No. M-2020-3015228. The Company’s Phase IV Plan follows the template set forth in the Commission’s September 9, 2020 Secretarial Letter in the same Docket.

This filing consists of the following documents:

- Duquesne Light’s Petition for Approval of its Phase IV Plan,
- Duquesne Light’s Phase IV EE&C Plan,
- Duquesne Light Statement No. 1 – Direct Testimony of David Defide, and
- Duquesne Light Statement No. 2 – Direct Testimony of David Ogden, including a pro forma cost recovery mechanism under 66 PA. C.S. § 1307

Please note that Section 13 of the Plan contains Confidential information, and Duquesne Light respectfully requests that the document in Section 13 be treated accordingly. Section 13 to the Plan has been marked as Confidential and is being sent to Secretary Chiavetta separately via electronic mail for filing under seal.

Duquesne Light is represented by the following counsel, who are authorized to receive all notices and communications for this proceeding:

Allentown • Bala Cynwyd • Cleveland • Fort Lauderdale • Harrisburg • Lancaster • New York
New York • Philadelphia • Princeton • Reading • Rochester • Scranton • Valley Forge • Wilkes-Barre • Wilmington

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Secretary Chiavetta
Page 2

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Duquesne Light respectfully requests that the Commission permit its proposed Phase IV EE&C Plan and associated Cost Recovery Mechanism to become effective, as proposed, on or before March 30, 2021.

Copies of this filing have been served in accordance with the attached Certificate of Service. Duquesne light has also posted a copy of its proposed Phase IV EE&C Plan on the Act 129 Section of its website, which can be viewed by the public at the following URL address: www.wattchoices.com.

Thank you, and if you have any questions about this filing, please feel free to contact me.

Best Regards,

STEVENS & LEE



Michael A. Gruin

cc: Certificate of Service
Secretary Chiavetta (with Confidential attachment, via electronic mail)

**BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION**

Petition of Duquesne Light Company for Approval :
of its Act 129 Phase IV Energy Efficiency and : Docket No. M-2020-_____
Conservation Plan : P-2020-_____
:

CERTIFICATE OF SERVICE

I hereby certify that true and correct copies of the enclosed Petition for Approval of Duquesne Light Company's Phase IV Energy & Efficiency Plan has been served upon the following persons, in the manner indicated, in accordance with the requirements of § 1.54 (relating to service by a participant):

VIA ELECTRONIC MAIL ONLY

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Michael A. Guin

Michael A. Guin

November 30, 2020

**BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION**

Petition of Duquesne Light Company for :
Approval of its Energy Efficiency and : **Docket Nos.**
Conservation Phase IV Plan : **M-2020-**
 : **P-2020-**

**PETITION OF DUQUESNE LIGHT COMPANY
FOR APPROVAL OF ITS PHASE IV ENERGY EFFICIENCY & CONSERVATION
PLAN**

TO THE PENNSYLVANIA PUBLIC UTILITY COMMISSION:

Pursuant to Act 129 of 2008 (“Act 129”), P.L. 1592, 66 Pa.C.S. §§ 2806.1 and 2806.2, Duquesne Light Company (“Duquesne” or the “Company”), and the Implementation Order issued by the Pennsylvania Public Utility Commission (“Commission”) on June 18, 2020¹, Duquesne Light hereby Petitions the Commission for approval of its attached Phase IV Energy Efficiency and Conservation Plan (“Phase IV EE&C Plan” or “Phase IV Plan”). For the reasons set forth below, Duquesne respectfully requests that the Commission approve its Phase IV Plan, as described herein and in the appended attachments, by March 30, 2021.

I. INTRODUCTION

1. Duquesne Light is a public utility as the term is defined under Section 102 of the Public Utility Code, 66 Pa.C.S. § 102, certificated by the Commission to provide electric service in the City of Pittsburgh and in Allegheny and Beaver Counties in Pennsylvania. Duquesne Light is also an electric distribution company (“EDC”) and a default service provider as those terms are defined

¹ *Energy Efficiency and Conservation Program*, Docket No. M-2020-3015228, (Implementation Order entered on June 18, 2020) (“*Phase IV Implementation Order*”).

under Section 2803 of the Public Utility Code. 66 Pa.C.S. § 2803. Duquesne Light provides electric distribution service to approximately 600,000 customers.

2. Duquesne Light's attorneys are:

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Duquesne Light's attorneys are authorized to receive all notices and communications regarding this proceeding.

3. Enclosed with this Petition are:

(a) Duquesne Light's proposed Phase IV EE&C Plan to become effective June 1, 2021;

(b) Direct Testimony of David Defide explaining the methodology employed to analyze, develop, and implement the Company's Phase IV plan; and

(c) Direct Testimony of David Ogden detailing the Company's proposed cost recovery mechanism.

The Company has included a Conservation Service Provider ("CSP") contract for Evaluation, Measurement & Verification ("EM&V") as Confidential Section 13 to the Plan.

4. Act 129, which became effective on October 15, 2008, created, *inter alia*, an energy efficiency and conservation ("EE&C") program, codified in the Pennsylvania Public Utility Code, 66 Pa.C.S. §§ 2806.1, 2806.2. This program required each EDC with at least 100,000 customers

to adopt and implement a Commission-approved EE&C Plan. EE&C Plans are programs designed to achieve the Act 129 conservation and peak load reduction requirements, by specified dates, within the specified cost cap.

5. During the Phase I EE&C Plans, EDCs were required to achieve consumption reductions of at least one percent (1%) by May 31, 2011, and at least three percent (3%) by May 31, 2013. Additionally, EDCs were required to achieve a four and one-half (4.5%) percent peak demand reduction of the one hundred (100) highest hours by May 31, 2013 measured against the EDC's peak demand during the period of June 1, 2007 through May 31, 2008. 66 Pa.C.S. § 2806.1(c) and (d). By November 30, 2013, and every five years thereafter, the Commission was to assess the cost-effectiveness of the EE&C Program and set additional incremental reductions in electric consumption if the EE&C Program's benefits exceed its costs.

6. On June 30, 2009, Duquesne Light filed its Energy Efficiency Conservation and Demand Response Phase I plan ("EE&C Phase I Plan"). Duquesne Light's EE&C Phase I plan was approved by the Commission on October 27, 2009, with certain modifications. *Petition of Duquesne Light Company for Approval of its Energy Efficiency and Conservation and Demand Response Plan*, Docket No. M-2009-2093217 (Order Entered October 27, 2009). The EE&C Phase I Plan was further revised by *Petition of Duquesne Light Company for Approval of its Energy Efficiency and Conservation Plan*, Docket No. M-2009-2093217 (Order entered January 28, 2011).

7. Act 129 required the Commission to evaluate the cost and benefits of the EE&C plans by November 30, 2013, and implement additional incremental consumption and peak demand reductions only if the benefits of the EE&C plans exceed the costs. 66 Pa.C.S. §§ 2806.1(0)(3).

8. By Order entered on August 3, 2012, the Commission adopted its Energy Efficiency and Conservation Phase II Implementation Order (“*Phase II Order*”), after holding a stakeholder meeting and gathering input and comments from interested stakeholders. Pursuant to the Commission’s *Phase II Order*, Duquesne Light was required to achieve a 2.0% energy consumption target, or 276,722 MWhs, over a three year period spanning June 1, 2013 through May 31, 2016. *Phase II Order* at 24. The Commission further established June 1, 2009 through May 31, 2010 as the baseline from which to measure savings.

9. Consistent with the requirements set forth in the Act 129 and the Commission’s *Phase II Order*, Duquesne filed its Phase II EE&C Plan on November 15, 2002, and filed a revised Phase II EE&C Plan on February 7, 2013. Duquesne Light’s EE&C Phase II plan was approved by the Commission on October March 14, 2013, with certain modifications. *Petition of Duquesne Light Company for Approval of its Energy Efficiency and Conservation Phase II Plan*, Docket No. M-2012-2334399 (Order Entered March 13, 2013).

10. Following Phase II, the Statewide Evaluator (“SWE”) submitted the final versions of its Demand Response (“DR”) Potential Study and Energy Efficiency (“EE”) Potential Study to the Commission on February 25, 2015.² The results of these Studies were presented to stakeholders during a stakeholder meeting on April 8, 2015.

11. After issuing a Tentative Order and receiving Comments and Reply Comments from a number of interested parties, the Commission issued its Energy Efficiency and Conservation Phase III Implementation Order (“*Phase III Implementation Order*”) on June 19, 2015. For

² The DR Potential Study analyzed the cost effectiveness of the legislative peak demand reduction requirements and of potential improvements to the peak demand reduction program. The EE Potential Study analyzed the cost effective consumption reduction potential in the Commonwealth.

Duquesne Light, the *Phase III Implementation Order* adopted a consumption reduction for the five-year Phase III period of 440,916 MWh, and a demand reduction target of 42 MW.

12. Consistent with the requirements set forth in Act 129 and the Commission's *Phase III Implementation Order*, Duquesne filed its Phase III EE&C Plan on November 25, 2015, and filed a revised Phase III EE&C Plan on February 9, 2016. Duquesne Light's Phase III Plan was approved by the Commission on March 10, 2016, with certain modifications. See, *Petition of Duquesne Light Company for Approval of its Energy Efficiency and Conservation Phase III Plan*, Docket No M-2015-2515375 (Order Entered March 10, 2016).

13. After issuing a Tentative Order and receiving Comments and Reply Comments from a number of interested parties, the Commission issued its Energy Efficiency and Conservation Phase IV Implementation Order ("*Phase IV Implementation Order*")³ on June 18, 2020. For Duquesne Light, the *Phase IV Implementation Order* adopted a consumption reduction for the five-year Phase IV period of 348,126 MWh, and a demand reduction target of 62 MW.

14. Consistent with requirements set forth in Act 129 and the Commission's *Phase IV Implementation Order*, Duquesne Light's Phase IV Plan (a) includes measures to achieve or exceed the required reductions and states the manner in which the consumption reductions will be achieved or exceeded; (b) complies with the designated expenditure cap of 2% of 2006 Annual Revenues over the five-year plan; (c) achieves a total cumulative energy reduction of at least 348,126 MWh by May 31, 2026, with at least 15% of the savings compliance target being achieved in each of the five program years; (d) achieves a minimum of 5.3% of the total required reductions from the low-income customer sector by May 31, 2026; (e) includes a proportionate number of energy efficiency measures for low income households as compared to those households' share of

³ *Energy Efficiency and Conservation Program*, Docket No. M-2020-3015228 , (Order entered on June 18, 2020)

the total energy usage in the service territory; (f) offers at least one comprehensive program for residential customers and at least one comprehensive program for non-residential customers; (g) achieves peak demand reductions of at least 62 MW; (h) includes a contract with at least one conservation service provider; (i) includes an analysis of administrative costs of the plan; (j) includes a reconcilable adjustment clause tariff mechanism in accordance with 66 Pa.C.S. § 1307; and (k) demonstrates that the Phase IV Plan is cost-effective based on the Commission's Total Resource Cost Test ("TRC").

II. DUQUESNE LIGHT COMPANY'S PROPOSED PHASE IV EE&C PLAN

A. OVERVIEW OF THE PHASE IV EE&C PLAN

15. Duquesne's Phase IV EE&C Plan is attached hereto and marked as "Exhibit 1". Duquesne's Phase IV Plan, as more fully described below, is designed to meet the Company's Phase IV consumption reduction and demand reduction targets, and to comply with the other requirements set forth in the Commission's *Phase IV Implementation Order*. The Phase IV Plan includes a range of energy efficiency programs for residential, commercial and industrial customers. These programs are the key components of a comprehensive electric energy efficiency initiative designed to achieve the required 348,126 MWh of reduced energy consumption and the required demand reduction of 62 MW.

16. The proposed Phase IV Plan follows the template provided in the September 9, 2020 Secretarial Letter at Docket No. M-2020-3015228.

17. The Company's EE&C Phase IV Plan includes programs that reduce consumption for each customer class. The chart below details the Company's proposed programs and expected consumption reductions:

Residential Programs	Savings	Savings
	kWh	kW
Appliance Recycling	8,447,770	1,210
Downstream Incentives	23,698,780	2,595
Midstream Incentives	596,319	127
Upstream Incentives	13,605,083	1,426
Low Income Energy Efficiency	21,386,149	2,494
Residential Behavioral Energy Efficiency	49,700,000	6,740
Low Income Behavioral Efficiency	7,500,000	1,017
Total	124,934,102	15,609

Small C&I	Savings	Savings
	kWh	kW
Small Business Direct Install	23,133,399	4,475
Small Business Solutions	50,212,478	8,590
Small Business Midstream Solutions	27,491,056	6,756
Small Business Virtual Commissioning	6,053,739	2,228
Total	106,890,672	22,049

Large Commercial	Savings	Savings
	kWh	kW
Large Business Solutions	83,696,145	15,377
Large Business Midstream Solutions	17,300,344	4,783
Large Business Virtual Commissioning	2,756,458	1,014
Total	103,752,946	21,174

Large Industrial	Savings	Savings
	kWh	kW
Large Business Solutions	38,846,312	7,137
Large Business Midstream Solutions	8,029,695	2,220
Large Business Virtual Commissioning	1,279,369	471
Total	48,155,376	9,828

Grand Total	383,733,096	68,660
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These programs are further detailed in Section 3 — Program Descriptions in the Company’s proposed Phase IV EE&C Plan.

18. Duquesne Light's Phase IV EE&C Plan includes a total of twelve programs: five programs targeting the residential sector; four programs targeting the small/medium commercial and industrial sector; and three programs targeting the large commercial/industrial sectors.

B. PROCESS TO DEVELOP PHASE IV EE&C PLAN

19. The Company's EE&C Phase IV Plan development was primarily guided by its initial benchmarking study completed and provided in Phase I; experiences with Phase I, Phase II, and Phase III programs and measures, stakeholder input; and best practices in energy efficiency. The Company also partnered with implementation providers to leverage industry expertise and streamline the transition from Phase III. The EE&C Plan forecast measure detail is directly linked to CSP responses to competitive solicitations, issued by Duquesne Light, for the design and implementation of the programs presented in this Plan. Accordingly, the measure mix was taken from proposals selected based on CSP expertise and innovation. The Plan measure content was reconciled with content of the 2021 Technical Reference Manual ("TRM") and information provided in the SWE saturation studies and potential forecast ("2021 Statewide EE Potential Study"). Measure deemed savings were updated consistent with the 2021 TRM. Measure costs were documented using the SWE incremental costs database, contractor values, EDC research and specific measure cost web research. Incentive amounts were established starting with baseline assumptions applied in the 2021 Statewide EE Potential Study. These were adjusted based upon historic incentives provided by Duquesne Light, the other six Pennsylvania EDCs, escalated for the Phase IV performance period and adjusted as required to achieve budgetary requirements. Avoided cost assumptions were updated consistent with the TRC Test Order⁴ and applied to render

⁴ 2021 TRC Test Final Order, Docket No. M-2019-3006868 (entered December 19, 2019).

measure, program, portfolio and Plan level cost-effectiveness as expressed by the TRC ratio. Programs were defined based upon delivery channels within each customer sector. Duquesne Light worked with CSPs to establish program definitions. Residential sector programs retain the successful downstream and upstream rebate offerings. The Commercial and Industrial portfolios retain proven customer market segment engagement channels. The Small Commercial Direct-Install Program and Multifamily Housing Retrofit Program were both successful in Phase III and are continued in Phase IV. Such programs demonstrate Duquesne Light's commitment to providing comprehensive measures to under-served market segments.

20. Program goal allocation and associated program budgets were designed based upon SWE Energy Efficiency Potential Study⁵ and adjusted to accommodate the *Phase IV Implementation Order*, which required segment carve-outs for the low income segment and specified program comprehensiveness requirements. Goal allocation for the remaining customer segments was based on segment energy use, as well as requirements to achieve mandated reductions at authorized budgets.

21. The Company conducted an extensive review of Phase I, Phase II. Phase III program and measure performance. Current EE&C Phase III programs were reviewed for cost effectiveness, energy savings, customer participation and interest. Based on the review, particular measures were selected for each customer segment. The savings expected from the programs selected were updated to reflect changes contained in the 2021 TRM.

22. The Company also considered input received from stakeholders. During the planning process, individual stakeholder meetings were held to discuss Duquesne Light's program plans for Phase IV. Participants included and invitations were extended to regulatory parties such as Office

⁵ *Pennsylvania Act 129 Phase IV Energy Efficiency and Peak Demand Reduction Market Potential Study* – Dated February 28, 2020. Released via Secretarial Letter on March 2, 2020 at Docket No. M-2020-3015229.

of Consumer Advocate, Office of Small Business Advocate, Duquesne Industrial Intervenors, Duquesne Light's Income Eligible Advisory Group ("IEAG"), lighting vendors, Conservation Service Providers, EM&V contractor, gas distribution companies, Keystone Energy Efficiency Alliance ("KEEA"), and the Coalition for Affordable Utility Services and Energy Efficiency in Pennsylvania ("CAUSE- PA").

23. Finally, the Company cross-referenced the information gathered against the requirements detailed in the Phase IV *Implementation Order*. The Company added new programs and modified existing programs to ensure compliance with the EE&C Phase IV Plan requirements.

24. Further, the Company applied the lessons learned about what worked effectively during the Company's Phase I, Phase II, and Phase III EE&C Plans. The Company then made decisions to include or exclude particular EE&C programs/measures within its Phase IV EE&C Plan to cost effectively achieve its Phase IV required consumption and demand reductions.

C. DESCRIPTION OF PHASE IV EE&C PLAN

25. Duquesne designed its Phase IV Plan to deliver cost effective programs that will meet customers' needs, fulfill the Company's Phase IV Plan objectives, and achieve the results required by Act 129 and the Commission's *Phase IV Implementation Order*.

26. The proposed Phase IV Plan, as noted above, consists of 12 programs. Generally, the Phase IV Plan is designed to educate customers about energy efficiency and conservation and lower customer energy consumption. The Phase IV Plan is largely composed of home energy audits, building retrofits, lighting programs, appliance recycling and rebates program that have been customized to meet the needs of specific customer segments within Duquesne Light's service territory. The programs are organized to facilitate participation by three broad customer sectors: residential, commercial and industrial customers.

27. Below is a summary of the proposed Phase IV programs and a brief description of the implementation of these programs over the five year Phase IV plan period:

- Residential Sector: Duquesne Light has developed five programs targeting the residential sector: A rebate program for household appliances (with downstream, midstream, and upstream components); a residential appliance recycling program; a residential home energy use report program, a low-income residential home energy use report program, and a low-income energy efficiency program.
- Small Commercial/Industrial Sector: Duquesne Light has developed four programs targeting the small commercial/industrial sector: the Small Business Direct Install Program; the Small Business Solutions Program; the Small Midstream Program; and the Small Virtual Commissioning Program.
- Large Commercial/Industrial Sector: Duquesne Light has developed three programs targeting the large commercial/industrial sectors: the Large Business Solutions Program; the Large Midstream Program; and the Large Virtual Commissioning Program.

All of the Company's programs are voluntary and, subject to the budget limitations for each program, customers can elect to participate in any program for which they are eligible.

28. A full description of each of the 12 programs is set forth in Section 3 of the Phase IV EE&C Plan. In compliance with the Secretarial Letter dated September 9, 2020 at Docket No. M-2020-3015228, Duquesne has differentiated its programs according to the customer classes defined in the EE&C Plan template. Duquesne Light has defined its customer sectors consistent with its existing retail tariff. However, where programs offer customer benefits across multiple classes, and where similar implementation, marketing, and administrative strategies may be utilized to capture functional efficiencies, those programs will be offered to all appropriate customer classes. Regardless, Duquesne will document, track and report on its program results and progress by the customer classes identified in its Phase IV Plan.

29. In its *Phase IV Implementation Order*, the Commission directed that Duquesne Light obtain a minimum of 5.3% of its total required consumption reduction from low-income customers by May 31, 2026.⁶ *Phase IV Implementation Order* at 35. Reductions counted towards the 5.3% target may only come from specific low-income programs or low-income verified participants in multifamily housing programs.

30. Duquesne's Phase IV Plan includes a proportionate number of energy efficiency measures for low income households as compared to those households' share of the total energy usage in the service territory. The Company Phase IV EE&C Plan includes 329 measures, of which 30 are measures for the low-income sector, thereby providing this sector with a proportion of measures in excess of their share of the Company's total load. See, Phase IV EE&C Plan Section 3.2.2.

31. To achieve the required 5.3% low income consumption carve out target, the Company is required to achieve a reduction of 18,566 MWhs from the low-income section. The Company's Phase IV Plan proposes to implement low income energy efficiency measures to achieve a reduction of 18,566,000 kWhs, which equals 5.3% of the overall Phase IV reduction.

32. Duquesne Light is also proposing a means to participate in the PJM Base Residual Auction in its Phase IV EE&C Plan.

33. Duquesne Light plans to offer a portion of the peak demand reductions from its Phase IV Plan into PJM's Forward Capacity Market from the portfolio of programs and measures that are eligible for PJM as provided in PJM Manuals 18 and 18B or their successors. Duquesne Light intends to nominate Energy Efficiency Resource demand reductions beginning with PJM's Base Residual Auction (BRA) for delivery year 2025/2026, which expected to occur in early 2023.

⁶ Table 11 in the *Phase IV Implementation Order* shows Duquesne Light's 2021-2026 Potential Savings as 348, 126 MWh, and Low-Income Savings Target of 18,566 MWh. $18,566/348,126 = .0533$.

Duquesne Light intends to create a single Energy Efficiency Resource modeled in PJM's Capacity Exchange system representing commercial (office, retail or healthcare) interior lighting with the intent of employing partially measured retrofit isolation and/or stipulated measurement and verification. Additional Energy Efficiency Resources will be considered and modeled using PJM's Capacity Exchange system depending upon actual program activity and need to add isolated retrofit, whole facility regression or calibrated simulation measured EE Resources for differing types of measure end-uses.

34. The Company's Phase IV Plan complies with the *Phase IV Implementation Order's* requirement that at least 50% of Plan spending, at the Plan level, must come from incentives.

35. The Company's Phase IV Plan will be competitively neutral to all distribution customers even if they are receiving supply from an EGS. The Plan does not discriminate on the basis of generation supply nor does it provide additional opportunities based on the specifics of a customer's generation supply.

36. Duquesne Light's EE&C Phase IV Plan is cost effective as defined by the TRC test. The TRC Test was initially adopted by the Commission at Docket No M-2009-2108601 on June 23, 2009. The TRC test was modified at the same docket on August 2, 2011, and further modified by the Commission by Order entered August 30, 2012 in Docket Nos. M-2012-2300653 and M-2009-2108601. The TRC test was again modified by the Commission's Order entered on June 11, 2015 in Docket No. M-2015-2468992. The most recent modification to the TRC test was by the Commission's Order entered on December 19, 2019 in Docket No. M-2019-3006868.

37. Duquesne Light measured the cost effectiveness of its EE&C Phase IV Plan based on all of the applicable provisions of all of these TRC Test Orders. The results of the TRC are expressed as the net present value and benefit/cost ("B/C") ratio. Consistent with the

aforementioned TRC Test Orders, a B/C ratio greater than one indicates that the program is beneficial to the utility and its ratepayers on a total resource cost basis. Duquesne Light's proposed EE&C Phase IV Plan overall B/C score is 1.31. Accordingly, the Plan is cost effective as a whole. The cost effectiveness of each program measure is discussed in Section 8 of the Phase IV EE&C Plan.

D. COST RECOVERY AND FUNDING

38. Section 2806.1(g) of Act 129 requires that the total cost of any EE&C Plan cannot exceed two percent (2%) of the EDC's total annual revenues as of December 31, 2006. Duquesne Light's Phase IV annualized spending cap is \$19,545,951.58, and the total five year program spending cap is \$97,739,968. The Company's EE&C Phase IV Plan has a budget cap of \$97,729,760, which is consistent with the spending cap established by Act 129, inclusive of EGS revenue. Phase IV EE&C Plan Section 7.1. The projected costs include incentives, program administration and portfolio administration costs, exclusive of the Company's share of costs for the Statewide Evaluator.

39. The Company's total cost to implement its Phase IV Plan will include the costs incurred to develop its EE&C Plan. See, Phase IV EE&C Plan Sections 1.8, 7.2. In the *Phase IV Implementation Order*, the Commission found that EDCs should be permitted to recover the incremental cost incurred to design, create, and obtain Commission approval of a plan. *Phase IV Implementation Order* at 122.

40. Included with the Direct Testimony of David Ogden is the proposed pro forma tariff supplement for the Energy Efficiency and Conservation ("EEC") Surcharge, which is designed to fully recover all applicable EE&C-related costs. The EEC Surcharge is fully reconcilable and will

be applied on a non-bypassable basis to customers who receive distribution service from the Company.

41. The Commission's *Phase IV Implementation Order* directed each EDC to develop a Phase IV reconcilable adjustment clause tariff mechanism in accordance with 66 Pa.C.S. § 1307 and include this mechanism in its Phase IV Plan. *Phase IV Order* at 141-143.

42. The *Phase IV Implementation Order* adopted a plan whereby Phase III and Phase IV surcharges will be combined into a single surcharge and tariff. Beginning on June 1, 2021, each EDC must 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, 2020. Furthermore, each EDC should include, as part of the calculation of the Phase IV rates to become effective June 1, 2021, as clearly identified separate line items, projections of the expenses to finalize any measures installed and commercially operable on or before May 31, 2021; expenses to finalize any contracts; and other Phase III administrative obligations. The Phase III rate that became effective June 1, 2020 will remain effective through May 31, 2021. The revenues and expenses of the remaining two months of Phase III (i.e., April 2021 and May 2021); expenses to finalize any measures installed and commercially operable on or before May 31, 2021; expenses to finalize any contracts; and other Phase III administrative obligations should be included, as clearly identified separate line items, in the reconciliation for the period April 1, 2021 through March 31, 2022. The calculation of the annual surcharge must be set forth by each EDC in a supplement or supplements to the EDC's tariff to become effective June 1, 2021, be accompanied by a full and clear explanation as to their operation and applicability to each customer class. An EDC will not be permitted to recover, in the automatic adjustment clause, any EE&C Plan-related costs that have

been claimed and permitted recovery in base rates. In accordance with the *Phase IV Implementation Order*, no interest will be charged on over or under recoveries.

43. In compliance with the Phase IV Implementation Order, the Company will combine the Phase III and Phase IV surcharges into a single surcharge and tariff. The Company is proposing to revise the Phase III Rider No. 15a, “Energy Efficiency and Conservation,” to its tariff. The tariff sets forth the monthly surcharge rates by customer class to recover the program budgets. Since the proposed cost recovery method is different for residential, small/medium C&I and large C&I customer classes, a formula and description of the formula is defined for each customer class surcharge. Four surcharges are defined to recover costs as reasonably close as possible for each customer class and segment within the class, i.e., commercial or industrial customers. The formulas are in accordance with the provisions of a Section 1307 cost recovery surcharge and include reconciliation of over or under collections. The Company will not impose any interest on over or under collections, per the *Phase IV Implementation Order*.

44. The Company will utilize four surcharges to recover costs as close as reasonably possible to the customer class receiving the benefit. The costs are first defined for the three specific customer classes – residential, commercial and industrial. Commercial and Industrial (“C&I”) customers were separated into small and medium C&I, large commercial, and large industrial customer segments because of the diversity in the size of C&I customers in the Company’s service territory and to allow for more reasonable cost recovery. Small and medium C&I customers are those customers with monthly metered billing demand less than 300 kW. Large C&I customers are those customers with monthly billing metered demand 300 kW or more. This segmentation of customers is appropriate because it aligns programs and program costs with the current tariffed rates for distribution service. C&I program costs were then assigned for recovery first based on

program description (e.g. Large Commercial). Duquesne Light adopted the use of the Peak Load Contribution demand measure in the application of its cost recovery mechanism for Large C&I customers. The tariff modification for the Phase I Plan was filed with the Commission on November 9, 2009 and was approved by a Secretarial Letter issued on November 24, 2009, at Docket No. M-2009-2093217. The Commission proposed a modification to the Large Commercial Surcharge and the Large Industrial Surcharge in an Opinion and Order dated February 2, 2010, at Docket No. M-2009-2093217. As a result of this modification, Duquesne Light implemented the rate design using a fixed customer charge to recover the administrative costs and a demand charge, using Peak Load Contribution, to recover the incentive costs for Large Commercial and Large Industrial customers. Duquesne filed a revised tariff supplement on February 22, 2010 which became effective April 1, 2010. The fixed customer charge component of the surcharge and the demand charge component of the surcharge are set forth as two separate line item charges on the customer bill. Duquesne Light used this same surcharge structure in Phases II and III and will continue this same surcharge structure in Phase IV. As explained in the Direct Testimony of David Ogden, the Company implemented the combined Small & Medium Commercial and Industrial Phase III EEC Surcharge on June 1, 2020, and its Phase IV Plan proposed to continue this same Surcharge structure.

E. PLAN MODIFICATIONS

45. The Company will file semi-annual reports detailing incremental consumption reductions and expenditures and monitor the Plan to identify the most effective programs. As the success of the Company's EE&C Phase IV Plan depends in part on circumstances beyond the Company's control, Duquesne anticipates that it may make minor modification to its plan in order

to achieve the targets established by the Commission as needed. Modifications to the Plan will be filed with the Commission as required.

III. THE PROPOSED PHASE IV EE&C PLAN IS IN THE PUBLIC INTEREST

46. Duquesne Light believes that its proposed Phase IV EE&C Plan is in the public interest and in compliance with the requirements of Act 129 and all of the Commission's applicable Act 129 Orders. The Phase IV EE&C Plan includes a broad range of cost effective energy efficiency programs that are targeted to all of the Company's customer segments. The Company has developed these programs in order to achieve energy consumption reductions required by Act 129 and the Commission's *Phase IV Implementation Order* and within the cost cap established by Act 129. Duquesne Light's Phase IV EE&C Plan provides a structure by which the Company's residential, low-income, and commercial and industrial customers have the opportunity to achieve energy efficiency savings. The Phase IV EE&C Plan also includes energy consumption and demand reductions established by the Commission to develop its energy efficiency and conservation plan, which will achieve the required reductions, in a cost effective manner. In addition, the Company's Phase IV Plan details its strategy to marketing and education its customers about the various programs available as well as details how customer care and quality assurance, program tracking, evaluation, monitoring, and verification will be achieved.

WHEREFORE, Duquesne Light Company respectfully requests that the Pennsylvania Public Utility Commission approve the Phase IV Energy Efficiency and Conservation Plan, without modification, as set forth in this petition and the attachments hereto. Duquesne Light also requests that the Commission enters its final order approving the Phase IV Energy Efficiency and Conservation Plan on or before March 30, 2021.

Respectfully submitted,



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Attorneys for Duquesne Light Company

Dated: November 30, 2020

**BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION**

Petition of Duquesne Light Company for :
Approval of its Energy Efficiency and : **Docket No. M-2020-_____**
Conservation Phase IV Plan :

VERIFICATION

I, David Defide, being the Senior Manager of Customer Programs of Duquesne Light Company (“Duquesne Light”) hereby state that the testimony set forth in the foregoing Petition is true and correct to the best of my knowledge, information and belief. I further state that the information set forth in the Duquesne Light Energy Efficiency and Conservation Program Phase IV Plan is true and correct to the best of my knowledge, information and belief.

I understand that the statements herein are made subject to the penalties of 18 Pa.C.S. § 4904 relating to unworn falsification to authorities.



David Defide

Date: November 30, 2020

Duquesne Light Company – Phase IV Energy Efficiency and Conservation Plan

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Table of Acronyms

Acronym	Definition
AMI	Advanced Metering Infrastructure
BRA	Base Residual Auction
CHP	Combined Heat and Power
CPM	Contract Program Manager
DOE	United States Department of Energy
EDC	Electric Distribution Company
EE&C	Energy Efficiency and Conservation
EEPDRMPSR	SWE's Phase IV Energy Efficiency and Peak Demand Reduction Market Potential Study Report
EM&V	Evaluation, Measurement, and Verification
HVAC	Heating, Ventilation, and Air Conditioning
IEAG	Income Eligible Advisory Group
LBS	Large Business Solutions
LI-BEEP	Low-Income Behavioral Energy Efficiency Program
LIHEAP	Low-Income Home Energy Assistance Program
LIURP	Low-Income Usage Reduction Program
LI-WHRP	Low-Income Whole House Retrofit Program
LVCx	Large Virtual Commissioning Program
NAICS	North American Industry Classification System
NGDC	Natural Gas Distribution Company
On-Peak Demand (kW)	Average grid level impact, in kilowatts, for a measure between 12:00 p.m. and 8:00 p.m. during weekday periods
PCPP	Project Commitment Progress Payment
PDE	Pennsylvania Department of Education

Acronym	Definition
Phase IV EE&C Plan	Duquesne Light's Energy Efficiency and Conservation Plan for Act 129 Phase IV submitted on November 30, 2020
PMP	Program Management Plan
PJM	Pennsylvania-Jersey-Maryland Interconnection LLC
PMRS	Program Management and Reporting System
POS	Point of Sale
PPUC	Pennsylvania Public Utility Commission
Program Year	June 1 st through May 31 st
RARP	Residential Appliance Recycling Program
R-BEEP	Residential Behavioral Energy Efficiency Program
RDIP	Residential Downstream Incentives Program
REEP	Residential Energy Efficiency Programs
RFP	Request for Proposal
RMIP	Residential Midstream Incentives Program
RUIP	Residential Upstream Incentives Program
SBDI	Small Business Direct Install
SBS	Small Business Solutions
SOW	Statement of Work
SVCx	Small Virtual Commissioning Program
SWE	Statewide Evaluator
TRM	Technical Reference Manual

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Note: If any of your answers require you to disclose what you believe to be privileged or confidential information, not otherwise available to the public, you should designate at each point in the EE&C Plan that the answer requires

you to disclose privileged and confidential information. Explain briefly why the information should be treated as confidential. You should then submit the information on documents stamped "CONFIDENTIAL" at the top in clear and conspicuous letters and submit one copy of the information under seal to the Secretary's Office along with the EE&C Plan. In addition, an expunged copy of the filing should also be included with the EE&C Plan. If someone requests to examine the information, or if Commission staff believes that the proprietary claim is frivolous or otherwise not justified, the Secretary's Bureau will issue a Secretarial Letter directing that the EDC file a petition for protective order pursuant to 52 Pa. Code § 5.423.

Energy Efficiency and Conservation Plan

A. Transmittal Letter - with reference to statutory and regulatory requirements and Electric Distribution Company (EDC) contact that PA PUC should contact for more information.

B. Table of Contents - including lists of tables and figures.

C. Table of Acronyms – include definitions of any acronyms used in the plan.

D. Mapping of Program Years to Dates – show table identifying the start and end dates of all program years.

Program Year	Start Date	End Date
PY13	6/1/2021	5/31/2022
PY14	6/1/2022	5/31/2023
PY15	6/1/2023	5/31/2024
PY16	6/1/2024	5/31/2025
PY17	6/1/2025	5/31/2026

1. Overview of Plan

(The objective of this section is to provide an overview of the entire plan)

1.1. Summary description of plan, plan objectives, and overall strategy to achieve energy efficiency and conservation goals.

Pursuant to Act 129 of 2008 (“Act 129”), the Pennsylvania General Assembly charged the Pennsylvania Public Utility Commission (“PUC” or “Commission”) with establishing an energy efficiency and conservation program. The energy efficiency and conservation program requires each electric distribution company (“EDC”) with at least 100,000 customers to adopt a plan to reduce energy demand and consumption within its service territory. In response to Act 129, on January 16, 2009, the Commission entered an Implementation Order at Docket No. M-2008-2069887 which was utilized in Phase I program planning. On August 3, 2012, the Commission entered an Implementation Order at Docket Nos. M-2012-2289411 and M-2008-2069887 for Phase II program planning. On June 11, 2015, the Commission entered an Implementation Order at Docket No. M-2014-2424864 for Phase III program planning along with a Clarification Order issued on August 20, 2015. On June 18, 2020, the Commission entered an Implementation Order at Docket No. M-2020-3015228 for Phase IV program planning. The Act requires that by November 30, 2013, and a least every five years thereafter, the Commission shall evaluate the costs and benefits of the program. Based upon findings of the Statewide Evaluator (SWE) contained in its Market Potential Study¹, the Commission determines that the benefits of a Phase IV Act 129 program will exceed the costs and therefore proposes to adopt additional required incremental reductions in consumption for another Energy Efficiency and Conservation Plan (“EE&C” or “Plan”) program term.

In the June 18, 2020 Implementation Order, the Commission adopted the percentage reduction targets recommended by the SWE. Duquesne Light Company’s (“Duquesne Light” or “Duquesne” or the “Company”), energy consumption reduction target for the Phase IV five-year energy efficiency consumption is 348,126 MWh and demand reduction target is 62 MW. In compliance with the requirements of Act 129 and PUC Orders, Duquesne has used the energy consumption and demand reductions established by the Commission to develop its energy efficiency and conservation plan, which is submitted herewith.

EE&C Plan savings projections for each sector are proportionally aligned with Pennsylvania Act 129 - Phase IV Energy Efficiency and Peak Demand Reduction Market Potential Study Report Table 11 at page 26. The forecast values themselves were changed to match the amount in the Commission’s Phase IV mandate. The potential study at page 26 totaled 340,000 MWh and the Commission target is 348,126 MWh. The EE&C Plan forecast measure detail is directly linked to CSP response to competitive solicitations, issued by Duquesne Light, for the design and implementation of the programs presented in this Plan. Accordingly, the measure mix was taken from proposals selected based on CSP expertise and innovation. Phase IV Plan measures (See Section 11, Table 7) were reconciled with content of the 2021 Technical Reference Manual (TRM) and information provided in the SWE saturation studies and potential forecast.²

¹ Energy Efficiency Potential Study for Pennsylvania, Optimal Energy, February 28, 2020

² Ibid

1.2. Summary description of process used to develop the EE&C plan and key assumptions used in preparing the plan. Included in this summary should be a description of the EDC's process for stakeholder engagement.

Duquesne Light developed the Phase IV Plan in partnership with implementation providers to leverage industry expertise and streamline the transition from Phase III. Following the release of the Phase IV Implementation Order, Duquesne Light issued competitive solicitations for the design and implementation of each of [five] programs: (1) Residential; (2) Residential Low-Income, (3) Nonresidential (i.e., Commercial & Industrial or C&I); (4) Behavioral; and (5) Evaluation, Measurement and Verification ("EM&V"). Duquesne Light's Phase IV EE&C Plan development process is summarized below:

1) Measure content and projected mix

The EE&C Plan forecast measure detail is directly linked to CSP responses to competitive solicitations, issued by Duquesne Light, for the design and implementation of the programs presented in this Plan. Accordingly, the measure mix was taken from proposals selected based on CSP expertise and innovation. The Plan measure content was reconciled with content of the 2021 Technical Reference Manual (TRM) and information provided in the SWE saturation studies and potential forecast (2021 Statewide EE Potential Study).³

2) Measure savings impact, cost and benefit

Measure deemed savings were updated consistent with the 2021 TRM. Measure costs were documented using the SWE incremental costs database⁴, contractor values, EDC research and specific measure cost web research. Incentive amounts were established starting with baseline assumptions applied in the 2021 Statewide EE Potential Study. These were adjusted based upon historic incentives provided by Duquesne Light, the other six Pennsylvania EDCs, escalated for the Phase IV performance period and adjusted as required to achieve budgetary requirements. Avoided cost assumptions were updated consistent with the Total Resource Cost Test (TRC) Order⁵ and applied to render measure, program, portfolio and Plan level cost-effectiveness as expressed by the TRC ratio.

3) Program definition

Programs were defined based upon delivery channels within each customer sector. Duquesne Light worked with CSPs to establish program definitions. Residential sector programs retain the successful downstream and upstream rebate offerings. The Commercial and Industrial portfolios retain proven customer market segment engagement channels. The Small Commercial Direct-Install Program and Multifamily Housing Retrofit Program were both successful in Phase III and are continued in Phase IV. Such programs demonstrate Duquesne Light's commitment to providing comprehensive measures to under-served market segments.

³ Ibid

⁴ Ibid.

⁵ PA PUC 2021 Total Resource Cost Test Order, December 19, 2019, at Docket No. M-2019-3006868

4) Portfolio/Program Goals and Funding

Program goal allocation and associated program budgets were designed based upon SWE Energy Efficiency Potential Study and adjusted to accommodate the Commission's Implementation Order, which required segment carve-outs for the low income segment and specified program comprehensiveness requirements.⁶ Goal allocation for the remaining customer segments was based on segment energy use, as well as requirements to achieve mandated reductions at authorized budgets.

1.3. Summary tables of portfolio savings goals, budget and cost-effectiveness (see Tables 1, 2, 3 and 4). Introduce Table 2 with high-level overview of Act 129 accounting (incremental annual, meter level savings vs. system level savings, weather-normalization of savings estimates, etc.).⁷

See Section 11, Tables 1, 2, 3, and 4.

1.4. Summary of program implementation schedule over five-year plan period (see Chart 1 Notes).

Residential Sector

Pursuant to the Commission's Implementation Order for Phase IV, Duquesne Light developed plans to launch programs targeting the residential sector: a low income program; a residential rebate program including upstream, midstream and downstream components; residential appliance recycling program; a residential behavioral program, and a low income residential behavioral program. Duquesne Light will competitively bid all implementation CSPs based upon Duquesne Light's approved Request for Proposal (RFP) process.

Non-Residential

Small/Medium C & I: Pursuant to the Commission's Implementation Order for Phase IV program planning Duquesne Light developed plans to launch programs targeting the small and medium commercial/industrial sector: The Small Commercial⁸ Direct-Install Program, Small Business Solutions Program, Small Midstream Lighting Program, and Small Virtual Commissioning Program. Duquesne Light will competitively bid all implementation CSPs based upon Duquesne Light's approved Request for Proposal (RFP) process.

Large C & I: Pursuant to the Commission's Implementation Order for Phase IV program planning Duquesne Light developed plans to launch programs targeting the large commercial/industrial sector: The Large Business Solutions Program, Large Midstream Lighting Program, and Large Virtual Commissioning Program. Duquesne Light will competitively bid all implementation CSPs based upon Duquesne Light's approved Request for Proposal (RFP) process.

⁶ Ibid.

⁷ Tables referenced in the template are found in Section 11.

⁸ Opportunities for Small Industrial Direct Install Program will be minimal but will also be covered by this program.

Governmental/Educational/Non-Profit Sector Programs: Pursuant to the Commission’s Implementation Order for Phase IV, Duquesne Light will not offer a specialized program, but will report the savings associated with the GNI customers participating in the Non-Residential programs.

1.5. Summary description of the EDC implementation strategy to acquire at least 15% of its consumption reduction and peak demand reduction target in each program year.

Duquesne Light’s Phase IV EE&C Plan includes programs that are being continued as previously implemented, modified based on previous years’ experience implementing them, and newly added programs. These programs have forecast “ramp-rates” projecting estimated saving impacts across the five-year Phase IV performance period as shown in Figure 1: Program Ramp-Rates. As shown the Plan provides for acquiring at least 15% of the consumption target in each of the Phase IV program years.

Figure 1: Program Ramp-Rates

Program Year	2021	2022	2023	2024	2025	Total
Residential						
Appliance Recycling	15%	21%	22%	21%	21%	100%
Downstream	20%	20%	20%	20%	20%	100%
Midstream	19%	20%	20%	20%	21%	100%
Upstream Products	19%	20%	20%	20%	21%	100%
LIEEP	20%	20%	20%	20%	20%	100%
R-BEEP	20%	20%	20%	20%	20%	100%
LI-BEEP	20%	20%	20%	20%	20%	100%
Sector	19%	20%	20%	20%	21%	100%
Small/Medium C&I						
Business Solutions	18%	22%	23%	22%	15%	100%
Midstream	17%	19%	20%	21%	23%	100%
Direct Install	18%	22%	23%	22%	15%	100%
Virtual Commissioning	14%	22%	22%	21%	21%	100%
Sector	17.4%	21.4%	22.4%	21.7%	17.1%	100%
Large C&I						
Business Solutions	18%	22%	23%	22%	15%	100%
Midstream	17%	19%	20%	21%	23%	100%
Virtual Commissioning	14%	22%	21%	21%	22%	100%
Sector	17.7%	21.8%	22.5%	21.5%	16.5%	100%

1.6. Summary description of the programs or measure categories from which the EDC intends to nominate peak demand reductions (PDR) into PJM's Forward Capacity Market (FCM) along with a projected range of MW totals to be bid by year.

Duquesne Light plans to offer a portion of the peak demand reductions from its Phase IV Plan into PJM's Forward Capacity Market from the portfolio of programs and measures that are eligible for PJM as provided in PJM Manuals 18 and 18B or their successors.

Duquesne Light intends to nominate EE Resource demand reductions beginning with PJM's Base Residual Auction (BRA) for delivery year 2025/2026, which expected to occur in early 2023. This appears to be the earliest opportunity following the portfolio launch, orientation of new CSPs, refinement of tracking system interfaces and operational practices as well as developing and implementing marketing outreach strategies.

Duquesne Light intends to create a single EE Resource modeled in PJM's Capacity Exchange system representing commercial (office, retail or healthcare) interior lighting with the intent of employing partially measured retrofit isolation and/or stipulated measurement and verification. The measure type will render reliable summer and winter demand reductions and employ proxy variables in combination with well-established algorithms and/or stipulated factors, to provide an accurate estimate of Nominated EE values.⁹ Duquesne Light will combine documented energy savings and demand reductions with modeled annual hourly load shapes to calculate demand reductions during summer and winter performance hours.

Additional EE Resources will be considered and modeled using PJM's Capacity Exchange system depending upon actual program activity and need to add isolated retrofit, whole facility regression or calibrated simulation measured EE Resources for differing types of measure end-uses. It is anticipated that all commercial and industrial sector programs may contribute to annual nominations. Based on projected savings impacts Duquesne Light currently plans to nominate up to 2 MW into PJM's Forward Capacity Market beginning with the BRA for delivery year 2025/2026, and continue in each successive BRA, applicable during Phase IV.

1.7. Summary description of the EDC implementation strategy to manage EE&C portfolios and engage customers and trade allies.

Duquesne Light implements programs in an effective and economical manner by balancing utility resources with contracted resources. More specifically, contractors and subcontractors with expertise and experience in program implementation and operations are deployed under agreements with Duquesne Light. Management responsibility for meeting goals still rests with Duquesne Light, working in concert with contractors and subcontractors.

Phase IV programs will be directly implemented by CSPs, with oversight and support by Duquesne Light. Phase IV program to be successfully implemented will require significant planning, coordination and integrated into an organized, cohesive operation. Program procedural guidelines are developed and followed. Documentation and electronic data structures are

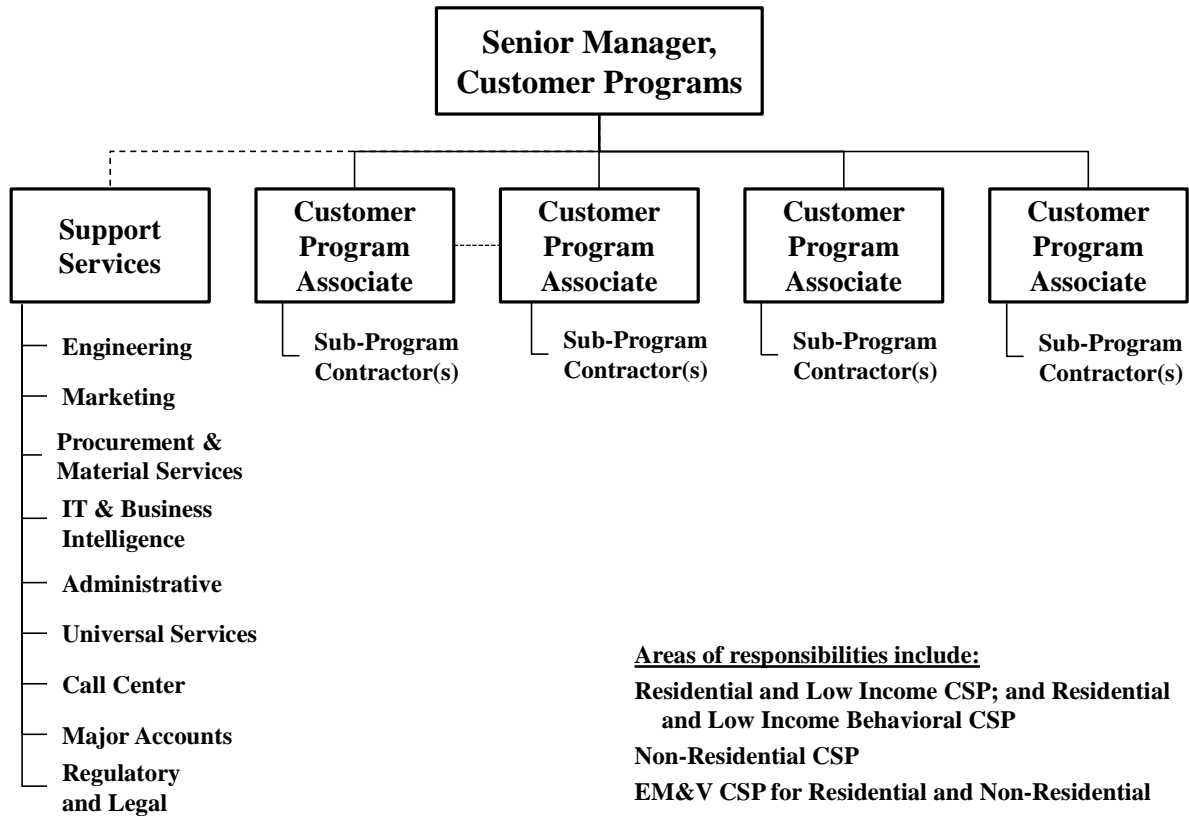
⁹ PJM Manual 18B: Energy Efficiency Measurement & Verification, Revision: 04, Effective August 22,2019 Section &: Measurement and Verification Methodologies subsection 7.1 Option A.

maintained and managed. The above coordination will be accomplished in partnership among CSP, contractors, trade allies and Duquesne Light.

Customers will be engaged through at least three channels. First, Duquesne Light promotes the programs directly to its customers through marketing approaches such as mass media advertising, direct marketing, direct contact, events, conferences, account representatives and electronic media. Second, Duquesne Light will work with CSPs that have similar outreach responsibilities to ensure a consistent message with a specific focus on securing commitments for customers to participate in the programs. Third, Duquesne Light and its CSPs will provide information of its programs to trade allies, such as builders, architects, engineers, vendors, equipment installation contractors, retailers and others, with the objective of securing their willingness to participate and encourage their customers and clients to participate. Trade allies are engaged primarily through direct marketing, events, conferences and account representatives.

Energy efficiency is implemented under customer programs at Duquesne Light and is housed within the customer service department under the customer experience function. The department's size and function is driven by the portfolio of programs offered. The size and structure also reflect the use of contractors and subcontractors. The organization is headed by one senior manager who reports to the Director of Customer Experience and is responsible for the planning and implementation of the energy efficiency and conservation program. The senior manager is supported by several sector or segment specific customer program associates. There also is support staff for functions to include engineering, marketing, data processing, regulatory and contract management. The organizational chart pictured below represents the structure of the organization to implement the energy efficiency and conservation plan.

Figure 2: Customer Programs Organizational Chart



1.8. Summary description of EDC’s data management, quality assurance and evaluation processes; include how EE&C plan, portfolios, and programs will be updated and refined based on evaluation results.

Data Management: All energy efficiency project activity is tracked and recorded in the Program Management and Reporting System (PMRS). When projects are established, PMRS assigns project numbers that are linked to the Duquesne Light’s customer information and billing system by customer service agreement identification number. Hard and electronic copy project files are organized and filed by PMRS project number. Data elements tracked in PMRS include customer data, project and measure data; energy and demand savings; as well as financial rebate and, as applicable, Conservation Service Provider (CSP) performance payment data. Measure level data contain applicable baselines, as well as proposed and installed measure definition to support claimed savings for measures listed in Section 11, Table 7. PMRS data extraction supports all program reporting as well as evaluation measurement and verification sampling.

Quality Assurance: (A more detailed description of quality assurance is provided under Section 6.) All CSPs under contract to implement Duquesne Light energy efficiency programs are required by contract statements of work to provide a Program Management Plan (“PMP”). The PMP presents the program rationale, assumptions, approach, processes to include policies and procedures, production plan, marketing plan, performance metrics and a quality assurance plan.

Procedures are in place to ensure prospective projects receive appropriate and consistent review prior to approval and incentive payment processing. This ranges from minimal residential measure rebate application processing to extensive commercial and industrial (C&I) project development and customer incentive processing. C&I incentive processing varies significantly depending on project type and size. A project review flow chart and project file content requirements are addressed in Section 6.

Evaluation Process: Projects and measure reported savings are verified pursuant to the Duquesne Light Evaluation Measurement and Verification (EM&V) Plan. The EM&V Plan ensures customer projects are verified using a systematic process that is consistent with the Statewide Evaluator's (SWE) Audit Plan and Evaluator's Framework for Pennsylvania Act 129 Energy Efficiency and Conservation Programs (Audit Plan). The Duquesne Light EM&V Plan specifies sample plans and applicable verification rigor consistent with the Audit Plan and is vetted with and approved by the SWE.

Program Refinements: Program refinement is continuous, resulting from experience gained through program implementation and adherence to quality assurance procedures described above. Augmenting internal process improvements, programs and processes are subject to program implementation process evaluations performed by an independent EM&V contractor.

Additionally, customer and stakeholder input are solicited during regularly scheduled Act 129 EE&C Program stakeholder meetings. Changes to programs will be requested through the applicable Commission process, if necessary. The Company will also monitor and report on all existing programs at its stakeholders' meeting.

Duquesne Light will evaluate requests for custom measure rebates on the case-by-case basis to determine cost effectiveness and energy savings potential. Measures, including combined heat and power ("CHP") projects, distributed energy resources, and microgrids may be considered and approved if found to be cost effective as indicated by the Total Resource Cost ("TRC") score above 1.0, based upon project savings calculated in accordance with the PA Technical Reference Manual ("TRM") standards and proof of positive fuel savings using the Department of Energy endorsed source fuel efficiency models.

1.9. Summary description of cost recovery mechanism.

The Act allows all EDCs to recover on a full and current basis from customers, through a reconcilable adjustment clause under 66 Pa. C.S. § 1307, all reasonable and prudent costs incurred in the provision or management of its plan. The Act also requires that each EDC's plan include a proposed cost-recovery tariff mechanism, in accordance with 66 Pa. C.S. § 1307, to fund all measures and to ensure full and current recovery of prudent and reasonable costs, including administrative costs, as approved by the Commission. To that end, Duquesne Light has designed a surcharge and reconciliation mechanism for all customer segments. The surcharge has been designed in a manner that recovers costs of the programs from the customers who have an opportunity to participate in those programs.

The Company has successfully implemented in Phase I, Phase II, and Phase III five surcharges to recover the associated Act 129 costs. As part of the parties' settlement in Phase III,¹⁰ Duquesne Light agreed to combine the surcharges for Small and Medium Commercial and Industrial customers, reducing the total number of EE&C surcharges from five to four: Residential, Small and Medium C&I, Large Commercial, and Large Industrial. The revised plan was filed and approved by the PA PUC resulting in the new surcharge effective June 1, 2020.¹¹ This surcharge configuration is slated to remain for Phase IV. The Residential surcharge is designed to recover costs on a cents per kilowatt-hour basis with an annual reconciliation; the charges would be included in the overall distribution kWh rate. The Small and Medium Commercial and Industrial surcharges are also designed to recover costs on a cents per kilowatt-hour basis with an annual reconciliation. The Large Commercial and Industrial surcharges are each designed to recover costs through a combination of a fixed monthly surcharge and a demand-based surcharge with an annual reconciliation. All commercial and industrial customers will have a separate line item delineation of these charges on the bill.

¹⁰ Refer to the PaPUC Docket M-2015-2515375 Commission Order dated March 10, 2016 regarding the Petition of Duquesne Light Company for Approval of its Energy Efficiency and Conservation Phase III Plan.

¹¹ Refer to the PaPUC Docket M-2015-2515375 Commission Order dated March 12, 2020 regarding the Petition of Duquesne Light Company for Approval of a Modification to its Revised Act 129 Phase III Energy Efficiency and Conservation Plan.

2. Energy Efficiency & Conservation Portfolio/Program Summary Tables & Charts

(The objective of this section is to provide a quantitative overview of the entire plan for the five-year period. The audience will be those who want to see the “numbers”, but not all the details.)

2.1. Residential (exclusive of Low-Income), Residential Low-Income, Commercial/Industrial Small, and Commercial/Industrial Large Portfolio Summaries (see Table 5).¹²

See Section 11 for Table 5.

2.2. Plan data: Costs, Cost-effectiveness and Savings by program, sector and portfolio (see Tables 1-5).

See Section 11 for Tables 1-5.

2.3. Budget and Parity Analysis (see Table 6). EDC total annual revenue is inclusive of collections on behalf of Electric Generation Suppliers.¹³ EDCs should use calendar year 2019 to compute the share of revenue and MWh sales by customer sector.

See Section 11 for Table 6.

¹² A *project* is an activity or course of action involving one or multiple energy efficiency measures, at a single facility or site. A *program* is a group of projects, with similar characteristics and installed in similar applications. Programs should be organized around a common customer class, technology, end-use, market, or delivery mechanism. The *portfolio* consists of all the programs in the residential, commercial/industrial small, commercial/industrial large or government/nonprofit/institutional sectors. Residential sector programs include participants with a residential rate schedule. Commercial/Industrial Small sector programs include participants with a small C/I rate schedule. Commercial/Industrial Large sector programs include participants with large C/I rate schedule. Government/Nonprofit/Institutional includes customers in any rate schedule who are Federal, State, Municipal, and Local Governments, as well as school districts, institutions of higher learning, and non-profit entities. The applicable EE&C sector designation is based on a customer’s rate schedule not the size of the energy efficiency project or the type of building.

¹³ Per the January 16, 2009 Implementation Order, “the Commission interprets ‘amounts paid to the [EDC] for generation, transmission, distribution and surcharges by retail customer,’ set forth as the definition of EDC total annual revenue in 66 Pa. C.S. § 2806.1(m), to include all amounts paid to the EDC for generation service, including generation revenues collected by an EDC for an EGS that uses consolidated billing.” See January 16, 2009 Implementation Order at 35.

3. Program Descriptions

(The objective of this section is to provide detailed descriptions of each proposed program and the background on why particular programs were selected and how they form balanced/integrated portfolios.)

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

Duquesne Light is in its twelfth year successfully planning and implementing three prior portfolios of energy efficiency programs. The Phase I portfolio was built upon Duquesne Light's own Energy Efficiency and Demand Response Potential Study.¹⁴ Phase II planning benefitted by the SWE's 2012 Market potential Study; the Phase III EE&C Plan incorporated findings of SWE's 2015 Energy Efficiency Potential Study. In addition to 11 years of experience implementing programs having claimed savings independently verified at 97.6%, Duquesne Light was able to apply findings of SWE's Phase IV Energy Efficiency and Peak Demand Reduction Market Potential Study Report (EEPDRMPSR). EE&C Plan sector savings are in align with EEPDRMPSR projections.¹⁵

In addition to the planning depth of four potential studies and implementation experience Duquesne Light's Phase IV measure content reflects the 2021 Technical Reference Manual and its predecessors, where applicable. Phase IV EE&C Plan program measure mixes are updated to current codes and standards and reflect the measures of successful programs, nationally.

3.1.1. Describe portfolio objectives and metrics that define program success (e.g., energy and demand savings, customers served, number of units installed).

Portfolio objectives and metrics are taken from the EEPDRMPSR. The Commission's adoption of the study report, and incorporation of study report findings as compliance targets, supports Duquesne Light's application of study report findings as an initial planning basis. Adjustments were made based on Duquesne Light's experience with implementing similar programs but generally align with EEPDRMPSR projections as shown in the table below:

¹⁴ Petition of Duquesne Light Company for Approval of its Energy Efficiency and Conservation and Demand Response Plan Docket No. M-2009-2093217, June 30, 2009; Part (3) Energy Efficiency and Demand Side Response Study, MCR Performance Solutions, LLC, June 26, 2009.

¹⁵ Pennsylvania Act 129 – Phase IV Energy Efficiency and Peak Demand Reduction Market Potential Study Report, PA Statewide Evaluation Team February 28, 2020, Optimal Energy, Table 11: Program Potential sector spending, savings and acquisition costs, 2021-2025

Figure 3: Budget

Sector	Energy Use	5-Year Savings MWh	Plan Savings %	EEPDRMPSR Savings Potential
Residential	32.1%	124,934	32.6%	30.0%
Small C&I	25.2%	106,891	27.9%	29.7%
Large Commercial	24.5%	103,753	27.0%	23.1%
Large Industrial	18.2%	48,155	12.5%	17.2%
Total EE	100.0%	383,733	100.0%	100.0%

Given this foundation, the planning process imposed program budget limits consistent with the Act and the Commission's Implementation Order of June 18, 2020. Available funding was first allocated to each major rate class in proportions approximating annual energy consumption, then adjusted based on requirements to achieve the Commission's required reductions in the low income segment, as well as certain comprehensive program requirements of the Commission's Implementation Order. Program goal allocations also incorporated demonstrated delivery channel strengths and weaknesses from Phase I, Phase II and Phase III in a balance to achieve reduction mandates given the Commission's funding authorization.

The Act requires certain amounts of the mandated reductions be achieved through programs serving low income customers. In addition to mandated programs, a portfolio of programs was assembled to penetrate key markets, including hard-to-reach small C&I markets.

Figure 4: Projected Portfolio Savings

Residential Programs	Savings	Savings
	kWh	kW
Appliance Recycling	8,447,770	1,210
Downstream Incentives	23,698,780	2,595
Midstream Incentives	596,319	127
Upstream Incentives	13,605,083	1,426
Low Income Energy Efficiency	21,386,149	2,494
Residential Behavioral Energy Efficiency	49,700,000	6,740
Low Income Behavioral Efficiency	7,500,000	1,017
Total	124,934,102	15,609

Small C&I	Savings	Savings
	kWh	kW
Small Business Direct Install	23,133,399	4,475
Small Business Solutions	50,212,478	8,590
Small Business Midstream Solutions	27,491,056	6,756
Small Business Virtual Commissioning	6,053,739	2,228
Total	106,890,672	22,049

Large Commercial	Savings	Savings
	kWh	kW
Large Business Solutions	83,696,145	15,377
Large Business Midstream Solutions	17,300,344	4,783
Large Business Virtual Commissioning	2,756,458	1,014
Total	103,752,946	21,174

Large Industrial	Savings	Savings
	kWh	kW
Large Business Solutions	38,846,312	7,137
Large Business Midstream Solutions	8,029,695	2,220
Large Business Virtual Commissioning	1,279,369	471
Total	48,155,376	9,828

Grand Total	383,733,096	68,660
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- 3.1.2. Describe how programs were constructed for each portfolio to provide market coverage sufficient to reach overall energy and demand savings goals. Describe analyses and/or research that were performed (e.g., market, best-practices, market modeling).

Program Portfolio Structures:

Energy efficiency potential is forecast based on customer size and building type, along with technology applications available for that type of customer and building. This approach is functional and consistent with industry standard practices. Programs are designed to (1) target identified efficiency gain potential (energy and demand), and (2) address market segment specific needs and barriers. The following chart shows customer sector building categories characterized by the EEPDRMPSR observed in the development of the energy efficiency programs described herein:

Figure 5: Customer Sector Building Stock Categories¹⁶

Residential	Small C&I¹⁷	Large C&I¹⁸
Single Family (SF)	Small Office	Large Office
SF Low-Income	Small Retail	Large Retail
Multifamily	Small Education – College/University	Large Education – College/University
	Small Education – Other	Large Education – Other
	Small Grocery	Large Grocery
	Small Health – Hospital	Large Health – Hospital
	Small Health – Other	Large Health – Other
	Small Industrial Manufacturing	Large Industrial Manufacturing
	Small Institutional/Public Services	Large Institutional/Public Services
	Small Lodging	Large Lodging
	Small Miscellaneous/Other	Large Miscellaneous/Other
	Small Restaurant	Large Restaurant
	Small Warehouse	Large Warehouse

The programs described in the following sections are developed to address specific market segments or delivery channels.

Residential Revenue Class

Duquesne Light’s project team analyzed residential sector summary actual data for 2007–2008 and 2009–2013 as well as 2015–2025 forecast data for customer count, energy and demand statistics. Dwelling type and vintage definition was developed by analyzing American Community Survey data for Allegheny and Beaver counties, representative of housing characteristics in Duquesne Light’s service area.¹⁹ The analysis supported a

¹⁶ Ibid, footnote 6

¹⁷ EEPDRMPSR Table 19: Program Potential small C&I incremental annual GWh savings

¹⁸ EEPDRMPSR Table 23: Program Potential large C&I incremental annual GWh savings

¹⁹ Ibid, footnote 6

proportional allocation of percentages of regional housing stock into single-family, multi-family single-family low-income, and multi-family low-income. The EEPDRMPSR projects potential annual GWh savings for Duquesne Light's residential customers by segment of customer and by program potential. The EEPDRMPSR found that single-family homes have the greatest potential with savings, specifically utilizing whole house programs; although the EEPDRMPSR admits that whole house programs may capture some of the savings achieved through space and water heater programs, along with Behavioral Energy Efficiency Reports.

Residential EE&C program planning incorporates energy and demand savings associated with implementing lighting, appliance, heating ventilation and air conditioning, building shell, water heating and other energy efficiency measures shown in Section 11, Table 7 Eligible Measures. Residential sector measures and their energy and demand savings estimates are consistent with the Pennsylvania 2021 Technical Reference Manual (TRM).

Small Commercial & Industrial Revenue Class

Duquesne Light's project team analyzed commercial sector summary actual data for 2007–2008 and 2009–2013 as well as forecast 2015–2025 customer counts, energy and demand statistics. The project team utilized Phase I, Phase II and Phase III research containing North American Industry Classification System (NAICS) codes for Duquesne Light's larger commercial customers, to identify market segments to assist in directing its marketing efforts within the broader commercial customer sector.

The EEPDRMPSR determined the benefits available to small commercial and industrial customers. The study determined that the greatest benefits can be found among retail, office, and institutional/public service building types. Unlike residential, the greatest potential savings for small C&I are found in interior lighting programs. That program potential was followed by cooling and whole building programs. Like residential, the EEPDRMPSR did find that whole building programs are likely to experience some overlap between interior lighting, cooling, and ventilation savings.

Small-Medium C&I Customer Sector:

Small commercial customers can receive EE&C incentives under the Small C&I downstream and midstream incentives programs. They can also receive the direct-installation of energy efficiency measures by specialized contractors through the Small Commercial Direct-Install program and Small Business Solutions Program.

Large Commercial & Industrial Revenue Classes:

Duquesne Light's project team analyzed industrial sector summary actual data for 2007–2008 and 2009–2013 as well as 2015–2025 forecast data for customer count, energy and demand statistics. The project team utilized Phase I, Phase II and Phase III research containing North American Industry Classification System (NAICS) codes for Duquesne Light's larger industrial customers, to identify market segments to assist in directing its marketing efforts within the broader industrial customer sector. This available information was considered the optimal level given the unique characteristics of Duquesne Light's industrial customer base.

As is typical in many states, the EEPDRMSPR discovered that the primary savings amongst large commercial and industrial customers came from large industrial manufacturing building types. This category offers potential savings more than twice as great as any other large C&I building type, and almost 35% of the total potential savings for the class. Like small C&I, large C&I customers can achieve the most potential through interior lighting programs, following by cooling and whole building programs. Lighting programs can generate over 25% of the total potential GWh savings for the entire class.

The Large Business Solutions Program will employ specialized engagement channel CSPs to perform detailed energy audits, prepare feasibility studies and make energy efficiency recommendations to the primary metals and chemical products industrial segments. All industrial sector customers can receive EE&C incentives either under the Small C&I programs or Large C&I programs.

All large commercial customers are served under the Large Business Solutions Program. The program employs specialized contractors for the office building and retail²⁰ market engagement channels. Additionally, large commercial customers can receive lighting equipment distributor instant rebates provided under the Large Non-Residential Upstream Lighting Program.

- 3.1.3. Describe how energy efficiency, combined heat and power, renewables, and other measures are included in the portfolio of programs as applicable.

Duquesne Light will promote cost-effective technologies under its portfolio of programs.

In addition, during Phase IV, Duquesne Light will place increased emphasis on CHP installations while maintaining high standards for screening, qualification, and delivering projects. The objectives include increasing customers' awareness of and understanding the benefits from CHP, helping customers explore opportunities to deploy CHP technologies in their facilities, and providing technical assistance to help customers overcome financial and technical barriers to CHP deployment. Duquesne Light and its non-residential CSP(s) will continue to partner with NGDCs serving Duquesne Light's territory to jointly facilitate CHP opportunities.

- 3.1.4. Describe how the EDC defines 'comprehensive' in the context of EE&C plan design and delivery and the comprehensive program(s) to be offered to the residential and non-residential rate classes. Describe the measure mix or delivery mechanism that qualify each program as comprehensive consistent with the requirements of the Phase IV Implementation Order.

Refer to the Residential Programs described in Section 3.2, and Small Commercial Direct Install Program in Section 3.3.1, for the comprehensive measures to be offered.

²⁰ The retail segment engagement channel includes the food stores, lodging, retail stores and restaurant market segments.

3.2. Residential Sector (as defined by EDC Tariff) Programs – include formatted descriptions of each program organized under the following headings:

- Program title and Program years during which program will be implemented²¹
- Objective(s)
- Target market – including market size to help frame participation estimates (e.g., number of households, electric sales etc.)
- Program description
- If the program is an umbrella program (e.g., a wide-ranging residential program that includes upstream measures, home energy reports, appliance recycling, kits, efficient product rebates, and new construction), list and describe all program sub-components (or sub-programs, initiatives, solutions, etc.) that make up the program. Note that EDCs will be required to report impacts and financials separately for each program sub-component in their annual reports.
- Implementation strategy (including expected changes that may occur in different program years)
- Program issues and risks and risk management strategy
- Anticipated costs to participating customers
- Ramp up strategy
- Marketing strategy
- Eligible measures and incentive strategy showing incremental cost assumptions, gross measure-level TRC ratio, and incentive levels (e.g., \$ per measure, \$ per kWh or MW saved). See Table 7.
- The basis for the proposed level of incentives and the sharing of incremental measure costs between participants and the EDC.
- Maximum deadlines for rebates including clear and reasonable rationale for the any timeframe longer than 180 days.
- Program start date with key schedule milestones
- Assumed Evaluation, Measurement and Verification (EM&V) requirements required to document savings by the Commission’s statewide EE&C Plan Evaluator
- Administrative requirements – include internal and external staffing levels
- Savings targets and estimated participation – include tables with estimated total MWh/yr and MW goals per year and/or ranges per year and cumulative tables that document key assumptions of estimated savings ranges per measure as well as estimated participation. See Table 8.

²¹ It is assumed that there are five program years, each starting June 1 and ending May 31st. The first program year (PY) is PY13 (June 1, 2021 to May 31, 2022) and the final program year is PY17 (June 1, 2025 to May 31, 2026).

- Estimated program budget (total) by year – include table with budget per year. The table should also show what percentage of the budget goes to incentive costs and what percentage goes to non-incentive costs.²² See Table 9.
- Estimated percentage of sector budget attributed to program
- Cost-effectiveness – include gross and net TRC and net-to-gross (NTG) ratio²³ for each program. For gross tables, NTGR should be 1. See Table 13.
- Bidding strategy for peak demand reductions into PJM’s FCM. Include a description of the strategy and approach of offering resources into the PJM capacity market. The description should include an estimated range of MW and a trajectory of that MW total over time.
- Other information deemed appropriate

3.2.1. Residential Energy Efficiency Program

The Residential Energy Efficiency Program (REEP) is an umbrella program overarching all market-rate residential customer program activities. REEP individual program components include appliance recycling: rebate programs with upstream, midstream and downstream delivery channels; and a residential behavioral program. The program delivery channels will deliver a broad range of appliance, plug load, space heating and cooling, lighting, water heating, refrigeration, shell and whole building measure end-use categories. REEP individual program components are described in more detail in Section 3.2.1.1 through 3.2.1.5 below.

3.2.1.1 Residential Appliance Recycling Program

Program Title and Program Years: The Residential Appliance Recycling Program (“RARP”) will be implemented during program years 2021 through 2026.

Objectives: To assist customers to become more energy efficient by educating them about the amount of energy consumed and the costs associated with operating inefficient refrigerators, freezers, dehumidifiers, and room air conditioners. Provide access to an easy-to-use, no-cost service to remove and recycle inefficient, working units. Customer motivation is increased by providing an incentive rebate for program participation.

Target Market: This program is available to Duquesne Light residential customers.

Program Description: The Residential Appliance Recycling offers customers no-cost pickup and disposal for refrigerators, freezers, dehumidifiers, and room air conditioners, as well as a small rebate for each appliance recycled. This is to encourage residential customers in Duquesne Light’s service territory to turn in their older, working refrigerators, freezers,

²² Per the June 18, 2020 Implementation Order, at least 50% of EE&C plan spending should come from incentives and less than 50% should be attributed to non-incentive cost categories. This requirement is at the portfolio level, not the program or sector level. See *June 18, 2020 Implementation Order* at 126.

²³ Per the June 18, 2020 Implementation Order, EDCs are required to provide NTG ratios in addition to standard TRC ratios, with language reiterating the speculative nature of NTG ratios. See *June 18, 2020 Implementation Order* at 107.

dehumidifiers, and room air conditioners to be recycled. Projected energy savings and peak demand reductions for removing an older, working unit are tied to unit energy savings specified in the 2021 TRM. To encourage participation in this program, an Incentive Rebate is offered for the removal of an older, working unit.

The program will consist of Duquesne Light contracting with a CSP to administer the program that would consist of the following services:

- Contracting an appliance recycling vendor to:
 - Handle questions
 - Schedule recycling appointments
 - Onsite verification that unit is in working condition
 - Unit collection/transportation
 - Recycling of units based on all local, state, and federal regulations (including CFC-11(foam) incineration or recycling)
 - Provide documented proof to CSP for Incentive Rebate processing
- Website (program details, reservation requests)
- Incentive rebate processing
- Reporting

Implementation Strategy: CSP will provide a comprehensive Marketing and Outreach Plan to include, but not limited to the following:

- 1) Targeted customer marketing to reach Duquesne Light's residential customer segment
- 2) Vehicle Branding
- 3) Promotional Materials
- 4) Digital and/or Social Media Ads
- 5) Website/Customer Online Portal
- 6) Images and copy provided to support additional Marketing efforts

CSP will also provide channels for customer enrollments and inquiries through phone, email, referrals, and online portal.

Program Issues, Risks and Risk Management Strategy: All portfolios and programs are operated through Duquesne Light's PMRS. The system provides comprehensive oversight of program incentives, potential impacts and provides early warning regarding program under- or over-subscription.

Basis for the Proposed Level of Incentives and Anticipated Cost to Participating Customers: Incentive levels have historically averaged approximately one-third of efficient product incremental costs, initially set targeting a simple payback period of 2-years. Incentive levels were then adjusted to be approximately consistent with statewide treatment and as needed to

promote program participation. The Phase IV Implementation Order²⁴ requirement for at least 50% of EE&C Plan spending, at the Plan level, to come from incentives has caused incentive levels to increase to a portfolio average of 56.2% offsetting on average 41% of participant incremental costs.

There is no cost to participating customers.

Ramp-up Strategy: See Figure 1: Program Ramp-Rates for projected energy savings for each year of the Phase IV performance period.

Marketing Strategy: Duquesne Light's CSP will provide a comprehensive Marketing and Outreach strategy that incorporates customer targeting, promotional materials, digital/social media ads, as well as a website with online customer portal.

Eligible Measures and Incentive Strategy showing Incremental Cost Assumptions, and Incentive Levels: Eligible measures include refrigerators, freezers, dehumidifiers, and room air conditioners as shown in Section 11, Table 7.

Maximum Deadline for Rebates: Rebate deadlines do not apply to appliance recycling programs.

Program Start Date and Key Milestones: Program is set to start on June 1, 2021 and run throughout the duration of Phase IV ending on May 31, 2026.

Assumed EM&V Requirements to Document Savings by the Commission's Statewide EE&C Evaluator: Detailed evaluation, measurement and verification activities will be identified in the Phase IV EM&V Plan. Either enhanced or basic rigor verification is employed based on project scope, as identified in the EM&V Plan. Random samples shall comply with SWE Audit Plan confidence and precision levels.

Administrative Requirements: The Duquesne Light Customer Programs organization staffing plan includes two dedicated full-time employees to perform management and coordination of all Act 129 residential programs. The Residential Customer program associates will administer the program on a shared basis with additional part-time support by engineering, marketing, purchasing, regulatory, legal, data processing and clerical staff, as well as contracted CSP services.

Estimated Participation: See the following table.

²⁴ PA Public Utility Commission Energy Efficiency and Conservation Program Implementation Order, Docket No. M-2020-3015228, June 18, 2020, Section I EDC Cost Recovery, subsection 1. Determination of Phase IV Allowable Costs, page 127.

Savings Targets and Estimated Participation:²⁵

	PY13	PY14	PY15	PY16	PY17	Total
MWh	1,605.1	1,689.6	1,689.6	1,689.6	1,774.0	8,447.8
MW	0.230	0.242	0.242	0.242	0.254	1.210
Participation	2,237.0	2,354.7	2,354.7	2,354.7	2,472.4	11,774

Estimated Program Budget:

	PY13	PY14	PY15	PY16	PY17	Total
Program Cost	\$333,749	\$351,315	\$351,315	\$351,315	\$368,881	\$1,756,575
Incentives	\$146,816	\$154,543	\$154,543	\$154,543	\$162,271	\$772,717
Percent Incentives	44.0%	44.0%	44.0%	44.0%	44.0%	44.0%
Percent Non-Incentives	56.0%	56.0%	56.0%	56.0%	56.0%	56.0%

Estimated Percentage of Sector Budget Attributed to Program:

	PY13	PY14	PY15	PY16	PY17	Total
Residential Sector Budget	\$5,927,128	\$6,239,082	\$6,239,082	\$6,239,082	\$6,551,036	\$31,195,411
Appliance Recycling	\$333,749	\$351,315	\$351,315	\$351,315	\$368,881	\$1,756,575
Percent Sector Budget	5.6%	5.6%	5.6%	5.6%	5.6%	5.6%

Cost Effectiveness:

- Gross TRC: 1.06
- NTG Ratio: 0.46
- Net TRC: 0.49

Bidding Strategy: Duquesne Light does not anticipate nominating demand reductions associated with residential sector energy efficiency into the PJM FCM.

3.2.1.2 Residential Downstream Incentives Program

Program Title and Program Years: The Residential Downstream Incentives Program (RDIP) will be implemented during program years 2021 through 2026.

Objectives: The RDIP program is designed to mitigate primary cost and awareness barriers to residential customer adoption of energy efficiency measures and practices. To affect this outcome, RDIP provides access to both printed and internet based educational materials, as well as financial incentives in the form of energy efficient product rebates. The downstream rebate program model has been expanded to include market rate customer comprehensive audits, direct install measures and residential energy efficiency kits.

²⁵ Participation for this program are measured in units recycled.

Target Market: This program is made available to Duquesne Light residential customers.

Program Description: The RDIP encourages customers to make an energy efficient choice when purchasing and installing household appliances and equipment measures by offering educational materials on energy efficiency options and energy efficiency rebates to offset the higher cost of energy efficient equipment. Program educational materials and rebates are provided in conjunction with the Duquesne Light online home energy audit. The online home energy audit will allow customers to obtain instant results by answering questions regarding their home energy use. A menu of approved measures and rebate amounts simplifies the audit process for the customer and provides a "per-widgit" rebate to reduce the cost of replacing outdated and inefficient equipment.

The RDIP also provides an avenue for participating customers to receive comprehensive in-home audits as well as incentives for air sealing; basement, exterior wall, floor and attic insulation, as well as direct-install water heating measures.

An additional delivery channel for residential customers is through student education. Student education challenges students to think about energy, learning where it comes from, why we need it, and how we can use it more efficiently. Key features are school presentations with hands-on activities for the students and teachers, Poster Contests, provisions for energy efficiency kits for participating students and teachers, and a data collection and tracking process used to compile, analyze, and report electric energy savings. If in-class presentations are not possible, CSP will provide virtual and/or pre-recorded presentations to be delivered at a designated date and time with the presenter joining remotely to answer any questions. The program will seek to supplement and enhance curriculum for teachers in an approachable way, giving them access to tools and resources about energy efficiency. The program reinforces positive energy efficiency lifestyle changes geared towards students, their families and teachers.

Implementation Strategy: The RDIP is implemented with assistance by a qualified CSP. Members of Duquesne Light's team will support ongoing planning activities, contract management and assist with program outreach and marketing, as well as internal tracking and reporting. The CSP program coordinator may perform marketing, rebate processing, verification and calculation of overall savings. Customers submit rebate applications online or by mail.

Program Issues, Risks and Risk Management Strategy: All portfolios and programs are operated through Duquesne Light's PMRS. The system provides comprehensive oversight of program budgets and impacts and provides early warning regarding program under- or over-subscription. The RDIP will employ audit tools most applicable to programmatic needs and opportunities, and also capable of migrating data to PMRS. This functionality has proven problematic in Phase III operations and is an area for improvement in Phase IV. Such data management and ramp-up delay risks will be mitigated through the process of selecting the CSP(s) with existing systems, processes and demonstrated capabilities to implement cost-effective residential audit programs.

Basis for the Proposed Level of Incentives and Anticipated Cost to Participating Customers: Incentive levels have historically averaged approximately one-third of efficient product

incremental costs, initially set targeting a simple payback period of 2 years. Incentive levels were then adjusted to be approximately consistent with statewide treatment and as needed to promote program participation. The Phase IV Implementation Order²⁶ requirement for at least 50% of EE&C Plan spending, at the Plan level, to come from incentives has caused incentive levels to increase to a portfolio average of 56.2% offsetting on average 41% of participant incremental costs.

The program provides up to a \$250 home energy credit for installation of audit recommended measures. The credit amount was set to offset approximately one-half the audit cost. Direct installation measures are provided at no cost. Additional energy efficient product incentive payments are available as shown in Section 11 Table 7 Eligible Measures. Participating customers pay the remaining amounts.

Ramp-up Strategy: See Figure 1: Program Ramp-Rates for projected energy savings for each year of the Phase IV performance period.

Marketing Strategy: Residential customers will enter the program via the existing Duquesne Light online audit. Upon completion of the online audit, participants will be given an opportunity to pursue a comprehensive audit and follow links to the RDIP enrollment webpage. Duquesne Light will jointly market activities with support from the CSPs and subcontractors.

Eligible Measures and Incentive Strategy showing Incremental Cost Assumptions and Incentive Levels: See Section 11, Table 7.

Maximum Deadline for Rebates: Energy efficiency measure rebates are subject to an application deadline of 180 days from date of purchase or installation.

Program Start Date and Key Milestones: Refer to Section 12 Chart 1, Residential Portfolio Program.

Assumed EM&V Requirements to Document Savings by the Commission's Statewide EE&C Evaluator: Detailed evaluation, measurement and verification activities will be identified in the Phase IV EM&V Plan. Either enhanced or basic rigor verification is employed based on project scope, as identified in the EM&V Plan. Random samples shall comply with SWE Audit Plan confidence and precision levels.

Administrative Requirements: The Duquesne Light Customer Programs organization staffing plan includes two dedicated full-time employees to perform management and coordination of all Act 129 residential programs. The Residential Customer program associates will administer the program on a shared basis with additional part-time support by engineering, marketing, purchasing, regulatory, legal, data processing and clerical staff, as well as

²⁶ PA Public Utility Commission Energy Efficiency and Conservation Program Implementation Order, Docket No. M-2020-3015228, June 18, 2020, Section I EDC Cost Recovery, subsection 1. Determination of Phase IV Allowable Costs, page 127.

contracted CSP services. Program administrative costs are shown in the following Projected Program Budget table.

Savings Targets and Estimated Participation:²⁷

	PY13	PY14	PY15	PY16	PY17	Total
MWh	4,502.8	4,739.8	4,739.8	4,739.8	4,976.7	23,698.8
MW	0.493	0.519	0.519	0.519	0.545	2.595
Participation	36,791.0	38,727.4	38,727.4	38,727.4	40,663.8	193,637

Estimated Program Budget:

	PY13	PY14	PY15	PY16	PY17	Total
Program Cost	\$1,067,626	\$1,123,816	\$1,123,816	\$1,123,816	\$1,180,007	\$5,619,082
Incentives	\$523,268	\$550,809	\$550,809	\$550,809	\$578,349	\$2,754,043
Percent Incentives	49.0%	49.0%	49.0%	49.0%	49.0%	49.0%
Percent Non-Incentives	51.0%	51.0%	51.0%	51.0%	51.0%	51.0%

Estimated Percentage of Sector Budget Attributed to Program:

	PY13	PY14	PY15	PY16	PY17	Total
Residential Sector Budget	\$5,927,128	\$6,239,082	\$6,239,082	\$6,239,082	\$6,551,036	\$31,195,411
Downstream Incentives	\$1,067,626	\$1,123,816	\$1,123,816	\$1,123,816	\$1,180,007	\$5,619,082
Percent Sector Budget	18.0%	18.0%	18.0%	18.0%	18.0%	18.0%

Cost Effectiveness:

- Gross TRC: 2.09
- NTG Ratio: 0.61
- Net TRC: 1.69

Bidding Strategy: Duquesne Light does not anticipate nominating demand reductions associated with residential sector energy efficiency into the PJM FCM.

3.2.1.3 Residential Midstream Incentives Program

Program Title and Program Years: The Residential Midstream Incentives Program (RMIP) will be implemented during program years 2021 through 2026.

Objectives: The Residential Midstream Products Rebate Program will result in increased purchases of select HVAC, hot water, and auxiliary equipment by Duquesne Light's residential customers by offering rebates through program participating distributors. For

²⁷ Participation in this program is measure units delivered.

time-strapped residential customers, typical onerous rebate application requirements and lengthy rebate processing lead times present significant and growing barriers to energy efficiency program participation. Providing rebates, or customer incentives, directly to participating distributors addresses these significant barriers.

Target Market: This program is made available to Duquesne Light residential customers. Based on Total Residential Building Stock estimate of 527,951 (includes single-family (“SF”), multi-family (“MF”), and Mobile Homes).

Program Description: The Midstream Products Rebate Program will provide incentives for HVAC, hot water, and auxiliary equipment through participating distributors and to residential HVAC distributors to offset the higher cost, and thereby drive uptake of the most efficient HVAC, hot water and auxiliary equipment options. The residential customer receives the benefit of the rebate at the point of sale (POS) through the participating distributors or through installation of the equipment by a contractor. The rebates are to encourage residential customers in Duquesne Light’s territory to purchase qualified energy efficient HVAC, hot water, and auxiliary equipment for installation at their homes through a seamless rebate process.

Implementation Strategy: The CSP will identify and enroll residential HVAC distributors expanding their existing distributor network, create a qualified product master list that will handle the regular submissions from the midstream partners, will present Duquesne Light with new eligible measures for the products master list, provide participating distributor in-depth training and on-going support, verify and process rebate submissions, track and report program activity, perform store visits, hold in store product promotion events, and provide program quality control.

Program Issues, Risks and Risk Management Strategy: All portfolios and programs are operated through Duquesne Light’s PMRS. The system provides comprehensive oversight of program incentives, potential impacts and provides early warning regarding program under- or over-subscription.

Basis for the Proposed Level of Incentives and Anticipated Cost to Participating Customers: Incentive levels have historically averaged approximately one-third of efficient product incremental costs, initially set targeting a simple payback period of 2 years. Incentive levels were then adjusted to be approximately consistent with statewide treatment and as needed to promote program participation. The Phase IV Implementation Order²⁸ requirement for at least 50% of EE&C Plan spending, at the Plan level, to come from incentives has caused incentive levels to increase to a portfolio average of 56.2% offsetting on average 41% of participant incremental costs.

Program participating distributors rebates offset a portion of the incrementally greater cost of high-efficiency HVAC, hot water, and auxiliary equipment. Anticipated costs to participating customers would be the remaining portion after the rebate is applied.

²⁸ PA Public Utility Commission Energy Efficiency and Conservation Program Implementation Order, Docket No. M-2020-3015228, June 18, 2020, Section I EDC Cost Recovery, subsection 1. Determination of Phase IV Allowable Costs, page 127.

Ramp up Strategy: See Figure 1: Program Ramp-Rates for projected energy savings for each year of the Phase IV performance period.

Marketing Strategy: Duquesne Light's CSP will recruit, train, and manage distributor partnerships, and continue to engage in distributor networks through targeted marketing approaches. CSP will coordinate annual kick-off meetings to introduce the program to residential HVAC distributors, facilitate education group meetings, provide distributor portal for ease of participation in the program and supply a newsletter on program updates, rebates, and recognition for high-performing participating distributors.

Eligible Measures and Incentive Strategy: A rebate will be granted by participating distributors at the point of sale on a pre-determined qualified products list, as indicated below. CSP will engage Duquesne Light with new high-efficiency products to keep the qualified product list current, fresh, and appealing to the consumers. See Table 7 Eligible Measures for a listing of measures and range for incentives. Measures eligible for incentives under this program include variable speed pool pumps, ductless mini-split heat pumps, central air conditioners and heat pumps.

Maximum Deadline for Rebates: The Midstream Products Rebate Program offers rebates at the point of sale at participating distributors. Rebate deadlines are not applicable.

Program Start Date and Key Milestones: Program is set to start on June 1, 2021 and run throughout the duration of Phase IV ending on May 31, 2026.

Assumed EM&V Requirements to Document Savings by the Commission's Statewide EE&C Evaluator: Detailed evaluation, measurement and verification activities will be identified in the Phase IV EM&V Plan. Either enhanced or basic rigor verification is employed based on project scope, as identified in the EM&V Plan. Random samples shall comply with SWE Audit Plan confidence and precision levels.

Administration Requirements: The Duquesne Light Customer Programs organization staffing plan includes two dedicated full-time employees to perform management and coordination of all Act 129 residential programs. The Residential Customer program associates will administer the program on a shared basis with additional part-time support by engineering, marketing, purchasing, regulatory, legal, data processing and clerical staff, as well as contracted CSP services. Program administrative costs are shown in the following Projected Program Budget table.

Estimated Participation: The primary metrics for program participation are processing incentive payments for the purchase of qualified energy efficiency HVAC, hot water and auxiliary equipment, rendering deemed savings estimates reflected in the Program Savings Targets table below.

Savings Targets and Estimated Participation:²⁹

	PY13	PY14	PY15	PY16	PY17	Total
MWh	113.3	119.3	119.3	119.3	125.2	596.3
MW	0.024	0.025	0.025	0.025	0.027	0.127
Participation	952.0	1,002.1	1,002.1	1,002.1	1,052.2	5,010

Estimated Program Budget:

	PY13	PY14	PY15	PY16	PY17	Total
Program Cost	\$40,668	\$42,809	\$42,809	\$42,809	\$44,949	\$214,044
Incentives	\$27,473	\$28,919	\$28,919	\$28,919	\$30,365	\$144,594
Percent Incentives	67.6%	67.6%	67.6%	67.6%	67.6%	67.6%
Percent Non-Incentives	32.4%	32.4%	32.4%	32.4%	32.4%	32.4%

Estimated Percentage of Sector Budget Attributed to Program:

	PY13	PY14	PY15	PY16	PY17	Total
Residential Sector Budget	\$5,927,128	\$6,239,082	\$6,239,082	\$6,239,082	\$6,551,036	\$31,195,411
Midstream Incentives	\$40,668	\$42,809	\$42,809	\$42,809	\$44,949	\$214,044
Percent Sector Budget	0.7%	0.7%	0.7%	0.7%	0.7%	0.7%

Cost Effectiveness:

- Gross TRC: 1.22
- NTG Ratio: 0.43
- Net TRC: 0.89

Bidding Strategy: Duquesne Light does not anticipate nominating demand reductions associated with residential sector energy efficiency into the PJM FCM.

3.2.1.4 Residential Upstream Incentives Program

Program Title and Program Years: The Residential Upstream Incentives Program (RUIP) will be implemented during program years 2021 through 2026.

Objectives: The Residential Upstream Products Rebate Program will result in increased purchases of energy efficient lighting and appliances by Duquesne Light's residential customers by offering point of sale rebates on qualified energy efficient lighting products and appliances. For time-strapped residential customers, typical onerous rebate application

²⁹ Participation in this program is measure units incented.

requirements and lengthy rebate processing lead times present significant and growing barriers to energy efficiency program participation.

Providing rebates, or customer incentives, directly to manufacturers and retailers addresses these significant barriers, along with providing a centralized upstream manufacturer and retailer partnership through the CSP's delivery team to support the retailers and manufacturers throughout the product promotion and rebate processing journey.

Target Market: This program is made available to Duquesne Light residential customers. Based on Total Residential Building Stock estimate of 527,951 (includes SF, MF, and Mobile Homes).

Program Description: The Upstream Products Rebate Program will provide incentives for efficient lighting products and appliances directly to technology manufacturer and retailers to offset the higher cost, and thereby drive uptake of, the most efficient lighting and appliance options. The residential customer receives the benefit of the rebate at the point of sale (POS) through the participating retailers. The rebates are to encourage residential customers in Duquesne Light's territory to purchase qualified energy efficient lighting and appliances for installation at their homes through a seamless rebate process.

Implementation Strategy: The CSP will identify and enroll retailers, create a qualified product master list that will handle the regular submissions from the upstream partners, will present Duquesne Light with new eligible measures for the products master list, provide participating retailer training, verify and process rebate submissions, track and report program activity, perform store visits, hold at store product promotion events, and provide program quality control.

Program Issues, Risks and Risk Management Strategy: All portfolios and programs are operated through Duquesne Light's PMRS. The system provides comprehensive oversight of program incentives, potential impacts and provides early warning regarding program under- or over-subscription.

Basis for the Proposed Level of Incentives and Anticipated Cost to Participating Customers: Incentive levels have historically averaged approximately one-third of efficient product incremental costs, initially set targeting a simple payback period of 2 years. Incentive levels were then adjusted to be approximately consistent with statewide treatment and as needed to promote program participation. The Phase IV Implementation Order³⁰ requirement for at least 50% of EE&C Plan spending, at the Plan level, to come from incentives has caused incentive levels to increase to a portfolio average of 56.2% offsetting on average 41% of participant incremental costs.

Program participating retailer rebates offset a portion of the incrementally greater cost of high-efficiency lighting and appliances. Anticipated costs to participating customers would be the remaining portion at the point of sale after the rebate is applied.

³⁰ PA Public Utility Commission Energy Efficiency and Conservation Program Implementation Order, Docket No. M-2020-3015228, June 18, 2020, Section I EDC Cost Recovery, subsection 1. Determination of Phase IV Allowable Costs, page 127.

Ramp up Strategy: See Figure 1: Program Ramp-Rates for projected energy savings for each year of the Phase IV performance period.

Marketing Strategy: Duquesne Light's CSP will recruit, train, manage, and continue to engage in partner networks, including the manufacturers and retailers through targeted marketing approaches, coordinate annual kick-off meetings to introduce the program to retailers and manufacturers, facilitate education group meetings, provide retailer portal for ease of participation in the program and supply a newsletter on program updates, rebates, and recognition for high-performing participating retailers.

Eligible Measures and Incentive Strategy: A rebate will be granted by participating retailers at the point of sale on a pre-determined qualified products list, as indicated below. CSP will engage Duquesne Light with new eligible products to keep the qualified product list current, fresh, and appealing to the consumers. See Section 11, Table 7 Eligible Measures for a listing of measures and range for incentives. Measures eligible for incentives under this program include reflector, globe and specialty lighting products.

Maximum Deadline for Rebates: The Upstream Products Rebate Program offers rebates at the point of sale at participating retail stores. Rebate deadlines are not applicable.

Program Start Date and Key Milestones: Program is set to start on June 1, 2021 and run throughout the duration of Phase IV ending on May 31, 2026.

Assumed EM&V Requirements to Document Savings by the Commission's Statewide EE&C Evaluator: Detailed evaluation, measurement and verification activities will be identified in the Phase IV EM&V Plan. Either enhanced or basic rigor verification is employed based on project scope, as identified in the EM&V Plan. Random samples shall comply with SWE Audit Plan confidence and precision levels.

Administrative Requirements: The Duquesne Light Customer Programs organization staffing plan includes two dedicated full-time employees to perform management and coordination of all Act 129 residential programs. The Residential Customer program associates will administer the program on a shared basis with additional part-time support by engineering, marketing, purchasing, regulatory, legal, data processing and clerical staff, as well as contracted CSP services. Program administrative costs are shown in the following Projected Program Budget table.

Estimated Participation: The primary metrics for program participation are processing incentive payments for the purchase of qualified energy efficiency lighting and appliances, rendering deemed savings estimates reflected in the Program Savings Targets table below.

Savings Targets and Estimated Participation:³¹

³¹ Participation in this program is measure units incented.

	PY13	PY14	PY15	PY16	PY17	Total
MWh	2,585.0	2,721.0	2,721.0	2,721.0	2,857.1	13,605.1
MW	0.271	0.285	0.285	0.285	0.299	1.426
Participation	197,509.7	207,904.9	207,904.9	207,904.9	218,300.2	1,039,525

Estimated Program Budget:

	PY13	PY14	PY15	PY16	PY17	Total
Program Cost	\$714,601	\$752,212	\$752,212	\$752,212	\$789,822	\$3,761,058
Incentives	\$413,547	\$435,312	\$435,312	\$435,312	\$457,078	\$2,176,562
Percent Incentives	57.9%	57.9%	57.9%	57.9%	57.9%	57.9%
Percent Non-Incentives	42.1%	42.1%	42.1%	42.1%	42.1%	42.1%

Estimated Percentage of Sector Budget Attributed to Program:

	PY13	PY14	PY15	PY16	PY17	Total
Residential Sector Budget	\$5,927,128	\$6,239,082	\$6,239,082	\$6,239,082	\$6,551,036	\$31,195,411
Upstream Incentives	\$714,601	\$752,212	\$752,212	\$752,212	\$789,822	\$3,761,058
Percent Sector Budget	12.1%	12.1%	12.1%	12.1%	12.1%	12.1%

Cost Effectiveness:

- Gross TRC: 1.00
- NTG Ratio: 0.43
- Net TRC: 0.77

Bidding Strategy: Duquesne Light does not anticipate nominating demand reductions associated with residential sector energy efficiency into the PJM FCM.

3.2.1.5 Residential Behavioral Energy Efficiency

Program Title and Program Years: The Residential Behavioral Energy Efficiency Program (R-BEEP) will be implemented during program years 2021 through 2026.

Objectives: The objectives of the program are (1) to educate residential participants on electricity consumption using graphic information tools; (2) to change household behavior leading to less electricity usage; and (3) to deliver energy savings of more than 1% of average participant's electric usage.

Target Market: Over the five-year Phase IV performance period the average annual treatment group population is projected to be 183,940 residential customers.

Program Description: The program sends via direct mail R-BEEP reports that compare recipient customer's energy use to customers with similar home type and size. R-BEEP provides for comparison of the last two months of energy consumption by 1) the most efficient of the peer group, 2) the R-BEEP recipient, and 3) the entire peer group. The reports generate verifiable savings between 1.5%-3.5% of total home energy use.

Implementation Strategy: R-BEEP reports are provided targeted customer group in each year of Act 129 Phase IV, 2021-2025.

Program Issues, Risks and Risk Management Strategy: There is an attendant risk the program implementer cannot deliver the contracted R-BEEP reports and that consumers will not respond to the R-BEEP reports by changing energy use behavior. Duquesne Light will mitigate this risk by selecting an implementation contractor who has a proven track record. The selected CSP will have previously deployed R-BEEP reports on a national scale for leading energy efficiency programs. Energy savings results will be quantified using a PA PUC approved scientific measurement and verification approach previously used by most PA EDCs.

Anticipated Costs to Participating Customers: There is no cost to participating customers.

Ramp-up Strategy: See Figure 1: Program Ramp-Rates for projected energy savings for each year of the Phase IV performance period.

Marketing Strategy: Large-scale, individualized direct-mail campaign and provision of a customer service web portal are used. High-use customers are selected on an opt-out basis for enrollment in the multi-year pilot.

Eligible Measures and Incentives: The R-BEEP described above is the only program measure; there are no customer incentives. R-BEEP reports will also be utilized to promote other residential program offerings to help customers reduce consumption.

Maximum Deadline for Rebates: The program does not provide rebates and no rebate deadline is applicable.

Program Start Date and Key Milestones: Program is set to start on June 1, 2021 and run throughout the duration of Phase IV ending on May 31, 2026.

Assumed EM&V Requirements to Document Savings by the Commission's Statewide EE&C Evaluator: Duquesne Light will rely on the same measurement and verification approach already provided to more than 65 utilities across the country, including utilities in Pennsylvania. The protocol includes clearly defined test and control groups and ex-post measurement of savings.

Administrative Requirements: The Duquesne Light Customer Programs organization staffing plan includes two dedicated full-time employees to perform management and coordination of all Act 129 residential programs. The Residential Customer program associates will administer the program on a shared basis with additional part-time support by engineering, marketing, purchasing, regulatory, legal, data processing and clerical staff, as well as

contracted CSP services. Program administrative costs are shown in the following Projected Program Budget table.

Estimated Participation: Over the five-year Phase IV performance period the average annual treatment group population is projected to be 183,940 residential customers, rendering deemed savings estimates reflected in the Program Savings Targets table below.

Savings Targets and Estimated Participation:³²

	PY13	PY14	PY15	PY16	PY17	Total
MWh	8,100.0	11,500.0	10,400.0	11,400.0	8,300.0	49,700.0
MW	1.310	1.490	1.440	1.480	1.020	6.740
Participation	203,700	157,400	183,600	209,900	165,100	183,940

Estimated Program Budget:

	PY13	PY14	PY15	PY16	PY17	Total
Program Cost	\$678,919	\$963,897	\$871,698	\$955,516	\$695,682	\$4,165,713
Incentives	\$0	\$0	\$0	\$0	\$0	\$0
Percent Incentives	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Percent Non-Incentives	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Estimated Percentage of Sector Budget Attributed to Program:

	PY13	PY14	PY15	PY16	PY17	Total
Residential Sector Budget	\$6,239,082	\$6,239,082	\$6,239,082	\$6,239,082	\$6,239,082	\$31,195,411
Residential Behavioral Efficiency	\$678,919	\$963,897	\$871,698	\$955,516	\$695,682	\$4,165,713
Percent Sector Budget	13.4%	13.4%	13.4%	13.4%	13.4%	13.4%

Cost Effectiveness:

- Gross TRC: 1.09
- NTG Ratio: 1.00
- Net TRC: 1.09

Bidding Strategy: Behavioral program demand reductions are not eligible for nomination into the PJM FCM.

³² Participation is customers within treatment cohorts.

3.2.2. The Residential Low Income Energy Efficiency

Residential Low Income Energy Efficiency is an umbrella program comprising two specific low income residential customer program activities. Individual program components include a low income comprehensive audit and direct install program and a tailored low income behavioral efficiency program. The program delivery channels will deliver a broad range of direct-install measures and behavioral education to assist low income customers reduce their electric bills. Individual program components are described in more detail in Sections 3.2.2.1 and 3.2.2.2 below.

3.2.2.1. Low Income Energy Efficiency Program

The Residential Low Income Energy Efficiency Program is a “direct-install” program where walk-through and comprehensive audits are performed, energy efficiency education is provided, and energy efficient products and equipment are installed at no cost to income-qualified households.

Program Title and Program Years: Low Income Residential Energy Efficiency Program (“LIEEP”) will be implemented during Act 129 program years 2021 through 2026.

Objectives: The objective of LIEEP is to increase income-qualified customers’ comfort while reducing their energy consumption, costs, and economic burden.

Target Market: The LIEEP provides energy efficiency services to residential households that are at or below 150% of the federal poverty income guidelines and reside in single-family or multi-family housing.

Program Description: LIEEP is an income-qualified program providing services designed to assist low-income households in conserving energy and reducing electricity costs. LIEEP relies on several contributing subcomponents and engagement channels to deliver program services and achieve projected savings impacts.

- Income-qualified customers access to virtual or in-person walkthrough or comprehensive energy audits with no-cost direct install, appliance recycling/replacement, health & safety, HVAC, water heat, insulation, and air-sealing measures.
- Income-eligible multi-family buildings are provided virtual or in-person walkthrough assessments with no-cost direct install and appliance recycling/replacement measures. Multifamily property owners/managers are eligible for cost-share common area lighting and management-owned appliance recycling/replacement measures.

Implementation Strategy: (including expected changes that may occur in different program years).

Duquesne Light will track low-income customer participation through its Program Management and Reporting Systems (“PMRS”). Through linkage to Duquesne Light’s customer information system, PMRS confirms low income status and records savings achieved in low-income households.

Duquesne Light will refer confirmed low-income customers who participate in any of its general residential programs to its Act 129 low-income programs, its Universal Service programs, the Low-Income Home Energy Assistance Program (“LIHEAP”), low-income usage reduction program (“LIURP”); as well as coordinate with natural gas distribution companies (“NGDC”) and community based organizations as applicable to provide low-income services.

Duquesne Light will facilitate this coordination by inviting representatives from the NGDCs with overlapping service territories to its Act 129 Stakeholder meetings and will place the issue of Duquesne Light/NGDC coordination on the agenda of those meetings. Duquesne Light has actively participated in several stakeholder meetings with NGDCs throughout Phase III and plans to maintain and expand such efforts in Phase IV. Duquesne Light will also work with NGDCs to, where possible, provide joint rebates when the NGDC provides rebates to customers below 150% of the federal poverty level and to provide inter-utility audits to customers whose total household income is below 150% of the federal poverty level when available.

Program Issues, Risks and Risk Management Strategy: All portfolios and programs are tracked and monitored through Duquesne Light’s PMRS. The system provides comprehensive oversight of program budgets, potential impacts and provides early warning regarding program under- or over-subscription. The CSP will continue to transfer program data for review, verification, and submission into Duquesne Light’s PMRS. All of these program elements have been operating during the previous Act 129 Phases. These activities are not new to Duquesne Light’s implementation team. Implementation CSP contract statements of work are performance-based, include production schedules, and; performance payments are tied to independent measurement. Provisions in CSP contract language provide for shifting funds from under-performing programs.

Basis for the Proposed Level of Incentives and Anticipated Cost to Participating Customers: Incentive levels have historically averaged approximately one-third of efficient product incremental costs, initially set targeting a simple payback period of 2 years. Incentive levels were then adjusted to be approximately consistent with statewide treatment and as needed to promote program participation. The Phase IV Implementation Order³³ requirement for at least 50% of EE&C Plan spending, at the Plan level, to come from incentives has caused incentive levels to increase to a portfolio average of 56.2% offsetting on average 41% of participant incremental costs.

There is no cost to participants for the services described under this program.

Ramp-up Strategy: See Figure 1: Program Ramp-Rates for projected energy savings for each year of the Phase IV performance period.

Marketing Strategy: Residential customers will enter the program by calling a toll-free telephone number to qualify or applying online through Duquesne Light’s online customer

³³ PA Public Utility Commission Energy Efficiency and Conservation Program Implementation Order, Docket No. M-2020-3015228, June 18, 2020, Section I EDC Cost Recovery, subsection 1. Determination of Phase IV Allowable Costs, page 127.

portal. Upon qualifying for the program, the customer will be scheduled for an in-home energy audit or a virtual assessment. The CSP marketing approach will primarily reach customers through direct marketing channels. A mix of email, direct mail, collateral, website/customer portal, educational assets, community events, and outreach will drive inbound customer enrollment. The program will be marketed to low-income customers living in master-metered multifamily residences, and those with individually-metered accounts. The CSP will employ a targeted marketing approach to help create awareness, educate, and drive program participation.

Eligible Measures and Incentive Strategy: LIEEP will provide a broad array of direct install measures, depending upon applicable dwelling space heating and water heating equipment. Eligible measures are described below. No customer incentives are provided under the LIEEP, all LIEEP measures are provided at no cost to income qualified customers. For more specific details on the measures, see Section 11, Table 7.

Under LIEEP, income qualified residential customers will be scheduled for a virtual assessment or in-home energy audit that will include direct install measures as indicated in the below, as well as energy education. For the virtual assessment, the direct install measures will be drop shipped to the customer in the form of an energy efficiency kit and customers may be referred for direct installation of eligible HVAC, water heat, health & safety, and insulation/air sealing measures.

Eligible Direct Install Measures:

LED Nightlights
LED Lighting
Advanced Power strips (Tier 1)
ENERGY STAR Dehumidifier
Refrigerator Replacement
Room AC Replacement
Freezer Replacement
Connected Thermostat- Electric Heat
HPWH
Ductless Mini-Split Heat Pump (16 SEER / 9.0 hspf) – Electric Heat
ENERGY STAR Central Air Conditioner (13 SEER to 16 SEER)

ENERGY STAR Air Source Heat Pump 16 SEER/9.0 HSPF or Higher
Air Sealing – Electric Heat
Ceiling Insulation - Electric Heat
Basement Wall Insulation – Electric Heat
Exterior Wall Insulation - Electric Heat
Floor Insulation - Electric Heat
Electric Hot Water Kit
H&S measures, Comprehensive

Basis for the Proposed Level of Incentives and the Sharing of Incremental Measure Costs between Participants and the EDC: Incentive levels have historically averaged approximately one-third of efficient product incremental costs, initially set targeting a simple payback period of 2-years. Incentive levels were then adjusted to be approximately consistent with statewide treatment and as needed to promote program participation. The Phase IV Implementation Order³⁴ requirement for at least 50% of EE&C Plan spending, at the Plan level, to come from incentives has caused incentive levels to increase to a portfolio average of 56.2% offsetting on average 41% of participant incremental costs.

LIEEP measures are provided at no cost to income qualified customers. Multifamily facility upgrade cost-shares are negotiated on a case-by-case basis depending upon the percentage of low income occupants in the facility, facility need and savings opportunity.

Maximum Deadline for Rebates: The LIEEP participation, consistent with Commission’s June 18, 2020 Implementation Order, is mutually exclusive of program participation with program’s serving non-low-income customer populations. As such, no standard, or other, prescriptive rebates are provided under this program and no “Maximum Deadline for Rebates” is applicable.

Program Start Date and Key Milestones: Refer to Section 12 Chart 1, Residential Portfolio Program.

Assumed EM&V Requirements to Document Savings by the Commission’s Statewide EE&C Evaluator: Detailed evaluation, measurement and verification activities will be identified in the Phase III EM&V Plan. Either enhanced or basic rigor verification is employed based on

³⁴ PA Public Utility Commission Energy Efficiency and Conservation Program Implementation Order, Docket No. M-2020-3015228, June 18, 2020, Section I EDC Cost Recovery, subsection 1. Determination of Phase IV Allowable Costs, page 127.

project scope, as identified in the EM&V Plan. Random samples shall comply with SWE Audit Plan confidence and precision levels.

Administrative Requirements: The Duquesne Light Customer Programs organization staffing plan includes two dedicated full-time employees to perform management and coordination of all Act 129 residential programs. The Residential Customer program associates will administer the program on a shared basis with additional part-time support by engineering, marketing, purchasing, regulatory, legal, data processing and clerical staff, as well as contracted CSP services.

LIEEP Savings Targets and Estimated Participation:³⁵

	PY13	PY14	PY15	PY16	PY17	Total
MWh	4,063.4	4,277.2	4,277.2	4,277.2	4,491.1	21,386.1
MW	0.474	0.499	0.499	0.499	0.524	2.494
Participation	42,890.7	45,148.1	45,148.1	45,148.1	47,405.5	225,740

Estimated Program Budget:

	PY13	PY14	PY15	PY16	PY17	Total
Program Cost	\$2,767,115	\$2,912,753	\$2,912,753	\$2,912,753	\$3,058,391	\$14,563,765
Incentives	\$1,755,230	\$1,847,611	\$1,847,611	\$1,847,611	\$1,939,991	\$9,238,054
Percent Incentives	63.4%	63.4%	63.4%	63.4%	63.4%	63.4%
Percent Non-Incentives	36.6%	36.6%	36.6%	36.6%	36.6%	36.6%

Estimated Percentage of Sector Budget Attributed to Program:

	PY13	PY14	PY15	PY16	PY17	Total
Residential Sector Budget	\$5,927,128	\$6,239,082	\$6,239,082	\$6,239,082	\$6,551,036	\$31,195,411
Low Income Efficiency	\$2,767,115	\$2,912,753	\$2,912,753	\$2,912,753	\$3,058,391	\$14,563,765
Percent Sector Budget	46.7%	46.7%	46.7%	46.7%	46.7%	46.7%

Cost Effectiveness:

- Gross TRC: 1.02
- NTG Ratio: 1.00
- Net TRC: 1.02

Bidding Strategy: Duquesne Light does not anticipate nominating demand reductions associated with residential sector energy efficiency into the PJM FCM.

³⁵ Participation is units of measures installed.

3.2.2.2. Low Income Behavioral Efficiency Program

Program Title and Program Years: Low Income Behavioral Energy Efficiency Program (“LI-BEEP”) will be implemented during program years 2021 through 2026.

Objectives: The objectives of the program are (1) provide income qualified participants education about electricity consumption, cost and potential energy efficiency bill savings using graphic information tools; (2) change household behavior leading to less electricity usage; and (3) deliver energy savings of more than 1% of average participant’s electric usage.

Target Market: Over the five-year Phase IV performance period the average annual participation is projected to be 15,600 income qualified residential customers.

Program Description: Specialized low income home energy reports are provided to a targeted income qualified customer population of approximately 15,600 customers each year of the Phase IV performance period. Savings impact measurement is based on documented savings comparing the program participant population energy use behavior to a low income non-participating control group. The remaining programmatic approaches and methodologies are consistent with Plan content described in the R-BEEP at Section 3.2.1.5.

Implementation Strategy: LI-BEEP reports are provided targeted customer group in each year of Act 129 Phase IV, 2021-2025.

Program Issues, Risks and Risk Management Strategy: There is an attendant risk the program implementer cannot deliver the contracted LI-BEEP reports and that consumers will not respond to the LI-BEEP reports by changing energy use behavior. Duquesne Light will mitigate this risk by selecting an implementation contractor who has a proven track record. Energy savings results will be quantified using a PA PUC approved scientific measurement and verification approach previously used by most PA EDCs.

Anticipated Costs to Participating Customers: There is no cost to participating customers.

Ramp-up Strategy: See Figure 1: Program Ramp-Rates for projected energy savings for each year of the Phase IV performance period.

Marketing Strategy: Large-scale, individualized direct-mail campaign and provision of a customer service web portal are used. High-use customers are selected on an opt-out basis for enrollment in the multi-year pilot.

Eligible Measures and Incentive Strategy: The LI-BEEP described above is the only program measure; there are no customer incentives. LI-BEEP reports will also be utilized to promote other residential program offerings to help customers reduce consumption.

Maximum Deadline for Rebates: The program does not provide rebates and no rebate deadline is applicable.

Program Start Date and Key Milestones: Program is set to start on June 1, 2021 and run throughout the duration of Phase IV ending on May 31, 2026.

Assumed EM&V Requirements to Document Savings by the Commission’s Statewide EE&C Evaluator: Duquesne Light will rely on the same measurement and verification approach already provided to more than 65 utilities across the country, including utilities in Pennsylvania. The protocol includes clearly defined test and control groups and ex-post measurement of savings.

Administrative Requirements: The Duquesne Light Customer Programs organization staffing plan includes two dedicated full-time employees to perform management and coordination of all Act 129 residential programs. The Residential Customer program associates will administer the program on a shared basis with additional part-time support by engineering, marketing, purchasing, regulatory, legal, data processing and clerical staff, as well as contracted CSP services. Program administrative costs are shown in the following Projected Program Budget table.

Estimated Participation: Over the five-year Phase IV performance period the average annual participation is projected to be 15,600 income qualified residential customers, rendering deemed savings estimates reflected in the Program Savings Targets table below.

Savings Targets and Estimated Participation:³⁶

	PY13	PY14	PY15	PY16	PY17	Total
MWh	1,091.4	1,567.2	1,679.1	2,042.9	1,119.4	7,500.0
MW	0.145	0.203	0.232	0.291	0.145	1.017
Participation	15,300	14,300	17,400	16,100	14,900	15,600

Estimated Program Budget:

	PY13	PY14	PY15	PY16	PY17	Total
Program Cost	\$162,283	\$233,021	\$249,666	\$303,760	\$166,444	\$1,115,174
Incentives	\$0	\$0	\$0	\$0	\$0	\$0
Percent Incentives	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Percent Non-Incentives	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Estimated Percentage of Sector Budget Attributed to Program:

	PY13	PY14	PY15	PY16	PY17	Total
Residential Sector Budget	\$6,239,082	\$6,239,082	\$6,239,082	\$6,239,082	\$6,239,082	\$31,195,411
Low Income Behavioral Efficiency	\$162,283	\$233,021	\$249,666	\$303,760	\$166,444	\$1,115,174
Percent Sector Budget	3.6%	3.6%	3.6%	3.6%	3.6%	3.6%

Cost Effectiveness:

- Gross TRC: 0.61

³⁶ Participation is customers within treatment cohorts.

- NTG Ratio: 1.00
- Net TRC: 0.61

Bidding Strategy: Behavioral program demand reductions are not eligible for nomination into PJM FCMs.

3.3. Commercial/Industrial Small Sector (as defined by EDC Tariff) Programs – include formatted descriptions of each program organized under the same headings as listed above for residential programs. Additionally, include Tables 7, 8, 9, and 13.

Small Commercial/Industrial Sector (as defined by EDC Tariff) programs include formatted descriptions of each program organized under the same headings as listed previously for residential programs. Customers served under this sector are commercial and industrial customers having demands less than 300 kW. To best serve small- and medium-sized business customers, Duquesne Light offers a suite of solutions designed to influence customer behavior and purchasing decisions including the: Small Business Direct Install Program, Small Business Solutions Program, Small Midstream Program, and Small Virtual Commissioning Program, as described in the following pages.

3.3.1. Small Business Direct Install Program

Program Title and Program Years: Small Business Direct Install (SBDI) Program will be implemented during program years 2021 through 2026.

Objectives: Small businesses are a vital part of the economy, and their success is essential to the region's economic growth and prosperity. When it comes to energy efficiency, small business owners face significant barriers when considering and implementing energy efficiency measures. Owners often have limited time, focus, and know-how to analyze options, and are averse to even short interruptions of business operations.

To overcome these barriers to participation, the SBDI Program is turnkey, offering customers a single source of information, technical assistance, and financial incentives. Turnkey programs incorporate an end-to-end approach, from initial marketing and the resulting audit process through final equipment installation conducted by a third-party implementation contractor.

Target Market: The program targets Duquesne Light's C&I customers with demand less than 300 kW. Small business customers include small offices, independent retail shops, gas stations, restaurants, shopping center stores, convenience stores, and many others. This group of customers is considered hard to engage for energy efficiency programs, because most small business owners struggle day-to-day to meet the current cash requirements of their businesses. Some small business owners are not native English speakers and do not understand the intricacies of energy efficiency. Furthermore, businesses that operate on daily cash flows, such as many small businesses, rarely budget for things like efficiency upgrades, they just fix things when they break.

Program Description: The SBDI Program is a direct install program that offers Duquesne Light's small business customers the opportunity to retrofit existing equipment with more energy-efficient technologies. The program's incentives are designed to encourage early equipment replacement and target discretionary retrofit opportunities. Energy-efficient lighting remains the focus of the program, along with refrigeration and electric water heater measures. The program is turnkey that offers customers a single source of information, technical assistance, and financial incentives. Turnkey programs incorporate an end-to-end

approach, from initial marketing and the resulting audit process through to final equipment installation conducted by a third-party implementation contractor.

Face-to-face interaction and the opportunity for virtual meetings with customers is required to explain this program and to overcome objections regarding its validity.

The most common technologies for direct installation include:

- Screw-in LED lamps, reflector lamps and exit signs
- LED linear lighting
- Pump and fan variable frequency drives
- Refrigeration measures
 - LED refrigerated case lighting
 - Display case night covers
 - Walk-in cooler and freezer door closers
 - Electronically commutated evaporator motors
 - Display case anti-sweat heater controls
- Pre-rinse spray valves

Customers will continue to receive a free energy audit to identify cost-effective opportunities for saving energy. Current incentive levels with the program covering up to 80 percent of the total installed cost, requiring customers to pay 20 percent of the cost, will remain.

Implementation Strategy: The implementation contractor delivers the program via a turnkey solution and presents customers with a single point of contact. The approach consists of:

- No-cost energy assessments that can occur while the business maintains operations
- A simple-to-understand proposal with key opportunities and costs for energy retrofit upgrades
- A proposal with recommendations for efficiency measures and the direct installation of certain low-cost measures
- The implementer obtaining the customer's written approval and facilitating equipment installation by pre-selected contractors
- Incentives that cover up to 80 percent of equipment and installation costs
- Proper disposal of used equipment
- Quality assurance and quality control through randomized on-site project verification

The CSP utilizes a pre-qualified pool of local installation contractors selected through a competitive bid process to install the recommended energy efficiency measures.

Qualified customers participate by contacting the program implementation contractor who performs a complementary audit. Using the audit data, the CSP generates a proposal with estimated energy savings information, Duquesne Light's incentives, and the customer's share

of the cost. This cost-share structure ensures customers are invested and committed to the project. Upon acceptance, the contractor schedules the work and installs the measures. Following installation, the installation contractor collects only the customer's share of the project's cost and Duquesne Light then pays the incentive directly to the implementation contractor.

During Phase IV, emphasis is being placed on very small businesses, sometimes referred to as micro-businesses; the classic "main street" businesses such as a small local bakery or hardware store are particularly challenging to reach because energy use is low while effort to engage customers is generally high; nevertheless, these businesses frequently have ample opportunities to realize low-cost savings. It is imperative to increase the volume of projects to overcome the resource costs of labor, trucks, and other equipment needed to perform installations. The CSP will work collaboratively with cities and towns, through the community and economic development offices, with local chambers of commerce and other local business associations to create multiple touchpoints to encourage these customers to take part in the SBDI Program.

Program Issues, Risks and Risk Management Strategy: This program was implemented successfully in Phases II and III, and Phase IV program risk is mitigated by replicating proven approaches and processes. All portfolios and programs are operated through Duquesne Light's PMRS. The system provides comprehensive oversight of program budgets and impacts and provides early warnings regarding program under- or over-subscription. CSP implementation contract statements of work include pay-for-performance compensation. Provisions in CSP contract language provide for shifting funds from under-performing programs.

Basis for the Proposed Level of Incentives and Anticipated Cost to Participating Customers: Participating customers receive a no-cost energy assessment and are eligible for incentives that cover up to 80% of the equipment and installation costs of the highly efficient equipment, which are paid directly to the installation contractors. Customers are also eligible to receive a limited quantity of energy-saving products at time of assessment at no cost.

Incentive levels have historically averaged approximately one-third of efficient product incremental costs, initially set targeting a simple payback period of 2 years. Incentive levels were then adjusted to be approximately consistent with statewide treatment and as needed to promote program participation. The Phase IV Implementation Order³⁷ requirement for at least 50% of EE&C Plan spending, at the Plan level, to come from incentives has caused incentive levels to increase to a portfolio average of 56.2% offsetting on average 41% of participant incremental costs.

Ramp-up Strategy: This program was implemented in Phases II and III, so Phase IV program ramp-up will be minimized by replicating many of the proven approaches and processes. Implementation service RFPs will be issued, responses reviewed, and contract statements of work executed according to the implementation schedules provided in Section 12. See Figure

³⁷ PA Public Utility Commission Energy Efficiency and Conservation Program Implementation Order, Docket No. M-2020-3015228, June 18, 2020, Section I EDC Cost Recovery, subsection 1. Determination of Phase IV Allowable Costs, page 127.

1: Program Ramp Rates for projected energy savings for each year of the Phase IV performance period.

Marketing Strategy: The program is marketed primarily by the selected CSP. Studies show that the most successful hard-to-reach programs rely on cold call, walk-in contact or virtual contacts. The CSP identifies hard-to-reach customers by analyzing customer data and prioritizing these customers by geography, energy intensity, and business type. The CSP supplements door-to-door sales with direct mailings, telemarketing, and targeted efforts for hard-to-reach market segments and outreach through neighborhood business associations.

For Phase IV, the CSP will introduce a paid media campaign to raise awareness before reaching the door. This campaign will “warm up” the audience and enable the CSP to approach small businesses more effectively. This campaign will also include print and digital media, such as paid search ads, social media ads, geo-targeted ads around targeted zip codes, and email campaigns.

Available services will be posted on Duquesne Light’s Act 129 website. Additionally, the CSP conducts outreach through participation in and memberships with selected key trade associations, attendance at key trade shows, and training event sponsorship. The CSP will craft program participation messages for key customer decision-makers by leveraging print collateral, including customer spotlights, brochures, and fact sheets. The CSP will work collaboratively with cities and towns, through the community and economic development offices, with local chambers of commerce and other local business associations to create multiple touchpoints to encourage these customers to take part in the SBDI Program.

Eligible Measures and Incentive Strategy showing Incremental Cost Assumptions and Incentive Levels: See Section 11, Table 7.

Maximum Deadline for Rebates: No customer rebates are provided by this program since measures are directly installed at no direct cost to the customer.

Program Start Date and Key Milestones: Refer to Section 12 Chart 2: Small Commercial and Industrial Portfolio Program.

Assumed EM&V Requirements to Document Savings by the Commissions Statewide EE&C Evaluator: Detailed evaluation, measurement and verification activities will be identified in the Phase IV EM&V Plan. Either enhanced or basic rigor verification is employed based on cost of the project (as no customer incentives are provided). Random samples shall comply with SWE Audit Plan confidence and precision levels.

Administrative Requirements: The Duquesne Light Customer Programs organization staffing plan includes three dedicated full-time employees to perform management and coordination of all Act 129 commercial and industrial sector programs. The Customer Program Associates will administer the program on a shared basis with additional part-time support by engineering, marketing, purchasing, regulatory, legal, data processing and clerical staff, as well as contracted CSP services.

Savings Targets and Estimated Participation:³⁸

	PY13	PY14	PY15	PY16	PY17	Total
MWh	4,020.7	4,949.4	5,174.2	5,031.5	3,957.6	23,133.4
MW	0.778	0.957	1.001	0.973	0.766	4.475
Participation	50,433.7	62,082.4	64,902.6	63,112.5	49,642.6	290,174

Estimated Program Budget:

	PY13	PY14	PY15	PY16	PY17	Total
Program Cost	\$1,687,627	\$2,077,421	\$2,171,790	\$2,111,890	\$1,661,157	\$9,709,885
Incentives	\$1,407,903	\$1,733,088	\$1,811,815	\$1,761,844	\$1,385,820	\$8,100,470
Percent Incentives	83.4%	83.4%	83.4%	83.4%	83.4%	83.4%
Percent Non-Incentives	16.6%	16.6%	16.6%	16.6%	16.6%	16.6%

Estimated Percentage of Sector Budget Attributed to Program:

	PY13	PY14	PY15	PY16	PY17	Total
Small-Medium C&I Sector	\$4,685,502	\$5,767,718	\$6,029,722	\$5,863,419	\$4,612,008	\$26,958,369
Direct Install	\$1,687,627	\$2,077,421	\$2,171,790	\$2,111,890	\$1,661,157	\$9,709,885
Percent Sector Budget	36.0%	36.0%	36.0%	36.0%	36.0%	36.0%

Cost Effectiveness:

- Gross TRC: 1.09
- NTG Ratio: 1.00
- Net TRC: 1.09

Bidding Strategy: Interior lighting measure savings from this Program may contribute to Duquesne Light's collective EE Resource for nomination into PJM forward Capacity Market RPM Base Residual Auction.

3.3.2. Small Business Solutions Program

Program Title and Program Years: Small Business Solutions (SBS) Program will be implemented during program years 2021 through 2026.

Objectives: The SBS Program provides a set of simple solutions for customers interested in reducing their energy consumption by installing highly efficient technologies and improving operational processes that produce verifiable energy and demand savings. This program influences the selection of high-efficiency equipment in retrofit, new construction, and end-of-life equipment replacement scenarios. The primary objective is to provide small and

³⁸ Participation is units of measures installed.

medium C&I customers an expedited, quantifiable, and simple-to-understand incentive offering that helps them save energy and money. The suite of offerings is designed to reduce or bypass potential barriers to participation, such as lack of energy efficiency information, easy access to qualified vendors and installers, tools to quantify savings, and access to capital.

Target Market: The program targets Duquesne Light's C&I customers with demand less than 300 kW.

The SBS Program is designed for all small and medium C&I customers and targets all cost-effective energy efficiency retrofit and time-dependent opportunities. Program marketing has a sector-based focus, targeting specific energy efficiency opportunities within primary customer sectors, such as education, government, healthcare, hospitality, industrial, non-profit, property management, telecommunications, and retail.

The program continues to target partnerships within the trade ally community. These trade allies are true stakeholders in the process and typically have established relationships and contacts with customers. The selected CSP will continue to recruit trade allies and provide training and support to these key players that help spread the program's message and deliver solutions.

Program Description: The SBS Program helps Duquesne Light's small and medium C&I customers and/or their trade allies select the most efficient electric technologies when they consider purchasing new equipment or retrofitting existing inefficient technologies. The SBS Program offers two core participation tracks: prescriptive and custom.

The prescriptive component offers a simplified method to make efficient choices on pre-defined energy efficiency measures without requiring complex analysis or participation rules. The prescriptive component covers the majority of common energy-saving measures across most customers and end uses. Participants can choose from a menu of incentives for a wide range of pre-defined end uses, such as lighting, HVAC, variable frequency drives (VFD), commercial plug load, and kitchen and refrigeration equipment.

The custom component makes it possible to offer more complex and site-specific measures and projects. Custom incentives enable more comprehensive approaches to energy savings, which often occur in major renovation and new construction projects. The custom component is available for energy efficiency technologies or multi-measure projects that do not fall under the prescriptive component, ranging from complex commercial HVAC projects to industrial process improvements. Custom projects must be able to show specific and verifiable energy savings and costs utilizing approved TRM protocols.

Program components include energy use auditing, provision of targeted financing and incentives, project management and retrofit measure installation, training, and technical assistance. Energy audit results provide business customers a readily available, reliable source of information about their energy use and outline ways to save energy.

Implementation Strategy: The SBS Program will be delivered by a CSP selected through a competitive bid process. This CSP provides customers with ongoing, one-on-one guidance

for identifying comprehensive energy efficiency opportunities, assisting with the application and implementation process, obtaining technical assistance, and coordinating with trade allies on projects to create a cohesive program delivery. The CSP also recruits and engages trade allies, which are an important source of prospective projects. The implementation strategy includes:

- Account-based marketing that targets decision-makers to increase awareness, encourage enrollment, and move the best prospects toward participation
- One-on-one outreach to raise awareness, engage customers and trade allies, and deliver the highest quality customer experience
- Engaging and training trade allies to increase participation and contribute to market transformation
- Engineering support services, tools, and information provided to trade allies and customers
- Quality assurance and quality control through randomized on-site project verification and M&V

Pennsylvania's commercial lighting market has undergone drastic changes over the last several years. In the wake of increasing federal energy codes and coincident increases to baseline standard practices, the CSP focuses on controls savings and new technologies, such as networked lighting controls (NLC), to generate savings. NLC are controls that are networked, addressable, and utilize software or intelligent controllers to combine multiple lighting control strategies in a single space. The CSP will work with manufacturers and their regional representatives to build the local market by promoting NLC technologies and educating customers and local trade allies.

Program Issues, Risks and Risk Management Strategy: The SBS Program's core design mimics the Large Business Solutions Program, which was implemented successfully during Phase III, and Phase IV program risk is mitigated by replicating proven approaches and processes. All portfolios and programs are operated through Duquesne Light's PMRS. The system provides comprehensive oversight of program incentives and impacts and provides early warnings regarding program under- or over-subscription. CSP implementation contract statements of work include pay-for-performance compensation. Provisions in CSP contract language provide for shifting funds from under-performing programs.

Basis for the Proposed Level of Incentives and Anticipated Cost to Participating Customers: Rebates are intended to offset the incrementally higher cost of highly efficient equipment. The amount paid to participating customers for per unit of measure (lamp, motor HP, etc. for Prescriptive measures and annual per-kWh savings for Custom measures) is addressed as a percentage of that incrementally higher cost.

Incentive levels have historically averaged approximately one-third of efficient product incremental costs, initially set targeting a simple payback period of 2 years. Incentive levels were then adjusted to be approximately consistent with statewide treatment and as needed to

promote program participation. The Phase IV Implementation Order³⁹ requirement for at least 50% of EE&C Plan spending, at the Plan level, to come from incentives has caused incentive levels to increase to a portfolio average of 56.2% offsetting on average 41% of participant incremental costs.

Ramp-up Strategy: Phase IV program ramp-up will be minimized by replicating many of the proven approaches and processes from Phase III. See Figure 1: Program Ramp-Rates for projected energy savings for each year of the Phase IV performance period.

Marketing Strategy: Though a variety of marketing approaches are employed, experience has established that the most successful avenue for marketing comes from through one-on-one communication with customers using dedicated program field staff in partnership with local trade allies. Throughout past program cycles, trade allies have helped identify opportunities and gauge customer interest in pursuing individual efficiency upgrades or a comprehensive plan of upgrades, and field staff have leveraged their long-term relationships with customers, their knowledge, and their analysis of customer data to generate projects. Major account managers for Duquesne Light will also inform customers about the program.

To support one-on-one outreach, the marketing plan includes:

- **Targeting key market segments.** Using market segmentation research, including market verticals, the implementer allocates program personnel by subject-matter expertise to key markets for better penetration.
- **Participating in associations.** The CSP conducts outreach through participation in and memberships with selected key trade associations and attendance at key trade shows, reaching a large number of potential customers in one place. Market segmentation data helps refine which associations provide maximum benefits.
- **Supporting trade allies.** Engaging trade allies is another key way of raising awareness, improving participation rates, and contributing to market transformation. Trade allies are an extension of the program team and provide customers with expertise. The implementer supports trade allies with training, program staff to assist them, and marketing materials and enables them to provide continuous feedback on the program.
- **Delivering a paid media campaign.** For Phase IV, the CSP will introduce a paid media campaign to raise awareness before reaching the door. This campaign will “warm up” the audience and enable the CSP to approach small businesses more effectively. This campaign will also include print and digital media, such as paid search ads, social media ads, geo-targeted ads around targeted zip codes, and email campaigns.
- **Providing access to online marketing/website.** Available services are posted on Duquesne Light’s Act 129 website. Emails and digital tactics drive traffic to the site

³⁹ PA Public Utility Commission Energy Efficiency and Conservation Program Implementation Order, Docket No. M-2020-3015228, June 18, 2020, Section I EDC Cost Recovery, subsection 1. Determination of Phase IV Allowable Costs, page 127.

and emphasize how to participate in the program. Customers may also access incentive applications from Duquesne Light’s website.

- **Hosting events.** The CSP holds events throughout the year that cover all small business sectors to raise awareness and encourage greater program participation. Event efforts focus on sponsorships, partnerships, speaking opportunities, and event attendance.
- **Distributing Collateral.** The CSP crafted program participation messages for key customer decision-makers by leveraging print collateral, including customer spotlights, brochures, and fact sheets.

Eligible Measures and Incentive Strategy showing Incremental Cost Assumptions and Incentive Levels: See Section 11, Table 7.

Maximum Deadlines for Rebates: The maximum deadline to pay rebates by the SBS Program is 180 days from the date of installation of eligible energy efficiency measures.

Program Start Date and Key Milestones: Refer to Section 12 Chart 2: Small Commercial and Industrial Portfolio Program.

Assumed EM&V Requirements to Document Savings by the Commission’s Statewide EE&C Evaluator: Detailed evaluation, measurement and verification activities will be identified in the Phase IV EM&V Plan. Either enhanced or basic rigor verification is employed based on project scope, as identified in the EM&V Plan. Random samples shall comply with SWE Audit Plan confidence and precision levels.

Administrative Requirements: The Duquesne Light Customer Programs organization staffing plan includes three dedicated full-time employees to perform management and coordination of all Act 129 commercial and industrial sector programs. The Customer Program Associates will administer the program on a shared basis with additional part-time support by engineering, marketing, purchasing, regulatory, legal, data processing and clerical staff, as well as contracted CSP services.

Savings Targets and Estimated Participation:⁴⁰

	PY13	PY14	PY15	PY16	PY17	Total
MWh	8,727.2	10,742.9	11,230.9	10,921.2	8,590.3	50,212.5
MW	1.493	1.838	1.921	1.868	1.470	8.590
Participation	52,677.1	64,844.0	67,789.6	65,919.9	51,850.9	303,081

⁴⁰ Participation is units of measures incented.

Estimated Program Budget:

	PY13	PY14	PY15	PY16	PY17	Total
Program Cost	\$1,620,671	\$1,994,999	\$2,085,624	\$2,028,101	\$1,595,250	\$9,324,644
Incentives	\$974,846	\$1,200,007	\$1,254,519	\$1,219,918	\$959,555	\$5,608,846
Percent Incentives	60.2%	60.2%	60.2%	60.2%	60.2%	60.2%
Percent Non-Incentives	39.8%	39.8%	39.8%	39.8%	39.8%	39.8%

Estimated Percentage of Sector Budget Attributed to Program:

	PY13	PY14	PY15	PY16	PY17	Total
Small-Medium C&I Sector	\$4,685,502	\$5,767,718	\$6,029,722	\$5,863,419	\$4,612,008	\$26,958,369
Downstream Incentives Program	\$1,620,671	\$1,994,999	\$2,085,624	\$2,028,101	\$1,595,250	\$9,324,644
Percent Sector Budget	34.6%	34.6%	34.6%	34.6%	34.6%	34.6%

Cost Effectiveness:

- Gross TRC: 1.48
- NTG Ratio: 0.90
- Net TRC: 1.45

Bidding Strategy: Interior lighting measure savings from this Program may contribute to Duquesne Light's collective EE Resource for nomination into PJM forward Capacity Market RPM Base Residual Auction.

3.3.3. Small Business Midstream Solutions Program

Program Title and Program Years: The Small Midstream Program will be implemented during program years 2021 through 2026.

Objectives: The Small Midstream Program is designed to influence the equipment-purchasing decisions that customers and trade allies make every day. The program moves incentives up the supply chain to the distributors and manufacturers that have the greatest influence on equipment sales. By creating this profitable value proposition, midstream incentives can materially affect the majority of all equipment sales. This midstream program model can extend to the entirety of service territories, including underserved, remotely located, or otherwise hard-to-reach customers and communities.

Overall program goals and objectives include:

- Providing a mix of measures that deliver optimal energy savings in a cost-effective manner
- Increasing sales of qualifying products beyond what is typically achieved from the existing downstream prescriptive track

- Engaging a full range of industry distribution partners across multiple channels with particular emphasis on local partnerships when applicable

Providing rebates directly to distributors and manufacturers eases customers' participation burden, reduces customer costs, and provides broader market engagement delivery with fewer program partners.

Target Market: This program targets Duquesne Light's small C&I customers with demands less than 300 kW that would ordinarily obtain equipment through commercial business-to-business dealers, distributors, and contractors.

Program Description: The Small Midstream Program provides incentives directly to distributors and manufacturers, rather than to end users, for efficient products, offsetting the higher costs and effectively driving uptake of the most efficient equipment options. Incentives are structured to mitigate the price premium between conventional and high-efficiency products at the point of purchase, which places efficient products in direct competition with conventional products based on quality and efficiency alone. By working with market actors directly, equipment stocking patterns are altered over time to move inefficient products off the shelves and to enable faster adoption and decreased customer costs for efficient equipment.

The Phase IV Small Midstream Program expands upon the Phase III midstream lighting offer and intends to add additional end uses over time, including HVAC, refrigeration, and equipment for food service providers.

Implementation Strategy: The implementation contractor delivers the program as a turnkey solution and serves as a single point of contact for distributors and manufacturers. The CSP also issues and maintains participation agreements, identifies and enrolls targeted suppliers, provides training, processes applications, tracks and reports on program activity, performs customer site inspections (as required), and supports program EM&V.

Initial engagement targets organizational CEOs and sales managers to discuss opportunities for increasing inventories, by incorporating proven sales strategies, and to get full buy-in throughout an organization. The CSP uses industry events to engage and maintain manufacturer relationships with major manufacturers' designated account managers. Prior to signing a participation agreement, the CSP ensures that distributors meet program criteria, and then during the enrollment process, the CSP learns distributors' business models and challenges and engages staff across the entire organization.

Program Issues, Risks and Risk Management Strategy: All portfolios and programs are operated through Duquesne Light's PMRS. The system provides comprehensive oversight of program incentives and impacts and provides early warnings regarding program under- or over-subscription. CSP implementation contract statements of work include pay-for-performance compensation. Provisions in CSP contract language provide for shifting funds from under-performing programs.

Basis for the Proposed Level of Incentives and Anticipated Cost to Participating Customers: No direct incentives are provided to customers; discounts are taken at the point of sale in the

form of a reduced cost. Instant rebates are structured to mitigate the price premium between conventional and high-efficiency products at the point of purchase, thereby placing efficient products in direct competition with conventional products based on quality and efficiency alone.

Incentive levels have historically averaged approximately one-third of efficient product incremental costs, initially set targeting a simple payback period of 2-years. Incentive levels were then adjusted to be approximately consistent with statewide treatment and as needed to promote program participation. The Phase IV Implementation Order⁴¹ requirement for at least 50% of EE&C Plan spending, at the Plan level, to come from incentives has caused incentive levels to increase to a portfolio average of 56.2% offsetting on average 41% of participant incremental costs.

Ramp-up Strategy: A Midstream Lighting Program was implemented during Phase III, so Phase IV ramp-up will be minimized by replicating many of the proven approaches and relationships. See Figure 1: Program Ramp-Rates for projected energy savings for each year of the Phase IV performance period.

Marketing Strategy: The program is marketed primarily by the selected CSP. The CSP develops and delivers presentations to distributors and manufacturers through a combination of phone calls, personal emails, webinars, and in-person visits to maximize market share. Presentations demonstrate the financial benefits of promoting high-efficiency measures, from increased sales revenue and program incentives. Additionally, the CSP conducts outreach through participation in and memberships with selected key trade associations, attendance at key trade shows, and training event sponsorships. The CSP crafted program participation messages for key customer decision-makers by leveraging print collateral, including customer spotlights, brochures, and fact sheets. Available services are posted on Duquesne Light's Act 129 website.

Eligible Measures and Incentive Strategy showing Incremental Cost Assumptions and Incentive Levels: See Section 11, Table 7.

Maximum Deadline for Rebates: The Small Midstream Program facilitates rebates as program incentives paid to participating distributors and manufacturers for reducing the upfront cost of efficient products, which decreases program participation time and customer complexity. Program implementers provide monthly invoices to Duquesne Light for rebates, rendering rebate deadlines not applicable for this program.

Program Start Date and Key Milestones: Refer to Section 12 Chart 2: Small Commercial and Industrial Portfolio Program.

Assumed EM&V Requirements to Document Savings by the Commission's Statewide EE&C Evaluator: Detailed evaluation, measurement and verification activities will be identified in the Phase IV EM&V Plan. Either enhanced or basic rigor verification is employed based on

⁴¹ PA Public Utility Commission Energy Efficiency and Conservation Program Implementation Order, Docket No. M-2020-3015228, June 18, 2020, Section I EDC Cost Recovery, subsection 1. Determination of Phase IV Allowable Costs, page 127.

the cost of the project (as no customer incentives are provided). Random samples shall comply with SWE Audit Plan confidence and precision levels.

Administrative Requirements: The Duquesne Light Customer Programs organization staffing plan includes three dedicated full-time employees to perform management and coordination of all Act 129 commercial and industrial sector programs. The Customer Program Associates will administer the program on a shared basis with additional part-time support by engineering, marketing, purchasing, regulatory, legal, data processing and clerical staff, as well as contracted CSP services.

Savings Targets and Estimated Participation:⁴²

	PY13	PY14	PY15	PY16	PY17	Total
MWh	4,778.1	5,881.7	6,148.9	5,979.3	4,703.1	27,491.1
MW	1.174	1.445	1.511	1.469	1.156	6.756
Participation	36,837.3	45,345.7	47,405.5	46,098.1	36,259.5	211,946

Estimated Program Budget:

	PY13	PY14	PY15	PY16	PY17	Total
Program Cost	\$1,099,882	\$1,353,923	\$1,415,426	\$1,376,388	\$1,082,630	\$6,328,249
Incentives	\$767,465	\$944,728	\$987,643	\$960,403	\$755,427	\$4,415,667
Percent Incentives	69.8%	69.8%	69.8%	69.8%	69.8%	69.8%
Percent Non-Incentives	30.2%	30.2%	30.2%	30.2%	30.2%	30.2%

Estimated Percentage of Sector Budget Attributed to Program:

	PY13	PY14	PY15	PY16	PY17	Total
Small-Medium C&I Sector	\$4,685,502	\$5,767,718	\$6,029,722	\$5,863,419	\$4,612,008	\$26,958,369
Midstream Incentives Program	\$1,099,882	\$1,353,923	\$1,415,426	\$1,376,388	\$1,082,630	\$6,328,249
Percent Sector Budget	23.5%	23.5%	23.5%	23.5%	23.5%	23.5%

Cost Effectiveness:

- Gross TRC: 0.68
- NTG Ratio: 0.72
- Net TRC: 0.66

Bidding Strategy: Interior lighting measure savings from this Program may contribute to Duquesne Light's collective EE Resource for nomination into PJM Forward Capacity Market RPM Base Residual Auction.

⁴² Participation is units of measures incented.

3.3.4. Small Business Virtual Commissioning Program

Program Title and Program Years: The Small Virtual Commissioning Program (SVCx) will be implemented during the program years 2021 through 2026.

Objectives: The SVCx Program uses a turnkey approach that targets system-based no- to low-cost operational savings for small and medium commercial customers. This 100 percent pay-for-performance program does not fit a traditional model that uses trade allies, mass marketing, or standardized prescriptive retrofits; rather, it provides a targeted, data-driven approach to energy efficiency engagement that effectively eliminates the need for enrollment forms, incentives, or administrative costs.

Target Market: The program targets Duquesne Light's small and medium C&I customers with demand less than 300 kW. Traditionally hard-to-reach accounts such as businesses that lease facilities are high-value program candidates. These types of organizations are typically motivated by cash flow and are attracted to non-capital cost opportunities to reduce energy usage. Additionally, public institutions (e.g., schools and municipalities) are also excellent candidates for this program, considering its opportunities for immediate payback and no capital investment.

Program Description: The SVCx Program leverages advanced metering infrastructure's (AMI) advanced data analytics to identify and qualify customers with significant potential for energy savings. The prospect identification process uses data modeling techniques (e.g., weather normalization, etc.) to selectively, and without bias, pinpoint individual meters and accounts with energy usage conditions that indicate the potential for operational savings; this process does not exclude or diminish opportunities based on business industry, size, or location. Once identified, the program implementer offers customers personalized remote engagement by phone and email to help them understand their energy usage and provide instructions for self-correction. Upon successful program participation, the customer's electric usage at the meter is continuously monitored to ensure savings persistence; if predetermined level of savings drift is detected, customers are re-engaged. Participants are encouraged to take part in additional energy efficiency programs offered by Duquesne Light upon a successful SVCx Program engagement. This program provides for contactless delivery.

Implementation Strategy: The implementation contractor delivers the program as a turnkey solution and serves as a single point of contact for customers. Unlike traditional energy efficiency programs that require on-site customer interaction, the SVCx Program is delivered virtually with data and analytics serving to efficiently pinpoint accounts and opportunities, not as program deliverables. The implementation strategy includes:

- **Data analysis.** The SVCx Program prospecting process begins with running the data of eligible Duquesne Light small and medium C&I accounts through a series of advanced algorithms, which consider business interval energy usage and weather data, past program participation, NAICS code, and building information along other variables to determine program fit.
- **Recommendation identification.** Once a list of prospects is generated, the implementer reviews each account's energy usage data to further qualify the account.

Before initiating outreach, the implementer may also review other public information or private tools to gather additional information to support the engagement approach. This pre-engagement research builds credibility with customers and helps establish trust and increased customer satisfaction.

- **Customer engagement.** The implementer presents customers with specific recommended actions to simplify their decision-making and to overcome limited energy efficiency knowledge and time and resource availability. Recommendations are not generic, such as being based on industry type or similar facility but focus on a business's unique operating conditions based on their own actual usage data. The SVCx participant outreach process averages seven to ten contacts from the first call to the end of engagement when operational recommendations have been implemented. On average, the entire engagement process typically lasts 31 days for accounts that implement changes and requires between 30 minutes and three hours of participant time.
- **Energy savings measurement and verification.** The implementer uses a data model to calculate the annualized savings and monitors customers' energy usage over time period as designated in M&V protocol to verify savings persistence.

Program Issues, Risks and Risk Management Strategy: All portfolios and programs are operated through Duquesne Light's PMRS. The system provides comprehensive oversight of program incentives and impacts and provides early warnings regarding program under- or over-subscription. Provisions in CSP contract language provide for shifting funds from under-performing programs.

Basis for the Proposed Level of Incentives and Anticipated Cost to Participating Customers: The Program uses building, weather, and interval meter data to remotely identify energy optimization opportunities which are directly shared virtually with participants. Customers receive direct personal engagement and technical expertise by phone and email to help customer understand their energy usage and instructions for self-correction. Participants also receive 1) real-time standalone energy monitoring equipment, 2) payments towards the installation costs for monitoring and control systems, and 3) energy management software. Incentives amount to a portfolio average of 56.2% offsetting on average 41% of participant incremental costs.

Ramp-up Strategy: The SVCx Program relies on a data-driven process; therefore, ramp-up efforts are focused on pre-launch activities to secure data, rather than achieving a steady state of operation as with traditional programs. The implementer will begin completing the IT Security and Data Transfer Process after the contract has been approved by the PUC. Once utility data are ingested, the implementer conducts analysis, prospect, and outreach activities and delivers initial results typically within 30 days. See Figure 1: Program Ramp-Rates for projected energy savings for each year of the Phase IV performance period.

Marketing Strategy: Traditional energy efficiency program mass marketing campaigns designed to attract participants are unnecessary for the SVCx Program. Customers with identified savings opportunities are engaged through personalized outreach performed by trained energy advisors. Understanding the challenges with reaching commercial customers trying to manage their everyday business operations, the SVCx Program crafts a customized

message, using businesses' own data, that is unique and specific to their operating conditions. Marketing collateral is limited and provides customers assurances about program validity, as found in informational flyers. Available services are posted on Duquesne Light’s Act 129 website.

Eligible Measures and Incentive Strategy showing Incremental Cost Assumptions and Incentive Levels: Section 11, Table 7.

Maximum Deadline for Rebates: Not applicable

Program Start Date and Key Milestones: Refer to Section 12 Chart 2, Small and Medium Commercial and Industrial Portfolio Program.

Assumed EM&V Requirements to Document Savings by the Commission’s Statewide EE&C Evaluator: Detailed evaluation, measurement and verification activities will be identified in the Phase IV EM&V Plan. Either enhanced or basic rigor verification is employed based on project scope, as identified in the EM&V Plan. Random samples shall comply with SWE Audit Plan confidence and precision levels.

Administrative Requirements: The Duquesne Light Customer Programs organization staffing plan includes three dedicated full-time employees to perform management and coordination of all Act 129 commercial and industrial sector programs. The Customer Program Associates will administer the program on a shared basis with additional part-time support by engineering, marketing, purchasing, regulatory, legal, data processing and clerical staff, as well as contracted CSP services.

Savings Targets and Estimated Participation:⁴³

	PY13	PY14	PY15	PY16	PY17	Total
MWh	1,052.2	1,295.2	1,354.0	1,316.7	1,035.7	6,053.7
MW	0.387	0.477	0.498	0.485	0.381	2.228
Participation	30	37	39	38	30	173

Estimated Program Budget:

	PY13	PY14	PY15	PY16	PY17	Total
Program Cost	\$277,322	\$341,375	\$356,882	\$347,039	\$272,972	\$1,595,591
Incentives	\$204,121	\$251,267	\$262,681	\$255,436	\$200,919	\$1,174,425
Percent Incentives	73.6%	73.6%	73.6%	73.6%	73.6%	73.6%
Percent Non-Incentives	26.4%	26.4%	26.4%	26.4%	26.4%	26.4%

Estimated Percentage of Sector Budget Attributed to Program:

⁴³ Participation is measured in customers’ projects.

	PY13	PY14	PY15	PY16	PY17	Total
Small-Medium C&I Sector	\$4,685,502	\$5,767,718	\$6,029,722	\$5,863,419	\$4,612,008	\$26,958,369
Virtual Commissioning	\$277,322	\$341,375	\$356,882	\$347,039	\$272,972	\$1,595,591
Percent Sector Budget	5.9%	5.9%	5.9%	5.9%	5.9%	5.9%

Cost Effectiveness:

- Gross TRC: 3.41
- NTG Ratio: 0.72
- Net TRC: 3.09

Bidding Strategy: Savings from this program will not contribute to Duquesne Light's collective EE Resource for nomination into PJM Forward Capacity Market RPM Base Residual Auction.

3.4. Commercial/Industrial Large Sector (as defined by EDC Tariff) Programs – include formatted descriptions of each program organized under the same headings as listed above for residential programs. Additionally, include Tables 7, 8, 9, and 13.

Large Commercial/Industrial Sector Programs include formatted descriptions of each program organized under the same headings as listed previously for residential and small commercial and industrial sector programs. Customers served under this sector are commercial and industrial customers having demand equal to or greater than 300 kW. To best serve large business customers, Duquesne Light offers a suite of solutions designed to influence customer behavior and purchasing decisions including a: Large Business Solutions Program, Large Midstream Program, and Large Virtual Commissioning Program, as described in the following pages.

3.4.1. Large Business Solutions Program

Program Title and Program Years: Large Business Solutions (LBS) Program will be implemented during program years 2021 through 2026.

Objectives: The LBS program provides a set of simple solutions for customers interested in reducing their energy consumption by installing highly efficient technologies and improving operational processes that produce verifiable energy and demand savings. This program influences the selection of high-efficiency equipment in retrofit, new construction, and end-of-life equipment replacement scenarios. The program's primary objective is to provide large C&I customers an expedited, quantifiable, and simple-to-understand incentive offering that helps them save energy and money. The suite of offerings is designed to reduce or bypass potential barriers to participation, such as lack of energy efficiency information, easy access to qualified vendors and installers, tools to quantify savings, and access to capital. The program's design reflects the flexibility necessary to serve the different sectors within the large C&I market.

Target Market: The program targets Duquesne Light's C&I customers with demand equal to or greater than 300 kW. The LBS Program is designed for all large C&I customers and targets all cost-effective energy efficiency retrofit and time-dependent opportunities. Program marketing has a sector-based focus, targeting specific energy efficiency opportunities within primary customer sectors, such as education, government, healthcare, hospitality, industrial, non-profit, property management, telecommunications, and retail. The program continues to target partnerships within the trade ally community. These trade allies are true stakeholders in the process and typically have established relationships and contacts with customers. The selected CSP will continue to recruit trade allies and provide training and support to these key players that help spread the program's message and deliver solutions to large C&I customers.

Program Description: The LBS Program helps Duquesne Light's large C&I customers and/or their trade allies select the most efficient electric technologies when they consider purchasing new equipment or retrofitting existing inefficient technologies. The LBS Program offers two core participation tracks: prescriptive and custom.

The prescriptive component offers a simplified method to make efficient choices on pre-defined energy efficiency measures without requiring complex analysis or participation rules. Incentives and claimed savings are based on a combination of predetermined technologies and encoded calculation methods for existing equipment. The prescriptive component covers the majority of common energy-saving measures across most customers and end uses. Participants can choose from a menu of incentives for a wide range of pre-defined end uses, such as lighting, HVAC, variable frequency drives (VFDs), commercial plug load, and kitchen and refrigeration equipment.

The custom component makes it possible to include more complex and site-specific measures and projects. Custom incentives enable more comprehensive approaches to energy savings, which often occur in major renovation and new construction projects. The custom component is available for energy efficiency technologies or multi-measure projects that do not fall under the prescriptive component, ranging from complex commercial HVAC projects to industrial process improvements. Custom projects must be able to show specific and verifiable energy savings and costs utilizing approved TRM protocols.

Program components include energy use auditing, provision of targeted financing and incentives, project management and retrofit measure installation, training, and technical assistance. Energy audits results provide business customers a readily available, reliable source of information about their energy use and outline ways to save energy that, when implemented, will result in energy savings.

Implementation Strategy: The LBS Program is delivered by a CSP selected through a competitive bid process. The CSP provides customers with ongoing, one-on-one guidance for identifying comprehensive energy efficiency opportunities, assisting with the application and implementation process, obtaining technical assistance, and coordinating with trade allies on projects to create a cohesive program delivery. The CSP also recruits and engages trade allies, which are an important source of prospective projects. The implementation strategy includes:

- Account-based marketing that targets decision-makers to increase awareness, encourage enrollment, and move the best prospects toward participation
- One-on-one outreach to raise awareness, engage customers and trade allies, and deliver the highest quality customer experience
- Engaging and training trade allies to increase participation and contribute to market transformation
- Engineering support services, tools, and information provided to trade allies and customers
- Quality assurance and quality control through randomized on-site project verification and M&V

Retrocommissioning (RCx) Solutions. RCx provides C&I customers with an additional layer of energy-saving opportunities beyond equipment solutions. RCx Solutions targets primarily existing commercial, industrial, government, and institutional facilities with energy savings opportunities related to facility or process operations and maintenance.

Combined Heat and Power (CHP) Solutions. During Phase IV, the CSP is working to identify opportunities for CHP installations while maintaining high standards for screening, qualification, and delivering projects. The solution's objectives include:

- Increasing customers' awareness of and understanding of the benefits from CHP and exploring opportunities to deploy CHP technologies in their facilities
- Promoting and supporting various types of CHP systems' installations by helping customers overcome financial and technical barriers

Other New Technologies. Pennsylvania's commercial lighting market has undergone drastic changes over the last several years. In the wake of increasing federal energy codes and coincident increases to baseline standard practices, the CSP focuses on controls savings and new technologies, such as networked lighting controls (NLC) to generate savings. NLC are controls that are networked, addressable, and utilize software or intelligent controllers to combine multiple lighting control strategies in a single space. The CSP works with manufacturers and their regional representatives to build the local market by promoting NLC technologies and educating customers and local trade allies.

Program Issues, Risks and Risk Management Strategy: All portfolios and programs are operated through Duquesne Light's PMRS. The system provides comprehensive oversight of program incentives and impacts and provides early warnings regarding program under- or over-subscription. CSP implementation contract statements of work include pay-for-performance compensation. Provisions in CSP contract language provide for shifting funds from under-performing programs.

Basis for the Proposed Level of Incentives and Anticipated Cost to Participating Customers: Rebates are intended to offset the incrementally higher cost of highly efficient equipment. The amount paid to participating customers for per unit of measure (lamp, motor HP, etc. for Prescriptive and per annual kWh savings for Custom) is addressed as a percentage of that

incrementally higher cost. Service Providers also provide energy studies and recommendations for operational and capital improvements.

Incentive levels have historically averaged approximately one-third of efficient product incremental costs, initially set targeting a simple payback period of 2-years. Incentive levels were then adjusted to be approximately consistent with statewide treatment and as needed to promote program participation. The Phase IV Implementation Order⁴⁴ requirement for at least 50% of EE&C Plan spending, at the Plan level, to come from incentives has caused incentive levels to increase to a portfolio average of 56.2% offsetting on average 41% of participant incremental costs.

Ramp-up Strategy: Phase IV program ramp-up will be minimized by replicating many of the proven approaches and processes from Phase III. See Figure 1: Program Ramp-Rates for projected energy savings for each year of the Phase IV performance period.

Marketing Strategy: Though a variety of marketing approaches are employed, experience has established that the most successful avenue for marketing comes from through one-on-one communication with customers using dedicated program field staff in partnership with local trade allies and internal Duquesne Light account managers. Throughout past program cycles, trade allies have helped identify opportunities and gauge customer interest in pursuing individual efficiency upgrades or a comprehensive plan of upgrades, and field staff have leveraged their long-term relationships with customers, their knowledge, and their analysis of customer data (e.g., energy use, demand, sector analysis) to generate projects. Trade allies, such as equipment vendors, consulting engineers, and energy service companies or channel partners, have been key participants in promoting, identifying, and delivering services to customers.

To support one-on-one outreach, the marketing plan includes:

- **Targeting key market segments.** Using market segmentation research, including market verticals, the implementer allocates program personnel by subject-matter expertise to key markets for better penetration.
- **Participating in associations.** The CSP conducts outreach through participation in and memberships with selected key trade associations and attendance at key trade shows, reaching a large number of potential customers in one place. Market segmentation data helps refine which associations provide maximum benefits.
- **Supporting trade allies.** Engaging trade allies is another key way of raising awareness, improving participation rates, and contributing to market transformation. Trade allies are an extension of the program team and provide customers with expertise. The implementer supports trade allies with training, program staff to assist them, and marketing materials and enables them to provide continuous feedback on the program.

⁴⁴ PA Public Utility Commission Energy Efficiency and Conservation Program Implementation Order, Docket No. M-2020-3015228, June 18, 2020, Section I EDC Cost Recovery, subsection 1. Determination of Phase IV Allowable Costs, page 127.

- **Providing access to online marketing/website.** Available services are posted on Duquesne Light's Act 129 website. Emails and digital tactics drive traffic to the site and emphasize how to participate in the program. Customers may also access incentive applications from Duquesne Light's website.
- **Hosting events.** The CSP will hold events throughout the year to raise awareness and encourage greater program participation. Event efforts focus on sponsorships, partnerships, speaking opportunities, and event attendance.
- **Distributing Collateral.** The CSP will craft program participation messages for key customer decision-makers by leveraging print collateral, including customer spotlights, brochures, and fact sheets.

Eligible Measures and Incentive Strategy showing Incremental Cost Assumptions and Incentive Levels: See Section 11, Table 7.

Maximum Deadline for Rebates: Duquesne Light will assess rebate deadlines on a case-by-case basis. The maximum deadline to pay rebates by the LBS Program will generally be 180 days from the date of installation of eligible energy efficiency measures. However, this time frame may not be appropriate for particularly large or complex projects, such as CHP projects, which may take 18 months or more between project commitment and final measurement.

Program Start Date and Key Milestones: Refer to Section 12 Chart 3: Large Commercial and Industrial Portfolio Program.

Assumed EM&V Requirements to Document Savings by the Commission's Statewide EE&C Evaluator: Detailed evaluation, measurement and verification activities will be identified in the Phase IV EM&V Plan. Either enhanced or basic rigor verification is employed based on project scope, as identified in the EM&V Plan. Random samples shall comply with SWE Audit Plan confidence and precision levels.

Administrative Requirements: The Duquesne Light Customer Programs organization staffing plan includes three dedicated full-time employees to perform management and coordination of all Act 129 commercial and industrial sector programs. The Customer Program Associates will administer the program on a shared basis with additional part-time support by engineering, marketing, purchasing, regulatory, legal, data processing and clerical staff, as well as contracted CSP services.

Savings Targets and Estimated Participation:⁴⁵**Large Commercial:**

	PY13	PY14	PY15	PY16	PY17	Total
MWh	14,826.0	18,256.1	18,800.8	17,995.1	13,818.1	83,696.1
MW	2.724	3.354	3.454	3.306	2.539	15.377
Participation	54,016.0	66,513.1	68,497.5	65,562.2	50,344.1	304,933

Large Industrial:

	PY13	PY14	PY15	PY16	PY17	Total
MWh	6,881.3	8,473.3	8,726.1	8,352.2	6,413.5	38,846.3
MW	1.264	1.557	1.603	1.534	1.178	7.137
Participation	25,071	30,871	31,792	30,430	23,366	141,530

Estimated Program Budget:**Large Commercial:**

	PY13	PY14	PY15	PY16	PY17	Total
Program Cost	\$3,442,687	\$4,239,188	\$4,365,661	\$4,178,579	\$3,208,659	\$19,434,773
Incentives	\$1,576,067	\$1,940,706	\$1,998,606	\$1,912,959	\$1,468,929	\$8,897,267
Percent Incentives	45.8%	45.8%	45.8%	45.8%	45.8%	45.8%
Percent Non-Incentives	54.2%	54.2%	54.2%	54.2%	54.2%	54.2%

Large Industrial:

	PY13	PY14	PY15	PY16	PY17	Total
Program Cost	\$1,523,119	\$1,875,508	\$1,931,462	\$1,848,693	\$1,419,580	\$8,598,362
Incentives	\$656,755	\$808,702	\$832,829	\$797,140	\$612,110	\$3,707,536
Percent Incentives	43.1%	43.1%	43.1%	43.1%	43.1%	43.1%
Percent Non-Incentives	56.9%	56.9%	56.9%	56.9%	56.9%	56.9%

⁴⁵ Participation for Large Commercial and Large Industrial Business Solutions programs is represented in projected measures delivered.

Estimated Percentage of Sector Budget Attributed to Program:**Large Commercial**

	PY13	PY14	PY15	PY16	PY17	Total
Large Commercial Sector	\$4,644,450	\$5,718,991	\$5,889,613	\$5,637,225	\$4,328,728	\$26,219,006
Downstream Incentives	\$3,442,687	\$4,239,188	\$4,365,661	\$4,178,579	\$3,208,659	\$19,434,773
Percent Sector Budget	74.1%	74.1%	74.1%	74.1%	74.1%	74.1%

Large Industrial:

	PY13	PY14	PY15	PY16	PY17	Total
Large Industrial Sector	\$2,019,824	\$2,487,131	\$2,561,333	\$2,451,572	\$1,882,520	\$11,402,379
Downstream Incentives	\$1,523,119	\$1,875,508	\$1,931,462	\$1,848,693	\$1,419,580	\$8,598,362
Percent Sector Budget	75.4%	75.4%	75.4%	75.4%	75.4%	75.4%

Cost Effectiveness – Large Commercial:

- Gross TRC: 2.16
- NTG Ratio: 0.62
- Net TRC: 1.75

Cost Effectiveness – Large Industrial:

- Gross TRC: 2.16
- NTG Ratio: 0.61
- Net TRC: 1.74

Bidding Strategy: Interior lighting measure savings from these Programs may contribute to Duquesne Light's collective EE Resource for nomination into PJM Forward Capacity Market RPM Base Residual Auction.

3.4.2. Large Business Midstream Solutions Program

Program Title and Program Years: The Large Midstream Program will be implemented during program years 2021 through 2026.

Objectives: The Large Midstream Program is designed to influence equipment purchasing decisions that customers and trade allies make every day. The program moves incentives up the supply chain to the distributors and manufacturers that have the greatest influence on equipment sales. By creating profitable value proposition midstream incentives can materially affect the majority of all equipment sales. This midstream program model can

extend to the entirety of service territories, including underserved, remotely located, or otherwise hard-to-reach customers and communities.

Overall program goals and objectives include:

- Providing a mix of measures that deliver optimal energy savings in a cost-effective manner
- Increasing sales of qualifying products beyond what is typically achieved from the existing downstream prescriptive track
- Engaging a full range of industry distribution partners across multiple channels with particular emphasis on local partnerships when applicable

Providing rebates directly to distributors and manufacturers eases customers' participation burden, reduces customer costs, and provides broader market engagement delivery with fewer program partners.

Target Market: This program targets Duquesne Light's large C&I customers with demand equal to or greater less than 300 kW and that would ordinarily obtain equipment through commercial business-to-business dealers, distributors, and contractors.

Program Description: The Large Midstream Program provides incentives directly to distributors or manufacturers, rather than to end users, for efficient products, offsetting the higher costs and effectively driving uptake of the most efficient equipment options. Incentives are structured to mitigate the price premium between conventional and high-efficiency products at the point of purchase, which places efficient products in direct competition with conventional products based on quality and efficiency alone. By working with market actors directly, equipment stocking patterns are altered over time to move inefficient products off the shelves and to enable faster adoption and decreased customer costs for efficient equipment.

Implementation Strategy: The implementation contractor delivers the program as a turnkey solution and serves as a single point of contact for distributors and manufacturers. The CSP also issues and maintains participation agreements, identifies and enrolls targeted suppliers, provides training, processes applications, tracks and reports on program activity, performs customer site inspections (as required), and supports program quality control.

Initial engagement targets organizational CEOs and sales managers to discuss opportunities for increasing inventories and to get full buy-in throughout an organization. The CSP uses industry events to engage and maintain manufacturer relationships with major manufacturers' designated account managers. Prior to signing a participation agreement, the CSP ensures that distributors meet program criteria, and then during the enrollment process, the CSP learns distributors' business models and challenges and engages staff across the entire organization.

Program Issues, Risks and Risk Management Strategy: All portfolios and programs are operated through Duquesne Light's PMRS. The system provides comprehensive oversight of program incentives and impacts and provides early warnings regarding program under- or

over-subscription. CSP implementation contract statements of work include pay-for-performance compensation. Provisions in CSP contract language provide for shifting funds from under-performing programs.

Basis for the Proposed Level of Incentives and Anticipated Cost to Participating Customers:

No direct incentives are provided to customers; discounts are taken at the point of sale in the form of a reduced cost. Instant rebates are structured to mitigate the price premium between conventional and high-efficiency products at the point of purchase, thereby placing efficient products in direct competition with conventional products based on quality and efficiency.

Incentive levels have historically averaged approximately one-third of efficient product incremental costs, initially set targeting a simple payback period of 2 years. Incentive levels were then adjusted to be approximately consistent with statewide treatment and as needed to promote program participation. The Phase IV Implementation Order⁴⁶ requirement for at least 50% of EE&C Plan spending, at the Plan level, to come from incentives has caused incentive levels to increase to a portfolio average of 56.2% offsetting on average 41% of participant incremental costs.

Ramp-up Strategy: A Midstream Lighting Program was implemented during Phase III, so Phase IV ramp-up will be minimized by replicating many of the proven approaches and relationships. See Figure 1: Program Ramp-Rates for projected energy savings for each year of the Phase IV performance period.

Marketing Strategy: The program is marketed primarily by the selected CSP. The CSP develops and delivers presentations to distributors and manufacturers through a combination of phone calls, personal emails, webinars, and virtual or in-person visits to maximize market share. Presentations demonstrate the financial benefits of promoting high-efficiency measures, from increased sales revenue and program incentives. Additionally, the CSP conducts outreach through participation in and memberships with selected key trade associations, attendance at key trade shows, and training event sponsorships. The CSP crafted program participation messages for key customer decision-makers by leveraging print collateral, including customer spotlights, brochures, and fact sheets. Available services are posted on Duquesne Light's Act 129 website.

Eligible Measures and Incentive Strategy showing Incremental Cost Assumptions and Incentive Levels: See Section 11, Table 7.

Maximum Deadline for Rebates: The Large Midstream Program facilitates rebates as program incentives paid to participating market actors for reducing the upfront cost of efficient products, which decreases program participation time and customer complexity. Program implementers provide monthly invoices to Duquesne Light for rebates. Rebate deadlines as not applicable for this program.

⁴⁶ PA Public Utility Commission Energy Efficiency and Conservation Program Implementation Order, Docket No. M-2020-3015228, June 18, 2020, Section I EDC Cost Recovery, subsection 1. Determination of Phase IV Allowable Costs, page 127.

Program Start Date and Key Milestones: Refer to Section 12 Chart 3: Large Commercial and Industrial Portfolio Program.

Assumed EM&V Requirements to Document Savings by the Commission's Statewide EE&C Evaluator: Detailed evaluation, measurement and verification activities will be identified in the Phase III EM&V Plan. Either enhanced or basic rigor verification is employed based on project scope, as identified in the EM&V Plan. Random samples shall comply with SWE Audit Plan confidence and precision levels.

Administrative Requirements: The Duquesne Light Customer Programs organization staffing plan includes three dedicated full-time employees to perform management and coordination of all Act 129 commercial and industrial sector programs. The Customer Program Associates will administer the program on a shared basis with additional part-time support by engineering, marketing, purchasing, regulatory, legal, data processing and clerical staff, as well as contracted CSP services.

Savings Targets and Estimated Participation:⁴⁷

Large Commercial:

	PY13	PY14	PY15	PY16	PY17	Total
MWh	3,064.6	3,773.6	3,886.2	3,719.7	2,856.3	17,300.3
MW	0.847	1.043	1.074	1.028	0.790	4.783
Participation	28,042.6	34,530.5	35,560.7	34,036.8	26,136.3	158,307

Large Industrial:

	PY13	PY14	PY15	PY16	PY17	Total
MWh	1,422.4	1,751.5	1,803.7	1,726.4	1,325.7	8,029.7
MW	0.393	0.484	0.499	0.477	0.366	2.220
Participation	13,015.5	16,026.8	16,505.0	15,797.7	12,130.8	73,476

Estimated Program Budget:

Large Commercial:

	PY13	PY14	PY15	PY16	PY17	Total
Program Cost	\$1,047,725	\$1,290,126	\$1,328,616	\$1,271,681	\$976,502	\$5,914,649
Incentives	\$675,464	\$831,739	\$856,554	\$819,848	\$629,547	\$3,813,151
Percent Incentives	64.5%	64.5%	64.5%	64.5%	64.5%	64.5%
Percent Non-Incentives	35.5%	35.5%	35.5%	35.5%	35.5%	35.5%

⁴⁷ Participation for Large Commercial and Large Industrial Midstream programs is represented in projected measures delivered.

Large Industrial:

	PY13	PY14	PY15	PY16	PY17	Total
Program Cost	\$425,211	\$523,587	\$539,208	\$516,101	\$396,305	\$2,400,413
Incentives	\$252,431	\$310,834	\$320,107	\$306,390	\$235,271	\$1,425,033
Percent Incentives	59.4%	59.4%	59.4%	59.4%	59.4%	59.4%
Percent Non-Incentives	40.6%	40.6%	40.6%	40.6%	40.6%	40.6%

Estimated Percentage of Sector Budget Attributed to Program:**Large Commercial:**

	PY13	PY14	PY15	PY16	PY17	Total
Large Commercial Sector	\$4,644,450	\$5,718,991	\$5,889,613	\$5,637,225	\$4,328,728	\$26,219,006
Midstream Incentives	\$1,047,725	\$1,290,126	\$1,328,616	\$1,271,681	\$976,502	\$5,914,649
Percent Sector Budget	22.6%	22.6%	22.6%	22.6%	22.6%	22.6%

Large Industrial:

	PY13	PY14	PY15	PY16	PY17	Total
Large Industrial Sector	\$2,019,824	\$2,487,131	\$2,561,333	\$2,451,572	\$1,882,520	\$11,402,379
Midstream Incentives	\$425,211	\$523,587	\$539,208	\$516,101	\$396,305	\$2,400,413
Percent Sector Budget	21.1%	21.1%	21.1%	21.1%	21.1%	21.1%

Cost Effectiveness – Large Commercial:

- Gross TRC: 0.63
- NTG Ratio: 0.72
- Net TRC: 0.60

Cost Effectiveness – Large Industrial:

- Gross TRC: 0.63
- NTG Ratio: 0.72
- Net TRC: 0.60

Bidding Strategy: Interior lighting measure savings from these Programs may contribute to Duquesne Light's collective EE Resource for nomination into PJM Forward Capacity Market RPM Base Residual Auction.

3.4.3. Large Business Virtual Commissioning Program

Program Title and Program Years: The Large Virtual Commissioning Program (LVCx) will be implemented during the program years 2021 through 2026.

Objectives: The LVCx Program uses a turnkey approach that targets system-based no- to low-cost operational savings for large commercial customers and public facilities. This 100 percent pay-for-performance program does not fit a traditional model that uses trade allies, mass marketing, or standardized prescriptive retrofits; rather, it provides a targeted, data-driven approach to energy efficiency engagement that effectively eliminates the need for enrollment forms, incentives, or administrative costs.

Target Market: The program targets Duquesne Light's large C&I customers with demand equal to or greater than 300 kW. Any non-residential account, including public institutions, are eligible for the program. Traditionally hard-to-reach accounts such as businesses that lease facilities are high-value program candidates. These types of organizations are typically motivated by cash flow and are attracted to non-capital cost opportunities to reduce energy usage. Additionally, public institutions (e.g., schools and municipalities) are also excellent candidates for this program, considering its opportunities for immediate payback and no capital investment.

Program Description: The LVCx Program leverages advanced metering infrastructure's (AMI) advanced data analytics to identify and qualify customers with significant potential for energy savings. The prospect identification process uses data modeling techniques (e.g., weather normalization, etc.) to selectively, and without bias, pinpoint individual meters and accounts with energy usage conditions that indicate the potential for operational savings; this process does not exclude or diminish opportunities based on business industry, size, or location. Once identified, the program implementer offers customers personalized remote engagement by phone and email to help them understand their energy usage and provide instructions for self-correction. Upon successful program participation, facilities are continuously monitored to ensure savings persistence; if pre-specified savings drift is detected, customers are re-engaged. Participants are encouraged to take part in additional energy efficiency programs offered by Duquesne Light upon a successful LVCx Program engagement. This program provides for contactless delivery.

Implementation Strategy: The implementation contractor delivers the program as a turnkey solution and serves as a single point of contact for customers. Unlike traditional energy efficiency programs that require on-site customer interaction, the LVCx Program is delivered virtually with data and analytics serving to efficiently pinpoint accounts and opportunities, not as program deliverables. The implementation strategy includes:

- **Data analysis.** The LVCx Program prospecting process begins with running the data of eligible Duquesne Light large C&I accounts through a series of advanced algorithms, which consider business interval energy usage and weather data, past program participation, NAICS code, and building information along other variables to determine program fit.
- **Recommendation identification.** Once a list of prospects is generated, the implementer reviews each account's energy usage data to further qualify the account.

Before initiating outreach, the implementer may also review other public information or private tools to gather additional information to support the engagement approach. This pre-engagement research builds credibility with customers and helps establish trust and increased customer satisfaction.

- **Customer engagement.** The implementer presents customers with specific recommended actions to simplify their decision-making and to overcome limited energy efficiency knowledge and time and resource availability. Recommendations are not generic, such as being based on industry type or similar facility but focus on a business's unique operating conditions based on their own actual usage data. The LVCx participant outreach process averages seven to ten contacts from the first call to the end of engagement when operational recommendations have been implemented. On average, the entire engagement process typically lasts 31 days for accounts that implement changes and requires between 30 minutes and three hours of participant time.
- **Energy savings measurement and verification.** The implementer uses a data model to calculate the annualized savings and monitors customers' energy usage over time to verify savings persistence.

Program Issues, Risks and Risk Management Strategy: All portfolios and programs are operated through Duquesne Light's PMRS. The system provides comprehensive oversight of program incentives and impacts and provides early warnings regarding program under- or over-subscription. Provisions in CSP contract language provide for shifting funds from under-performing programs.

Basis for the Proposed Level of Incentives and Anticipated Cost to Participating Customers: The Program uses building, weather, and interval meter data to remotely identify energy optimization opportunities, which are directly shared virtually with participants. Customers receive direct personal engagement and technical expertise by phone and email to help customer understand their energy usage and instructions for self-correction. Customers also receive 1) real-time standalone energy monitoring equipment, 2) payments towards the installation costs for monitoring and control systems, 3) energy management software, and 4) control systems equipment tailored to large organizations and institutional accounts. These systems utilize secure, cellular data transmission, included with the equipment incentive, and provide real-time energy usage alert capability to empower participants with energy management tools to ensure savings persistence. Incentives amount to 56.2% of projected Portfolio costs offsetting on average 41% of participant incremental costs.

Ramp-up Strategy: The LVCx Program relies on a data-driven process; therefore, ramp-up efforts are focused on pre-launch activities to secure data, rather than achieving a steady state of operation as with traditional programs. The implementer began completing the IT Security and Data Transfer Process after the contract has been approved by the PUC. Once utility data are ingested, the implementer conducts analysis, prospect, and outreach activities and delivers initial results typically within 30 days. See Figure 1: Program Ramp-Rates for projected energy savings for each year of the Phase IV performance period.

Marketing Strategy: Traditional energy efficiency program mass marketing campaigns designed to attract participants are unnecessary for the LVCx Program. Customers with

identified savings opportunities are engaged through personalized outreach performed by trained energy advisors. Understanding the challenges with reaching customers trying to manage their everyday business operations, the LVCx Program crafts a customized message, using businesses' own data, that is unique and specific to their operating conditions. Marketing collateral is limited and provides customers assurances about program validity, as found in informational flyers. Available services are posted on Duquesne Light’s Act 129 website.

Eligible Measures and Incentive Strategy showing Incremental Cost Assumptions and Incentive Levels: See Section 11, Table 7.

Maximum Deadline for Rebates: Not applicable.

Program Start Date and Key Milestones: Refer to Section 12 Chart 3, Large Commercial / Industrial Portfolio Program.

Assumed EM&V Requirements to Document Savings by the Commission’s Statewide EE&C Evaluator: Detailed evaluation, measurement and verification activities will be identified in the Phase III EM&V Plan. Either enhanced or basic rigor verification is employed based on project scope, as identified in the EM&V Plan. Random samples shall comply with SWE Audit Plan confidence and precision levels.

Administrative Requirements: The Duquesne Light Customer Programs organization staffing plan includes three dedicated full-time employees to perform management and coordination of all Act 129 commercial and industrial sector programs. The Customer Program Associates will administer the program on a shared basis with additional part-time support by engineering, marketing, purchasing, regulatory, legal, data processing and clerical staff, as well as contracted CSP services.

Savings Targets and Estimated Participation:⁴⁸

Large Commercial:

	PY13	PY14	PY15	PY16	PY17	Total
MWh	488.3	601.2	619.2	592.7	455.1	2,756.5
MW	0.180	0.221	0.228	0.218	0.167	1.014
Participation	8	10	10	10	7	44

⁴⁸ Participation is measured in customers’ projects.

Large Industrial:

	PY13	PY14	PY15	PY16	PY17	Total
MWh	226.6	279.1	287.4	275.1	211.2	1,279.4
MW	0.083	0.103	0.106	0.101	0.078	0.471
Participation	4	5	5	4	3	21

Estimated Program Budget:

Large Commercial:

	PY13	PY14	PY15	PY16	PY17	Total
Program Cost	\$154,039	\$189,677	\$195,336	\$186,965	\$143,567	\$869,584
Incentives	\$94,726	\$116,642	\$120,122	\$114,975	\$88,287	\$534,753
Percent Incentives	61.5%	61.5%	61.5%	61.5%	61.5%	61.5%
Percent Non-Incentives	38.5%	38.5%	38.5%	38.5%	38.5%	38.5%

Large Industrial:

	PY13	PY14	PY15	PY16	PY17	Total
Program Cost	\$71,495	\$88,036	\$90,662	\$86,777	\$66,635	\$403,604
Incentives	\$43,966	\$54,138	\$55,753	\$53,364	\$40,977	\$248,197
Percent Incentives	61.5%	61.5%	61.5%	61.5%	61.5%	61.5%
Percent Non-Incentives	38.5%	38.5%	38.5%	38.5%	38.5%	38.5%

Estimated Percentage of Sector Budget Attributed to Program:

Large Commercial:

	PY13	PY14	PY15	PY16	PY17	Total
Large Commercial Sector	\$4,644,450	\$5,718,991	\$5,889,613	\$5,637,225	\$4,328,728	\$26,219,006
Virtual Commissioning	\$154,039	\$189,677	\$195,336	\$186,965	\$143,567	\$869,584
Percent Sector Budget	3.3%	3.3%	3.3%	3.3%	3.3%	3.3%

Large Industrial:

	PY13	PY14	PY15	PY16	PY17	Total
Large Industrial Sector	\$2,019,824	\$2,487,131	\$2,561,333	\$2,451,572	\$1,882,520	\$11,402,379
Virtual Commissioning	\$71,495	\$88,036	\$90,662	\$86,777	\$66,635	\$403,604
Percent Sector Budget	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%

Cost Effectiveness – Large Commercial:

- Gross TRC: 2.85

- NTG Ratio: 0.62
- Net TRC: 2.31

Cost Effectiveness – Large Industrial:

- Gross TRC: 2.85
- NTG Ratio: 0.62
- Net TRC: 2.31

Bidding Strategy: Savings from these programs will not contribute to Duquesne Light's collective EE Resource for nomination into PJM Forward Capacity Market RPM Base Residual Auction.

3.5. Government/Nonprofit/Institutional Sector (as defined by 66 Pa. C.S. § 2806.1) –
Qualitatively describe how the Government/Nonprofit/Institutional Sector will be served.

This sector will be served via the programs designated in Sections 3.3 and 3.4. All reporting requirements designated by the PUC will be met in the prepared documents.

4. Program Management and Implementation Strategies

(The objective of this section is to provide detailed description of how EDC plans to manage and implement programs, including their approach to and use of Conservation Service Providers (CSPs).)

4.1. Overview of EDC Management and Implementation Strategies:

- 4.1.1. Describe the types of services to be provided by EDC as well as consultants, trade allies, and CSPs. Indicate which organizations will provide which services and the basis for such allocation. Reference reporting and EM&V information from Sections 5 and 6 below.⁴⁹

The delivery organization size and function is largely driven by the portfolio of programs fielded. The portfolio proposed by Duquesne Light is structured under three broad programs: residential, non-residential and behavioral.

The Programs provide incentives for a full range of measures to assist customers of all sizes and in all key market segments to overcome barriers to adopt energy efficiency measures. These programs put in place a baseline program design, with set incentive levels and measure content. The design provides an overarching programmatic structure with calculated incentives for customized projects or itemized incentives for standard measures. Under this structure, each program can promote specific technologies or target specific market segments incorporating specified savings impacts and incentive levels in a consistent and common offering.

Duquesne Light implements programs effectively and economically. To achieve this, it uses CSPs with expertise and experience in program implementation and operations. Success depends on special services offered by CSPs to implement and overcome market segment specific barriers. Duquesne Light works together with CSPs and contractors to provide the services for successful implementation of the plan.

Program implementation requires significant planning and operation management functions. In addition to initiating the contracting process, each contractor is managed and integrated into an organized and cohesive operation. Program procedural guidelines are developed and followed. Documentation is maintained and electronic data structures are developed and managed.

Customers are engaged through at least three channels. First, Duquesne Light promotes the programs to its customers, through marketing approaches such as mass media advertising, direct marketing, direct contact, events, conferences, account representatives and electronic media. Second, the Duquesne Light contractors and subcontractors have similar responsibilities, with specific focus on securing commitments for customers to participate in the programs. Third, trade allies, such as builders, architects, engineers, vendors, equipment

⁴⁹ Services to be offered by EDC or others may include marketing, customer recruiting, demonstration projects, audits and or installation of new efficiency measures, verification of installations and or baseline usage, response to customer concerns, program tracking and program evaluation.

installation contractors, retailers and others, are informed of the Duquesne Light programs, with the objective of securing their willingness to participate and secure their customers and clients to participate. Trade allies are also engaged, primarily through direct marketing, events, conferences and account representatives.

The programs are designed to overcome key barriers to customer participation. In general, the barriers to greater customer participation in energy efficiency are information, technical assistance, and financial assistance. The programs are also designed to encourage comprehensiveness in terms of including multiple measures, taking account of interactive savings between measures, and advancing new designs and technologies.

Depending on the specific program in the portfolio for Duquesne Light, available services are expected to include:

- Benchmarking of energy use based on utility bills
- Walk-through energy audits to pre-screen and qualify the facility to optimize measure selection and implementation
- Investment grade energy audits for specific measures and energy savings
- Life-cycle cost-benefit analysis
- Virtual commissioning
- Project and construction planning and management
- Project documentation and operator training
- Post installation quantification of savings
- Providing guidance about alternative financing assistance
- Quantifying environmental benefits
- Marketing to prospective customers based on leads from Duquesne Light as well as resources of the CSP
- Educating customers and recruiting participants
- Conducting walk-through or preliminary energy audits
- Securing customer approval to proceed with targeted or comprehensive investment grade energy audits
- Recommending measures with estimates of energy and demand savings
- Preparing benefit and cost analyses and identification of financing options
- Completing customer applications to reserve program incentive funds and submitting to Duquesne Light for approval
- Performing or assisting customer with equipment specification, vendor selection, bidding and project management
- Conducting post-installation inspections

- Verifying savings estimates
- Coordinating applications for incentive payments
- Conducting project completion and follow-up services
- Conducting customer satisfaction surveys

Reporting is conducted based on the requirements of the regulatory authorities, Duquesne Light management and CSPs. Section 5 below presents Duquesne Light's proposed reporting criteria and supporting information systems.

EM&V is conducted for each program. The scope and level will depend on the nature of the program and split of responsibilities between regulatory authorities, Duquesne Light management and CSPs. Section 6 below presents Duquesne Light's approach to EM&V.

4.1.2. Describe how the risk categories of performance, technology, market and evaluation can affect the programs and any risk management strategies that will be employed to mitigate those risks.⁵⁰

Performance risk refers to the ability of programs to achieve their individual goals in the context of overall corporate goals for Duquesne Light relating to energy efficiency programs. This risk will be mitigated by offering a variety of programs addressing key customer classes and market segments within the customer classes. There are programs for each customer class and subprograms for market segments within the customer class. The programs allow both itemized and customized solutions in terms of measures for commercial and industrial sectors. Comprehensive solutions are encouraged. Performance risk is further mitigated through regular reporting and timely management to identify and resolve issues through the PMRS as described in Section 5. CSP payments as well as incentive reservations and payments are facilitated through PMRS which provides for real-time management of program incentives and progress towards goals. Key performance indices will be created collaboratively between Duquesne Light and its selected CSP for tracking to occur no less than annually.

Technology risk refers to the possibilities that energy conservation measures will not perform as well as expected in achieving expected savings. The risk is mitigated by designing programs to foster the installation of proven technologies for the specific energy conservation measure. The program design allows for certain technologies and not others. However, advanced technologies will be encouraged where greater energy savings and cost-effectiveness are expected. The risk is further mitigated by QA/QC performed by Duquesne Light or its implementation contactor as well as activities in EM&V to identify and resolve technology performance concerns.

⁵⁰ Performance risk is the risk that, due to design or implementation flaws, the program does not deliver expected savings. Technology risk is the risk that technologies targeted by a program fail to deliver the savings expected. Market risk is the risk that customers, or other key market players (e.g., contractors), choose not to participate in a program. Evaluation risk is the risk that independent EM&V will, based on different assumptions, conclude that savings fall short of what the implementers have estimated.

Market risk refers to the ability to recruit sufficient participants for the programs. Mitigation of market risk is pursued through efforts by Duquesne Light, CSPs, and trade allies to encourage participation by end-use customers. Where barriers to information, technical assistance and financial incentives are identified as continuing issues, adjustments to program designs have been and will continue to be considered to improve participation levels. Market risk is being mitigated during this process of planning and filing for program approval. In Phase III dialogue with large customers continued and thoughts associated with the Phase IV design are included in the proposed programs.

Evaluation risk refers to the possibilities that energy savings results are open to question. Mitigation of this risk is achieved by an open and transparent planning process for EM&V. Programs are planned and implemented in a manner to support verification and ensure availability of required evaluation data. The plan should be based on policies and procedures that are widely accepted in the discipline. The risk is mitigated further by implementation of the plan in a collaborative manner and with careful documentation of significant deviations. Finally, issues will continue to be identified and solutions proposed where evaluation risks become real.

Duquesne Light will continue its past practice of sound QA/QC by encouraging participation of EM&V contractor early in the project process, particularly to gain support and alignment for projects that include new technology or are particularly large or complex.

- 4.1.3. Describe how EDC plans to address human resource and contractor resource constraints to ensure that adequate personnel and contractors are available to implement the EE&C plan successfully.

Human resource constraints refer to the ability of Duquesne Light to recruit and retain qualified personnel to manage and implement the proposed programs. Duquesne Light has involved individuals within the organization in the planning process for the energy efficiency program. Several programs were specifically designed to leverage the resources of external governmental agencies and community engagement channels. Currently five positions are filled in the department at Duquesne Light. These positions have been in effect since Phase I and the staffing of these positions has been consistent. From a transition from plan to plan standpoint that consistency has added value to the meeting of the mandated goals. Duquesne Light can also draw on employees from other functional groups (e.g., engineering, major accounts, rates, etc.) as needed to address specialized or technical inquiries from customers.

Contractor resource constraints refer to the ability of Duquesne Light to secure sufficient support from CSPs. Duquesne Light has recruited CSPs on a competitive basis by sending requests for proposals to a significant pool of potential contractors. Prior to selecting contractors and signing agreements, Duquesne Light will confirm the ability of the CSPs to fulfill their responsibilities while adhering to the Commission approved CSP contract. RFPs are sent to the CSPs currently listed on the Commission registry as well as interested parties and this process will continue for newly approved programs.

A broader issue could be the long-term availability of qualified technicians and professionals with skills such as energy auditing, energy savings analysis, project engineering and

measures installation. Duquesne Light continues to cooperate with educational institutions and training organizations to increase the supply of qualified personnel in the Pittsburgh job market. One unique strategy with long-run potential is to stimulate interest in the field for energy efficiency via programs targeted to achieving energy savings in educational facilities and in the homes of students and staff at those facilities.

4.1.4. Describe “early warning systems” that will be utilized to indicate progress towards the goals and whether they are likely to be met. Describe EDC’s approach and process for shifting goals and funds, as needed, between programs and adding new measures/programs.

As in prior Phases, progress toward goals will be reported on a regular basis rather than waiting until the end of the program cycle. The progress reporting process has been developed by Duquesne Light in consultation with regulatory authorities. Furthermore, CSPs are directly involved through regular reporting, documentation of issues, and development of plans to resolve issues in meeting goals.

Duquesne Light implements programs in a manner to facilitate adjustments of individual programs funds and goals in order to achieve corporate goals. Each program is managed with a total budget as well as a budget for each year of implementation. This approach allows for at least an annual review and decision on the budget for the subsequent year. Key performance indices will be created collaboratively between Duquesne Light and its selected CSP for tracking to occur no less than annually.

As further protection to help ensure funds are well managed, Duquesne Light pays for CSP performance in two steps. For applications submitted and approved by Duquesne Light, Thirty percent (30%) of the of the performance payment shall be a Project Commitment Progress Payment (PCPP) payable 30 days after a Project has progressed in PMRS system to “Pending Customer Acceptance”. The remaining up to seventy percent (70%) of the performance based budget payment shall be a Project Installation Progress Payment (PIPP) payable 30 days after Duquesne Light’s review and approval of Project documentation and project has progressed in PMRS system to “Project Complete.”

These plans provide flexibility to Duquesne Light to re-allocate program budgets. For example, some programs may be oversubscribed so that more funds could be added to meet customer demand for participation and shifted away from programs that are undersubscribed.

New programs may be added over time to reach underserved customers and market segments. In particular, CSPs with expertise and experience in certain market segments may be recruited to address specific opportunities.

Similarly, new technologies may be encouraged as programs are implemented. Duquesne Light is open to offering incentives for new technologies, whether as an existing program, new program or sub-program.

Finally, Duquesne Light expects to file as required with regulatory authorities when considering significant adjustments to programs or adding new programs and new technologies.

4.1.5. Provide implementation schedules with milestones.

See Section 12, Charts 1 through 4.

4.1.6. Provide a brief overview of how stakeholders will be engaged throughout Phase IV. Describe how low-income communities and other marginalized populations will be represented in stakeholder engagement.

During the planning process, individual stakeholder meetings were held to discuss Duquesne Light's program plans for Phase IV. Participants included and invitations were extended to regulatory parties such as Office of Consumer Advocate, Office of Small Business Advocate, Duquesne Industrial Intervenors, Duquesne Light's Income Eligible Advisory Group ("IEAG"), lighting vendors, Conservation Service Providers, EM&V contractor, gas distribution companies, KEEA, and CAUSE PA.

During Phase IV, Duquesne Light proposes to hold stakeholder meetings to update as needed and required as well as continuing the dialogue with partnerships developed as a result of the meetings held during the course of planning the Phase IV programs. For example, Duquesne Light and the gas distribution companies will continue to work together to encourage participation beyond the current Smart Comfort low income program by holding IEAG meetings in conjunction with other scheduled stakeholder group meetings to facilitate efficiency in time and travel. In addition, Duquesne Light agrees that it will seek input from IEAG on marketing material to income eligible or marginalized populations. Furthermore, DLC will conduct a stakeholder meeting with the Housing Alliance of Pennsylvania, PHFA, other interested affordable housing trade groups, and other interested stakeholders in Phase IV to coordinate and tailor the measures targeted in the development of affordable housing opportunities.

Based upon input from NGDCs, Duquesne Light and its non-residential CSP(s) will hold additional stakeholder meetings after plan approval to discuss the logistics around continued partnership with the NGDCs to increase awareness of CHP rebate opportunities under the Phase IV plan.

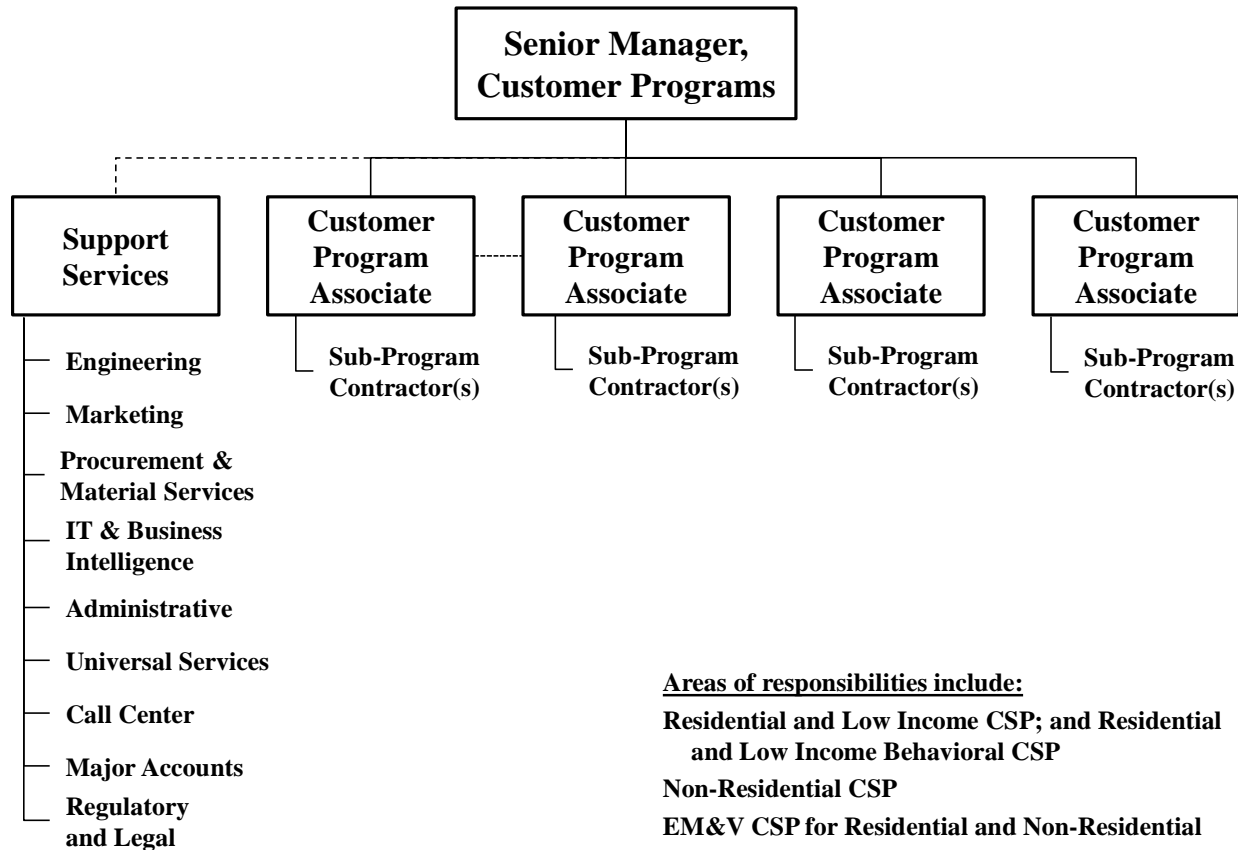
4.2. Executive management structure:

4.2.1. Describe EDC 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). Include EDC organization chart for management team responsible for implementing EE&C plan.

Energy efficiency is implemented under customer programs at Duquesne Light and is housed within the customer service department under the customer experience function. The department's size and function is driven by the portfolio of programs offered. The size and structure also reflect the use of contractors and subcontractors. The organization is headed by one senior manager who reports to the Director of Customer Experience and is responsible for the planning and implementation of the energy efficiency and conservation

program. The senior manager is supported by several sector or segment specific customer program associates. There also is support staff for functions to include engineering, marketing, data processing, regulatory and contract management. The organizational chart pictured below represents the structure of the organization to implement the energy efficiency and conservation plan.

Figure 6: Customer Programs Organizational Chart



Each customer program associate is responsible for overall program management, including planning, reporting progress on program metrics, internal communication, external communication, budgeting and financial management. The customer program associate will call upon staff support for assistance within the energy efficiency program. Support for the programs is available for procurement and contract management, marketing, and data tracking and reporting. Additionally, quality assurance and quality control functions performed by engineering and other support staff will support the customer program associate.

CSPs are expected to provide a quality control plan. The plan provides for quality control on projects, regulatory compliance processes and performance auditing. The plan allows for Duquesne Light to access files, data and related program operating information. The plan is

designed to minimize customer service issues, protect confidential information and prevent duplicate applications for incentive payments.

- 4.2.2. Describe approach to overseeing the performance of sub-contractors and implementers of programs and how they can be managed to achieve results, within budget, and ensure customer satisfaction.

Contractors and implementers of programs are subject to detailed planning requirements. The detailed plans include tasks, milestones, schedules, budgets, metrics of performance and personnel assignments. Regular reports on progress are required with sufficient information to allow the identification of issues and planning for improvements. Each contractor is subject to specific policies and procedures to guide their activities. Hard copy and/or electronic documentation methods may be required as appropriate. Regarding customer satisfaction, contractors and implementers are expected to foster and participate in obtaining feedback from their clients; results will be provided to Duquesne Light, whether directly or through a third party.

- 4.2.3. Describe basis for administrative budget.

The EE&C Plan budget may be defined broadly into two components: (1) incentive costs and (2) all other costs excluding incentives, termed administration costs or “Admin.” Admin may be broken into two parts, Program Admin and Portfolio Admin.

Program Admin: Program Admin includes those direct costs to program implementation. For programs implemented by CSPs, Program Admin is paid under the terms of discrete implementation contracts that may include minimal start-up costs and other fees but are primarily paid based on performance \$/annualized kWh savings. Program Admin performance payments are derived based on historical implementation costs and market-based responses to competitive solicitations.

Portfolio Admin: Portfolio Admin is comprised of cost to implement the EE&C Plan, generally referred to as a “Portfolio” of programs (a common industry term observed by most states). These costs are for cost elements that do not vary by program but are common to all programs. Portfolio Admin costs include EDC labor, overarching marketing costs; tracking system, data management and communication costs; program measurement costs, quality assurance, and other implementation services such as the cost to respond to requests by the Commission and its SWE. The basis for these costs was initially benchmarked to programs in other states, now based on historical activity within the Commonwealth. Portfolio Admin is estimated at 13.2% of the EE&C Plan budget.

4.3. Conservation Service Providers (CSPs):

- 4.3.1. List any selected CSPs, describe their qualifications and basis for selection (include contracts in Appendix).

Duquesne Light issued an RFP for Phase IV EM&V servicing residential, commercial and industrial customers. CSPs were asked to participate in a pre-bid meeting signifying their interest and were required to respond to the formal RFP. A team evaluated the responses and selection was made based upon the firm possessing substantial qualifications in energy efficiency as it related to the particular segment under review. The selected bidder, Guidehouse, scored highest on comprehensive and achievable work plan. They are a leader in the EM&V field and have worked previously with Duquesne Light and one other EDC in the Commonwealth. The Company's contract with this CSP is being filed contemporaneously with this Plan on a CONFIDENTIAL basis. Other CSPs will be selected through the same approved RFP process and will fulfill all regulatory requirements associated with the start of Phase IV program implementation.

4.3.2. Describe the work and measures being performed by CSPs.

Contracts for the CSPs described in Section 4.3.1. will be filed at the Commission for approval. These contracts include all the work, measures, and detailed requirements for each of the program segments for which they were selected. One such CSP agreement is included as Section 13, CSP Binder.

4.3.3. Describe any pending RFPs to be issued for additional CSPs.

It is anticipated that CSPs may be sought for the following segments:

- Residential programs
- Behavioral program
- Low income programs
- Comprehensive residential and nonresidential programs
- Commercial sector programs
- Industrial sector programs
- Implementation services

5. Reporting and Tracking Systems⁵¹

(Objective of this section is to provide detailed description of reporting and the critical data management and tracking systems that EDCs need in order to implement programs and which Commission, and its statewide EE&C Plan Evaluator, need to access.)

5.1. Indicate that the EDC will provide semiannual and annual reports as prescribed in the June 18, 2020 Implementation Order.

Duquesne Light's Program Management and Reporting System (PMRS) provides information reported to the Commission's appointed Act 129 EE&C Statewide Evaluator (SWE). Program activity reports are provided in form and format specified by the SWE pursuant to SWE semiannual, annual and numerous ad hoc data requests. Examples are provided below.

Figure 7: Data Elements for Residential Program Tracking Data

Data Point	Required Field Name	Format	Notes
Operating Company	EDC	Text	Name of EDC
Program Year	YEAR	Numeric	Program Year that savings will be claimed
Program Quarter	QUARTER	Numeric	Quarter that savings will be claimed
Project Number	PROJECTNUM	Text	Unique identifier for the program participant. A count of the distinct values of this field will generally equal the EDC reported participant count for the quarter
Measure Number	MEASURENUM	Text	Unique identifier for the record in database
Program Name	PROGRAM	Text	Name of program in EE&C plan that savings accrue to
Sub-Program Name	SUBPROGRAM	Text	Initiative within program that savings belong to
Sector Name	CUSTSEGMENT	Text	Residential or Residential Low-Income
Service Zip Code	SERVICEZIP	Numeric	Postal code of service address

⁵¹ This Section may be modified if the Commission's statewide EE&C Plan Evaluator develops further reporting and tracking systems that are approved by the Commission.

Data Point	Required Field Name	Format	Notes
Premise Type	PREMISETYPE	Text	SF-Attached, SF-Detached, MF, Manufactured, etc.
Measure Category	MEASURECATEGORY	Text	General category measure belongs to (End-use, technology etc.)
Measure Name	MEASURENAME	Text	Specific name of measure
Measure Lifetime	MEASURELIFE	Text	EUL of measure
TRM Measure	TRMMEASURE	Boolean	Equal to 1 if savings are calculated using a TRM protocol, zero otherwise
TRM Measure Number	TRMMEASURENUM	Text	Protocol in the 2016 PA TRM (e.g. Solar Water Heaters = 2.3.2). Null for non-TRM measures
Quantity	QTY	Numeric	Number of units installed or rebated
Quantity Units	QTYUNIT	Text	Description of the unit of measurement or the QTY field (lamps, tons, square feet, etc.)
Installation Date	INSTALLDATE	MM/DD/YYYY	When the measure was installed and operable
Recorded Date	RECORDDATE	MM/DD/YYYY	Date the savings were recorded in the system of record
Rebate Paid Date	REBATE DATE	MM/DD/YYYY	When the rebate check was issued to the participant
Reported Energy Savings	REPORTEDKWH	Numeric	Total reported energy savings for the measure (equal to per-unit savings multiplied by # units)
Reported Demand Savings	REPORTEDKW	Numeric	Total reported peak demand savings for measure
Rebate Amount	REBATEAMOUNT	Numeric	Total incentive payment associated with measure

Figure 8: Data Elements for Upstream Lighting Program Tracking Data

Data Point	Required Field Name	Format	Notes
Operating Company	EDC	Text	Name of EDC
Program Year	YEAR	Numeric	Program Year that savings will be claimed
Program Quarter	QUARTER	Numeric	Quarter that savings will be claimed
Measure Number	MEASURENUM	Text	Unique identifier for the record in database
Program Name	PROGRAM	Text	Name of program in EE&C plan that savings accrue to
Sub-Program Name	SUBPROGRAM	Text	Initiative within program that savings belong to
Manufacturer	MANUFACTURER	Text	Name of measure manufacturer
Distributor	DISTRIBUTOR	Text	Distributor name, address, telephone, email
Measure Lifetime	MEASURELIFE	Text	EUL of measure
Measure Name	MEASURENAME	Text	Specific name of measure (usually qualitative description such as “13W A-line CFL” or “10W BR30 Dimmable”)
Measure Shape	MEASURESHAPE	Text	Bulb shape (e.g., spiral, A-line, flood/reflector, candelabra, etc.)
Measure Type	MEASURETYPE	Text	Technology (i.e., CFL, LED, etc.)
Measure Wattage	MEASUREWATTS	Numeric	Bulb / fixture wattage
Measure Lumens	MEASURELUMENS	Numeric	Bulb lumen range
Measure Features	MEASUREFEATURE	Text	Other specialty features (e.g., color, non-medium screw base, Wi-Fi-enabled, etc.)
Model Number	MODELNUM	Alphanumeric	Model number
SKU Number	SKUNUM	Alphanumeric	SKU number

Data Point	Required Field Name	Format	Notes
TRM Measure	TRMMEASURE	Boolean	Equal to 1 if savings are calculated using a TRM protocol, zero otherwise
TRM Measure Number	TRMMEASURENUM	Text	Protocol in the 2016 PA TRM (e.g. 2.1.1 ENERGY STAR lighting = 2.1.1). Null for non-TRM measures
Quantity	QTY	Numeric	Total number of units of products sold
Quantity Units	QTYUNIT	Text	Description of the unit of measurement for the QTY field (e.g., packs, bulbs, watts, etc.)
Pack size	PACKSIZE	Numeric	Number of bulbs in pack
Recorded Date	RECORDDATE	MM/DD/YYYY	Date the savings were recorded in the system of record
Invoice Number	INVOICENUM	Numeric	Invoice number under which the product was charged to the EDC or implementation contractor
Invoice Submission Date	INVOICEDATE	MM/DD/YYYY	Date invoice submitted by partner
Rebate Paid Date	REBATEDATE	MM/DD/YYYY	When the rebate check was issued to the partner
Energy Savings Unit Basis	EESAVINGSUNITS	Text	Basis for energy savings, e.g., per bulb
Reported Energy Savings	REPORTEDKWH	Numeric	Total reported energy savings for the measure (equal to per-unit savings multiplied by # units)
Demand Savings Unit Basis	DRSAVINGSUNITS	Text	Basis for demand savings, e.g., per bulb
Reported Demand Savings	REPORTEDKW	Numeric	Total reported peak demand savings for measure
Retail Price	RETAILPRICE	Numeric	Original retail price or MSRP of product

Data Point	Required Field Name	Format	Notes
Rebate Amount	REBATEAMOUNT	Numeric	Total incentive payment associated with measure
Rebate Unit Basis	REBATEUNIT	Text	Basis for rebate, e.g., per bulb, per pack, etc.
Rebated Price	REBATEDPRICE	Numeric	Rebated price of product
Retailer Location	RETAILLOC	Text	Retailer location (address of store, not of headquarters)

Figure 9: Data Elements for Non-Residential Program Tracking Data

Data Point	Required Field Name	Format	Notes
Operating Company	EDC	Text	Name of EDC
Program Year	YEAR	Numeric	Program Year that savings will be claimed
Program Quarter	QUARTER	Numeric	Quarter that savings will be claimed
Project Number	PROJECTNUM	Text	Unique identifier for the program participant. A count of the distinct values of this field will generally equal the EDC reported participant count for the quarter
Measure Number	MEASURENUM	Text	Unique identifier for the record in database
Program Name	PROGRAM	Text	Name of program in EE&C plan that savings accrue to
Sub-Program Name	SUBPROGRAM	Text	Initiative within program that savings belong to
Sector Name	CUSTSEGMENT	Text	Small C&I, Large C&I, or GNI
Service Zip Code	SERVICEZIP	Numeric	Postal code of service address
Premise Type	PREMISETYPE	Text	Descriptor of type of business. Mapped to the HOU or EFLH tables where applicable.

Data Point	Required Field Name	Format	Notes
Measure Category	MEASURECATEGORY	Text	General category measure belongs to (end-use, technology, etc.)
Measure Name	MEASURENAME	Text	Specific name of measure
Measure Lifetime	MEASURELIFE	Text	EUL of measure
TRM Measure	TRMMEASURE	Boolean	Equal to 1 if savings are calculated using a TRM protocol, zero otherwise
TRM Measure Number	TRMMEASURENUM	Text	Protocol in the 2016 PA TRM (e.g. Traffic Lights = 3.1.4). Null for non-TRM measures
Quantity	QTY	Numeric	Number of units installed or rebated
Quantity Units	QTYUNIT	Text	Description of the unit of measurement for the QTY field (lamps, tons, square feet, etc.)
Installation Date	INSTALLDATE	MM/DD/YYYY	When the measure was installed and commercially operable
Recorded Date	RECORDDATE	MM/DD/YYYY	Date the savings were recorded in the system of record
Rebate Paid Date	REBATEDATE	MM/DD/YYYY	When the rebate check was issued to the participant
Reported Energy Savings	REPORTEDKWH	Numeric	Total reported energy savings for the measure (equal to per-unit savings multiplied by # units)
Reported Demand Savings	REPORTEDKW	Numeric	Total reported peak demand savings for measure
Rebate Amount	REBATEAMOUNT	Numeric	Total incentive payment associated with measure

5.2. Project Management Tracking Systems:

- 5.2.1. Provide brief overview of the data tracking system for managing and reporting measure, project, program and portfolio activities, status and performance as well as EDC and CSP performance and expenditures.

Duquesne Light has designed, developed, and updated a PMRS for tracking, managing and reporting measure, project, program and portfolio activities. The PMRS supports and facilitates program operation, management and reporting for use by program managers and sub-segment program managers. PMRS serves three primary purposes:

- 1) Enable CSPs and internal management to create and/or upload program activities
- 2) Provide the capability to review and approve activities
- 3) Provide comprehensive reporting to support Duquesne Light's internal and Commission reporting requirements, described above.

5.2.2. Describe the software format, data exchange format, and database structure you will use for tracking participant and savings data. Provide examples of data fields captured.

PMRS is a system using a web front-end which stores data in the back end via a relational MS SQL Server database engine. Duquesne Light customer information is captured via web service calls to Duquesne Light's customer care and billing system. Once a customer's data is captured in PMRS the data is managed within that system. The database is populated by uploading the measures and financial flat files from SSPMs/CSPs. The system accepts measure and financial files in "flat file" format, such as comma separated values ("CSV") files, or in structured formats like JSON or Excel. The PMRS reads and extracts the data from these files and stores the values in the PMRS database. There are currently more than 350 unique data elements within the database; this number has increased over time in order to capture additional customer-, measure-, and project-level attributes to meet program delivery needs, SWE reporting requests and functional changes needed for Phase IV. PMRS uses a custom reporting engine to produce reports from the database. Reports and supporting data for Commission review and audit are provided in hard copy as well as published for download through SharePoint and/or the system's reporting interface. Duquesne Light is updating its current PMRS based upon input from external and internal users and its current EM&V contractor. The updated system will modernize the user interface, improve upon the original functionality, and offer enhanced security measures to protect customer data.

5.2.3. Describe how CSPs will integrate with the tracking system and the procedures to ensure the upload and exchange of data from CSPs to the EDCs is sound.

SWE members have the opportunity for real-time, on-line access to Duquesne Light's PMRS where they can view program- and measure-level reports. Data elements tracked in PMRS address customer data, customer contact data, project and measure data; as well as financial rebate, CSP performance payment data, and measure/project (TRC) cost effectiveness screening. The following are illustrative screenshots of activity viewed from inside PMRS and SharePoint and are provided as an example of online project access:

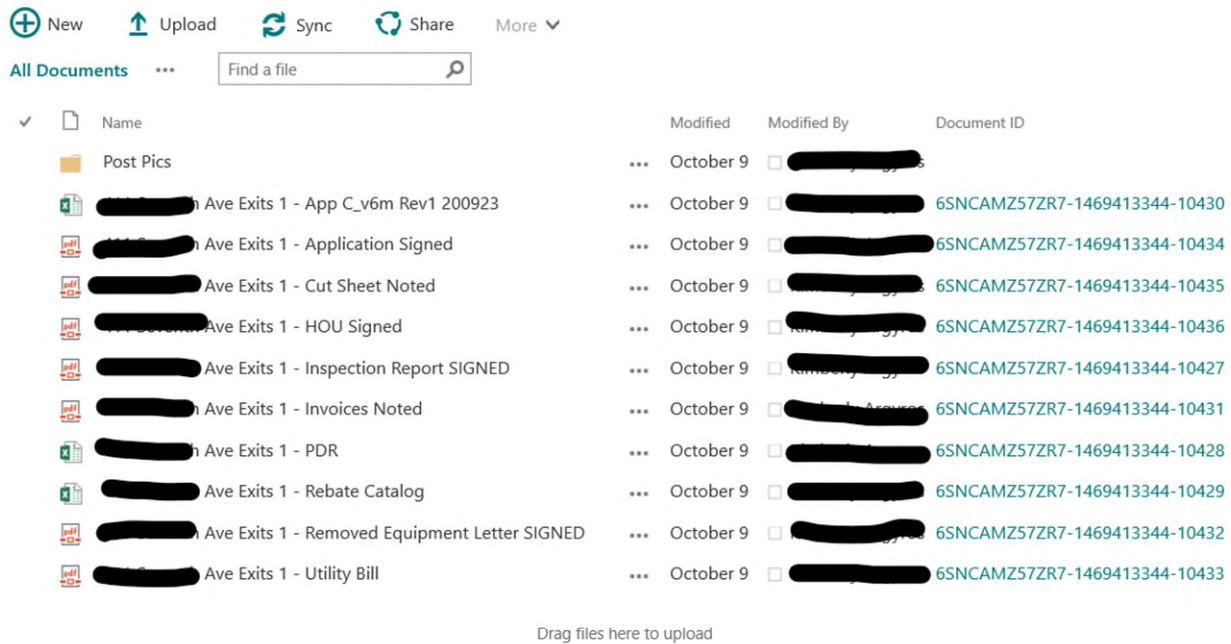
Figure 10: PMRS Screenshot - Project List View

PROJECT CODE	PROJECT COST	INCENTIVE ↓	CLAIM ID	CHECK NUMBERS	CHECK DATE
9673653063.57.01	\$156,720.18	\$141,048.16		783688	08/01/2019
0627651475.51.01	\$583,904.00	\$66,639.25		776002	06/28/2019
0679709097.51.01	\$690,000.00	\$51,450.26		776001	06/28/2019
2668559587.55.01	\$88,049.80	\$34,031.08		783707	08/01/2019
6957461035.51.01	\$43,533.01	\$31,731.01		787473	08/29/2019
8840240716.55.02	\$104,324.00	\$28,895.00		775961	06/28/2019
2602370454.53.01	\$46,128.50	\$26,938.00		783719	08/01/2019
2554550527.55.01	\$256,247.17	\$26,793.00		775965	06/28/2019

Figure 11: PMRS Screenshot – Program Summary Report

Program Name	Pending Projects					Completed Projects				
	(Project) Cost \$	Customer Incentives \$	Avoided Cost \$	kWh Savings	kW Reduction	(Project) Cost \$	Customer Incentives \$	Avoided Cost \$	kWh Savings	kW Reduction
Commercial Efficiency (Large Commercial)	\$138,746	\$80,973	\$1,142,236	1,625,111	110.7	\$12,626,177	\$2,883,987	\$34,160,069	47,962,660	6,497.7
Community Education	\$10,410	\$1,001	\$2,907	3,868	0.8	\$4,769,781	\$633,032	\$5,368,110	7,654,927	1,310.3
Customized Kit Programs	---	---	---	---	---	\$132,988	\$0	\$1,368,225	2,169,720	192.6
Demand Management Program	---	---	---	---	---	\$0	\$2,434,219	\$0	0	148,976.5
Express Efficiency (Small C&I)	\$71,148	\$18,976	\$239,801	337,687	85.6	\$9,728,665	\$2,206,076	\$24,476,120	35,688,659	5,303.2
Industrial Efficiency (Large Industrial)	\$1,556,677	\$260,151	\$2,635,330	4,276,202	80.3	\$9,253,615	\$3,151,875	\$46,172,463	66,689,384	8,004.9
LIEEP Low Income Residential	---	---	---	---	---	\$89	\$35	\$358	992	0.1
Large Nonresidential Upstream Lighting	---	---	---	---	---	\$580,383	\$473,736	\$0	6,393,220	1,152.7
Low Income Energy Efficiency Kits	---	---	---	---	---	\$227,505	\$0	\$2,433,833	3,829,017	302.6
Low Income Whole House Retrofit	---	---	---	---	---	\$1,697,453	\$12,770	\$1,581,463	3,628,617	388.3
Multifamily Housing Retrofit	---	---	---	---	---	\$3,466,821	\$1,003,427	\$2,685,407	4,036,947	369.8
Public Agency Partnership Program	---	---	---	---	---	\$14,680,637	\$3,164,786	\$29,788,302	42,744,859	6,049.3
REEP Residential Energy Efficiency	---	---	---	---	---	\$55,752,503	\$5,463,716	\$16,802,703	123,390,263	13,668.7
RRP Refrigerator Recycling	---	---	---	---	---	\$1,456,216	\$324,345	\$4,478,315	9,432,251	1,055.5
Small Commercial Direct Install	---	---	---	---	---	\$1,998,637	\$0	\$6,374,517	10,934,458	1,360.3
Small Nonresidential Upstream Lighting	---	---	---	---	---	\$753,807	\$613,540	\$0	8,305,119	1,449.8
Whole House Retrofit	---	---	---	---	---	\$11,148	\$1,657	\$87,030	134,179	14.3
Grand Total	\$1,776,981	\$361,100	\$4,020,275	6,242,868	277.4	\$117,136,425	\$22,367,200	\$175,776,914	372,995,272	196,096.6

Figure 12: SharePoint Screenshot – Project Support Files



5.2.4. Indicate that the EDC will fulfill all quarterly and annual data requests issued by the Commission and its statewide evaluator. Describe the level of access and mechanism for access for Commission and statewide evaluator.

Duquesne Light will fulfill all quarterly and annual data requests issued by the Commission and its statewide evaluator. Measure-level project data will be available on-demand through the PMRS reporting interface. Additional project supporting documentation will be supplied on request through a secure file exchange mechanism (SharePoint). The reporting tool can provide specialized reports if requested by SWE or the Commission’s Bureau of Technical Utility Services (“TUS”) once the phase begins. Access to SharePoint and reporting tool can be provided to TUS and SWE as requested.

6. Quality Assurance and Evaluation, Measurement and Verification

(Objective of this section is to provide detailed description of how the EDC's quality assurance/quality control, verification and internal evaluation process will be conducted and how this will integrate with the statewide evaluation activities)

6.1. Quality Assurance/Quality Control:

6.1.1. Describe overall approach to quality assurance and quality control.

EE&C program QA/QC is incorporated into program planning and implementation as described below:

Program Planning: Program target markets and measure content are based on an energy efficiency potential forecast that is a systematic and comprehensive inventory of regional efficiency gain opportunities. Program approaches to deliver identified energy efficiency services are developed using benchmarked program approaches and best practices, tailored to Duquesne Light regional needs and opportunities.

Program Implementation: All CSPs under contract to implement Duquesne Light energy efficiency programs are required by contract statements of work to provide a Program Management Plan ("PMP"). The PMP presents the program rationale, assumptions, approach, processes, and other key material in an integrated form. Duquesne Light staff will monitor the PMP as well as the KPI to hold the CSPs accountable for delivery.

The PMP addresses the following key sections:

- Program overview and assumptions
- Program policies and procedures
- Production plan
- Marketing plan
- Technical specifications
- Performance metrics and reporting
- Quality assurance plan
- Data management plan
- Invoice and measure reporting tools
- Appendices:
 - Program forms
 - Marketing materials
 - Subcontractor contracts

- 6.1.2. Describe procedures for measure and project installation verification, quality assurance and control, and savings documentation.

Procedures for Project Review, Approval and Processing

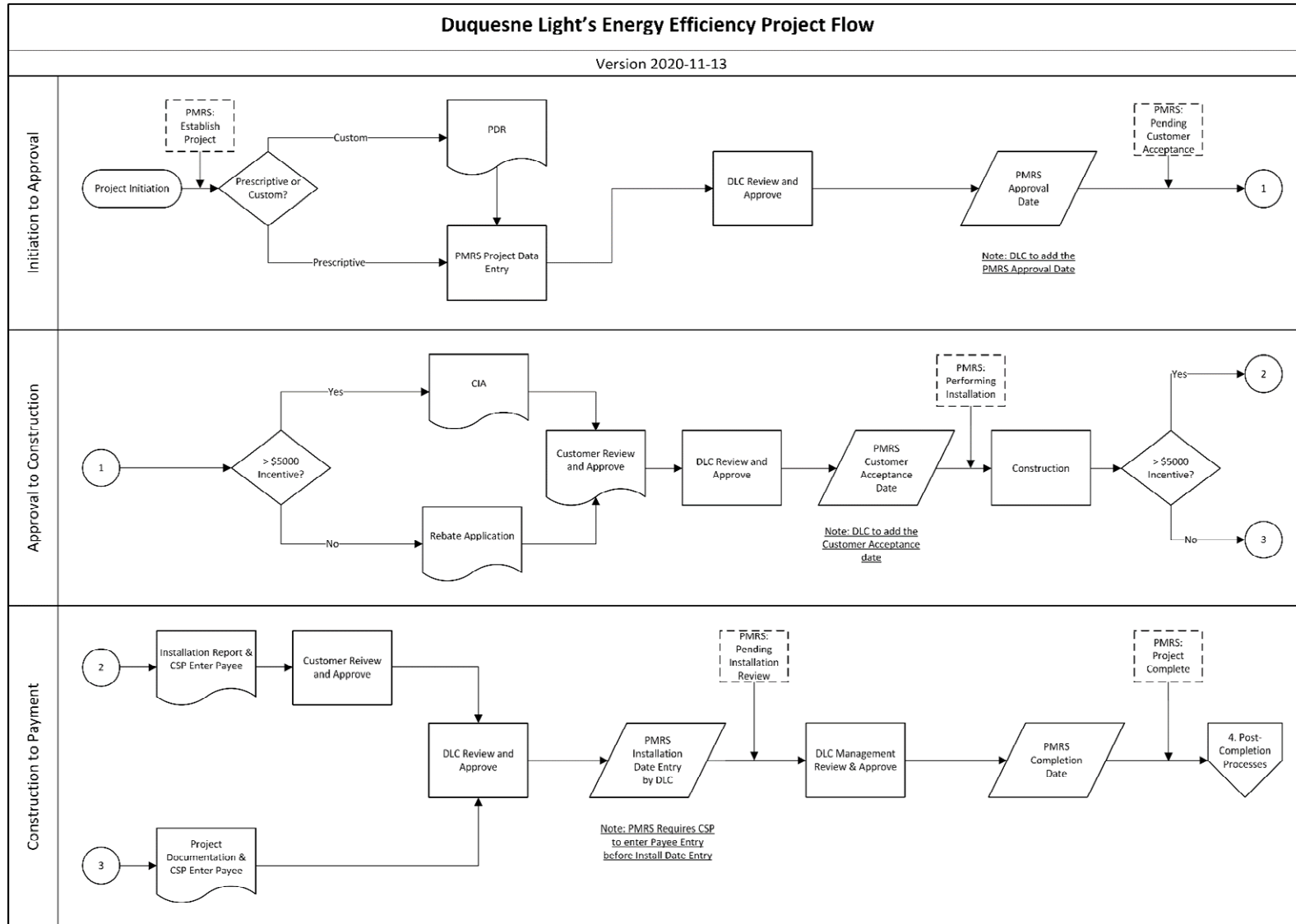
Procedures are in place to ensure prospective projects receive appropriate and consistent review prior to approval and incentive payment processing.

Residential incentive application processing is accomplished by a fulfillment contractor or a contracted CSP. This is comprised of verification to ensure the customer is a Duquesne Light customer, the product information is correct, and the product is eligible under the program to receive incentives; and that invoices corroborate product identification and are dated within the eligible program period.

Commercial and industrial (C&I) project and customer incentive processing varies depending upon the type and size of the project. Project development, review and approval processes are show below in the project review flow chart built upon the following three project phases:

- Initiation to Approval: Projects are established in PMRS. If the prospective project is a custom measure project, a Project Description Report (PDR) is required. If the project is approved for advancing, Duquesne Light approves the project in PMRS, and the project is advanced to the participating customer for acceptance.
- Approval to Construction: Depending upon project type (prescriptive or custom) and amount of the incentive payment a Customer Incentive Agreement (CIA) or Rebate Application is required. A CIA or Rebate Application is presented to the customer for approval. Duquesne Light or contracted CSP reviews and confirms customer acceptance and enters the Customer Acceptance Date into PMRS. The project is advanced in PMRS to “Performing Installation.”
- Construction to Payment: If the incentive amount is greater than \$5000, an installation report, customer review and approval is required; otherwise, project documentation is advanced to Duquesne Light and payee information is populated in PMRS. Duquesne Light reviews for approval submitted Installation Reports and other project documentation. Pending successful management review, the completion date is entered into PMRS and the customer incentive payment is prepared.

Figure 13: Project Review Process



Duquesne Light reviews project file content for completeness and accuracy. If the project is composed of prescriptive measures, savings calculations are verified to be consistent with current TRM requirements. If the project is comprised of custom measures, the project file is reviewed to ensure a measurement and verification plan has been developed and followed through project prosecution, and; the project file contains all applicable engineering reports, measurement and cost documentation. The following is a working document used in reviewing project file content:

Figure 14: Project File Review List

PROJECT FILE REVIEW LIST

Program Name:

Project No:

One of the following are required from each section below (varies by implementer and project scope):

Customer Enrollment

- Rebate Application
- Customer Incentive Agreement
- Customer Signed Project Package
- Memorandum of Understanding

Project Definition

- Project Description
- Electric bills/Audit Report/Studies
- Equipment Inventory (baseline)
- Equipment Inventory (retrofit)
- Savings calculations (Appendix C or Appendix D)
- Cost Estimates
- TRC Screening

Installation Report

- Site inspection documentation (reports/pictures)
- Cost documentation (invoices/purchase orders/supplier quotations)
- Specification sheets
- Other (Vendor provided installation verification)

Measurement & Verification

- PATRMA Algorithms & Inputs
- Pre- and Post-measurement
- Calibrated Simulation
- HOU
(Measure Specific)

Memorandum & Correspondence

Notes:

Evaluation Measurement and Verification: Projects and measure reported savings are verified pursuant to the Duquesne Light Evaluation Measurement and Verification (EM&V) Plan. The EM&V Plan ensures customer projects are verified according to a consistent and systematic process that is consistent with the Statewide Evaluator's (SWE) Audit Plan and Evaluator's Framework for Pennsylvania Act 129 Energy Efficiency and Conservation Programs (Audit Plan). The Duquesne Light EM&V Plan specifies sample plans as well as applicable verification rigor consistent with the Audit Plan and is vetted with, and approved by the SWE.

6.1.3. Describe process for collecting and addressing participating customer, contractor and trade ally feedback (e.g., suggestions and complaints).

All CSPs under contract to implement Duquesne Light energy efficiency programs are required by contract statements of work to perform customer feedback surveys. The CSP contracts will be submitted to and approved by the Commission. For contractor implemented programs, customers are provided Duquesne Light direct contact information along with an open solicitation for feedback and comments.

Trade association engagement and leveraging that association is as element utilized by Duquesne Light for ranking CSP proposals to provide EE&C services to specific market segments. Active and direct engagement of customers, contractors and trade associations has and will continue to characterize Duquesne Light's EE&C program planning and implementation.

6.1.4. Describe any planned market and process evaluations and how results will be used to improve programs.

Process evaluation methods, research objectives, timing and frequency, quality control and evaluation components are provided under Section 3 of Duquesne Light's Phase III SWE approved EM&V Plan. The primary research issues center around assessing program design and operation. Specific researchable issues are briefly listed below:

- Document and review program operations (e.g. Program Management Plans) to provide baseline description of program operations and management to compare design and operational practices with the program theory.
- Design and utilize interview and survey techniques to describe and assess program operations, which can be compared to original design intent, and to measure participant satisfaction and program performance, which can be analyzed to identify gaps between program goals and results.
- Identify and recommend changes in a program's operational procedures or systems that can be expected to improve the program's efficiency or cost-effectiveness

Process evaluation content is incorporated into impact evaluation research activities; therefore, it is conducted in the same frequency and timing as impact evaluation activities. The results of process evaluations are communicated with program planning and implementation team members on a semiannual basis.

6.1.5. Describe strategy for coordinating with the EM&V contractor and statewide evaluator.

As in prior Phases, Duquesne Light will continue periodic SWE conference calls, participation in scheduled Program Evaluation Group meetings, response to data requests and providing SWE pre-defined semiannual and annual program reporting. In addition, biweekly calls with the EM&V contractor occur for coordination.

7. Cost-Recovery Mechanism

(Objective of this section is to provide detailed description and estimated values for cost recovery mechanism.)

7.1. Provide the amount of total annual revenues as of December 31, 2006 and provide a calculation of the total allowable EE&C costs based on 2% of that annual revenue amount.⁵²

Figure 15: Total Revenues

	2006 Total	2% of Total
DLC Revenue	\$723,299,451	\$14,465,989
EGS G&T	\$253,998,128	\$5,079,963
Act 129 Annual Budget		\$19,545,952

7.2. Description of plan in accordance with 66 Pa. C.S. §§ 1307 and 2806.1 to fund the energy efficiency and conservation measures, to include administrative costs.

The Act allows all EDCs to recover on a full and current basis from customers, through a reconcilable adjustment clause under 66 Pa. C.S. § 1307, all reasonable and prudent costs incurred in the provision or management of its plan. The Act also requires that each EDC's plan include a proposed cost-recovery tariff mechanism, in accordance with 66 Pa. C.S. § 1307 to fund all measures and to ensure full and current recovery of prudent and reasonable costs, including administrative costs, as approved by the Commission. To that end, Duquesne Light has designed a surcharge and reconciliation mechanism for all customer segments. The surcharge has been designed in a manner that recovers costs of the programs from the customers who have an opportunity to participate in and receive the benefits of those programs.

7.3. Provide data tables (see Tables 10, 11 and 12).

See Section 11 for Tables 6A, 6B, and 6C.

7.4. Provide and describe tariffs and a Section 1307 cost recovery mechanism, pursuant to the requirements of the June 18, 2020 Implementation Order at 141, that will be specific to Phase IV Program costs. Provide all calculations and supporting cost documentation.

In compliance with the Phase IV Implementation Order, the Company will combine the Phase III and Phase IV surcharges into a single surcharge and tariff. Order page 142. The Company proposes to revise the Phase III Rider No. 15a, "Energy Efficiency and Conservation," to its tariff. The tariff sets forth the monthly surcharge rates by customer class to recover the program

⁵² See also Commissioner Pizzingrilli's January 15, 2009 Motion at Docket no. M-2008-2069887, allowing Duquesne Light to include the EGS G & T.

budgets. Since the proposed cost recovery method is different for residential, small/medium C&I and large C&I customer classes, a formula and description of the formula is defined for each customer class surcharge. Four surcharges are defined to recover costs as reasonably close as possible for each customer class and segment within the class, i.e. commercial or industrial customers. The formulas are in accordance with the provisions of a Section 1307 cost recovery surcharge and include reconciliation of over or under collections. Duquesne will not impose any interest on over or under collections, per the Commission's Phase IV Implementation Order at 141.

7.5. Describe how the cost recovery mechanism will ensure that measures approved are financed by the same customer class that will receive the direct energy and conservation benefits.

The Company proposes to implement four surcharges to recover costs as close as reasonably possible to the customer class receiving the benefit. The costs are first defined for the three specific customer classes – residential, commercial and industrial. Commercial and Industrial (“C&I”) customers were separated into small and medium C&I and large C&I customer segments because of the diversity in the size of C&I customers in the Company's service territory to allow for more reasonable cost recovery. Small and medium C&I customers are those customers with monthly metered billing demand 300 kW and less. Large C&I customers are those customers with monthly billing metered demand greater than 300 kW. This segmentation of customers is appropriate because it aligns programs and program costs with the current tariffed rates for distribution service. C&I program costs were then assigned for recovery first based on program description (e.g. Large C&I). Duquesne adopted the use of the Peak Load Contribution demand measure in the application of its cost recovery mechanism for Large C&I customers. The tariff modification for the Phase I Plan was filed with the Commission on November 9, 2009 and was approved by a Secretarial Letter issued on November 24, 2009, at Docket No. M-2009-2093217. The Commission proposed a modification to the Large Commercial Surcharge and the Large Industrial Surcharge in an Opinion and Order dated February 2, 2010, at Docket No. M-2009-2093217. As a result of this modification, Duquesne Light implemented the rate design using a fixed customer charge to recover the administrative costs and a demand charge, using Peak Load Contribution, to recover the incentive costs for Large Commercial and Large Industrial customers. Duquesne filed a revised tariff supplement on February 22, 2010 which became effective April 1, 2010. The fixed customer charge component of the surcharge and the demand charge component of the surcharge are set forth as two separate line item charges on the customer bill. Duquesne Light used this same surcharge structure in Phases II and III and will continue this same surcharge structure in Phase IV.

7.6. Describe how Phase IV costs will be accounted for separate from costs incurred in prior phases.

Phase I Plan costs were recovered and reconciled in December 2014 at which time the Phase I surcharge in Rider No. 15 of the tariff was set to zero. Phase II Plan costs were recovered and reconciled through May 31, 2016, when the Phase II Plan ended. The Phase III Plan will end May 31, 2021. The Company will transition from the Phase III cost recovery methodology to the Phase IV cost recovery methodology in compliance with the Phase IV Implementation Order (Order page 142). By April 30, 2021, The Company will submit a 1307e reconciliation of actual Phase III expenses incurred with actual Phase III surcharge revenue received for the 12 months

ending March 31, 2021. The net over- or under-recovered amount shall be reflected as a separate line item, without interest, as an e-factor adjustment of the EEC Phase IV rates effective June 1, 2021. In addition, as a separate line item, the Phase IV rates effective June 1, 2021, shall include projections of the: expenses to finalize any Phase III measures installed and commercially operable on or before May 31, 2021; expenses to finalize any contracts; and other Phase III administrative obligations. The reconciliation of actual Phase III expenses with actual EEC Phase III surcharge revenue for April and May 2021 shall be reconciled with EEC Phase IV revenue and expense for the 12 months ending March 31, 2022. Thereafter, the Company will reconcile actual Phase IV expenses incurred with actual Phase IV surcharge revenue received for the 12 months ending March 31 of each year for the term of the Phase IV Plan.

All costs associated with the Phase IV Plan will be identified and tracked in PMRS. On or about May 1 of each year, the Company will file with the Commission its proposed Phase IV surcharge rates effective June 1 of that year. The proposed Phase IV surcharge rates will be designed to recover the projected program costs for upcoming Plan year and include a provision for the net over- or under- collection for the previous Plan year.

7.7. Describe how proceeds from PJM FCM participation will be incorporated into the cost recovery mechanism.

The Company is proposing to create separate PJM billing subaccounts for each applicable EEC customer class (i.e. residential, small and medium commercial & industrial, large commercial, and large industrial). Individual PJM billing subaccounts will help ensure that resources that clear in the PJM FCM are bifurcated and tracked separately so that any applicable proceeds and/or penalties are captured by the relevant customer class.

For transparency purposes, the Company is proposing to modify its 1307(e) reconciliation statement to clearly identify PJM FCM proceeds as cost reductions and PJM FCM penalties as cost increases. The Company proposes to reflect the PJM FCM proceeds and/or penalties as a customer class expense adjustment in the over or under collection calculation with the 1307(e) reconciliation.

8. Cost Effectiveness

(Objective of this section is to provide detailed description of the cost-effectiveness criteria and analyses. It can refer to appendices with program data.)

8.1. Provide in table format the values contained in the Outputs tab of the Avoided Cost Calculator.⁵³ Additionally, a completed copy of the Avoided Cost Calculator should be provided with the filing. Discuss any sensitivities or key considerations associated with the forecast of avoided costs.

See Figure 16 and Attachment A. There are no sensitivities or key considerations to discuss.

Confirm use of a 3% real discount rate (5% nominal discount rate) called for in the 2021 TRC Order.⁵⁴

A 5% nominal discount rate was used in Attachment A, Avoided Cost Calculator, in the general input tab.

8.2. Explain and demonstrate how the proposed plan will be cost effective as defined by the Total Resource Cost Test (TRC) specified by the Commission.⁵⁵

Avoided electric energy and capacity costs are used for the purposes of determining the Phase IV EE&C Plan cost-effectiveness and are developed in compliance with the Commission's 2021 TRC Order⁵⁶. Duquesne Light developed the data inputs to support the avoided costs analysis and implemented the inputs in the Avoided Cost Calculator (ACC) as prescribed by the order and provided by the SWE. The following methodology was used to calculate energy and capacity price inputs to determine avoided costs:

Energy Prices: Forecast energy prices are provided for 20 years, in three multi-year periods consistent with the applicable TRC orders. Energy prices for each of the calendar years 2021-2025 were calculated using futures prices quoted by the New York Mercantile Exchange ("NYMEX") on the last trading day of the prompt month 3 months prior to the EE&C plan filing date. Prices for Real Time LMP Western Hub Futures contracts on July 31, 2020 are utilized in the ACC tool.⁵⁷ There are no traded futures contracts for the Duquesne Light Locational Marginal Pricing (LMP) zone, so costs are based on PJM Western Hub futures prices with an adjustment to the DLC zone based on the PJM State of the market report for 2017/2018 for annual cost differences between Western Hub and the DLC zone. Prices are separated into

⁵³ Available at

http://www.puc.state.pa.us/filing_resources/issues_laws_regulations/act_129_information/total_resource_cost_test.a_spx

⁵⁴ See 2021 Total Resource Cost (TRC) Test Order, at Docket No. M-2019-3006868, entered December 19, 2019 at 21.

⁵⁵ *Id.* at 17.

⁵⁶ See *id.*

⁵⁷ CME NYMEX Data https://www.cmegroup.com/trading/energy/electricity/pjm-western-hub-peak-calendar-month-real-time-lmp_quotes_settlements_futures.html

Summer and Winter months and an average was calculated for the planning year (July – June, futures contract periods).

For calendar years 2026-2032, natural gas futures prices were used by applying the heat rates provided in the ACC for on peak of 11,176 BTU/kWh and for off peak of 7,649 BTU/kWh to the applicable the natural gas price. Gas prices are a blend of prices quoted from Henry Hub futures prices from CME Group based on the last trading date of the prompt month 3 months prior to the EE&C filing date and natural gas prices published in the EIA 2020 AEO. Prices in this filing are from 7/31/2020. The blended price phases in the EIA prices over a 7-year period with greater weight applied to the EIA price each year. Basis differentials were added to the gas price based on the average Tetco-M3 basis swap to Henry Hub futures as provide by the Intercontinental Exchange⁵⁸. Prices are separated into Summer and Winter months and an average was calculated for the planning year (July – June, futures contract periods).

Energy prices for calendar years 2033-2042 utilized EIA's Annual Energy Outlook 2020 forecast price for generation for the MAAC region.⁵⁹

Capacity Prices: Capacity (generation) prices are based on the PJM Reliability Pricing Model (RPM) Base Residual Auction results for the Duquesne Light Zone for planning periods from an average of the 2019/2020, 2020/2021 and 2021/2022 adjusted net zonal load price. The last planning period result was escalated through 2042 using the inflation rate of 2% as provided in the tool.⁶⁰

⁵⁸ TETCO M-3 basis data available at <https://www.theice.com/marketdata>

⁵⁹ Source: EIA AEO 2020 Support Table 3

⁶⁰ Ibid

Figure 16: Duquesne Light Act 129 EE&C Plan Phase IV Avoided Costs

PA ACT 129 Program Year	Year	DLC Zone Summer On-Peak (\$/MWh)	DLC Zone Summer Off-Peak (\$/MWh)	DLC Zone Winter On-Peak (\$/MWh)	DLC Zone Winter Off-Peak (\$/MWh)	DLC Zone Shoulder On-Peak (\$/MWh)	DLC 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	\$32.09	\$22.24	\$41.63	\$33.74	\$31.39	\$24.29	\$53.13	\$31.27	\$16.29	\$2.70	Segment 1
14	2023	\$31.74	\$22.20	\$41.45	\$33.24	\$31.27	\$24.19	\$40.16	\$31.90	\$16.62	\$2.65	
15	2024	\$32.09	\$22.66	\$41.64	\$34.00	\$31.41	\$24.70	\$40.96	\$32.53	\$16.95	\$2.68	
16	2025	\$33.56	\$22.75	\$38.39	\$35.75	\$33.22	\$24.74	\$41.78	\$33.18	\$17.29	\$2.75	
17	2026	\$34.91	\$24.29	\$45.07	\$36.32	\$34.06	\$26.34	\$42.62	\$33.85	\$17.63	\$2.92	
18	2027	\$36.35	\$25.29	\$48.16	\$38.55	\$35.76	\$27.56	\$43.47	\$34.52	\$17.99	\$3.08	Segment 2
19	2028	\$38.15	\$26.53	\$51.50	\$40.94	\$37.78	\$29.01	\$44.34	\$35.22	\$18.35	\$3.28	
20	2029	\$40.03	\$27.83	\$54.57	\$43.16	\$39.78	\$30.44	\$45.23	\$35.92	\$18.71	\$3.47	
21	2030	\$41.46	\$28.81	\$57.19	\$45.07	\$41.42	\$31.62	\$46.13	\$36.64	\$19.09	\$3.62	
22	2031	\$43.29	\$30.07	\$60.35	\$47.35	\$43.38	\$33.03	\$47.05	\$37.37	\$19.47	\$3.81	
23	2032	\$45.53	\$31.62	\$65.03	\$50.45	\$45.86	\$34.80	\$47.99	\$38.12	\$19.86	\$4.05	Segment 3
24	2033	\$47.20	\$32.77	\$68.27	\$52.56	\$47.65	\$36.09	\$48.95	\$38.88	\$20.25	\$4.22	
25	2034	\$48.77	\$33.85	\$71.27	\$54.51	\$49.33	\$37.31	\$49.93	\$39.66	\$20.66	\$4.38	
26	2035	\$49.19	\$34.15	\$71.84	\$54.80	\$49.68	\$37.62	\$50.93	\$40.45	\$21.07	\$4.40	
27	2036	\$49.72	\$34.52	\$72.61	\$55.22	\$50.14	\$38.01	\$51.95	\$41.26	\$21.49	\$4.44	
28	2037	\$50.98	\$35.40	\$74.93	\$56.72	\$51.46	\$38.98	\$52.99	\$42.09	\$21.92	\$4.56	
29	2038	\$52.11	\$36.17	\$76.94	\$58.00	\$52.61	\$39.84	\$54.05	\$42.93	\$22.36	\$4.66	
30	2039	\$53.01	\$36.80	\$78.47	\$58.95	\$53.50	\$40.53	\$55.13	\$43.79	\$22.81	\$4.74	
31	2040	\$54.24	\$37.65	\$80.68	\$60.37	\$54.76	\$41.48	\$56.23	\$44.66	\$23.27	\$4.85	
32	2041	\$55.50	\$38.53	\$82.94	\$61.83	\$56.06	\$42.44	\$57.36	\$45.55	\$23.73	\$4.97	

Avoided costs are applied at the measure level and are based upon individual measure estimated useful life (EUL) and energy savings time-of-use and seasonal profiles. Measure EULs are taken from the 2021 TRM. Measure energy savings profiles were taken from the 2021 TRM, when available; referenced to other industry sources, or developed from annual hourly savings profiles aggregated into time-of-use periods announced in 2021 TRM. Life-cycle measure avoided cost “streams” are brought to present value by applying a 6.9% discount rate and are the basis of program benefits quantified in this Plan.

Assessment of measure, project, program and ultimately portfolio cost-effectiveness requires development of both benefits (described above) and costs. The Total Resource Cost (TRC) test used to determine cost-effectiveness incorporates utility program implementation or administration costs, as well as measure costs. Projected administration costs are provided in Tables 1, 6A, 6B, and, 6C; measure costs are included in TRC summarized in Tables 7A through 7E. Consistent with the TRC Order, measure costs are either referenced to the California Database of Energy Efficient Resources (DEER), the SWE incremental cost database, or identified measure cost studies.⁶¹ These costs are reported on an annual basis in compliance with SWE prescribed EDC annual reporting requirements.

8.3. Provide TRC data tables on a gross and net TRC basis.

See Section 11, Table 13.

⁶¹ Ibid.

9. Plan Compliance Information and Other Key Issues

(The objective of this section is to have specific areas in EE&C plan where the Commission can review miscellaneous compliance items required in legislation and address key issues in EE&C plan, portfolio, and program design.)

9.1. Plan Compliance Issues.⁶²

9.1.1. Describe how the plan provides a variety of energy efficiency and conservation measures and will provide the measures equitably to all classes of customers in accordance with the June 18, 2020 Implementation Order.

EE&C Plan savings projections for each sector proportionally aligned with Pennsylvania Act 129 - Phase IV Energy Efficiency and Peak Demand Reduction Market Potential Study Report Table 11 at page 26. The forecast values themselves were changed to match the amount in the Commission's Phase IV mandate. The potential study at page 26 totaled 340,000 MWh and the Commission target is 348,126 MWh. The EE&C Plan forecast measure detail is directly linked to CSP response to competitive solicitations, issued by Duquesne Light, for the design and implementation of the programs presented in this Plan. Accordingly, the measure mix was taken from proposals selected based on CSP expertise and innovation. Phase IV Plan measures (See Section 11, Table 7) were reconciled with content of the 2021 Technical Reference Manual (TRM) and information provided in the SWE saturation studies and potential forecast.⁶³

Residential sector programs retain the successful downstream and upstream rebate offerings. The Commercial and Industrial portfolios retain proven customer market segment engagement channels. The Small Commercial Direct-Install Program and Multifamily Housing Retrofit Program were both successful in Phase II and are continued in Phase IV. Such programs demonstrate Duquesne Light's commitment to providing comprehensive measures to under-served market segments.

Program goal allocation and associated program budgets were adjusted to accommodate the Commission's Implementation Order, which required segment carve-out for the low income residential segment. Reporting requirements will be met along with specified program comprehensiveness requirements.⁶⁴ Goal allocation for the remaining customer segments was based on segment energy use, previous delivery channel strengths and weaknesses, as well as requirements to achieve mandated reductions at authorized budgets.

9.1.2. Provide a statement delineating the manner in which the EE&C plan will achieve the requirements of the program under 66 Pa. C.S. §§ 2806.1(c) & (d).

⁶² These sub-sections may reference other chapters of the plan as they may restate what was included elsewhere in the plan and are collected here only for convenience of review.

⁶³ Ibid

⁶⁴ Ibid.

The following table shows the projected cumulative portfolio and program reductions in consumption (energy) and peak period demand reduction estimated for the program year ending May 31, 2026:

Figure 17: Cumulative Portfolio and Program Reductions in Consumption

Residential Programs	Savings	Savings
	kWh	kW
Appliance Recycling	8,447,770	1,210
Downstream Incentives	23,698,780	2,595
Midstream Incentives	596,319	127
Upstream Incentives	13,605,083	1,426
Low Income Energy Efficiency	21,386,149	2,494
Residential Behavioral Energy Efficiency	49,700,000	6,740
Low Income Behavioral Efficiency	7,500,000	1,017
Total	124,934,102	15,609

Small C&I	Savings	Savings
	kWh	kW
Small Business Direct Install	23,133,399	4,475
Small Business Solutions	50,212,478	8,590
Small Business Midstream Solutions	27,491,056	6,756
Small Business Virtual Commissioning	6,053,739	2,228
Total	106,890,672	22,049

Large Commercial	Savings	Savings
	kWh	kW
Large Business Solutions	83,696,145	15,377
Large Business Midstream Solutions	17,300,344	4,783
Large Business Virtual Commissioning	2,756,458	1,014
Total	103,752,946	21,174

Large Industrial	Savings	Savings
	kWh	kW
Large Business Solutions	38,846,312	7,137
Large Business Midstream Solutions	8,029,695	2,220
Large Business Virtual Commissioning	1,279,369	471
Total	48,155,376	9,828

Grand Total	383,733,096	68,660
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- 9.1.3. Provide a statement delineating the manner in which the EE&C plan will achieve the Low-Income requirements prescribed in the June 18, 2020 Implementation Order.

Additionally, describe any EDC plans to harmonize Act 129 program delivery with Low Income Usage Reduction Programs and other external energy efficiency, conservation, and healthy housing programs (such as the Weatherization Assistance Program).

Consistent with Act 129 and the Commission’s Implementation Order, Duquesne Light’s Phase IV EE&C Plan contains two provisions to provide EE&C Plan services to households at or below 150% of the federal poverty income guidelines. These provisions are: 1) to obtain a minimum of 5.3% of the total EE&C Plan consumption reduction requirements, and 2) the 5.3% low income mandate must be achieved by programs that ONLY serve low income populations. The EE&C Plan is constructed to comply with the Commission’s requirements to omit programs capable of serving both income qualifying and non-income qualifying participants.

Duquesne Light plans to continue to utilize the same partner to administer both the Act 129 Low Income Energy Efficiency Program and Smart Comfort – Low Income Usage Reduction Program (LIURP). This has proven successful in Phase III. This practice ensures that low-income customers who need and want services are provided a seamless delivery of services. The Company will also continue to work closely with the local natural gas distribution companies, community based organizations, state weatherization agencies and other groups working to serve this group of hard to reach customers. The Company will continue to target those customers on the Customer Assistance Program (CAP) with high electric usage. The CAP representative will continue to refer all customers that enroll in CAP to the partner administering the Income Eligible programs offered within both ACT 129 and LIURP. Lastly, the Company will continue to partner with the Income Eligible Advisory Group to gain insight from their expertise. This guidance will help ensure that all customers get the service they need.

The target savings for the Phase based upon the mandated target is shown in Figure 18.

Figure 18: LIEEP Projected Energy Savings

	May 31, 2026
	kWh
Mandated Reductions	348,126,000
Low Income Requirement	18,566,000
Percentage	5.3%

- 9.1.4. Describe how the EDC will ensure that no more than two percent of funds available to implement the plan shall be allocated for experimental equipment or devices.

Funds to reach the goals associated with the Act are limited, such that experimental equipment or devices have been planned in the program designs. It is as a line item in Table 10, designated “Pilot Program,” independent of any customer class. In the event that customized projects within the proposed portfolio of programs are developed for customers that include such experimental equipment or devices, or a pilot project becomes an effective implementation tool, funding will be tracked by customer class to ensure that no more than two percent of funds are available for such equipment. As this is a line item within Table 10, it is easy to see the amount available as well as the amount remaining to ensure that no more than 2% spending requirement is not exceeded.

- 9.1.5. Describe how the plan will be competitively neutral to all distribution customers even if they are receiving supply from an EGS.

The General Assembly intended Act 129 to be competitively neutral, and not disadvantage EDCs that had active retail electric markets. The Commission also notes that, in ascertaining legislative intent, the Commission is to presume that the General Assembly did not intend a result that was impossible to execute, unreasonable or unconstitutional.

Duquesne Light program designs for the customer segments, the implementation plans, and tracking mechanisms have been developed regardless of the generation supply for the individual customers. The Plan does not discriminate on the basis of generation supply nor does it provide additional opportunities based on the specifics of a customer’s generation supply.

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.

Previous sections of this plan describe in detail the specific manner in which the program is designed to address specific consumption profiles and respond to diverse customer needs. Since the early 1970s, utility-sponsored energy efficiency programs have developed and refined a series of approaches to effectively reduce energy consumption in the residential, commercial and industrial sectors. Critical elements to program success have been identified, tested, and replicated by utilities nationwide. All of the measures that make up the EE&C plan for Duquesne Light will draw upon the lessons learned in these other initiatives and will focus on reducing kWh and kW savings within each specific customer sector.

Duquesne Light believes that all residential approaches (mass market/rebates, home energy reports and whole home performance/retrofits) are appropriately focused on achieving long-term, sustainable energy efficiency savings. Likewise, programs focused on producing kWh and kW savings in the commercial sector will primarily achieve reductions through rebates and or other identified funding sources, education and upstream partnerships, and direct installation of measures in customer facilities. Programs serving the industrial sector will

focus on producing kWh and kW savings through rebates and or other identified funding sources through incentives and upstream partnerships. Because the funding levels for each specific measure are evaluated on the level of savings that can be reasonably achieved over the useful life of the measure, the applicable screening methods strongly favor funding measures that provide longer-term savings.

The Plan will facilitate the selection and installation of energy efficient equipment, foster construction of energy efficient structures, and encourage and reward energy efficient behaviors.

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.

Where funds are available to customers directly, the company will communicate the availability of other resources as part of the information it provides concerning its own program measures, and will facilitate customers qualifying for such funds, to the extent practicable. Finally, where other incentives are available to customers (such as tax deductions or credits), the company will provide customers with relevant information.

The multi-family housing audit/retrofit program provides services that include the administration of energy efficiency audits, technical assistance for measure level project review and bundling, property aggregation, contractor negotiation and equipment bulk purchasing. Additionally, funding sources will be integrated to include program and agency co-funding, performance contracting, grant funding and available financing options. Services also include processing rebate applications and other funding source documentary requirements.

9.2.3. Describe how the EDC will address consumer education for its programs.

Effective customer education is essential to successfully implementing this initiative. Indeed, comprehensive consumer marketing campaigns will generate increased understanding of energy efficiency benefits and demand for energy efficiency measures. Duquesne's customers are diverse. Because the available measures range from simple to comprehensive, no single means of customer communication is likely to succeed in isolation. The benefits of some measures (for instance, consumer-installed efficient lighting) are easily communicated and easily achieved by customers. Benefits of some other measures (for instance, the life-cycle benefits of industrial process measures) are considerably more complex to calculate and installation requires involvement of highly skilled contractors or vendors. Moreover, sustainable energy savings ultimately are best optimized by combining state-of-the-art equipment and materials with modified personal behaviors. Consequently, Duquesne Light will use an extensive combination of means to ensure that appropriate customer education is achieved.

At the threshold level, customer education begins by raising general awareness of energy efficiency. Duquesne Light believes that this threshold goal is best accomplished by repeatedly exposing its customers to short, positive messages that emphasize the general

benefits of embracing energy efficiency. The second step involves contemporaneously communicating the array of measures that are available to customers, coupled with messages encouraging customer participation. These customer education initiatives are best accomplished through repeated communications in mass media as well as through existing channels of customer contacts, such as billing messages, bill inserts, messages on hold, and other existing customer communications.

All communications designed to raise awareness and encourage participation should also provide a means for customers to learn more. As the assortment of available measures and the benefits of customer participation are effectively communicated, customers will want to learn more. A primary method of communicating the program details is interactive web-based communications. Websites offer one of the most cost-effective means of communicating the details in a manner that is easily accessible to a substantial portion of the customer base. In addition to the cost advantage, web-based information is easily updated, and can provide links to extensive existing information. Because a portion of customers are not web-active, printed materials will also be available to customers who request more information.

The School Energy Pledge (SEP) program, which ran in Phase I and Phase II, provided information about energy efficiency at school assemblies and classroom curricula linked to state curriculum standards. The SEP program targeted approximately 73,000 primary school students (grades K-5) and provides hands-on lessons linking scientific concepts with practical applications. Students take home what they've learned at school where families implement energy efficiency measures provided through the SEP program. For Phase III, the Community Education program was successfully implemented to prepare middle school and high school students to become energy efficiency auditors and provide hands-on training while they perform energy audits at their schools. The objective was to build the community capacity and early workforce development for the future goal for student energy auditors to "fan out" into their communities performing energy audits at small businesses and residential energy audits for income qualified populations. Phase IV student focus will build upon the previous phases' efforts.

Finally, dedicated energy efficiency customer service representatives and commercial and industrial major account representatives are trained to respond to customers who have become aware of the available measures and who respond positively to the participation opportunities.

As a supplement to communications between the company and its customers, it is essential that reliable customer information is available from material and equipment vendors, contractors, and installers. The company will work with suppliers, trade associations, community based organization, faith based organizations, contractors, and vendors in the service territory to ensure that accurate, reliable program information is available from these sources as well.

9.2.4. Indicate that the EDC will provide a list of all eligible federal and state funding programs available to ratepayers for energy efficiency and conservation.

During Phase IV, Duquesne Light will list available funding sources on its website. The federal and state funding sources available to customers for energy efficiency and conservation have been, and are expected to be, changing rapidly. Listing the eligible programs on the website not only allows the list to be updated rapidly but can also provide links directly to the websites maintained by the federal and state programs for ease of use by customers.

9.2.5. Describe how the EDC will provide the public with information about the results from the programs.

Since the inception of the Phase I Act 129 Plan, Duquesne Light has posted all plans and reports to the Customer Programs Energy Efficiency website where any interested party can also see the results from the programs. Participation data will include (but not be limited to) information concerning the level of customer participation, the calculated energy savings, description of the associated environmental benefits and other significant program milestones and information.

10. Appendices

- A. Approved CSP contract(s).
- B. Program by program projections of costs and acquisition cost (\$/MWh and \$/MW) for each program and sector. Cost data should clearly separate incentive cost for non-incentive cost. See Example Tables 10, 11, and 12:
 - Program Cost Elements
 - Incentives
 - Program Design
 - Administrative
 - EDC Program Delivery Costs
 - CSP Program Delivery Fees
 - Marketing
 - EM&V
 - Other (include description)
 - Cost effectiveness calculations by program and by program year, indicating benefits by category (see Example Table 13).
- C. Calculation methods and assumptions. Describe methods used for estimating all program costs, including administrative, marketing, and incentives costs; include key assumptions. Describe assumptions and present all calculations, data and results in a consistent format. Reference Appendix C.

Appendix A

CSP SERVICES AGREEMENT

This CSP Services Agreement, dated _____2020 is made by and between Duquesne Light Company (“DLC” or “Company”) and _____. (“CSP”).

WHEREAS, CSP is in the business of providing information and technical assistance on measures to enable a person to increase energy efficiency or reduce energy consumption services in the utility industry; and

WHEREAS, DLC is an electric distribution company (“EDC”) in Pennsylvania; and

WHEREAS, Act 129 of House Bill 2200 (“Act 129”) was signed into law by Governor Rendell on October 15, 2008, requiring each EDC to create and submit an energy efficiency and conservation plan by July 1, 2009, and the Pennsylvania Public Utility Commission (“Commission”) has developed processes and procedures for the review of EDC filings; and

WHEREAS, the Commission issued an Order at Docket number M-2015-2515375 providing for Phase III energy efficiency and conservation plans from June 1, 2016 through May 31, 2021; and

WHEREAS, CSP will provide services regarding the implementation of DLC’s EE/Conservation Plan as required by Act 129 and the Commission’s Orders; and

WHEREAS, CSP certifies that it was approved by and is a member of the Commission’s Registry of Conservation Service Providers and will maintain such registration with the Commission for the term of this Agreement; and

WHEREAS, DLC is relying upon the skill and expertise of CSP to implement the Plan and to meet the needs of DLC and to provide the services necessary for the proper and effective energy efficiency and conservation plan compliance.

NOW, THEREFORE, in consideration of the premises and of the mutual benefits and covenants contained herein, the parties hereto, intending to be legally bound hereby, agree as follows:

1. DEFINITIONS

“**Applicable Law**” means any applicable constitution, charter, act, statute, law, ordinance, code, rule regulation, judgment, decree, writ, order, permit, approval or the like of any Governmental Authority.

“**Company**” shall mean Duquesne Light Company.

“**Company’s Site**” shall mean 411 Seventh Avenue, Pittsburgh, PA 15219.

“**Price**” shall mean the purchase price or prices stated in Exhibit D of the CSP Agreement.

Appendix A

“**PPUC Approval**” shall mean a final decision issued by the PPUC approving the Program for the years 2016-2021, consistent with Duquesne Light’s application for the Program filed with the PPUC on November 30, 2015 and authorized by the PPUC for implementation on March 10, 2016.

“**CSP Agreement**” shall mean this Agreement, along with Exhibits A, B, C and D.

“**Services**” shall mean CSP services, Work Product and any other work performed by CSP necessary to fulfill CSP’s obligations under the CSP Agreement.

“**Subcontractor**” shall mean vendors, suppliers and subcontractors of any tier and any other persons or entities contracting directly or indirectly with CSP for or in regard to the CSP Agreement.

“**Work**” shall mean CSP services. Work Product and other work performed by Contractor as necessary to fulfill CSP’s obligations under the CSP Agreement.

“**Work Product**” shall mean studies, reports, evaluations, designs, drawings, procedures, specifications, plans and all other documentation and deliverables which are prepared, produced or acquired by CSP for the Work or at the request or direction of Company in connection with the Plan’s requirements for reduction in demand and consumption.

2. CONDITION-PRECEDENT CLAUSE

This CSP Agreement is not effective until PPUC Approval is issued. Within three (3) Business Days following PPUC Approval, either party may notify the other, in writing, if the PPUC approves the Program with material changes from Duquesne Light’s filed program plan that are unacceptable to that party. This Purchase Order is effective five (5) Business Days following PPUC Approval if neither party has informed the other, in writing, of unacceptable PPUC-mandated material Program changes.

3. ENGAGEMENT OF CSP; CSP’S WORK

Subject to the terms and conditions of this CSP Agreement, DLC hereby engages CSP to properly and completely design, submit and assist with the implementation of an energy efficiency and conservation plan in compliance with Act 129 of House Bill 2200. CSP shall perform the Work in a professional and workmanlike manner and with accuracy and reasonable care and skill. Specifically, the Services to be provided are shown on Exhibit A.

4. CSP’S ACKNOWLEDGMENT

CSP, by performing the Work and/or delivering the Work Product, by any performance under this CSP Agreement and/or by written acknowledgement, accepts the offer contained in this Agreement and such acceptance of the offer is expressly limited to the terms and conditions as set forth herein. Any term or condition proposed by CSP, which is different from, conflicts with or adds to any of the provisions of this CSP Agreement, shall be deemed to materially alter the provisions of this CSP Agreement and is hereby objected to and rejected by DLC. Except as expressly provided herein, under no circumstances shall any term or condition of the CSP’s sales documents or otherwise become part of this CSP Agreement.

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5. PROJECT SCHEDULE

(a) CSP shall design, submit and assist with the implementation of an energy efficiency and conservation plan to meet all the needs and requirements of DLC, applicable laws and applicable standards, and to allow DLC to properly and efficiently implement a Plan as defined in the Scope and Exhibit A. Company shall be entitled to implement reasonable provisions and procedures for monitoring performance quality and rate of progress. Such is set forth in more detail in Exhibit A.

(b) (i) Except as expressly set forth herein, CSP is authorized to commence the Work and shall perform the Work in accordance with and within the time schedule contained in the project schedule attached hereto as Exhibit B (the "Project Schedule").

(ii) If at any time CSP determines that it is behind schedule or is unable to meet any milestone set forth in the Project Schedule, CSP shall, within five (5) days of its knowledge of such delay, promptly notify DLC, in writing, of any anticipated material departure from the Project Schedule and if CSP has reason to believe that a milestone or the Completion Date will not be met and shall specify in said notice corrective action planned by CSP to timely complete the Work or any portion thereof; provided, however, that such notice shall not relieve CSP of any of its obligations under the CSP Agreement or its obligations to take all actions necessary to achieve the timely and proper completion of the Work. At all times, CSP shall take such actions as may be necessary to facilitate the timely and proper completion of the Work on or prior to any applicable milestones set forth in the Project Schedule or by the Completion Date.

(iii) CSP understands and agrees that time is of the essence with respect to the dates and times set forth in the Project Schedule, including, but not limited to, the Completion Date, and for performance of the Work.

6. PRICE AND PAYMENT

The price or compensation to be paid to CSP is shown in Exhibit D. Compensation shall be performance based, and rewards are provided for achieving successful results and deductions are made for not achieving successful results, as agreed to in Exhibit D.

Unless otherwise agreed upon, statements must be submitted monthly, within 30 days after the end of a billing month. Itemized statements for services and expenses should be submitted directly to Dave Defide, Duquesne Light Company, 411 Seventh Avenue, Mail Drop 15-3, Pittsburgh, PA 15219. If any (portion) of the Work does not conform to the requirements of the CSP Agreement upon inspection by Company, a corresponding portion of the Price may be withheld by Company until the nonconformity is corrected. Invoices shall be paid within 45 days.

7. WARRANTIES

CSP represents warrants and guarantees that the Work provided under the CSP Agreement shall be: (a) provided in accordance with, and conform to, the requirements of the CSP Agreement; (b) provided in accordance with the standard of care consistent with generally accepted industry practices and procedures in CSP's particular area of expertise; and (c) suitable for the specified purposes.

Appendix A

CSP represents, warrants and guarantees that it is not an affiliate of Duquesne or any other Pennsylvania EDC. If CSP should merge with a Pennsylvania EDC during the term of the CSP Agreement, then the CSP shall immediately notify Duquesne and provide for automatic termination of the CSP Agreement.

CSP represents, warrants and guarantees that it will conduct criminal background checks for all employees of the CSP that will have access to confidential customer information, enter a customer's premises or otherwise have personal contact with an EDC customer.

If, during the sixty-day period following completion of the Work, it is shown there is an error in the Work caused solely by CSP's failure to meet such standards and Company has notified CSP in writing of such error within that period, CSP shall re-perform, at no additional cost to Company, such Work as may be necessary to remedy such error.

Company shall have no liability for defects in the Work attributable to CSP's reliance upon or use of data, design criteria, drawings, specifications or other information furnished by Company.

8. OWNERSHIP RIGHTS

CSP warrants that the Work shall not infringe or misappropriate the intellectual property rights of any third parties. Company shall have exclusive use of and own title, rights and interests in and to all Work. All Work shall be considered "work made for hire."

At all times, each party shall retain all of its rights in its drawings details, designs, specifications, databases, computer software, copyrights, trade and service marks, patents, trade secrets, and any other proprietary property.

9. FACILITIES, SUPPLIES AND EQUIPMENT

To the extent that CSP's Work must be performed at Company's Site, Company shall furnish the facilities, supplies and equipment which Company determines are reasonably required for CSP to perform Work under the CSP Agreement.

10. TERMINATION

Company may terminate all or part of the CSP Agreement if CSP: performs below acceptable standards, abandons the work; becomes bankrupt or insolvent; is unable to obtain a bond, if required; assigns the CSP Agreement or subcontracts any portion thereof without Company's written consent; or otherwise breaches or fails to comply with the CSP Agreement; provided, however, that prior to such termination, Company must have notified CSP in writing of its intent to terminate the CSP Agreement and the reasons therefore, and CSP must have failed to cure such non-compliance within ten (10) days after receipt of such notice. If Company so terminates the CSP Agreement, Company may complete or contract with a third party to complete all or part of the Work, and CSP shall be liable to Company for the excess costs to complete all or such part of the Work and any other damage resulting from CSP's non-compliance or breach. Company may suspend all payments to CSP in order to protect ratepayer funds pursuant to Commission order.

Company may, at any time, also terminate by written notice all or part of the CSP Agreement due to modification of its Energy Efficiency/Conservation plan. Upon receipt of such notice, CSP shall bring the work to a prompt conclusion. Company shall pay CSP a proportionate amount of

Appendix A

the price due to CSP for the portion of the Work completed up to the effective date of the termination plus costs necessarily incurred directly as a result of the termination, subject to Company's right to audit CSP's books and records. Such payment by Company, however, shall not exceed the total price for the Work set forth in the CSP Agreement.

In all cases, Company may require CSP to transfer title and deliver to Company any contracts, rights, goods, equipment or Work Product produced, received or acquired by CSP for the performance of the CSP Agreement.

11. INDEMNIFICATION

CSP shall defend, indemnify and hold harmless Company, its directors, officers, employees, agents, successors and assigns and customers and users of the goods, equipment and services, from and against, and shall pay, all losses, damages (including consequential, indirect and punitive), costs, liabilities, suits, claims and actions, and all related expenses (including attorneys' fees and expenses and the actual costs of litigation) by reason of injury or death to any person or damage to any property or any accident or event arising or relating to the performance of the CSP Agreement or arising from or relating to the goods, equipment or services or from any other cause to the extent not attributable to the negligence or willful misconduct of Company.

12. INTELLECTUAL PROPERTY INDEMNIFICATION

CSP represents and warrants that all goods, equipment and services shall not and do not infringe upon any United States or foreign patent, trademark, copyright or other intellectual property right of any third party. CSP shall defend, indemnify and hold harmless Company and its directors, officers, employees, agents, successors and assigns from and against, and shall pay, all losses, damages (including consequential, indirect and punitive), costs, liabilities, suits, claims and actions, and all related expenses (including attorneys' fees and expenses and the actual costs of litigation) based on or arising from an allegation or claim that any goods, equipment or services or parts thereof furnished by CSP infringe or misappropriate the rights of others; and/or if their use by Company is enjoined, CSP shall at Company's option and CSP's expense either: (a) procure for Company the right to continue using the goods, equipment and services or parts thereof; (b) replace the same with substantially equivalent goods, equipment or services or parts thereof that do not infringe or misappropriate the rights of others; (c) modify the same so they no longer infringe or misappropriate the rights of others; or (iv) refund the price and the transportation and installation costs to Company.

CSP shall obtain from all Subcontractors similar indemnity protection for Company.

13. LIMITATION OF LIABILITY

Company shall not be liable to CSP for any indirect, incidental, special, liquidated, punitive or consequential damages or damages for delay in performance and/or failure to perform, irrespective of whether claims or actions for such damages are based upon contract, tort, negligence, strict liability, warranty or otherwise. CSP's liability for performance shall be limited as set forth in the compensation section except for acts of negligence, misconduct, or intentional acts.

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14. CHANGES

Company may, at any time by a written change order, make changes to the scope of the CSP Agreement (“Change Order”). If any change results in an increase or decrease in the quantity or cost of the goods, equipment or services or otherwise materially affects the CSP Agreement, the Change Order will include an equitable adjustment in the price, the schedule and/or any other affected provisions. Any objection by CSP to the equitable adjustment set forth in a Change Order must be asserted within seven (7) business days after receipt of the Change Order by CSP. Notwithstanding such objection, if directed by Company, CSP shall proceed with the change and performance of the Work.

15. SUSPENSION OR INTERRUPTION OF WORK

Company may direct CSP, in writing, to suspend or interrupt all or any part of the Work for such period of time as Company may determine to be appropriate. CSP shall mitigate the costs of such suspension or interruption. Company agrees to reimburse CSP for those expenses necessarily and directly incurred as a result of such suspension or interruption, subject to Company's right to audit CSP's books and records.

16. CONFLICTS, ERRORS AND OMISSIONS

In the event CSP becomes aware of any conflict, error or omission in the documents comprising the CSP Agreement, CSP shall promptly bring the discrepancy to the attention of Company. Such discrepancy shall be resolved by Company in its sole discretion.

17. INSPECTIONS, MONITORING PERFORMANCE QUALITY AND RATE OF PROGRESS

Company may inspect, at all reasonable times, the progress of the Work, including work performed at CSP's or Subcontractor's facilities. Also, if the CSP Agreement, laws, ordinances, rules, regulations or orders of any governmental authority require any portion of the Work to be inspected, tested or approved, CSP shall give Company reasonable notice to permit Company to observe such inspection, testing or approval. CSP shall provide Company with periodic status reports during the course of the Work.

18. COST ACCOUNTS, INFORMATION AND AUDITS

CSP shall maintain detailed separate cost data for each CSP Agreement in accordance with Generally Accepted Accounting Principles. CSP's records pertaining to the cost of the Work (other than fixed prices agreed to prior to performance of the Work) and CSP's tax records shall be open at all reasonable times for inspection or audit by Company or its representative(s). Company or its representative(s) shall, at all reasonable times, have access to the premises, materials, instructions, working papers, plans, drawings, specifications, memoranda and other information of CSP pertaining to the Work. All CSP's purchase orders or contracts with Subcontractors shall provide that Company or its representative(s) shall have the right to audit Subcontractors' charges to CSP. Company's rights under this Article shall terminate five (5) years after expiration of the warranty periods.

Appendix A

The CSP agrees to make data available to Duquesne Light's Independent EM&V CSP (CSP) and the Pennsylvania Act 129 Statewide Evaluator (SWE) regarding audits and interactions between these parties in regard to program data upon request by the SWE or CSP.

19. INSURANCE

Prior to commencing any portion of the Work, CSP shall properly maintain the following coverage: Statutory Workers' Compensation Insurance in full compliance with the Workers' Compensation and Occupational Disease Acts of each and every state in which Work is to be performed and U.S. Longshoremen's and Harbor Workers' Compensation Acts, if applicable; Employer's Liability Insurance with a limit of not less than \$500,000; Comprehensive General Liability Insurance including Premises-Operation Independent Contractor's Protective, Products, Completed Operation, and Blanket Contractual Liability coverages with a combined single limit of not less than \$1,000,000 per occurrence and \$2,000,000 aggregate; Excess Umbrella Liability Insurance with a single limit of not less than \$2,000,000; and Automobile Liability Insurance covering all owned, hired and non-owned vehicles with a combined single limit of not less than \$1,000,000 per occurrence. CSP shall provide Company with a certificate of insurance specifically evidencing the coverages required above, naming the Company as an additional insured, except under the Workers' Compensation Policy, and stating the policy numbers and the inception and expiration dates of all policies. The certificate of insurance shall also provide for thirty (30) days' prior written notice to Company in the event of cancellation or any material alteration of any policy. The certificate of insurance shall be furnished to Company prior to commencement of any portion of the Work. The Property Damage Liability Insurance shall include the Broad Form Comprehensive General Liability coverage.

20. TAXES

The price set forth in the CSP Agreement shall include, unless otherwise expressly set forth in the CSP Agreement, all federal state and local sales and use taxes applicable to the manufacture and/or sale of the goods and equipment and/or the performance of the services.

Company will provide to CSP, upon CSP's request, a tax exemption certificate for taxes for the Work that are exempt under Pennsylvania's Sales and Use Tax laws.

Upon Company's request, CSP shall provide evidence satisfactory to Company of the payment of any taxes which CSP is required to pay. CSP shall also provide to Company such additional information as Company may request to facilitate the determination of taxes for which Company is responsible, if any.

21. CONFIDENTIAL/PROPRIETARY INFORMATION

CSP agrees to treat as confidential and proprietary any of Company and customer's information which is not generally known to the public and to exercise the same care to prevent the disclosure of such information as CSP exercises to prevent disclosure of its own proprietary and confidential information; however, CSP may disclose such information as required by law or court order upon written notice to the Company. Furthermore, Company's information shall be utilized by CSP only in connection with performance of CSP's obligations under the CSP Agreement.

22. PUBLICITY

Appendix A

CSP shall not use Company's name nor issue any publicity releases, including but not limited to, news releases and advertising, relating to the CSP Agreement and Services without the prior written consent of Company.

23. FORCE MAJEURE

Neither party shall be liable for any failure or delay in performing its obligations under the CSP Agreement, or for any loss or damage resulting therefrom, due to causes beyond its reasonable control, including but not limited to, acts of God, public enemy or government, riots, fires, natural catastrophe, strikes or epidemics. In the event of such failure or delay, the date of delivery or performance shall be extended for a period not to exceed the time lost by reason of the failure or delay; provided that Company may terminate the CSP Agreement if the period of failure or delay exceeds fifteen (15) days. Company shall have no obligation to make any payments to CSP during the period of failure or delay. Each party shall notify the other promptly of any failure or delay in, and the effect on, its performance.

24. ASSIGNMENT

CSP shall not assign the CSP Agreement, in whole or in part, nor contract with any Subcontractor for the performance of the same or any of its parts, without first obtaining Company's written consent. Company's consent shall not be construed as discharging or releasing, nor shall it discharge or release, CSP in any way from the performance of the Work or the fulfillment of any obligation under the CSP Agreement.

25. NOTICES

Any notice required under the CSP Agreement shall be in writing and sent to the CSP and Company at their respective addresses identified below:

If to DLC: Dave Defide
 Duquesne Light Company
 411 Seventh Avenue, Mail Drop 15-3,
 Pittsburgh, PA 15219.
 Via e-mail: ddefide@duqlight.com

If to CSP:

26. INDEPENDENT CONTRACTOR

CSP shall operate as an independent contractor in the performance of the CSP Agreement and not as an agent or employee of Company. CSP shall ensure that neither it nor its agents or employees shall act or hold themselves out as agents or employees of Company. CSP shall have complete control of its agents and employees engaged in the performance of the Work.

Appendix A

27. **PRIORITY OF DOCUMENTS**

In the event of conflict among the various documents comprising the CSP Agreement, the conflict shall be resolved according to the priority given to the documents in the Purchase Order. If no priority is indicated in the Purchase Order, the conflict shall be resolved according to Article 16, Conflicts, Errors and Omissions.

28. **SEVERABILITY**

If any provision(s) of the CSP Agreement is prohibited by law or held to be invalid, illegal or unenforceable, the remaining provisions thereof shall not be affected, and the CSP Agreement shall continue in full force and effect as if such prohibited, illegal or invalid provisions had never constituted a part thereof, with the remaining provisions of the CSP Agreement being enforced to the fullest extent possible.

29. **SURVIVAL**

The obligations and rights of the parties pursuant to the Warranties, Liens, Indemnification, Intellectual Property Indemnification, Limitation of Liability, Cost Accountants and Information/Audits and Confidential/Proprietary Information shall survive the expiration or early termination of the CSP Agreement.

30. **MBE/WBE**

It is the policy of Company to stimulate the growth of Certified Minority, Women and Disabled Business Enterprises (MBEs, WBEs and DBEs) by encouraging their participation in Company's procurement activities and by affording them an equal opportunity to compete for Company's procurements. CSP agrees to carry out this policy to the fullest extent consistent with the requirements of the CSP Agreement (a) through the award of subcontracts to MBEs, WBEs and DBEs or (b) if CSP is a MBE, WBE or DBE, through the use of its own forces. CSP shall include this policy as a provision in all subcontracts.

31. **LAWS, CODES, RULES, REGULATIONS**

CSP and its Subcontractors, at their own expense, shall obtain all necessary licenses and permits and shall comply with all applicable federal, state and local laws, statutes, ordinances, codes, rules and regulations relating to performance of the Work and the CSP Agreement, including but not limited to, safety, products liability, environment, labor standards and workers' compensation laws.

All CSP subcontractors with an annual contract cost that equals or exceeds ten percent of the CSP's total annual contract cost to perform services pursuant to an electric distribution company energy efficiency and conservation plan must also be registered as CSPs. This is pursuant to Implementation of Act 129 of 2008 Phase II – Registry of Conservation Service Providers Order at Docket No. M-2008-2074154 (entered July 16, 2013).

CSP and its Subcontractors shall also comply with Company's policies, rules and procedures.

32. **HAZARDOUS AND DANGEROUS GOODS**

Appendix A

For any goods or equipment provided by CSP pursuant to the CSP Agreement which are defined as hazardous or dangerous under any applicable law, rule or regulation, CSP shall provide Company with hazardous warning and safety handling information, including Material Safety Data Sheets, and appropriate labeling for all such goods and equipment.

33. ELECTRONIC COMMERCE

At Company's request, Company and CSP may facilitate business transactions for the CSP Agreement by electronically transmitting data. Any data digitally signed pursuant to this Article and electronically transmitted shall be as legally sufficient as a written and signed paper document exchanged between the parties, notwithstanding any legal requirement that the document be in writing or signed.

34. GOVERNING LAW/JURISDICTION

The CSP Agreement shall be governed by and interpreted in accordance with the laws of the Commonwealth of Pennsylvania, excluding the choice of law and conflicts of law provisions. Any litigation arising from or relating to the CSP Agreement shall only be filed in state or federal court in and for Allegheny County, Pennsylvania and CSP hereby consents and submits to the exclusive jurisdiction of such courts.

35. ENTIRE AGREEMENT

The CSP Agreement contains the entire understanding and agreement of Company and CSP with respect to the subject matter hereof and supersedes and replaces all prior agreements and commitments with respect thereto. There are no oral understandings, terms or conditions and neither Company nor CSP has relied upon any representation, express or implied, not contained in the CSP Agreement.

36. AMENDMENT

Except as expressly set forth herein, no provision of the CSP Agreement may be changed, modified, waived, terminated or amended except by written instrument executed as appropriate by Company and/or CSP.

37. WAIVER

Any failure of Company to enforce any of the provisions of the CSP Agreement or to require compliance with any of its terms at any time during the term of the CSP Agreement shall in no way affect the validity of the CSP Agreement, or any part thereof, and shall not be deemed a waiver of the right of Company thereafter to enforce any and each such provision.

38. CAPTIONS

The captions contained in the CSP Agreement are for convenience and reference only and in no way define, describe, extend or limit the scope or intent of the CSP Agreement or the intent of any provision contained therein.

39. RECORD RETENTION

Appendix A

The CSP shall retain all electronic and hard copy project file documentation that it creates pursuant to the CSP agreement for a period not less than five (5) years.

IN WITNESS WHEREOF, the parties have executed this Agreement on the respective dates entered below.

DUQUESNE LIGHT COMPANY

CSP

By: _____

By: _____

Name: _____

Name: _____

Title: _____

Title: _____

Date: _____

Date: _____

Appendix A

EXHIBIT A: BID MATERIALS

Bid materials Sent, Received and Accepted VIA POWERADVOCATE EVENT

Appendix A

EXHIBIT B: PROJECT SCHEDULE

The project schedule will be determined after RFP process is complete.

Appendix A

EXHIBIT C: SCOPE OF WORK

The scope of work will be determined after RFP process is complete.

Appendix A

EXHIBIT D: COMPENSATION

Appendix B

Program by program projections of costs and acquisition cost (\$/MWh and \$/MW) for each program and sector. Cost data should clearly separate incentive cost for non-incentive cost.

- Program Cost Elements
 - Incentives
 - Program Design
 - Administrative
 - EDC Program Delivery Costs
 - CSP Program Delivery Fees
 - Marketing
 - EM&V
 - Other (include description)

See Table 9.

- Cost effectiveness calculations by program and by program year, indicating benefits by category

See Table 13.

Appendix C

Calculation methods and assumptions. Describe methods used for estimating all program costs, including administrative, marketing, and incentives costs; include key assumptions. Describe assumptions and present all calculations, data and results in a consistent format. Reference Appendix C.

Administrative Costs: Administrative Costs are provided in detail for each of the 17 program delivery channels at Table 9: Program Budget. Table 9 Non-Incentive costs are disaggregated into the seven types of cost shown in the table below. Duquesne Light Portfolio Admin costs include EM&V and exclude CSP direct-implementation administrative costs. Portfolio admin includes administrative costs that can be tied to specific programs being implemented. Common costs are only those costs applicable to multiple customer sectors or are common across all sectors. Table 9 non-incentive admin cost components have Common Costs embedded in the budget values. Common costs are addressed at Table 11: Allocation of Common Costs. For visibility, the table below summarizes Portfolio and Common Costs.

Phase IV EE&C Plan Administrative Costs

Admin Cost Component (000s)	Portfolio	Common	CSP	Total	
Program Design	\$281			\$281	0.7%
Administrative	\$3,200	\$865		\$4,065	9.5%
EDC Delivery Costs	\$2,032	\$2,500		\$4,532	10.6%
CSP Delivery Fees			\$27,430	\$27,430	64.1%
Marketing		\$1,177		\$1,177	2.8%
EM&V	\$3,500			\$3,500	8.2%
Implementation Services		\$1,778		\$1,778	4.2%
Total	\$9,013	\$6,321	\$27,430	\$42,764	100.0%
	21%	15%	64%		

The Admin Cost components are defined below:

1. Program Design: Technical support to develop and the Phase IV EE&C Plan, mid-course corrections and any required refileing.
2. Administrative: Means Duquesne Light Act 129 dedicated staff labor costs.
3. EDC Delivery Costs: Portfolio-level technical support, tracking system training and support, cost-effectiveness reporting and portfolio Q&A.
4. CSP Delivery Fees: Non-Incentive budget amounts paid to the implementing CSP.
5. Marketing: Portfolio Act 129 Marketing.
6. EM&V: Independent program evaluation and reporting.
7. Implementation Services: Project level support, transition tasks, DLC staff support on complex project engineering review and approvals.

Appendix C

Common Costs (addressed at Table 11) includes the following items:

1. Utility staff labor cost to support all programs.
2. Portfolio-wide marketing costs
3. Portfolio-level Delivery costs (tracking system training and support, technical support, cost-effectiveness reporting and QA/QC).
4. Tracking system hosting and maintenance.

Incentives:

Energy Efficiency programs: Incentive amounts are intended to offset the incrementally higher cost of highly efficient appliances and equipment. The amount paid to participating customers for per unit of measure (lamp, insulation square foot, motor HP, air conditioner ton, etc.) is addressed as a percentage of that incrementally higher cost. The Phase IV Implementation Order⁶⁵ and TRC Order⁶⁶ and Implementation Order defines directly installed equipment costs, as well as the labor cost to install the equipment, as incentives.

In previous Act 129 phases Duquesne Light's program incentives were established using national benchmarking and payback probability acceptance curves.⁶⁷ In Phase III Portfolio Incentives amounted to 42% of the Portfolio Budget, on average offsetting 39 percent of projected incremental measures costs. The Phase IV Implementation Order require at least 50% of EE&C Plan spending come from incentives. Accordingly, EE&C Plan incentive amounts were increased to 56 percent of the Portfolio Budget offsetting, on average, 41 percent of measure incremental costs. Incremental measure costs are documented, referenced to the SWE incremental costs database⁶⁸, California Public Utilities Commission Database of Energy Efficient Resources (DEER), invoice data from Phase III program operations and specific measure cost research.

Plan Development Methodology: As with the previous three Act 129 Phases, Duquesne Light's Phase IV EE&C Plan began at the measure level with forecast projections for more than 300 measures applied to prototypical applications in Duquesne Light specific building stock; measures savings are linked to 2021 TRM algorithms as well as historic custom measure savings impacts. As stated above, incremental measure costs are taken, primarily, from the SWE Incremental Cost Database v4.0. Savings were applied to seasonal and time-of-day measure-level savings profiles.⁶⁹

⁶⁵ Energy Efficiency and Conservation Plan Implementation Order, June 18,2020, Docket No. M-2020-3015228 Section I, EDC Cost Recovery, subsection 1 Determination of Phase IV Allowable Costs, Pages 126-127.

⁶⁶ See 2021 TRC Test Order at pages 74-75.

⁶⁷ Petition of Duquesne Light Company for Approval of its Energy Efficiency and Conservation and Demand Response Plan Docket No. M-2009-2093217, June 30, 2009; Part (3) Energy Efficiency and Demand Side Response Study, MCR Performance Solutions, LLC, June 26, 2009.

⁶⁸ SWE Incremental Cost Database version 4.0 July 1, 2020

⁶⁹ PA Act 129, Phase IV Energy Efficiency and Peak Demand Reduction Market Potential Study, Appendix F, pages F-1 through F-66 (PDF pages 135-201 of 598).

Appendix C

Avoided costs were applied taken from the Phase IV SWE Avoided Cost Calculator (ACC) with inputs specific to Duquesne Light, as specific in the Phase IV TRC Order and described in the avoided costs section of this Plan. The ACC avoided costs (for generation, capacity and T&D benefits) were expanded to include O&M benefits, as well as water and fossil fuel benefits (or penalties).

TRC administrative program costs were documented (described above) and combined with measure costs (also described above) to render TRC Cost. The present value of Measure level LIFE-CYCLE avoided costs divided by TRC Costs rendered a TRC Test cost-benefit ratio. The measure mix was optimized, to the extent possible, to achieve projected portfolio performance shown in the following Appendix C.

Appendix C

Residential Programs	Savings kWh	Savings kW	Portfolio Administration	Direct Program Costs		Total Program Cost	Total Admin	Measure Cost	TRC Cost	Program Benefits	Demand Reduction Benefits		O&M/Fossil/Water	Energy Benefits	TRC
				Administration	Incentives						Capacity	Trans/Dist			
Appliance Recycling	8,447,770	1,210	\$309,251	\$674,606	\$772,717	\$1,756,575	\$983,857	\$772,717	\$1,756,575	\$1,865,568	\$237,395	\$282,444	\$0	\$1,345,729	1.06
Downstream Incentives	23,698,780	2,595	\$900,553	\$1,964,486	\$2,754,043	\$5,619,082	\$2,865,040	\$4,907,237	\$7,772,276	\$16,273,813	\$973,994	\$1,167,286	\$6,966,835	\$7,165,698	2.09
Midstream Incentives	596,319	127	\$21,830	\$47,620	\$144,594	\$214,044	\$69,449	\$178,058	\$247,508	\$300,839	\$49,931	\$59,862	-\$2,345	\$193,392	1.22
Upstream Incentives	13,605,083	1,426	\$498,047	\$1,086,450	\$2,176,562	\$3,761,058	\$1,584,496	\$5,763,398	\$7,347,894	\$7,319,317	\$771,025	\$926,280	-\$820,638	\$6,442,650	1.00
Low Income Energy Efficiency	21,386,149	2,494	\$1,521,190	\$3,804,521	\$9,238,054	\$14,563,765	\$5,325,711	\$4,285,160	\$9,610,871	\$9,781,240	\$869,217	\$1,041,077	\$1,741,888	\$6,129,057	1.02
Residential Behavioral Energy Efficiency	49,700,000	6,740	\$568,472	\$3,597,241	\$0	\$4,165,713	\$4,165,713	\$0	\$4,165,713	\$4,534,517	\$604,780	\$706,486	\$0	\$3,223,251	1.09
Low Income Behavioral Efficiency	7,500,000	1,017	\$572,331	\$542,843	\$0	\$1,115,174	\$1,115,174	\$0	\$1,115,174	\$684,283	\$91,265	\$106,613	\$0	\$486,406	0.61
Total	124,934,102	15,609	\$4,391,674	\$11,717,768	\$15,085,970	\$31,195,411	\$16,109,441	\$15,906,570	\$32,016,011	\$40,759,578	\$3,597,607	\$4,290,048	\$7,885,740	\$24,986,183	1.27
Small C&I															
Small C&I	Savings kWh	Savings kW	Portfolio Administration	Direct Program Costs		Total Program Cost	Total Admin	Measure Cost	TRC Cost	Program Benefits	Demand Reduction Benefits		O&M/Fossil/Water	Energy Benefits	TRC
				Administration	Incentives						Capacity	Trans/Dist			
Small Business Direct Install	23,133,399	4,475	\$950,057	\$659,359	\$8,100,470	\$9,709,885	\$1,609,415	\$13,919,071	\$15,528,486	\$16,933,339	\$2,372,708	\$2,850,169	\$850,690	\$10,859,772	1.09
Small Business Solutions	50,212,478	8,590	\$2,193,479	\$1,522,319	\$5,608,846	\$9,324,644	\$3,715,799	\$20,186,517	\$23,902,316	\$35,355,306	\$4,612,182	\$5,540,682	\$1,679,285	\$23,523,157	1.48
Small Business Midstream Solutions	27,491,056	6,756	\$1,129,020	\$783,563	\$4,415,667	\$6,328,249	\$1,912,582	\$27,604,253	\$29,516,835	\$19,997,666	\$3,659,604	\$4,396,552	-\$1,208,394	\$13,149,904	0.68
Small Business Virtual Commissioning	6,053,739	2,228	\$248,619	\$172,546	\$1,174,425	\$1,595,591	\$421,165	\$1,174,425	\$1,595,591	\$5,435,133	\$1,216,759	\$1,461,848	\$0	\$2,756,525	3.41
Total	106,890,672	22,049	\$4,521,174	\$3,137,787	\$19,299,408	\$26,958,369	\$7,658,961	\$62,884,267	\$70,543,228	\$77,721,444	\$11,861,254	\$14,249,251	\$1,321,581	\$50,289,358	1.10
Large Commercial															
Large Commercial	Savings kWh	Savings kW	Portfolio Administration	Direct Program Costs		Total Program Cost	Total Admin	Measure Cost	TRC Cost	Program Benefits	Demand Reduction Benefits		O&M/Fossil/Water	Energy Benefits	TRC
				Administration	Incentives						Capacity	Trans/Dist			
Large Business Solutions	83,696,145	15,377	\$2,694,979	\$7,842,526	\$8,897,267	\$19,434,773	\$10,537,506	\$17,017,907	\$27,555,413	\$59,581,924	\$8,398,585	\$10,090,291	\$1,085,391	\$40,007,657	2.16
Large Business Midstream Solutions	17,300,344	4,783	\$537,461	\$1,564,038	\$3,813,151	\$5,914,649	\$2,101,499	\$18,979,045	\$21,080,544	\$13,190,686	\$2,609,330	\$3,134,902	-\$750,433	\$8,196,888	0.63
Large Business Virtual Commissioning	2,756,458	1,014	\$85,633	\$249,198	\$534,753	\$869,584	\$334,831	\$534,753	\$869,584	\$2,478,366	\$554,029	\$665,625	\$0	\$1,258,711	2.85
Total	103,752,946	21,174	\$3,318,074	\$9,655,762	\$13,245,171	\$26,219,006	\$12,973,835	\$36,531,705	\$49,505,540	\$75,250,976	\$11,561,943	\$13,890,819	\$334,957	\$49,463,256	1.52
Large Industrial															
Large Industrial	Savings kWh	Savings kW	Portfolio Administration	Direct Program Costs		Total Program Cost	Total Admin	Measure Cost	TRC Cost	Program Benefits	Demand Reduction Benefits		O&M/Fossil/Water	Energy Benefits	TRC
				Administration	Incentives						Capacity	Trans/Dist			
Large Business Solutions	38,846,312	7,137	\$1,250,834	\$3,639,991	\$3,707,536	\$8,598,362	\$4,890,825	\$7,898,607	\$12,789,432	\$27,654,058	\$3,898,077	\$4,683,258	\$503,768	\$18,568,955	2.16
Large Business Midstream Solutions	8,029,695	2,220	\$249,454	\$725,925	\$1,425,033	\$2,400,413	\$975,379	\$8,808,839	\$9,784,219	\$6,122,259	\$1,211,081	\$1,455,018	-\$348,302	\$3,804,463	0.63
Large Business Virtual Commissioning	1,279,369	471	\$39,745	\$115,661	\$248,197	\$403,604	\$155,407	\$248,197	\$403,604	\$1,150,296	\$257,144	\$308,940	\$0	\$584,212	2.85
Total	48,155,376	9,828	\$1,540,034	\$4,481,577	\$5,380,767	\$11,402,379	\$6,021,611	\$16,955,644	\$22,977,255	\$34,926,613	\$5,366,303	\$6,447,216	\$155,466	\$22,957,629	1.52
Pilot Program (Experimental Equip.)			\$1,957,376		\$1,954,595	\$1,954,595									
Grand Total	383,733,096	68,660	\$13,770,956	\$28,992,893	\$54,965,911	\$97,729,760	\$42,763,849	\$132,278,186	\$175,042,035	\$228,658,612	\$32,387,107	\$38,877,334	\$9,697,744	\$147,696,427	1.31

11. Tables for Pennsylvania EDC Energy Efficiency and Conservation Plan

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

Program	Total Discounted Lifetime Costs (\$000)	Total Discounted Lifetime Benefits (\$000)	Total Discounted Net Lifetime Benefits (\$000)	Total Resource Cost Test Ratio (TRC)
Residential	\$17,124,253	\$25,759,538	\$8,635,285	1.50
Residential Low-Income	\$9,610,871	\$9,781,240	\$170,369	1.02
Residential Behavioral	\$4,165,713	\$4,534,517	\$368,804	1.09
Low-Income Behavioral	\$1,115,174	\$684,283	-\$430,891	0.61
Large Commercial (C)	\$49,505,540	\$75,250,976	\$25,745,435	1.52
Large Industrial (I)	\$22,977,255	\$34,926,613	\$11,949,358	1.52
Small C&I	\$70,543,228	\$77,721,444	\$7,178,216	1.10
Total	\$175,042,035	\$228,658,612	\$53,616,577	1.31

Table 2: Summary of Portfolio Energy and Demand Savings (MWh)

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	1st-Year MWh	Lifetime MWh
Baseline											14,085,512	
Residential Cumulative Savings	18,249	109,941	37,459	225,668	56,668	341,395	75,878	457,122	96,048	578,636	96,048	578,636
Low-Income Cumulative Savings	5,488	39,851	11,266	81,800	17,043	123,749	22,820	165,698	28,886	209,744	28,886	209,744
Commercial/Industrial, Small Cumulative	18,578	275,744	41,447	615,177	65,355	970,030	88,604	1,315,095	106,891	1,586,514	106,891	1,586,514
Commercial/Industrial, Large Cumulative	26,909	403,456	60,044	900,256	94,167	1,411,877	126,828	1,901,574	151,908	2,277,603	151,908	2,277,603
EE&C Plan Total Incremental Annual	72,909	828,992	76,747	993,909	76,747	1,024,150	76,747	992,438	80,584	813,009	383,733	4,652,497
Percent of Plan Total Annual	19.0%		20.0%		20.0%		20.0%		21.0%			
EE&C Plan Total Cumulative	72,909	828,992	149,656	1,822,901	226,403	2,847,051	303,149	3,839,489	383,733	4,652,497	383,733	4,652,497
Percent of Plan Total	19.0%		39.0%		59.0%		79.0%		100.0%			
Estimated Phase III Carryover Savings	0	0	0	0	0	0	0	0	0	0	0	0
Total Cumulative Plan + Carryover	72,909	828,992	149,656	1,822,901	226,403	2,847,051	303,149	3,839,489	383,733	4,652,497	383,733	4,652,497
Percent of Plan Total	19.0%		39.0%		59.0%		79.0%		100.0%			
Percent Reduction from Baseline	0.52%		1.06%		1.61%		2.15%		2.72%			
Phase IV Target ¹											348,126	
Portfolio Percent of Phase IV Target	20.9%		43.0%		65.0%		87.1%		110.2%		110.2%	

¹ Phase IV Implementation Order Table 2: Final Phase IV Targets, by EDC (page 8).

Table 3: Summary of Portfolio Energy and Demand Savings (MW)

MWh Saved for Consumption Reductions (Meter 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											2,518.000	
Residential Cumulative Savings	2.299	2.299	4.718	4.718	7.138	7.138	9.557	9.557	12.098	12.098	12.098	12.098
Low-Income Cumulative Savings	0.667	0.667	1.370	1.370	2.072	2.072	2.774	2.774	3.512	3.512	3.512	3.512
Commercial/Industrial, Small Cumulative	3.832	3.832	8.550	8.550	13.481	13.481	18.277	18.277	22.049	22.049	22.049	22.049
Commercial/Industrial, Large Cumulative	5.492	5.492	12.254	12.254	19.218	19.218	25.883	25.883	31.002	31.002	31.002	31.002
EE&C Plan Total Incremental Annual	13.045	12.290	13.732	14.601	13.732	15.017	13.732	14.583	14.419	12.168	68.660	68.660
Percent of Plan Total Annual	19.0%		20.0%		20.0%		20.0%		21.0%			
EE&C Plan Total Cumulative	13.045	12.290	26.777	26.891	40.509	41.909	54.241	56.492	68.660	68.660	68.660	68.660
Percent of Plan Total	19.0%		39.0%		59.0%		79.0%		100.0%			
Estimated Phase III Carryover Savings	0	0	0	0	0	0	0	0	0	0	0	0
Total Cumulative Plan + Carryover	13.045	12.290	26.777	26.891	40.509	41.909	54.241	56.492	68.660	68.660	68.660	68.660
Percent of Plan Total	19.0%		39.0%		59.0%		79.0%		100.0%			
Percent Reduction from Baseline	0.52%		1.06%		1.61%		2.15%		2.73%			
Phase IV Target ¹											62.000	
Portfolio Percent of Phase IV Target	21.0%		43.2%		65.3%		87.5%		110.7%		110.7%	

¹ Phase IV Implementation Order Table 2: Final Phase IV Targets, by EDC (page 8).

Table 4: Summary of Portfolio Costs

Sector	PY13		PY14		PY15		PY16		PY17	
	\$000	%	\$000	%	\$000	%	\$000	%	\$000	%
Residential Portfolio Budget	2,810	15.8%	2,958	14.4%	2,958	14.1%	2,958	14.4%	3,106	17.4%
Residential Low-Income Portfolio Budget	2,832	16.0%	2,981	14.5%	2,981	14.2%	2,981	14.5%	3,130	17.5%
Commercial/Industrial Small Portfolio Budget	4,503	25.4%	5,543	27.0%	5,795	27.5%	5,635	27.4%	4,433	24.8%
Commercial/Industrial Large Portfolio Budget	6,343	35.7%	7,810	38.0%	8,043	38.2%	7,698	37.5%	5,912	33.1%
Common Costs	1,264	7.1%	1,264	6.1%	1,264	6.0%	1,264	6.2%	1,264	7.1%
Total Portfolio Budget	17,752	100.0%	20,556	100.0%	21,041	100.0%	20,537	100.0%	17,844	100.0%

Table 5: Program Summaries

	Program Name	Program Market	Program Two Sentence Summary	Program Years Operated	Lifetime Savings MWh	Lifetime Savings MW	Portfolio Savings	
							MWh %	MW %
Residential Portfolio Programs (REEP)								
	REEP Appliance Recycling	Market Rate Residential	Provides customer incentives to recycle listed inefficient appliances in order to remove them from the electric grid.	5	42,409	1.210	0.9%	1.8%
	REEP Downstream Incentives	Market Rate Residential	Energy efficiency rebates to offset costs of more energy efficient consumer products. Customer engagement is mail-in or on-line form-based rebate applications.	5	227,950	2.595	4.9%	3.8%
	REEP Midstream Incentives	Market Rate Residential	Energy efficiency rebates to offset costs of more energy efficient consumer products. Customer engagement is retail point-of-purchase and on-line instant rebates.	5	6,106	0.127	0.1%	0.2%
	REEP Upstream Incentives	Market Rate Residential	Energy efficiency rebates to offset costs of more energy efficient consumer products. The program provides incentives to efficient product manufacturers, reduced costs are passed down to retailers and end-users.	5	202,771	1.426	4.4%	2.1%
	Residential Behavioral Energy Efficiency	Market Rate Residential	Educates participants on electricity consumption to change household behavior leading to less electricity use.	5	99,400	6.740	2.1%	9.8%
	Low Income Energy Efficiency Program	Low Income Residential	Comprised of energy efficiency audits and the direct-installation of energy efficiency equipment at no cost to program participants.	5	194,744	2.494	4.2%	3.6%
	Low Income Behavioral Energy Efficiency	Low Income Residential	Provides educational messaging via electronic and paper mail tailored to the low-income sector. Educates participants on electricity consumption to change household behavior leading to less electricity use.	5	15,000	1.017	0.3%	1.5%
	Subtotal				788,380	15.609	16.9%	22.7%

Table 5: Program Summaries (continued)

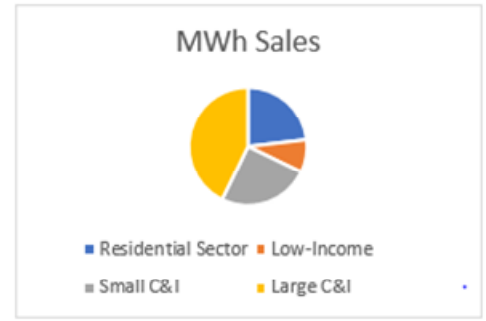
	Program Name	Program Market	Program Two Sentence Summary	Program Years Operated	Lifetime Savings MWh	Lifetime Savings MW	Portfolio Savings	
							MWh %	MW %
Commercial/Industrial (C&I) Small Portfolio								
	Small C&I Direct-Install Program	C&I Customer <300 kW	Provides no cost energy efficient equipment to small business customers. Installation contractors implement program measures and measure installation services.	5	339,636	4.475	7.3%	6.5%
	Small C&I Downstream Incentives	C&I Customer <300 kW	Energy efficiency rebates to offset costs of more energy efficient lighting, refrigeration and mechanical system products. Customer engagement is mail-in or on-line form- based rebate applications.	5	748,145	8.590	16.1%	12.5%
	Small C&I Midstream Incentives	C&I Customer <300 kW	Incentives buy down the cost of energy efficient equipment facilitating distributor point-of-purchase and on-line instant rebates.	5	407,927	6.756	8.8%	9.8%
	Small C&I Virtual Commissioning	C&I Customer <300 kW	Program leverages advanced metering infrastructure's (AMI) advanced data analytics to identify and qualify customers with significant potential for no- or low-cost energy savings.	5	90,806	2.228	2.0%	3.2%
	Subtotal				1,586,514	22.049	34.1%	32.1%

Table 5: Program Summaries (continued)

	Program Name	Program Market	Program Two Sentence Summary	Program Years Operated	Lifetime Savings MWh	Lifetime Savings MW	Portfolio Savings	
							MWh %	MW %
Commercial/Industrial Large Portfolio								
	Large C&I Downstream Incentives	C&I Customer ≥300 kW	Energy efficiency rebates to offset costs of more energy efficient lighting, refrigeration and mechanical system products. Customer engagement is mail-in or on-line form- based rebate applications.	5	1,838,137	22.514	39.5%	32.8%
	Large C&I Midstream	C&I Customer ≥300 kW	Incentives buy down the cost of energy	5	378,929	7.002	8.1%	10.2%
	Large C&I Virtual Commissioning	C&I Customer ≥300 kW	Program leverages advanced metering infrastructure's (AMI) advanced data analytics to identify and qualify customers with significant potential for no- or low-cost energy savings.	5	60,537	1.485	1.3%	2.2%
	Subtotal				2,277,603	31.002	49.0%	45.2%
Plan Total					4,652,497	68.660	100.0%	100.0%

Table 6: Budget and Parity Analysis Summary

Customer Sector	Phase IV EE&C Budget	% of Total EE&C Budget	% EDC Annual Revenue	% EDC MWh Sales
Residential Sector	16,631,646	17.4%	46.1%	23.2%
Low-Income Sector	14,563,765	15.2%	17.7%	8.9%
Residential Subtotal	31,195,411	32.6%	63.8%	32.1%
Commercial/Industrial Small Sector	26,958,369	28.1%	15.6%	25.2%
Commercial/Industrial Large Sector	37,621,385	39.3%	20.5%	42.7%
Nonresidential Subtotal	64,579,754	67.4%	36.2%	67.9%
All Classes	95,775,165	100.0%	100.0%	100.0%
Other Expenditures				
Experimental Equipment Pilot ¹	1,954,595			
EDC Total	97,729,760			



¹ Per Phase IV EE&C Plan Template Section 9.1.4 no more than two percent of funds shall be allocated for experimental equipment or devices.

Table 7A: Eligible Measures – Residential

Measure	Unit	Low-Income Y/N	Eligibility	Incremental Cost (\$/unit)	Estimated Useful Life	Incentive \$/Unit Range	
						Low	High
Advanced Power Strip (Tier 1)	Unit	N	APS master controlled TRM2.5.2	\$18.40	5	\$8.00	\$12.00
Air Sealing	Home	Y	Electric space heating TRM 2.6.1	\$888.00	15	\$710.00	\$1,065.60
Basement Wall Insulation - Electric Heat (800 sf - ASHP)	Home	Y	Electric Space Heating, R-19, TRM 2.6.4	\$1,632.00	15	\$1,700.00	\$2,550.00
Ceiling Insulation - Electric Heat (R19-R60 1000 sf - Avg. Electric)	Home	Y	Electric Space Heating, R-60, TRM 2.6.3	\$2,610.00	15	\$2,100.00	\$3,125.00
Connected Thermostat - Electric Heat (Down Stream)	Unit	N	Electric Space Heating, ENERGY STAR Certified	\$176.75	11	\$80.00	\$120.00
Connected Thermostat- Electric Heat (Direct Install)	Unit	Y	Electric Space Heating, ENERGY STAR Certified	\$234.33	11	\$185.00	\$285.00
Furnace Circulation Fan - High Efficiency	Furnace	N	ECM Fan Motor, Variable Speed TRM 2.2.3	\$311.06	15	\$125.00	\$185.00
Dehumidifier Retirement	Unit	N	Running dehumidifier	\$35.00	4	\$25.00	\$42.00
Ductless Mini-Split Heat Pump (20 SEER / 9.6 hspf) Midstream	Unit	N	>20 SEER and 9.6 HSPF	\$529.62	15	\$125.00	\$190.00
Ductless Mini-Split Heat Pump (20 SEER / 9.6 hspf) Direct Install	Unit	Y	>20 SEER and 9.6 HSPF	\$2,856.64	15	\$2,285.00	\$3,425.00
Electric Hot Water Kit (SF or MF, Mail-Out)	Kit	Y	Program Provided	\$47.75	8	\$35.00	\$60.00
Electric Hot Water Kit (SF or MF, Verified Install)	Kit	Y	Program Provided	\$47.75	8	\$35.00	\$60.00
Air Source Heat Pump - 16 SEER / 9.0 HSPF (Base 14 SEER, 8.2 HSPF)	Unit	Y	≥16 SEER and ≥9.0 HSPF	\$1,619.15	15	\$1,295.00	\$1,945.00
Air Source Heat Pump - 17 SEER / 9.0 HSPF (Base 14 SEER, 8.2 HSPF)	Unit	Y	≥17 SEER and ≥9.0 HSPF	\$1,619.15	15	\$1,295.00	\$1,945.00
Air Source Heat Pump - 17.5 SEER / 9.7 HSPF (Base 14 SEER, 8.2 HSPF)	Unit	Y	≥17.5 SEER and ≥9.7 HSPF	\$1,619.15	15	\$1,295.00	\$1,945.00
Air Source Heat Pump - 18 SEER / 9.7 HSPF (Base 14 SEER, 8.2 HSPF)	Ton	N	≥18 SEER and ≥9.7 HSPF	\$474.41	15	\$120.00	\$180.00
Air Source Heat Pump - 19 SEER / 9.7 HSPF (Base 14 SEER, 8.2 HSPF)	Ton	N	≥19 SEER and ≥9.7 HSPF	\$474.41	15	\$120.00	\$180.00
Air Source Heat Pump - 20 SEER / 10 HSPF (Base 14 SEER, 8.2 HSPF)	Ton	N	≥20 SEER and ≥10.0 HSPF	\$503.81	15	\$140.00	\$210.00
Air Source Heat Pump - 21 SEER / 10 HSPF (Base 14 SEER, 8.2 HSPF)	Ton	N	≥21 SEER and ≥10.0 HSPF	\$533.21	15	\$140.00	\$210.00
Air Source Heat Pump - 22 SEER / 11 HSPF (Base 14 SEER, 8.2 HSPF)	Ton	N	≥22 SEER and ≥11.0 HSPF	\$614.03	15	\$160.00	\$240.00
Central Air Conditioner SEER 16 (Base 13 SEER)	Unit	Y	≥16 SEER	\$2,766.63	15	\$2,210.00	\$3,325.00
Central Air Conditioner SEER 17 (Base 13 SEER)	Unit	Y	≥17 SEER	\$2,766.63	15	\$2,210.00	\$3,325.00
Central Air Conditioner SEER 18 (Base 13 SEER)	Ton	N	≥18 SEER	\$233.59	15	\$100.00	\$150.00
Central Air Conditioner SEER 19 (Base 13 SEER)	Ton	N	≥19 SEER	\$308.38	15	\$100.00	\$150.00
Central Air Conditioner SEER 20 (Base 13 SEER)	Ton	N	≥20 SEER	\$358.46	15	\$120.00	\$180.00
Central Air Conditioner SEER 21 (Base 13 SEER)	Ton	N	≥21 SEER	\$408.54	15	\$120.00	\$180.00
Central Air Conditioner SEER 22 (Base 13 SEER)	Ton	N	≥22 SEER	\$458.63	15	\$120.00	\$180.00
Central Air Conditioner SEER 23 (Base 13 SEER)	Ton	N	≥23 SEER	\$508.71	15	\$120.00	\$180.00
ENERGY STAR Dehumidifiers	Ton	N	ENERGY STAR	\$10.70	12	\$20.00	\$30.00
ENERGY STAR Refrigerator Manual Defrost	Refrigerator	N	ENERGY STAR	\$67.69	14	\$28.00	\$42.00
ENERGY STAR Refrigerator Partial Automatic Defrost	Refrigerator	N	ENERGY STAR	\$67.69	14	\$28.00	\$42.00
ENERGY STAR Refrigerator Top mount freezer without door ice	Refrigerator	N	ENERGY STAR	\$41.56	14	\$28.00	\$42.00
ENERGY STAR Refrigerator Side mount freezer without door ice	Refrigerator	N	ENERGY STAR	\$56.63	14	\$28.00	\$42.00
ENERGY STAR Refrigerator Side mount freezer with door ice	Refrigerator	N	ENERGY STAR	\$165.46	14	\$35.00	\$60.00
ENERGY STAR Refrigerator bottom mount freezer without door ice	Refrigerator	N	ENERGY STAR	\$50.47	14	\$35.00	\$60.00
ENERGY STAR Refrigerator Bottom mount freezer with door ice	Refrigerator	N	ENERGY STAR	\$50.47	14	\$35.00	\$60.00
LED A-Line 11W (MF common area, exterior)	Lamp	Y	Replaces T8, Type A	\$2.89	15	\$1.50	\$2.25
LED A-Line 11W (MF interior, residential)	Lamp	Y	Base 45 lumens/Watt	\$2.89	15	\$1.50	\$2.25
Exterior Wall Insulation - Electric Heat (1000 sf R5- to R11)	Home	Y	R-11 Minimum, TRM 2.6.3	\$2,590.00	15	\$2,075.00	\$3,110.00
Floor Insulation - Electric Heat (R5 to R11, 1000 sf)	Home	Y	R-11 Minimum, TRM 2.6.3	\$1,180.00	15	\$945.00	\$1,415.00

Table 7A: Eligible Measures – Residential (continued)

Measure	Unit	Low-Income Y/N	Eligibility	Incremental Cost (\$/unit)	Estimated Useful Life	Incentive \$/Unit Range	
						Low	High
Freezer Recycling	Freezer	N	Functioning freezer 10-30 cubic feet	\$50.00	4	\$35.00	\$60.00
Freezer Replacement	Freezer	Y	Functioning freezer 10-30 cubic feet	\$493.00	5	\$35.00	\$60.00
Gas Hot Water Kit (SF or MF, Mail-Out)	Kit	Y	Program Provided	\$29.77	8	\$22.00	\$35.00
Gas Hot Water Kit (SF or MF, Verified Install)	Kit	Y	Program Provided	\$29.77	8	\$22.00	\$35.00
Heat Pump Water Heater	Heater	Y	ENERGY STAR Criteria Version 3.2 TRM 2.3.1	\$650.96	10	\$240.00	\$360.00
Home Energy Report - Market Rate	Participant	N	Market Rate Treatment Group	\$74.25	2	\$0.00	\$0.00
Home Energy Report - Low Income	Participant	Y	Low Income Treatment Group	\$46.60	2	\$0.00	\$0.00
LED Parking Garage and Canopy Fixtures 45W	Fixture	Y	MF Common area - DesignLights QPL	\$157.52	15	\$125.00	\$200.00
LED Replacement Lamps (Tubes)-2' (Type A)	Lamp	Y	MF Common area - DesignLights QPL	\$10.06	7	\$7.00	\$10.75
LED Replacement Lamps (Tubes)-4' (Type A)	Lamp	Y	MF Common area - DesignLights QPL	\$10.06	7	\$7.00	\$10.75
LED Decorative 4.5W	Lamp	N	Base 45 lumens/Watt	\$2.25	15	\$1.25	\$2.40
LED Globe/Specialty 5W	Lamp	N	Base 45 lumens/Watt	\$2.50	15	\$1.25	\$2.40
LED Reflector 6.5W	Lamp	N	Base 45 lumens/Watt	\$3.50	15	\$1.25	\$2.40
LED Reflector 7.2W	Lamp	N	Base 45 lumens/Watt	\$3.50	15	\$1.25	\$2.40
LED Reflector 7.5	Lamp	N	Base 45 lumens/Watt	\$3.00	15	\$1.25	\$2.40
LED Reflector 9W	Lamp	N	Base 45 lumens/Watt	\$3.50	15	\$1.25	\$2.40
LED Reflector 9.5	Lamp	N	Base 45 lumens/Watt	\$3.62	15	\$1.25	\$2.40
LED Reflector 11W	Lamp	N	Base 45 lumens/Watt	\$3.50	15	\$1.25	\$2.40
LED Downlight Retrofit	Lamp	N	Base 45 lumens/Watt	\$5.00	15	\$1.25	\$2.40
Middle School Kit	Kit	Y	Program Provided	\$52.24	10	\$40.00	\$65.00
New Homes-15% or higher better than code-Electric Heat	Home	N	PA UCC and IECC 2015 + 15%	\$1,929.63	15	\$640.00	\$960.00
New Homes-15% or higher better than code-Gas Heat	Home	N	PA UCC and IECC 2015 + 15%	\$1,929.63	15	\$280.00	\$420.00
Primary School Kit	Kit	Y	Program Provided	\$22.99	5	\$18.00	\$28.00
Reflector Lamps (average) - Mini-Base 5.5W	Lamp	N	Base 45 lumens/Watt	\$5.48	15	\$1.60	\$2.40
Reflector Lamps (average) - Globe Average 4.5W	Lamp	N	Base 45 lumens/Watt	\$5.48	15	\$1.60	\$2.40
Reflector Lamps (average) - Reflectors Average 11.3W	Lamp	N	Base 45 lumens/Watt	\$5.48	15	\$1.60	\$2.40
Refrigerator Recycling - Retirement	Refrigerator	N	Functioning refrigerator 10-30 cubic feet	\$50.00	5	\$40.00	\$60.00
Refrigerator Recycling - Replacement	Refrigerator	N	Functioning refrigerator 10-30 cubic feet	\$50.00	6	\$40.00	\$60.00
Refrigerator Recycling - Replacement	Refrigerator	Y	Functioning refrigerator 10-30 cubic feet	\$641.00	6	\$510.00	\$770.00
Room AC Recycling - Retirement	Rm A/C	N	Functioning room AC	\$100.00	3	\$40.00	\$60.00
Room AC Recycling w/Replacement	Rm A/C	Y	Functioning room AC	\$479.00	9	\$385.00	\$575.00
Variable speed pool pump	Pump	N	Variable speed, qualifying products listed	\$420.76	10	\$200.00	\$420.00
Weatherstrip 10'	Roll	Y	Electric Space Heating	\$5.99	15	\$3.30	\$5.00
LED, A-Line 11W (MF Common Area, exterior)	Lamp	Y	Base 45 lumens/Watt	\$2.30	15	\$1.40	\$2.10

Table 7B: Eligible Measures – Nonresidential

Measure	Unit	Low-Income Measure (Yes/No)	Eligibility Requirements	Incremental Cost (\$/unit)	Estimated Useful Life	Incentive Amount or Incentive Range (\$/unit)
> 1/6 and < 3/4 hp ECM Pump for DHW	Pump	No	ECM Circulator Pump	\$1,112.01	15	\$200.00
> 1/6 and < 3/4 hp ECM Pump for Heating	Pump	No	ECM Circulator Pump	\$385.57	15	\$200.00
≤ 1/6 hp ECM Pump for DHW	Pump	No	ECM Circulator Pump	\$711.98	15	\$110.00
≤ 1/6 hp ECM Pump for Heating	Pump	No	ECM Circulator Pump	\$292.94	15	\$110.00
≥ 3/4 and < 3 hp ECM Pump for DHW	Pump	No	ECM Circulator Pump	\$1,646.39	15	\$400.00
≥ 3/4 and < 3 hp ECM Pump for Heating	Pump	No	ECM Circulator Pump	\$627.31	15	\$400.00
Adding Doors to Existing Refrigerated Display Cases	Door	No	No Sweat Doors	\$104.20	12	\$50.00
Air Compressor VFD	Compressor HP	No	<200 HP	\$145.00	13	\$75.00
Air-Cooled Refrigeration Condenser	Ton	No	85 Btu/hr of heat rejection capacity per watt;	\$254.00	15	\$115.00
Air-Cooled Chillers >50 Tons, < 150 tons, Min 10.1 EER 15 IPLV	Ton	No	Air-Cooled Chillers >50 Tons, < 150 tons, Min	\$40.10	20	\$25.00
Air-Cooled Chillers >50 Tons, < 150 tons, Min 10.1 EER 16 IPLV	Ton	No	Air-Cooled Chillers >50 Tons, < 150 tons, Min	\$85.00	20	\$50.00
Air-Cooled Chillers >50 Tons, < 150 tons, Min 10.1 EER 18 IPLV	Ton	No	Air-Cooled Chillers >50 Tons, < 150 tons, Min	\$146.00	20	\$90.00
Air-Cooled Chillers Greater than 150 tons, Min 10.1 EER 15 IPLV	Ton	No	Air-Cooled Chillers Greater than 150 tons, Mi	\$36.49	20	\$25.00
Air-Cooled Chillers Greater than 150 tons, Min 10.1 EER 16 IPLV	Ton	No	Air-Cooled Chillers Greater than 150 tons, Mi	\$74.93	20	\$50.00
Air-Cooled Chillers Greater than 150 tons, Min 10.1 EER 18 IPLV	Ton	No	Air-Cooled Chillers Greater than 150 tons, Mi	\$131.72	20	\$90.00
Air-Cooled Chillers Less than 50 tons, Min 10.1 EER 15 IPLV	Ton	No	Air-Cooled Chillers Less than 50 tons, Min 10	\$55.11	20	\$25.00
Air-Cooled Chillers Less than 50 tons, Min 10.1 EER 16 IPLV	Ton	No	Air-Cooled Chillers Less than 50 tons, Min 10	\$146.29	20	\$50.00
Air-Cooled Chillers Less than 50 tons, Min 10.1 EER 18 IPLV	Ton	No	Air-Cooled Chillers Less than 50 tons, Min 10	\$207.41	20	\$90.00
Anti sweat heat controls	Controller	No	On/Off or Micro Pulse	\$1,051.00	12	\$137.78
Auto Closer for Coolers	Door	No	Close within 1"	\$260.00	8	\$247.00
Auto Closers	Closer	No	Close within 1"	\$260.00	8	\$50.00
Combined Heat and Power	kWh	No	N/A	\$798,367.50	15	\$408,000.00
Controls: Anti-Sweat Heater Controls	Controller	No	On/Off or Micro Pulse	\$1,051.00	12	\$200.00
Controls: Evaporator Coil Defrost Control	Controller	No	Frost detection	\$210.00	10	\$75.00
Controls: Evaporator Fan Controllers .	HP Controlled	No	On/Off Control tied to Refrigerant Flow	\$563.00	15	\$60.00
Controls: Floating Head Pressure Controls	HP	No	SCT Saturated Condensing Temperature ≤ 70	\$275.00	15	\$150.00
Custom Cooling - Downstream Small	kWh	No	Average Small Building Types	\$81,110.95	15	\$53,051.28
Custom Cooling - Downstream Large	kWh	No	Average Large Building Types	\$434,140.59	15	\$232,952.00
Custom Cooling - VCx Average Small	Project	No	VCx - Custom Average Small Cooling	\$6,790.00	15	\$6,790.00
Custom Cooling - VCx Average Large	Project	No	VCx - Custom Average LargeCooling	\$12,028.00	15	\$12,028.00
Custom Exterior Controls	kWh	No	N/A	\$1,142.90	15	\$716.12
Custom Exterior Controls	kWh	No	N/A	\$6,117.27	15	\$3,494.28
Custom Exterior New Construction	kWh	No	Above Code	\$10,286.06	15	\$6,445.07
Custom Exterior New Construction	kWh	No	N/A	\$55,055.41	15	\$31,448.52
Custom Interior Controls	kWh	No	N/A	\$68,037.54	15	\$74,104.23
Custom Interior New Construction	kWh	No	Above Code	\$114,403.74	15	\$167,084.75
Custom Interior New Construction	kWh	No	N/A	\$612,337.84	15	\$608,004.71
Custom Other - Downstream Small	kWh	No	N/A	\$93,830.47	15	\$35,542.90
Custom Other - Downstream Large	kWh	No	N/A	\$502,220.88	15	\$66,250.66

Table 7B: Eligible Measures – Nonresidential (continued)

Measure	Unit	Low-Income Y/N	Eligibility	Incremental Cost (\$/unit)	Estimated Useful Life	Incentive \$/Unit Range	
						Low	High
Custom Process - Down Stream Small	kWh	No	N/A	\$21,818.00	15	\$7,161.19	
Custom Process - Downstream Large	kWh	No	N/A	\$116,779.30	15	\$25,261.23	
Custom Refrigeration - Downstream Small	kWh	No	N/A	\$25,688.07	15	\$9,548.26	
Custom Refrigeration - Downstream Large	kWh	No	N/A	\$137,493.58	15	\$34,004.35	
Custom Ventilation - Downstream Small	kWh	No	N/A	\$9,446.65	15	\$18,833.45	
Custom Ventilation - Downstream Large	kWh	No	N/A	\$50,562.54	15	\$81,533.20	
Decorative, Globe, Screw-based 1050-1300 lumens	Lamp	No	ENERGYSTAR Listed Product	\$5.05	15	\$1.00	
Decorative, Globe, Screw-based 250-309 lumens	Lamp	No	ENERGYSTAR Listed Product	\$5.05	15	\$1.00	
Decorative, Globe, Screw-based 310-349 lumens	Lamp	No	ENERGYSTAR Listed Product	\$5.05	15	\$1.00	
Decorative, Globe, Screw-based 350-499 lumens	Lamp	No	ENERGYSTAR Listed Product	\$5.05	15	\$1.00	
Decorative, Globe, Screw-based 500-574 lumens	Lamp	No	ENERGYSTAR Listed Product	\$5.05	15	\$1.00	
Decorative, Globe, Screw-based 500-574 lumens	Lamp	No	ENERGYSTAR Listed Product	\$6.17	15	\$6.17	
Decorative, Globe, Screw-based 575-649 lumens	Lamp	No	ENERGYSTAR Listed Product	\$5.05	15	\$1.00	
Decorative, Globe, Screw-based 650-749 lumens	Lamp	No	ENERGYSTAR Listed Product	\$5.05	15	\$1.00	
Decorative, Globe, Screw-based 750-1049 lumens	Lamp	No	ENERGYSTAR Listed Product	\$5.05	15	\$1.00	
Decorative, Non-Globe, Screw-based 150-299 lumens	Lamp	No	ENERGYSTAR Listed Product	\$2.86	15	\$1.00	
Decorative, Non-Globe, Screw-based 300-309 lumens	Lamp	No	ENERGYSTAR Listed Product	\$2.86	15	\$1.00	
Decorative, Non-Globe, Screw-based 300-309 lumens	Lamp	No	ENERGYSTAR Listed Product	\$3.98	15	\$3.98	
Decorative, Non-Globe, Screw-based 310-499 lumens	Lamp	No	ENERGYSTAR Listed Product	\$2.86	15	\$1.00	
Decorative, Non-Globe, Screw-based 500-699 lumens	Lamp	No	ENERGYSTAR Listed Product	\$2.86	15	\$1.00	
Decorative, Non-Globe, Screw-based 90-149 lumens	Lamp	No	ENERGYSTAR Listed Product	\$2.86	15	\$1.00	
Door Gaskets for Walk-in and Reach-in Coolers and Freezers	Door	No	Must apply to entire perimeter	\$90.00	4	\$30.00	
Ductless Mini-Split Heat Pump - 16 SEER	Ton	No	Ductless Mini-Split Heat Pump - 16 SEER	\$90.52	15	\$50 - \$250	
Ductless Mini-Split Heat Pump - 19 SEER	Ton	No	Ductless Mini-Split Heat Pump - 19 SEER	\$189.28	15	\$50 - \$250	
Ductless Mini-Split Heat Pump - 22 SEER	Ton	No	Ductless Mini-Split Heat Pump - 22 SEER	\$366.33	15	\$50 - \$250	
ECM motor for walk in freezer or cooler	Motor	No	ECM motor	\$295.84	15	\$50.00	
ECM motor for walk in freezer or cooler	Motor	No	ECM motor	\$295.84	15	\$118.04	
ECM motor for walk in freezer or cooler	Motor	No	ECM Motor	\$295.84	15	\$145.00	
ECM motor of reach in cases	Motor	No	ECM motor	\$295.84	15	\$50.00	
ECM motor of reach in cases	Motor	No	ECM motor	\$295.84	15	\$102.89	
ECM motor of reach in cases	Motor	No	ECM Motor	\$295.84	15	\$145.00	
Efficient Combination Oven <15 pans	unit	No	Energy Star or FSTC Qualified	\$2,512.00	12	\$2,000.00	
Efficient Combination Oven ≥ 28 pans	unit	No	Energy Star or FSTC Qualified	\$2,512.00	12	\$2,000.00	
Efficient Combination Oven ≥15,<28 pans	unit	No	Energy Star or FSTC Qualified	\$2,512.00	12	\$2,000.00	
Efficient Commercial Convection Oven Full size	unit	No	Energy Star or FSTC Qualified	\$374.00	12	\$325.00	
Efficient Commercial Convection Oven Half size	unit	No	Energy Star or FSTC Qualified	\$559.00	12	\$325.00	
Efficient commercial dishwasher Multi Tank Conveyor High Temperature	unit	No	Energy Star or FSTC Qualified	\$1,159.00	10	\$1,850.00	
Efficient commercial dishwasher Multi Tank Conveyor Low Temperature	unit	No	Energy Star or FSTC Qualified	\$2,035.00	10	\$1,850.00	
Efficient commercial dishwasher Pot, Pan, and Utensil High Temperature	unit	No	Energy Star or FSTC Qualified	\$2,044.00	10	\$300.00	

Table 7B: Eligible Measures – Nonresidential (continued)

Measure	Unit	Low-Income Y/N	Eligibility	Incremental Cost (\$/unit)	Estimated Useful Life	Incentive \$/Unit Range	
						Low	High
Efficient commercial dishwasher Single Tank Conveyor High Temperature	unit	No	Energy Star or FSTC Qualified	\$2,450.00	10	\$875.00	
Efficient commercial dishwasher Single Tank Conveyor Low Temperature	unit	No	Energy Star or FSTC Qualified	\$2,035.00	10	\$1,325.00	
Efficient commercial dishwasher Stationary Single Tank Door High Temperature	unit	No	Energy Star or FSTC Qualified	\$920.00	10	\$875.00	
Efficient commercial dishwasher Stationary Single Tank Door Low Temperature	unit	No	Energy Star or FSTC Qualified	\$2,035.00	10	\$750.00	
Efficient commercial dishwasher Stationary Single Tank Door Low Temperature	unit	No	Energy Star or FSTC Qualified	\$2,035.00	10	\$750.00	
Efficient commercial dishwasher Under Counter High Temperature	unit	No	Energy Star or FSTC Qualified	\$243.00	10	\$200.00	
Efficient commercial dishwasher Under Counter Low Temperature	unit	No	Energy Star or FSTC Qualified	\$220.00	10	\$200.00	
Efficient Commercial Fryer Large Vat	unit	No	Energy Star or FSTC Qualified	\$299.00	12	\$225.00	
Efficient Commercial Fryer Standard	unit	No	Energy Star or FSTC Qualified	\$1,777.00	12	\$225.00	
Efficient Commercial Glass Door Freezers less than 15 cu. ft.	unit	No	Energy Star or FSTC Qualified	\$150.00	12	\$100.00	
Efficient Commercial Glass Door Freezers 15 to 30 cu. ft.	unit	No	Energy Star or FSTC Qualified	\$400.00	12	\$125.00	
Efficient Commercial Glass Door Freezers 31 to 50 cu. ft.	unit	No	Energy Star or FSTC Qualified	\$550.00	12	\$200.00	
Efficient Commercial Glass Door Freezers more than 50 cu.ft.	unit	No	Energy Star or FSTC Qualified	\$700.00	12	\$250.00	
Efficient Commercial Glass Door Refrigerators less than 15 cu. ft.	unit	No	Energy Star or FSTC Qualified	\$250.00	12	\$100.00	
Efficient Commercial Glass Door Refrigerators 15 to 30 cu. ft.	unit	No	Energy Star or FSTC Qualified	\$500.00	12	\$125.00	
Efficient Commercial Glass Door Refrigerators 31 to 50 cu. ft.	unit	No	Energy Star or FSTC Qualified	\$750.00	12	\$175.00	
Efficient Commercial Glass Door Refrigerators more than 50 cu. ft	unit	No	Energy Star or FSTC Qualified	\$900.00	12	\$225.00	
Efficient Commercial Griddle	unit	No	Energy Star or FSTC Qualified	\$950.00	12	\$350.00	
Efficient Commercial Hot Food Holding Cabinet Full Size	unit	No	Energy Star or FSTC Qualified	\$895.00	12	\$675.00	
Efficient Commercial Hot Food Holding Cabinet Half Size	unit	No	Energy Star or FSTC Qualified	\$421.00	12	\$350.00	
Efficient Commercial Solid Door Freezers (< 15 cu ft)	unit	No	Energy Star or FSTC Qualified	\$150.00	12	\$100.00	
Efficient Commercial Solid Door Freezers (> 50 cu ft)	unit	No	Energy Star or FSTC Qualified	\$700.00	12	\$225.00	
Efficient Commercial Solid Door Freezers (15 - 30 cu ft)	unit	No	Energy Star or FSTC Qualified	\$400.00	12	\$125.00	
Efficient Commercial Solid Door Freezers (30 - 50 cu ft)	unit	No	Energy Star or FSTC Qualified	\$550.00	12	\$175.00	
Efficient Commercial Solid Door Refrigerators (< 15 cu ft)	unit	No	Energy Star or FSTC Qualified	\$250.00	12	\$100.00	
Efficient Commercial Solid Door Refrigerators (> 50 cu ft)	unit	No	Energy Star or FSTC Qualified	\$900.00	12	\$225.00	
Efficient Commercial Solid Door Refrigerators (15 - 30 cu ft)	unit	No	Energy Star or FSTC Qualified	\$500.00	12	\$125.00	
Efficient Commercial Solid Door Refrigerators (30 - 50 cu ft)	unit	No	Energy Star or FSTC Qualified	\$750.00	12	\$175.00	
Efficient Electric Steam Cooker	Unit	No	Energy Star or FSTC Qualified	\$2,630.10	12	\$2,000.00	
Efficient Ice Machines Batch Type - self contained	Unit	No	Energy Star or FSTC Qualified	\$186.11	8	\$350.00	
Efficient Ice Machines Batch Type - Ice making head	Unit	No	Energy Star or FSTC Qualified	\$311.25	8	\$350.00	
Efficient Ice Machines Batch Type - remote condensing	Unit	No	Energy Star or FSTC Qualified	\$476.72	8	\$350.00	
Efficient Ice Machines Continuous Type - ice making head	Unit	No	Energy Star or FSTC Qualified	\$467.05	8	\$350.00	
Efficient Ice Machines Continuous Type - remote condensing	Unit	No	Energy Star or FSTC Qualified	\$541.11	8	\$350.00	
Efficient Ice Machines Continuous Type - self contained	Unit	No	Energy Star or FSTC Qualified	\$285.43	8	\$350.00	
Exit Sign Retrofit	Sign	No	ENERGYSTAR Listed Product	\$55.25	15	\$55.25	
Heat Pump Water Heaters	Unit	No	Energy Star Qualified	\$650.96	10	\$500.00	
High Efficiency Pumps 1 ≤ HP < 3, Constant Speed	HP	No	PEI <0.96	\$119.88	13	\$25.00	
High Efficiency Pumps 1 ≤ HP < 3, Variable Speed	HP	No	PEI <0.49	\$127.09	13	\$25.00	

Table 7B: Eligible Measures – Nonresidential (continued)

Measure	Unit	Low-Income Y/N	Eligibility	Incremental Cost (\$/unit)	Estimated Useful Life	Incentive \$/Unit Range	
						Low	High
High Efficiency Pumps 3 ≤ HP ≤ 50, Constant Speed	HP	No	PEI <0.96	\$29.50	13	\$25.00	
High Efficiency Pumps 3 ≤ HP ≤ 50, Variable Speed	HP	No	PEI <0.49	\$31.33	13	\$25.00	
High Efficiency Pumps 50 < HP ≤ 200, Constant Speed	HP	No	PEI <0.96	\$8.12	13	\$4.00	
High Efficiency Pumps 50 < HP ≤ 200, Variable Speed	HP	No	PEI <0.49	\$8.04	13	\$4.00	
High-Efficiency Evaporator Fan Motors for Walk-Ins/Reach-In Refrigerated Ca	Motor	No	ECM Motor	\$342.69	15	\$50.00	
High-Efficiency Refrigeration/Freezer Cases	Cubic Foot	No	ENERGYSTAR Listed Product	\$32.58	12	\$10.00	
Insulation on suction pipes	Linear Ft	No	Thickness of 3/4" for cooler, 1" for freezer	\$8.88	11	\$2.55	
LED 2' Linear Replacement Lamp	Lamp	No	DesignLights Consortium Listed Product	\$10.06	15	\$2.50	
LED 2' Linear Replacement Lamp	Lamp	No	DesignLights Consortium Listed Product	\$13.31	15	\$2.50	
LED 3' Linear Replacement Lamp	Lamp	No	DesignLights Consortium Listed Product	\$10.06	15	\$2.50	
LED 4' Interior Linear Strip Fixture or Retrofit Kit	Fixture	No	DesignLights Consortium Listed Product	\$122.27	15	\$30.24	
LED 4' Interior Linear Strip Fixture or Retrofit Kit	Fixture	No	DesignLights Consortium Listed Product	\$185.11	15	\$30.24	
LED 4' Interior Linear Strip Fixture or Retrofit Kit	Fixture	No	DesignLights Consortium Listed Product	\$122.27	15	\$18.00	
LED 4' Linear Replacement Lamp	Lamp	No	DesignLights Consortium Listed Product	\$10.06	15	\$3.50	
LED 4' Linear Replacement Lamp	Lamp	No	DesignLights Consortium Listed Product	\$13.31	15	\$9.30	
LED 4' Linear Replacement Lamp	Lamp	No	DesignLights Consortium Listed Product	\$13.31	15	\$3.50	
LED 8' Interior Linear Strip Fixture or Retrofit Kit	Fixture	No	DesignLights Consortium Listed Product	\$185.11	15	\$35.00	
LED 8' Linear Replacement Lamp	Lamp	No	DesignLights Consortium Listed Product	\$12.22	15	\$7.00	
LED 8' Linear Replacement Lamp	Lamp	No	DesignLights Consortium Listed Product	\$15.47	15	\$7.00	
LED Display Case Lighting	Door	No	DesignLights Consortium Listed Product	\$51.07	8	\$15.00	
LED Exit Sign	Sign	No	ENERGYSTAR Listed Product	\$55.25	15	\$20.00	
LED Exterior Area Lighting 0-49 Watt LED Fixture	Fixture	No	DesignLights Consortium Listed Product	\$340.65	15	\$72.52	
LED Exterior Area Lighting 0-49 Watt LED Fixture	Fixture	No	DesignLights Consortium Listed Product	\$340.65	15	\$35.00	
LED Exterior Area Lighting 1,000 watt HID lamp	Fixture	No	DesignLights Consortium Listed Product	\$432.77	15	\$50.00	
LED Exterior Area Lighting 100 watt HID lamp	Fixture	No	DesignLights Consortium Listed Product	\$193.27	15	\$70.00	
LED Exterior Area Lighting 110-149 Watt LED Fixture	Fixture	No	DesignLights Consortium Listed Product	\$497.77	15	\$230.18	
LED Exterior Area Lighting 110-149 Watt LED Fixture	Fixture	No	DesignLights Consortium Listed Product	\$497.77	15	\$70.00	
LED Exterior Area Lighting 150-191 Watt LED Fixture	Fixture	No	DesignLights Consortium Listed Product	\$497.77	15	\$80.00	
LED Exterior Area Lighting 175 watt HID lamp	Fixture	No	DesignLights Consortium Listed Product	\$380.05	15	\$80.00	
LED Exterior Area Lighting 192-224 Watt LED Fixture	Fixture	No	DesignLights Consortium Listed Product	\$497.77	15	\$100.00	
LED Exterior Area Lighting 225-264 Watt LED Fixture	Fixture	No	DesignLights Consortium Listed Product	\$497.77	15	\$125.00	
LED Exterior Area Lighting 250 watt HID lamp	Fixture	No	DesignLights Consortium Listed Product	\$380.05	15	\$100.00	
LED Exterior Area Lighting 265-499 Watt LED Fixture	Fixture	No	DesignLights Consortium Listed Product	\$497.77	15	\$150.00	
LED Exterior Area Lighting 400 watt HID lamp	Fixture	No	DesignLights Consortium Listed Product	\$432.77	15	\$125.00	
LED Exterior Area Lighting 50-69 Watt LED Fixture	Fixture	No	DesignLights Consortium Listed Product	\$428.80	15	\$120.87	
LED Exterior Area Lighting 50-69 Watt LED Fixture	Fixture	No	DesignLights Consortium Listed Product	\$428.80	15	\$50.00	
LED Exterior Area Lighting 70-109 Watt LED Fixture	Fixture	No	DesignLights Consortium Listed Product	\$497.77	15	\$65.00	
LED Exterior Area Lighting 750 watt HID lamp	Fixture	No	DesignLights Consortium Listed Product	\$432.77	15	\$150.00	
LED Interior 1' X 2'	Fixture	No	DesignLights Consortium Listed Product	\$140.93	15	\$15.00	

Table 7B: Eligible Measures – Nonresidential (continued)

Measure	Unit	Low-Income Y/N	Eligibility	Incremental Cost (\$/unit)	Estimated Useful Life	Incentive \$/Unit Range	
						Low	High
LED Interior 1' X 4'	Fixture	No	DesignLights Consortium Listed Product	\$140.93	15	\$18.00	
LED Interior 2' X 2'	Fixture	No	DesignLights Consortium Listed Product	\$140.93	15	\$16.86	
LED Interior 2' X 2'	Fixture	No	DesignLights Consortium Listed Product	\$140.93	15	\$18.00	
LED Interior 2' X 2' Kit, Less than 3500 Lumens	Fixture	No	DesignLights Consortium Listed Product	\$108.43	15	\$18.00	
LED Interior 2' X 2' Kit, More than 3500 Lumens	Fixture	No	DesignLights Consortium Listed Product	\$108.43	15	\$18.00	
LED Interior 2' X 2', Less than 3500 Lumens	Fixture	No	DesignLights Consortium Listed Product	\$108.43	15	\$18.00	
LED Interior 2' X 4'	Fixture	No	DesignLights Consortium Listed Product	\$157.52	15	\$22.68	
LED Interior 2' X 4'	Fixture	No	DesignLights Consortium Listed Product	\$157.52	15	\$20.00	
LED Interior 2' X 4' Kit, Max 4261 lumens	Fixture	No	DesignLights Consortium Listed Product	\$125.02	15	\$20.00	
LED Interior 2' X 4' Kit, Max 6392 lumens	Fixture	No	DesignLights Consortium Listed Product	\$125.02	15	\$20.00	
LED Interior 2' X 4' Kit, Max 6392 lumens	Fixture	No	DesignLights Consortium Listed Product	\$125.02	15	\$20.00	
LED Interior 2' X 4' Kit, Max 9140 lumens	Fixture	No	DesignLights Consortium Listed Product	\$125.02	15	\$20.00	
LED Interior 2' X 4', Max 2132 lumens	Fixture	No	DesignLights Consortium Listed Product	\$125.02	15	\$20.00	
LED Interior 2' X 4', Max 4261 lumens	Fixture	No	DesignLights Consortium Listed Product	\$125.02	15	\$20.00	
LED Interior 2' X 4', Max 6392 lumens	Fixture	No	DesignLights Consortium Listed Product	\$125.02	15	\$20.00	
LED Interior 2' X 4', Max 9140 lumens	Fixture	No	DesignLights Consortium Listed Product	\$125.02	15	\$20.00	
LED Interior High-Bay Fixture 1,000 watt HID lamp/ T8 HLO	Fixture	No	DesignLights Consortium Listed Product	\$323.70	15	\$250.00	
LED Interior High-Bay Fixture 131-159W	Fixture	No	DesignLights Consortium Listed Product	\$363.25	15	\$60.00	
LED Interior High-Bay Fixture 150 watt HID lamp/ T8 HLO	Fixture	No	DesignLights Consortium Listed Product	\$276.90	15	\$60.00	
LED Interior High-Bay Fixture 160-186W	Fixture	No	DesignLights Consortium Listed Product	\$363.25	15	\$70.00	
LED Interior High-Bay Fixture 175 watt HID lamp/ T8 HLO	Fixture	No	DesignLights Consortium Listed Product	\$319.92	15	\$70.00	
LED Interior High-Bay Fixture 187-219W	Fixture	No	DesignLights Consortium Listed Product	\$367.03	15	\$80.00	
LED Interior High-Bay Fixture 200 watt HID lamp/ T8 HLO	Fixture	No	DesignLights Consortium Listed Product	\$319.92	15	\$80.00	
LED Interior High-Bay Fixture 220-261W	Fixture	No	DesignLights Consortium Listed Product	\$367.03	15	\$90.00	
LED Interior High-Bay Fixture 250 watt HID lamp/ T8 HLO	Fixture	No	DesignLights Consortium Listed Product	\$323.70	15	\$90.00	
LED Interior High-Bay Fixture 262-279W	Fixture	No	DesignLights Consortium Listed Product	\$367.03	15	\$100.00	
LED Interior High-Bay Fixture 280-319W	Fixture	No	DesignLights Consortium Listed Product	\$367.03	15	\$175.00	
LED Interior High-Bay Fixture 320 watt HID lamp/ T8 HLO	Fixture	No	DesignLights Consortium Listed Product	\$323.70	15	\$100.00	
LED Interior High-Bay Fixture 320-499W	Fixture	No	DesignLights Consortium Listed Product	\$367.03	15	\$200.00	
LED Interior High-Bay Fixture 400 watt HID lamp/ T8 HLO	Fixture	No	DesignLights Consortium Listed Product	\$323.70	15	\$175.00	
LED Interior High-Bay Fixture 40-130W	Fixture	No	DesignLights Consortium Listed Product	\$309.40	15	\$83.46	
LED Interior High-Bay Fixture 40-130W	Fixture	No	DesignLights Consortium Listed Product	\$309.40	15	\$45.00	
LED Interior High-Bay Fixture 500-750W	Fixture	No	DesignLights Consortium Listed Product	\$367.03	15	\$250.00	
LED Interior High-Bay Fixture 750 watt HID lamp/ T8 HLO	Fixture	No	DesignLights Consortium Listed Product	\$323.70	15	\$200.00	
Night Covers for Display Cases	Linear Ft.	No	Perforated	\$42.20	5	\$9.00	
Omnidirectional, General Service Lamp, Screw-based 1050-1489 lumens	Lamp	No	ENERGYSTAR Listed Product	\$3.18	15	\$1.00	
Omnidirectional, General Service Lamp, Screw-based 1490-1999 lumens	Lamp	No	ENERGYSTAR Listed Product	\$3.18	15	\$1.00	
Omnidirectional, General Service Lamp, Screw-based 2000-2600 lumens	Lamp	No	ENERGYSTAR Listed Product	\$3.18	15	\$1.00	
Omnidirectional, General Service Lamp, Screw-based 250-309 lumens	Lamp	No	ENERGYSTAR Listed Product	\$3.18	15	\$1.00	

Table 7B: Eligible Measures – Nonresidential (continued)

Measure	Unit	Low-Income Y/N	Eligibility	Incremental Cost (\$/unit)	Estimated Useful Life	Incentive \$/Unit Range	
						Low	High
Omnidirectional, General Service Lamp, Screw-based 2601-3000 lumens	Lamp	No	ENERGYSTAR Listed Product	\$3.18	15	\$1.00	
Omnidirectional, General Service Lamp, Screw-based 3001-3300 lumens	Lamp	No	ENERGYSTAR Listed Product	\$3.18	15	\$1.00	
Omnidirectional, General Service Lamp, Screw-based 310-449 lumens	Lamp	No	ENERGYSTAR Listed Product	\$3.18	15	\$1.00	
Omnidirectional, General Service Lamp, Screw-based 3301-3999 lumens	Lamp	No	ENERGYSTAR Listed Product	\$3.18	15	\$1.00	
Omnidirectional, General Service Lamp, Screw-based 4000-6000 lumens	Lamp	No	ENERGYSTAR Listed Product	\$3.18	15	\$1.00	
Omnidirectional, General Service Lamp, Screw-based 450-749 lumens	Lamp	No	ENERGYSTAR Listed Product	\$3.18	15	\$1.00	
Omnidirectional, General Service Lamp, Screw-based 750-1049 lumens	Lamp	No	ENERGYSTAR Listed Product	\$3.18	15	\$1.00	
Omnidirectional, General Service Lamp, Screw-based 750-1049 lumens	Lamp	No	ENERGYSTAR Listed Product	\$4.30	15	\$4.30	
Packaged Terminal AC or PTHP 11.0 EER	Ton	No	Packaged Terminal AC or PTHP 11.0 EER	\$106.62	15	\$30 - \$90	
Packaged Terminal AC or PTHP 12.0 EER	Ton	No	Packaged Terminal AC or PTHP 12.0 EER	\$178.85	15	\$30 - \$90	
Packaged Terminal AC or PTHP 13.0 or higher EER	Ton	No	Packaged Terminal AC or PTHP 13.0 or higher	\$300.03	15	\$30 - \$90	
Pre-Rinse Sprayers	Sprayer	No	Less than 1.6 GPM	\$124.23	8	\$124.23	
Reflector Lamp; PAR, MR, MRX 1260-1399 lumens	Lamp	No	ENERGYSTAR Listed Product	\$5.48	15	\$1.00	
Reflector Lamp; PAR, MR, MRX 400-472 lumens	Lamp	No	ENERGYSTAR Listed Product	\$5.48	15	\$1.00	
Reflector Lamp; PAR, MR, MRX 473-524 lumens	Lamp	No	ENERGYSTAR Listed Product	\$5.48	15	\$1.00	
Reflector Lamp; PAR, MR, MRX 525-714 lumens	Lamp	No	ENERGYSTAR Listed Product	\$5.48	15	\$1.00	
Reflector Lamp; PAR, MR, MRX 715-937 lumens	Lamp	No	ENERGYSTAR Listed Product	\$5.48	15	\$1.00	
Reflector Lamp; PAR, MR, MRX 938-1259 lumens	Lamp	No	ENERGYSTAR Listed Product	\$5.48	15	\$1.00	
Reflector Lamp; PAR, MR, MRX 938-1259 lumens	Lamp	No	ENERGYSTAR Listed Product	\$6.60	15	\$6.60	
Refrigerated Case Light Occupancy Controls	Watts Controlled	No	Dim or turn off lighting	\$3.00	8	\$0.25	
Refrigerated Display Cases with Doors Replacing Open Cases	Linear Ft.	No	No Sweat Doors	\$321.95	12	\$35.00	
Refrigeration Economizers	Compressor HP	No	Outside air required	\$100.00	15	\$50.00	
Replacement door w/ anti-sweat heater	Linear Ft.	No	Reflective Coating and Fiberglass frame	\$122.27	12	\$96.77	
Special Doors with Low or No Anti-Sweat Heat for Low Temp Case	Door	No	>57", either reflective coating or gas filled	\$255.31	12	\$45.00	
Strip Curtains for Walk-In Freezers and Coolers	Sq. Ft.	No	0.06 inches thick	\$10.22	4	\$3.00	
Suction Pipe Insulation for Walk-In Coolers and Freezers	Linear Ft.	No	Thickness of 3/4" for cooler, 1" for freezer	\$8.35	11	\$2.00	
Unitary HVAC <65k Packaged 3-phase AC unit, Min 15 SEER	Ton	No	Unitary HVAC <65k Packaged 3-phase AC unit	\$131.26	15	\$30.00	
Unitary HVAC <65k Packaged 3-phase AC unit, Min 16 SEER	Ton	No	Unitary HVAC <65k Packaged 3-phase AC unit	\$271.58	15	\$60.00	
Unitary HVAC <65k Packaged 3-phase AC unit, Min 18 SEER	Ton	No	Unitary HVAC <65k Packaged 3-phase AC unit	\$420.95	15	\$100.00	
Unitary HVAC <65k Split 3-phase AC unit, Min 15 SEER	Ton	No	Unitary HVAC <65k Split 3-phase AC unit, Min	\$131.26	15	\$40.00	
Unitary HVAC <65k Split 3-phase AC unit, Min 16 SEER	Ton	No	Unitary HVAC <65k Split 3-phase AC unit, Min	\$271.58	15	\$80.00	
Unitary HVAC <65k Split 3-phase AC unit, Min 18 SEER	Ton	No	Unitary HVAC <65k Split 3-phase AC unit, Min	\$420.95	15	\$100.00	
Unitary HVAC ≥760k AC unit, min 9.7 EER 13 IEER	Ton	No	Unitary HVAC ≥760k AC unit, min 9.7 EER 13	\$40.00	15	\$30.00	
Unitary HVAC ≥760k AC unit, min 9.7 EER 14 IEER	Ton	No	Unitary HVAC ≥760k AC unit, min 9.7 EER 14	\$80.00	15	\$60.00	
Unitary HVAC ≥760k AC unit, min 9.7 EER 16 IEER	Ton	No	Unitary HVAC ≥760k AC unit, min 9.7 EER 16	\$133.33	15	\$100.00	
Unitary HVAC 135-240k AC unit, Min 11.5 EER 13 IEER	Ton	No	Unitary HVAC 135-240k AC unit, Min 11.5 EE	\$43.41	15	\$30.00	
Unitary HVAC 135-240k AC unit, Min 11.5 EER 14 IEER	Ton	No	Unitary HVAC 135-240k AC unit, Min 11.5 EE	\$86.97	15	\$60.00	
Unitary HVAC 135-240k AC unit, min 11.5 EER 16 IEER	Ton	No	Unitary HVAC 135-240k AC unit, min 11.5 EE	\$147.88	15	\$100.00	
Unitary HVAC 240-760k AC unit, min 9.8 EER 12 IEER	Ton	No	Unitary HVAC 240-760k AC unit, min 9.8 EER	\$41.49	15	\$30.00	

Table 7B: Eligible Measures – Nonresidential (continued)

Measure	Unit	Low-Income Y/N	Eligibility	Incremental Cost (\$/unit)	Estimated Useful Life	Incentive \$/Unit Range	
						Low	High
Unitary HVAC 240-760k AC unit, min 9.8 EER 13 IEER	Ton	No	Unitary HVAC 240-760k AC unit, min 9.8 EER	\$80.00	15	\$60.00	
Unitary HVAC 240-760k AC unit, min 9.8 EER 14 IEER	Ton	No	Unitary HVAC 240-760k AC unit, min 9.8 EER	\$133.33	15	\$100.00	
Unitary HVAC 65-135k AC unit, Min 11.5 EER 13.2 IEER	Ton	No	Unitary HVAC 65-135k AC unit, Min 11.5 EER	\$46.48	15	\$30.00	
Unitary HVAC 65-135k AC unit, Min 11.5 EER 14 IEER	Ton	No	Unitary HVAC 65-135k AC unit, Min 11.5 EER	\$93.25	15	\$60.00	
Unitary HVAC 65-135k AC unit, Min 11.5 EER 17.8 IEER	Ton	No	Unitary HVAC 65-135k AC unit, Min 11.5 EER	\$160.99	15	\$100.00	
Variable Speed Refrigeration Compressor	HP	No	VSD replacing slide valve	\$100.00	15	\$15.00	
VFD - HVAC Fan Motor - Midstream Small	HP	No	VFD	\$107.99	15	\$75.00	
VFD - HVAC Fan Motor - Downstream Large	HP	No	<200 HP	\$140.60	15	\$75.00	
Water Source and Geothermal Heat Pumps 14 EER	Ton	No	Water Source and Geothermal Heat Pumps 14	\$80.53	15	\$30 - \$150	
Water Source and Geothermal Heat Pumps 15 EER	Ton	No	Water Source and Geothermal Heat Pumps 15	\$167.63	15	\$30 - \$150	
Water Source and Geothermal Heat Pumps 16 EER	Ton	No	Water Source and Geothermal Heat Pumps 16	\$261.83	15	\$30 - \$150	
Water-Cooled Chiller (Centrifugal) ≥150 tons, < 300 tons	Ton	No	Water-Cooled Chiller (Centrifugal) ≥150 tons, <	\$91.23	20	\$15 - \$100	
Water-Cooled Chiller (Centrifugal) ≥300 tons, < 400 tons	Ton	No	Water-Cooled Chiller (Centrifugal) ≥300 tons, <	\$75.09	20	\$15 - \$100	
Water-Cooled Chiller (Centrifugal) ≥400 tons, < 600 tons	Ton	No	Water-Cooled Chiller (Centrifugal) ≥400 tons, <	\$82.30	20	\$15 - \$100	
Water-Cooled Chiller (Centrifugal) Greater than 600 tons	Ton	No	Water-Cooled Chiller (Centrifugal) Greater than	\$94.02	20	\$15 - \$100	
Water-Cooled Chiller (Centrifugal) Less than 150 tons	Ton	No	Water-Cooled Chiller (Centrifugal) Less than 15	\$163.73	20	\$15 - \$100	
Water-Cooled Chiller (Scroll) >150 tons, <300 Tons	Ton	No	Water-Cooled Chiller (Scroll) >150 tons, <300	\$63.91	21	\$15 - \$100	
Water-Cooled Chiller (Scroll) >300 tons, <600 Tons	Ton	No	Water-Cooled Chiller (Scroll) >300 tons, <600	\$50.58	22	\$15 - \$100	
Water-Cooled Chiller (Scroll) >75 tons, <150 tons	Ton	No	Water-Cooled Chiller (Scroll) >75 tons, <150 to	\$94.02	20	\$15 - \$100	
Water-Cooled Chiller (Scroll) Greater than 600 tons	Ton	No	Water-Cooled Chiller (Scroll) Greater than 600	\$48.65	23	\$15 - \$100	
Water-Cooled Chiller (Scroll) Less than 75 tons	Ton	No	Water-Cooled Chiller (Scroll) Less than 75 tons	\$82.30	20	\$15 - \$100	

Table 8A: Estimated Savings and Participants – Residential

Measure	Metric	PY13	PY14	PY15	PY16	PY17
Advanced Power Strip (Tier 1)	MWh Savings	2.871	3.022	3.022	3.022	3.173
	MW Reduction	0.00029	0.00031	0.00031	0.00031	0.00032
	Participants	32.3	34.0	34.0	34.0	35.7
Air Sealing	MWh Savings	20.074	21.130	21.130	21.130	22.187
	MW Reduction	0.00026	0.00027	0.00027	0.00027	0.00028
	Participants	21.2	22.3	22.3	22.3	23.4
Air Source Heat Pump - 16 SEER / 9.0 HSPF	MWh Savings	13.877	14.608	14.608	14.608	15.338
	MW Reduction	0.00109	0.00115	0.00115	0.00115	0.00120
	Participants	20.7	21.8	21.8	21.8	22.9
Air Source Heat Pump - 16 SEER / 9.0 HSPF (Base 14 SEER, 8.2 HSPF)	MWh Savings	1.120	1.179	1.179	1.179	1.238
	MW Reduction	0.00009	0.00009	0.00009	0.00009	0.00010
	Participants	1.7	1.8	1.8	1.8	1.8
Air Source Heat Pump - 17 SEER / 9.0 HSPF	MWh Savings	15.368	16.177	16.177	16.177	16.986
	MW Reduction	0.00176	0.00185	0.00185	0.00185	0.00195
	Participants	20.7	21.8	21.8	21.8	22.9
Air Source Heat Pump - 17.5 SEER / 9.7 HSPF	MWh Savings	17.727	18.660	18.660	18.660	19.593
	MW Reduction	0.00154	0.00162	0.00162	0.00162	0.00170
	Participants	15.5	16.4	16.4	16.4	17.2
Air Source Heat Pump - 17.5 SEER / 9.7 HSPF (Base 14 SEER, 8.2 HSPF)	MWh Savings	1.908	2.009	2.009	2.009	2.109
	MW Reduction	0.00017	0.00017	0.00017	0.00017	0.00018
	Participants	1.7	1.8	1.8	1.8	1.8
Air Source Heat Pump - 18 SEER / 9.7 HSPF	MWh Savings	18.210	19.169	19.169	19.169	20.127
	MW Reduction	0.00174	0.00183	0.00183	0.00183	0.00192
	Participants	15.5	16.4	16.4	16.4	17.2
Air Source Heat Pump - 19 SEER / 9.7 HSPF	MWh Savings	12.733	13.403	13.403	13.403	14.073
	MW Reduction	0.00139	0.00147	0.00147	0.00147	0.00154
	Participants	10.4	10.9	10.9	10.9	11.4
Air Source Heat Pump - 20 SEER / 10 HSPF	MWh Savings	14.730	15.505	15.505	15.505	16.280
	MW Reduction	0.00158	0.00167	0.00167	0.00167	0.00175
	Participants	10.4	10.9	10.9	10.9	11.4
Air Source Heat Pump - 21 SEER / 10 HSPF	MWh Savings	7.606	8.007	8.007	8.007	8.407
	MW Reduction	0.00087	0.00091	0.00091	0.00091	0.00096
	Participants	5.2	5.5	5.5	5.5	5.7
Air Source Heat Pump - 22 SEER / 11 HSPF	MWh Savings	9.976	10.501	10.501	10.501	11.026
	MW Reduction	0.00093	0.00098	0.00098	0.00098	0.00102
	Participants	5.2	5.5	5.5	5.5	5.7
Basement Wall Insulation - Electric Heat	MWh Savings	15.653	16.477	16.477	16.477	17.300
	MW Reduction	0.00011	0.00011	0.00011	0.00011	0.00012
	Participants	10.9	11.4	11.4	11.4	12.0
Ceiling Insulation - Electric Heat	MWh Savings	20.907	22.008	22.008	22.008	23.108
	MW Reduction	0.00070	0.00073	0.00073	0.00073	0.00077
	Participants	21.2	22.3	22.3	22.3	23.4
Central Air Conditioner SEER 16, 3-Ton	MWh Savings	2.952	3.107	3.107	3.107	3.262
	MW Reduction	0.00127	0.00133	0.00133	0.00133	0.00140
	Participants	10.5	11.0	11.0	11.0	11.6
Central Air Conditioner SEER 16, 3-Ton (Base 13 SEER)	MWh Savings	8.775	9.236	9.236	9.236	9.698
	MW Reduction	0.00376	0.00396	0.00396	0.00396	0.00416
	Participants	31.1	32.7	32.7	32.7	34.3
Central Air Conditioner SEER 17, 3-Ton	MWh Savings	1.926	2.028	2.028	2.028	2.129
	MW Reduction	0.00083	0.00088	0.00088	0.00088	0.00092
	Participants	5.4	5.7	5.7	5.7	6.0
Central Air Conditioner SEER 17, 3-Ton (Base 13 SEER)	MWh Savings	11.011	11.591	11.591	11.591	12.170
	MW Reduction	0.00477	0.00502	0.00502	0.00502	0.00527
	Participants	31.1	32.7	32.7	32.7	34.3
Central Air Conditioner SEER 18, 3-Ton (Base 13 SEER)	MWh Savings	8.666	9.122	9.122	9.122	9.579
	MW Reduction	0.00374	0.00394	0.00394	0.00394	0.00414
	Participants	20.7	21.8	21.8	21.8	22.9
Central Air Conditioner SEER 19, 3-Ton (Base 13 SEER)	MWh Savings	9.852	10.371	10.371	10.371	10.889
	MW Reduction	0.00421	0.00443	0.00443	0.00443	0.00465
	Participants	20.7	21.8	21.8	21.8	22.9

Table 8A: Estimated Savings and Participants – Residential (continued)

Measure	Metric	PY13	PY14	PY15	PY16	PY17
Central Air Conditioner SEER 20, 3-Ton (Base 13 SEER)	MWh Savings	5.460	5.747	5.747	5.747	6.035
	MW Reduction	0.00229	0.00241	0.00241	0.00241	0.00254
	Participants	10.4	10.9	10.9	10.9	11.4
Central Air Conditioner SEER 21, 3-Ton (Base 13 SEER)	MWh Savings	5.943	6.255	6.255	6.255	6.568
	MW Reduction	0.00245	0.00257	0.00257	0.00257	0.00270
	Participants	10.4	10.9	10.9	10.9	11.4
Central Air Conditioner SEER 22, 3-Ton (Base 13 SEER)	MWh Savings	3.191	3.359	3.359	3.359	3.527
	MW Reduction	0.00128	0.00135	0.00135	0.00135	0.00142
	Participants	5.2	5.5	5.5	5.5	5.7
Central Air Conditioner SEER 23, 3-Ton (Base 13 SEER)	MWh Savings	3.391	3.570	3.570	3.570	3.748
	MW Reduction	0.00132	0.00139	0.00139	0.00139	0.00146
	Participants	5.2	5.5	5.5	5.5	5.7
Connected Thermostat - Electric Heat (Down Stream)	MWh Savings	13.177	13.871	13.871	13.871	14.564
	MW Reduction	0.00000	0.00000	0.00000	0.00000	0.00000
	Participants	21.0	22.1	22.1	22.1	23.2
Connected Thermostat- Electric Heat	MWh Savings	19.470	20.495	20.495	20.495	21.519
	MW Reduction	0.00000	0.00000	0.00000	0.00000	0.00000
	Participants	21.2	22.3	22.3	22.3	23.4
Dehumidifier Retirement	MWh Savings	110.620	116.442	116.442	116.442	122.264
	MW Reduction	0.02567	0.02702	0.02702	0.02702	0.02837
	Participants	148.3	156.1	156.1	156.1	163.9
Ductless Mini-Split Heat Pump (1.5-Ton, 20 SEER / 9.6 hspf) Midstream	MWh Savings	37.200	39.158	39.158	39.158	41.116
	MW Reduction	0.00409	0.00430	0.00430	0.00430	0.00452
	Participants	54.3	57.2	57.2	57.2	60.1
Electric Hot Water Kit (SF or MF, Mail-Out)	MWh Savings	14.065	14.805	14.805	14.805	15.545
	MW Reduction	0.00131	0.00137	0.00137	0.00137	0.00144
	Participants	58.5	61.5	61.5	61.5	64.6
Electric Hot Water Kit (SF or MF, Verified Install)	MWh Savings	66.696	70.207	70.207	70.207	73.717
	MW Reduction	0.00597	0.00628	0.00628	0.00628	0.00660
	Participants	222.8	234.5	234.5	234.5	246.3
ENERGY STAR Dehumidifiers (>25 to ≤ 50 pints/day)	MWh Savings	129.960	136.800	136.800	136.800	143.640
	MW Reduction	0.03226	0.03395	0.03395	0.03395	0.03565
	Participants	646.6	680.6	680.6	680.6	714.6
ENERGY STAR Refrigerator Bottom mount freezer with door ice	MWh Savings	12.322	12.971	12.971	12.971	13.619
	MW Reduction	0.00199	0.00210	0.00210	0.00210	0.00220
	Participants	181.2	190.7	190.7	190.7	200.3
ENERGY STAR Refrigerator bottom mount freezer without door ice	MWh Savings	8.372	8.812	8.812	8.812	9.253
	MW Reduction	0.00133	0.00140	0.00140	0.00140	0.00147
	Participants	155.0	163.2	163.2	163.2	171.4
ENERGY STAR Refrigerator Manual Defrost	MWh Savings	3.080	3.242	3.242	3.242	3.404
	MW Reduction	0.00049	0.00052	0.00052	0.00052	0.00054
	Participants	102.7	108.1	108.1	108.1	113.5
ENERGY STAR Refrigerator Partial Automatic Defrost	MWh Savings	0.959	1.010	1.010	1.010	1.060
	MW Reduction	0.00015	0.00016	0.00016	0.00016	0.00017
	Participants	27.4	28.8	28.8	28.8	30.3
ENERGY STAR Refrigerator Side mount freezer with door ice	MWh Savings	1.896	1.996	1.996	1.996	2.096
	MW Reduction	0.00030	0.00032	0.00032	0.00032	0.00034
	Participants	31.1	32.7	32.7	32.7	34.4
ENERGY STAR Refrigerator Side mount freezer without door ice	MWh Savings	0.265	0.279	0.279	0.279	0.293
	MW Reduction	0.00004	0.00004	0.00004	0.00004	0.00005
	Participants	4.9	5.2	5.2	5.2	5.4
ENERGY STAR Refrigerator Top mount freezer without door ice	MWh Savings	2.802	2.950	2.950	2.950	3.097
	MW Reduction	0.00045	0.00048	0.00048	0.00048	0.00050
	Participants	90.4	95.2	95.2	95.2	99.9
ENERGY STAR Screw-in LED Bulb (Standard)	MWh Savings	844.692	889.149	889.149	889.149	933.607
	MW Reduction	0.10355	0.10900	0.10900	0.10900	0.11445
	Participants	11,996.6	12,628.0	12,628.0	12,628.0	13,259.4

Table 8A: Estimated Savings and Participants – Residential (continued)

Measure	Metric	PY13	PY14	PY15	PY16	PY17
Exterior Wall Insulation - Electric Heat	MWh Savings	37.404	39.373	39.373	39.373	41.342
	MW Reduction	0.00134	0.00141	0.00141	0.00141	0.00148
	Participants	21.2	22.3	22.3	22.3	23.4
Floor Insulation - Electric Heat	MWh Savings	19.182	20.191	20.191	20.191	21.201
	MW Reduction	0.00069	0.00072	0.00072	0.00072	0.00076
	Participants	10.9	11.4	11.4	11.4	12.0
Freezer Recycling	MWh Savings	125.147	175.205	183.548	175.205	175.205
	MW Reduction	0.01400	0.01961	0.02054	0.01961	0.01961
	Participants	171.4	240.0	251.4	240.0	240.0
Freezer Replacement	MWh Savings	22.952	32.133	33.663	32.133	32.133
	MW Reduction	0.00257	0.00360	0.00377	0.00360	0.00360
	Participants	51.5	72.1	75.5	72.1	72.1
Furnace Circulation Fan - High Efficiency (ECM - Variable Speed)	MWh Savings	0.871	0.917	0.917	0.917	0.963
	MW Reduction	0.00018	0.00019	0.00019	0.00019	0.00020
	Participants	4.1	4.4	4.4	4.4	4.6
Gas Hot Water Kit (SF or MF, Mail-Out)	MWh Savings	34.362	36.171	36.171	36.171	37.980
	MW Reduction	0.00241	0.00253	0.00253	0.00253	0.00266
	Participants	264.3	278.2	278.2	278.2	292.1
Gas Hot Water Kit (SF or MF, Verified Install)	MWh Savings	130.959	137.852	137.852	137.852	144.744
	MW Reduction	0.00917	0.00965	0.00965	0.00965	0.01013
	Participants	1,007.3	1,060.3	1,060.3	1,060.3	1,113.3
H&S measures, Comprehensive	MWh Savings	0.000	0.000	0.000	0.000	0.000
	MW Reduction	0.00000	0.00000	0.00000	0.00000	0.00000
	Participants	49.8	52.4	52.4	52.4	55.0
H&S measures, Walkthrough	MWh Savings	0.000	0.000	0.000	0.000	0.000
	MW Reduction	0.00000	0.00000	0.00000	0.00000	0.00000
	Participants	83.6	88.0	88.0	88.0	92.4
Heat Pump Water Heater	MWh Savings	16.551	17.422	17.422	17.422	18.293
	MW Reduction	0.00133	0.00140	0.00140	0.00140	0.00147
	Participants	11.9	12.6	12.6	12.6	13.2
Heat Pump Water Heater (≥20 gal and ≤55 gal)	MWh Savings	80.544	84.783	84.783	84.783	89.023
	MW Reduction	0.00648	0.00682	0.00682	0.00682	0.00716
	Participants	58.1	61.1	61.1	61.1	64.2
Home Energy Reports - Market Rate	MWh Savings	9,940.000	9,940.000	9,940.000	9,940.000	9,940.000
	MW Reduction	1.34800	1.34800	1.34800	1.34800	1.34800
	Participants	203,700.0	157,400.0	183,600.0	209,900.0	165,100.0
Home Energy Reports - Low Income	MWh Savings	1,500.000	1,500.000	1,500.000	1,500.000	1,500.000
	MW Reduction	0.20342	0.20342	0.20342	0.20342	0.20342
	Participants	15,300.0	14,300.0	17,400.0	16,100.0	14,900.0
LED A-Line 11W (MF common area, exterior)	MWh Savings	625.488	658.408	658.408	658.408	691.328
	MW Reduction	0.07674	0.08078	0.08078	0.08078	0.08482
	Participants	8,760.3	9,221.4	9,221.4	9,221.4	9,682.5
LED A-Line 11W (MF interior, residential)	MWh Savings	2.779	2.925	2.925	2.925	3.072
	MW Reduction	0.00027	0.00028	0.00028	0.00028	0.00030
	Participants	190.0	200.0	200.0	200.0	210.0
LED Decorative 4.5W	MWh Savings	2.814	2.962	2.962	2.962	3.110
	MW Reduction	0.00027	0.00029	0.00029	0.00029	0.00030
	Participants	517.3	544.5	544.5	544.5	571.7
LED Downlight Retrofit	MWh Savings	0.936	0.985	0.985	0.985	1.035
	MW Reduction	0.00009	0.00010	0.00010	0.00010	0.00010
	Participants	103.4	108.9	108.9	108.9	114.3
LED Globe/Speciality 5W	MWh Savings	5.909	6.220	6.220	6.220	6.531
	MW Reduction	0.00057	0.00060	0.00060	0.00060	0.00063
	Participants	905.2	952.8	952.8	952.8	1,000.5
LED Parking Garage and Canopy Fixtures and Retrofit Kits	MWh Savings	51.220	53.916	53.916	53.916	56.612
	MW Reduction	0.00156	0.00165	0.00165	0.00165	0.00173
	Participants	83.6	88.0	88.0	88.0	92.4

Table 8A: Estimated Savings and Participants – Residential (continued)

Measure	Metric	PY13	PY14	PY15	PY16	PY17
LED Reflector 11W	MWh Savings	2.702	2.844	2.844	2.844	2.986
	MW Reduction	0.00026	0.00027	0.00027	0.00027	0.00029
	Participants	310.4	326.8	326.8	326.8	343.1
LED Reflector 6.5W	MWh Savings	2.532	2.666	2.666	2.666	2.799
	MW Reduction	0.00024	0.00026	0.00026	0.00026	0.00027
	Participants	517.3	544.5	544.5	544.5	571.7
LED Reflector 7.2W	MWh Savings	0.214	0.225	0.225	0.225	0.237
	MW Reduction	0.00002	0.00002	0.00002	0.00002	0.00002
	Participants	51.8	54.5	54.5	54.5	57.3
LED Reflector 7.5	MWh Savings	2.533	2.666	2.666	2.666	2.800
	MW Reduction	0.00024	0.00026	0.00026	0.00026	0.00027
	Participants	310.4	326.8	326.8	326.8	343.1
LED Reflector 9.5	MWh Savings	6.683	7.035	7.035	7.035	7.386
	MW Reduction	0.00064	0.00068	0.00068	0.00068	0.00071
	Participants	646.6	680.6	680.6	680.6	714.6
LED Reflector 9W	MWh Savings	1.970	2.073	2.073	2.073	2.177
	MW Reduction	0.00019	0.00020	0.00020	0.00020	0.00021
	Participants	258.6	272.2	272.2	272.2	285.9
LED Replacement Lamps (Tubes)-2'	MWh Savings	465.585	490.090	490.090	490.090	514.594
	MW Reduction	0.05712	0.06013	0.06013	0.06013	0.06314
	Participants	6,520.8	6,864.0	6,864.0	6,864.0	7,207.2
LED Replacement Lamps (Tubes)-2' (Type A)	MWh Savings	346.014	364.226	364.226	364.226	382.437
	MW Reduction	0.04245	0.04469	0.04469	0.04469	0.04692
	Participants	4,846.1	5,101.2	5,101.2	5,101.2	5,356.3
LED Replacement Lamps (Tubes)-4'	MWh Savings	2,109.061	2,220.064	2,220.064	2,220.064	2,331.067
	MW Reduction	0.25876	0.27238	0.27238	0.27238	0.28600
	Participants	22,154.0	23,320.0	23,320.0	23,320.0	24,486.0
LED Replacement Lamps (Tubes)-4' (Type A)	MWh Savings	1,567.416	1,649.911	1,649.911	1,649.911	1,732.407
	MW Reduction	0.19230	0.20243	0.20243	0.20243	0.21255
	Participants	16,464.5	17,331.0	17,331.0	17,331.0	18,197.6
Middle School Kit	MWh Savings	1,112.473	1,171.025	1,171.025	1,171.025	1,229.576
	MW Reduction	0.06367	0.06702	0.06702	0.06702	0.07037
	Participants	2,155.5	2,269.0	2,269.0	2,269.0	2,382.4
New Homes-15% or higher better than code-Electric Heat	MWh Savings	54.347	57.207	57.207	57.207	60.067
	MW Reduction	0.01200	0.01263	0.01263	0.01263	0.01326
	Participants	25.3	26.6	26.6	26.6	27.9
New Homes-15% or higher better than code-Gas Heat	MWh Savings	111.719	117.599	117.599	117.599	123.479
	MW Reduction	0.01106	0.01164	0.01164	0.01164	0.01222
	Participants	101.1	106.5	106.5	106.5	111.8
Primary School Kit	MWh Savings	304.251	320.264	320.264	320.264	336.277
	MW Reduction	0.02910	0.03063	0.03063	0.03063	0.03216
	Participants	3,233.3	3,403.4	3,403.4	3,403.4	3,573.6
Reflector Lamps (average) - Reflectors Average 11.3W	MWh Savings	2,483.151	2,613.843	2,613.843	2,613.843	2,744.535
	MW Reduction	0.25239	0.26567	0.26567	0.26567	0.27896
	Participants	193,996.2	204,206.5	204,206.5	204,206.5	214,416.8
Refrigerator Recycling - Replacement	MWh Savings	266.273	372.782	390.534	372.782	372.782
	MW Reduction	0.02980	0.04171	0.04370	0.04171	0.04171
	Participants	561.5	786.1	823.6	786.1	786.1
Refrigerator Recycling - Retirement	MWh Savings	762.817	1,067.944	1,118.799	1,067.944	1,067.944
	MW Reduction	0.08536	0.11950	0.12519	0.11950	0.11950
	Participants	781.0	1,093.3	1,145.4	1,093.3	1,093.3
Refrigerator Replacement	MWh Savings	138.517	193.924	203.159	193.924	193.924
	MW Reduction	0.01550	0.02170	0.02273	0.02170	0.02170
	Participants	247.5	346.5	363.0	346.5	346.5
Room AC Recycling - Retirement	MWh Savings	14.137	19.792	20.734	19.792	19.792
	MW Reduction	0.03083	0.04317	0.04522	0.04317	0.04317
	Participants	109.3	153.1	160.4	153.1	153.1

Table 8A: Estimated Savings and Participants – Residential (continued)

Measure	Metric	PY13	PY14	PY15	PY16	PY17
Room AC Replacement	MWh Savings	2.025	2.836	2.971	2.836	2.836
	MW Reduction	0.00442	0.00619	0.00648	0.00619	0.00619
	Participants	40.4	56.6	59.3	56.6	56.6
Variable speed pool pump	MWh Savings	102.131	107.507	107.507	107.507	112.882
	MW Reduction	0.02316	0.02438	0.02438	0.02438	0.02560
	Participants	72.5	76.3	76.3	76.3	80.1
Weatherstrip 10'	MWh Savings	1.138	1.198	1.198	1.198	1.258
	MW Reduction	0.00000	0.00000	0.00000	0.00000	0.00000
	Participants	53.9	56.7	56.7	56.7	59.6

Table 8B: Estimated Savings and Participants – Nonresidential

Measure	Metric	PY13	PY14	PY15	PY16	PY17
> 1/6 and < 3/4 hp ECM Pump for DHW	MWh Savings	30.986	38.149	39.530	38.085	29.541
	MW Reduction	0.00354	0.00435	0.00451	0.00435	0.00337
	Participants	9.2	11.3	11.7	11.3	8.8
> 1/6 and < 3/4 hp ECM Pump for Heating	MWh Savings	5.865	7.221	7.482	7.209	5.591
	MW Reduction	0.00000	0.00000	0.00000	0.00000	0.00000
	Participants	5.2	6.4	6.7	6.4	5.0
≤ 1/6 hp ECM Pump for DHW	MWh Savings	5.853	7.206	7.467	7.194	5.580
	MW Reduction	0.00067	0.00082	0.00085	0.00082	0.00064
	Participants	13.0	16.1	16.6	16.0	12.4
≤ 1/6 hp ECM Pump for Heating	MWh Savings	3.910	4.814	4.988	4.806	3.728
	MW Reduction	0.00000	0.00000	0.00000	0.00000	0.00000
	Participants	26.1	32.1	33.3	32.0	24.9
≥ 3/4 and < 3 hp ECM Pump for DHW	MWh Savings	30.986	38.149	39.530	38.085	29.541
	MW Reduction	0.00354	0.00435	0.00451	0.00435	0.00337
	Participants	2.3	2.8	2.9	2.8	2.2
≥ 3/4 and < 3 hp ECM Pump for Heating	MWh Savings	10.350	12.743	13.204	12.721	9.867
	MW Reduction	0.00000	0.00000	0.00000	0.00000	0.00000
	Participants	2.3	2.8	2.9	2.8	2.2
Adding Doors to Existing Refrigerated Display Cases	MWh Savings	18.013	22.178	22.981	22.140	17.173
	MW Reduction	0.00206	0.00253	0.00262	0.00253	0.00196
	Participants	32.2	39.7	41.1	39.6	30.7
Air Compressor VFD	MWh Savings	94.673	116.561	120.781	116.365	90.259
	MW Reduction	0.014	0.018	0.018	0.018	0.014
	Participants	112.7	138.8	143.8	138.6	107.5
Air Cooled Refrigeration Condenser	MWh Savings	42.128	51.869	53.746	51.781	40.164
	MW Reduction	0.004	0.005	0.005	0.005	0.004
	Participants	32.2	39.7	41.1	39.6	30.7
Air-Cooled Chillers >50 Tons, < 150 tons, Min 10.1 EER 15 IPLV	MWh Savings	11.394	14.028	14.536	14.005	10.863
	MW Reduction	0.002	0.003	0.003	0.003	0.002
	Participants	164.0	202.0	209.3	201.6	156.4
Air-Cooled Chillers >50 Tons, < 150 tons, Min 10.1 EER 16 IPLV	MWh Savings	13.215	16.270	16.859	16.243	12.599
	MW Reduction	0.003	0.003	0.003	0.003	0.002
	Participants	123.8	152.5	158.0	152.2	118.1
Air-Cooled Chillers >50 Tons, < 150 tons, Min 10.1 EER 18 IPLV	MWh Savings	46.703	57.501	59.583	57.404	44.526
	MW Reduction	0.019	0.023	0.024	0.023	0.018
	Participants	257.4	317.0	328.4	316.4	245.4
Air-Cooled Chillers Greater than 150 tons, Min 10.1 EER 15 IPLV	MWh Savings	12.442	15.318	15.873	15.292	11.862
	MW Reduction	0.005	0.006	0.006	0.006	0.005
	Participants	234.7	288.9	299.4	288.4	223.7
Air-Cooled Chillers Greater than 150 tons, Min 10.1 EER 16 IPLV	MWh Savings	21.021	25.881	26.818	25.837	20.041
	MW Reduction	0.004	0.006	0.006	0.006	0.004
	Participants	177.0	218.0	225.9	217.6	168.8
Air-Cooled Chillers Greater than 150 tons, Min 10.1 EER 18 IPLV	MWh Savings	104.872	129.119	133.793	128.901	99.983
	MW Reduction	0.050	0.062	0.064	0.062	0.048
	Participants	596.1	733.9	760.5	732.7	568.3
Air-Cooled Chillers Less than 50 tons, Min 10.1 EER 15 IPLV	MWh Savings	0.643	0.792	0.820	0.790	0.613
	MW Reduction	0.000	0.000	0.000	0.000	0.000
	Participants	9.3	11.4	11.8	11.4	8.8
Air-Cooled Chillers Less than 50 tons, Min 10.1 EER 16 IPLV	MWh Savings	1.892	2.329	2.414	2.325	1.804
	MW Reduction	0.000	0.000	0.000	0.000	0.000
	Participants	17.7	21.8	22.6	21.8	16.9
Air-Cooled Chillers Less than 50 tons, Min 10.1 EER 18 IPLV	MWh Savings	2.673	3.290	3.410	3.285	2.548
	MW Reduction	0.001	0.001	0.001	0.001	0.001
	Participants	14.7	18.1	18.8	18.1	14.0
Anti sweat heat controls	MWh Savings	18.848	23.206	24.046	23.167	17.969
	MW Reduction	0.002	0.003	0.003	0.003	0.002
	Participants	41.3	50.9	52.7	50.8	39.4

Table 8B: Estimated Savings and Participants – Nonresidential (continued)

Measure	Metric	PY13	PY14	PY15	PY16	PY17
Auto Closer for Coolers	MWh Savings	52.905	65.137	67.495	65.027	50.439
	MW Reduction	0.033	0.041	0.042	0.041	0.032
	Participants	71.8	88.4	91.6	88.2	68.4
Auto Closers	MWh Savings	18.990	23.381	24.227	23.341	18.105
	MW Reduction	0.012	0.015	0.015	0.015	0.011
	Participants	25.8	31.7	32.9	31.7	24.6
Combined Heat and Power	MWh Savings	2,300.590	2,832.490	2,935.029	2,827.721	2,193.335
	MW Reduction	0.409	0.504	0.522	0.503	0.390
	Participants	1.0	1.2	1.2	1.2	0.9
Controls: Anti-Sweat Heater Controls	MWh Savings	0.580	0.714	0.740	0.713	0.553
	MW Reduction	0.000	0.000	0.000	0.000	0.000
	Participants	1.3	1.6	1.6	1.6	1.2
Controls: Evaporator Coil Defrost Control	MWh Savings	27.528	33.892	35.119	33.835	26.245
	MW Reduction	0.057	0.070	0.072	0.069	0.054
	Participants	32.2	39.7	41.1	39.6	30.7
Controls: Evaporator Fan Controllers .	MWh Savings	1.708	2.103	2.179	2.100	1.629
	MW Reduction	0.000	0.000	0.000	0.000	0.000
	Participants	6.4	7.8	8.1	7.8	6.1
Controls: Floating Head Pressure Controls	MWh Savings	36.034	44.365	45.971	44.290	34.354
	MW Reduction	0.000	0.000	0.000	0.000	0.000
	Participants	20.9	25.8	26.7	25.7	20.0
Custom Cooling	MWh Savings	5,060.054	6,229.945	6,455.476	6,219.456	4,824.151
	MW Reduction	1.665	2.050	2.124	2.046	1.587
	Participants	3.8	4.7	4.9	4.7	3.7
Custom Exterior Controls	MWh Savings	48.452	59.654	61.814	59.554	46.193
	MW Reduction	0.002	0.002	0.002	0.002	0.002
	Participants	1.9	2.4	2.4	2.4	1.8
Custom Exterior New Construction	MWh Savings	436.067	536.886	556.322	535.982	415.737
	MW Reduction	0.015	0.018	0.019	0.018	0.014
	Participants	1.9	2.4	2.4	2.4	1.8
Custom Interior Controls	MWh Savings	936.737	1,153.311	1,195.062	1,151.370	893.065
	MW Reduction	0.130	0.160	0.166	0.160	0.124
	Participants	1.9	2.4	2.4	2.4	1.8
Custom Interior New Construction	MWh Savings	8,883.078	10,936.857	11,332.784	10,918.444	8,468.943
	MW Reduction	1.170	1.440	1.492	1.438	1.115
	Participants	1.9	2.4	2.4	2.4	1.8
Custom Other	MWh Savings	1,152.587	1,419.067	1,470.438	1,416.677	1,098.853
	MW Reduction	0.251	0.309	0.320	0.309	0.239
	Participants	1.9	2.4	2.4	2.4	1.8
Custom Process	MWh Savings	371.407	457.276	473.830	456.506	354.091
	MW Reduction	0.117	0.145	0.150	0.144	0.112
	Participants	1.9	2.4	2.4	2.4	1.8
Custom Refrigeration	MWh Savings	498.979	614.344	636.584	613.309	475.716
	MW Reduction	0.076	0.094	0.097	0.094	0.073
	Participants	1.9	2.4	2.4	2.4	1.8
Custom Ventilation	MWh Savings	1,153.167	1,419.780	1,471.178	1,417.390	1,099.405
	MW Reduction	0.354	0.436	0.452	0.435	0.338
	Participants	1.9	2.4	2.4	2.4	1.8
Decorative, Globe, Screw-based 1050-1300 lumens	MWh Savings	5.296	6.520	6.756	6.509	5.049
	MW Reduction	0.001	0.001	0.001	0.001	0.001
	Participants	153.5	189.0	195.9	188.7	146.4
Decorative, Globe, Screw-based 250-309 lumens	MWh Savings	8.662	10.665	11.051	10.647	8.258
	MW Reduction	0.002	0.002	0.002	0.002	0.002
	Participants	153.5	189.0	195.9	188.7	146.4
Decorative, Globe, Screw-based 310-349 lumens	MWh Savings	0.000	0.000	0.000	0.000	0.000
	MW Reduction	0.000	0.000	0.000	0.000	0.000
	Participants	0.0	0.0	0.0	0.0	0.0

Table 8B: Estimated Savings and Participants – Nonresidential (continued)

Measure	Metric	PY13	PY14	PY15	PY16	PY17
Decorative, Globe, Screw-based 350-499 lumens	MWh Savings	0.795	0.978	1.014	0.977	0.757
	MW Reduction	0.000	0.000	0.000	0.000	0.000
	Participants	80.3	98.9	102.5	98.7	76.6
Decorative, Globe, Screw-based 500-574 lumens	MWh Savings	47.978	59.071	61.209	58.971	45.741
	MW Reduction	0.010	0.012	0.013	0.012	0.010
	Participants	3,204.3	3,945.1	4,088.0	3,938.5	3,054.9
Decorative, Globe, Screw-based 575-649 lumens	MWh Savings	3.038	3.740	3.876	3.734	2.896
	MW Reduction	0.001	0.001	0.001	0.001	0.001
	Participants	153.5	189.0	195.9	188.7	146.4
Decorative, Globe, Screw-based 650-749 lumens	MWh Savings	3.695	4.549	4.714	4.541	3.522
	MW Reduction	0.001	0.001	0.001	0.001	0.001
	Participants	153.5	189.0	195.9	188.7	146.4
Decorative, Globe, Screw-based 750-1049 lumens	MWh Savings	3.695	4.549	4.714	4.541	3.522
	MW Reduction	0.001	0.001	0.001	0.001	0.001
	Participants	153.5	189.0	195.9	188.7	146.4
Decorative, Non-Globe, Screw-based 150-299 lumens	MWh Savings	9.072	11.170	11.574	11.151	8.650
	MW Reduction	0.002	0.002	0.002	0.002	0.002
	Participants	153.5	189.0	195.9	188.7	146.4
Decorative, Non-Globe, Screw-based 300-309 lumens	MWh Savings	18.411	22.667	23.488	22.629	17.552
	MW Reduction	0.004	0.005	0.005	0.005	0.004
	Participants	281.0	346.0	358.6	345.4	267.9
Decorative, Non-Globe, Screw-based 310-499 lumens	MWh Savings	0.837	1.031	1.068	1.029	0.798
	MW Reduction	0.000	0.000	0.000	0.000	0.000
	Participants	80.3	98.9	102.5	98.7	76.6
Decorative, Non-Globe, Screw-based 500-699 lumens	MWh Savings	2.915	3.589	3.718	3.583	2.779
	MW Reduction	0.001	0.001	0.001	0.001	0.001
	Participants	153.5	189.0	195.9	188.7	146.4
Decorative, Non-Globe, Screw-based 90-149 lumens	MWh Savings	5.542	6.823	7.070	6.812	5.284
	MW Reduction	0.001	0.001	0.001	0.001	0.001
	Participants	153.5	189.0	195.9	188.7	146.4
Door Gaskets for Walk-in and Reach-in Coolers and Freezers	MWh Savings	5.513	6.788	7.034	6.777	5.256
	MW Reduction	0.001	0.001	0.001	0.001	0.001
	Participants	15.9	19.6	20.3	19.5	15.1
Ductless Mini-Split Heat Pump - 16 SEER	MWh Savings	2.456	3.024	3.134	3.019	2.342
	MW Reduction	0.002	0.002	0.002	0.002	0.002
	Participants	17.5	21.5	22.3	21.5	16.7
Ductless Mini-Split Heat Pump - 19 SEER	MWh Savings	4.080	5.023	5.205	5.015	3.890
	MW Reduction	0.003	0.003	0.003	0.003	0.003
	Participants	17.5	21.5	22.3	21.5	16.7
Ductless Mini-Split Heat Pump - 22 SEER	MWh Savings	9.176	11.297	11.706	11.278	8.748
	MW Reduction	0.007	0.009	0.009	0.009	0.007
	Participants	25.8	31.8	32.9	31.7	24.6
ECM motor for walk in freezer or cooler	MWh Savings	124.475	153.254	158.802	152.996	118.672
	MW Reduction	0.014	0.017	0.018	0.017	0.014
	Participants	92.2	113.5	117.6	113.3	87.9
ECM motor of reach in cases	MWh Savings	460.760	567.288	587.825	566.333	439.279
	MW Reduction	0.053	0.065	0.067	0.065	0.050
	Participants	341.3	420.3	435.5	419.6	325.4
Efficient Combination Oven <15 pans	MWh Savings	2.037	2.508	2.599	2.504	1.942
	MW Reduction	0.001	0.001	0.001	0.001	0.000
	Participants	0.4	0.5	0.5	0.5	0.4
Efficient Combination Oven ≥ 15 pans	MWh Savings	7.363	9.065	9.393	9.050	7.020
	MW Reduction	0.002	0.002	0.002	0.002	0.002
	Participants	0.5	0.6	0.6	0.6	0.4

Table 8B: Estimated Savings and Participants – Nonresidential (continued)

Measure	Metric	PY13	PY14	PY15	PY16	PY17
Efficient Commercial Convection Oven Full size	MWh Savings	2.228	2.743	2.843	2.739	2.124
	MW Reduction	0.000	0.001	0.001	0.001	0.000
	Participants	1.2	1.4	1.5	1.4	1.1
Efficient Commercial Convection Oven Half size	MWh Savings	0.200	0.247	0.255	0.246	0.191
	MW Reduction	0.000	0.000	0.000	0.000	0.000
	Participants	1.0	1.3	1.3	1.3	1.0
Efficient commercial dishwasher Multi Tank Conveyor High Temperature	MWh Savings	12.611	15.527	16.089	15.500	12.023
	MW Reduction	0.002	0.002	0.002	0.002	0.002
	Participants	0.5	0.6	0.6	0.6	0.4
Efficient commercial dishwasher Multi Tank Conveyor Low Temperature	MWh Savings	8.655	10.656	11.042	10.638	8.252
	MW Reduction	0.001	0.001	0.002	0.001	0.001
	Participants	0.5	0.6	0.6	0.6	0.4
Efficient commercial dishwasher Pot, Pan, and Utensil High Temperature	MWh Savings	2.590	3.189	3.304	3.183	2.469
	MW Reduction	0.000	0.000	0.000	0.000	0.000
	Participants	0.8	1.0	1.0	1.0	0.7
Efficient commercial dishwasher Single Tank Conveyor High Temperature	MWh Savings	4.804	5.914	6.128	5.904	4.580
	MW Reduction	0.001	0.001	0.001	0.001	0.001
	Participants	0.5	0.6	0.7	0.6	0.5
Efficient commercial dishwasher Single Tank Conveyor Low Temperature	MWh Savings	9.404	11.579	11.998	11.559	8.966
	MW Reduction	0.001	0.002	0.002	0.002	0.001
	Participants	0.7	0.8	0.9	0.8	0.7
Efficient commercial dishwasher Stationary Single Tank Door High Temperature	MWh Savings	8.188	10.081	10.445	10.064	7.806
	MW Reduction	0.001	0.001	0.001	0.001	0.001
	Participants	0.7	0.8	0.9	0.8	0.7
Efficient commercial dishwasher Stationary Single Tank Door Low Temperature	MWh Savings	11.148	13.726	14.223	13.703	10.629
	MW Reduction	0.002	0.002	0.002	0.002	0.001
	Participants	0.7	0.8	0.9	0.8	0.7
Efficient commercial dishwasher Under Counter High Temperature	MWh Savings	2.189	2.695	2.792	2.690	2.087
	MW Reduction	0.000	0.000	0.000	0.000	0.000
	Participants	0.7	0.8	0.9	0.8	0.7
Efficient commercial dishwasher Under Counter Low Temperature	MWh Savings	2.922	3.597	3.727	3.591	2.786
	MW Reduction	0.000	0.000	0.001	0.000	0.000
	Participants	1.2	1.4	1.5	1.4	1.1
Efficient Commercial Fryer Large Vat	MWh Savings	1.167	1.437	1.489	1.434	1.112
	MW Reduction	0.000	0.000	0.000	0.000	0.000
	Participants	0.5	0.6	0.6	0.6	0.4
Efficient Commercial Fryer Standard	MWh Savings	0.620	0.763	0.790	0.761	0.591
	MW Reduction	0.000	0.000	0.000	0.000	0.000
	Participants	0.3	0.3	0.3	0.3	0.2
Efficient Commercial Glass Door Freezers less than 15 cu. ft.	MWh Savings	0.111	0.137	0.142	0.137	0.106
	MW Reduction	0.000	0.000	0.000	0.000	0.000
	Participants	0.3	0.3	0.3	0.3	0.2
Efficient Commercial Glass Door Freezers 15 to 30 cu. ft.	MWh Savings	0.183	0.225	0.234	0.225	0.175
	MW Reduction	0.000	0.000	0.000	0.000	0.000
	Participants	0.3	0.3	0.3	0.3	0.2
Efficient Commercial Glass Door Freezers 31 to 50 cu. ft.	MWh Savings	0.277	0.341	0.353	0.340	0.264
	MW Reduction	0.000	0.000	0.000	0.000	0.000
	Participants	0.3	0.3	0.3	0.3	0.2
Efficient Commercial Glass Door Freezers more than 50 cu.ft.	MWh Savings	0.404	0.497	0.515	0.496	0.385
	MW Reduction	0.000	0.000	0.000	0.000	0.000
	Participants	0.3	0.3	0.3	0.3	0.2
Efficient Commercial Glass Door Refrigerators less than 15 cu. ft.	MWh Savings	0.133	0.163	0.169	0.163	0.127
	MW Reduction	0.000	0.000	0.000	0.000	0.000
	Participants	0.8	1.0	1.0	1.0	0.7
Efficient Commercial Glass Door Refrigerators 15 to 30 cu. ft.	MWh Savings	0.466	0.574	0.594	0.573	0.444
	MW Reduction	0.000	0.000	0.000	0.000	0.000
	Participants	1.4	1.8	1.8	1.8	1.4

Table 8B: Estimated Savings and Participants – Nonresidential (continued)

Measure	Metric	PY13	PY14	PY15	PY16	PY17
Efficient Commercial Glass Door Refrigerators 31 to 50 cu. ft.	MWh Savings	0.141	0.173	0.180	0.173	0.134
	MW Reduction	0.000	0.000	0.000	0.000	0.000
	Participants	0.3	0.3	0.3	0.3	0.2
Efficient Commercial Glass Door Refrigerators more than 50 cu. ft	MWh Savings	0.237	0.292	0.302	0.291	0.226
	MW Reduction	0.000	0.000	0.000	0.000	0.000
	Participants	0.4	0.5	0.5	0.5	0.4
Efficient Commercial Griddle	MWh Savings	1.354	1.667	1.727	1.664	1.291
	MW Reduction	0.000	0.000	0.000	0.000	0.000
	Participants	0.5	0.6	0.7	0.6	0.5
Efficient Commercial Hot Food Holding Cabinet Full Size	MWh Savings	2.030	2.499	2.590	2.495	1.935
	MW Reduction	0.000	0.000	0.000	0.000	0.000
	Participants	1.2	1.4	1.5	1.4	1.1
Efficient Commercial Solid Door Freezers (< 15 cu ft)	MWh Savings	0.055	0.068	0.070	0.068	0.053
	MW Reduction	0.000	0.000	0.000	0.000	0.000
	Participants	0.3	0.3	0.3	0.3	0.2
Efficient Commercial Solid Door Freezers (> 50 cu ft)	MWh Savings	2.903	3.575	3.704	3.569	2.768
	MW Reduction	0.000	0.000	0.000	0.000	0.000
	Participants	4.3	5.3	5.5	5.3	4.1
Efficient Commercial Solid Door Freezers (15 - 30 cu ft)	MWh Savings	0.681	0.839	0.869	0.838	0.650
	MW Reduction	0.000	0.000	0.000	0.000	0.000
	Participants	1.3	1.6	1.7	1.6	1.2
Efficient Commercial Solid Door Freezers (30 - 50 cu ft)	MWh Savings	1.905	2.346	2.431	2.342	1.816
	MW Reduction	0.000	0.000	0.000	0.000	0.000
	Participants	3.5	4.3	4.5	4.3	3.4
Efficient Commercial Solid Door Refrigerators (< 15 cu ft)	MWh Savings	0.223	0.275	0.285	0.274	0.213
	MW Reduction	0.000	0.000	0.000	0.000	0.000
	Participants	0.9	1.1	1.2	1.1	0.9
Efficient Commercial Solid Door Refrigerators (> 50 cu ft)	MWh Savings	2.780	3.423	3.547	3.417	2.651
	MW Reduction	0.000	0.000	0.000	0.000	0.000
	Participants	7.0	8.7	9.0	8.7	6.7
Efficient Commercial Solid Door Refrigerators (15 - 30 cu ft)	MWh Savings	1.038	1.279	1.325	1.276	0.990
	MW Reduction	0.000	0.000	0.000	0.000	0.000
	Participants	4.2	5.1	5.3	5.1	4.0
Efficient Commercial Solid Door Refrigerators (30 - 50 cu ft)	MWh Savings	1.020	1.256	1.302	1.254	0.973
	MW Reduction	0.000	0.000	0.000	0.000	0.000
	Participants	4.2	5.1	5.3	5.1	4.0
Efficient Electric Steam Cooker	MWh Savings	14.541	17.902	18.551	17.872	13.863
	MW Reduction	0.003	0.004	0.004	0.004	0.003
	Participants	0.9	1.1	1.2	1.1	0.9
Efficient Ice Machines Batch Type - self contained	MWh Savings	2.106	2.593	2.687	2.589	2.008
	MW Reduction	0.000	0.000	0.001	0.000	0.000
	Participants	0.5	0.6	0.6	0.6	0.4
Efficient Ice Machines Batch Type - Ice making head	MWh Savings	1.063	1.308	1.356	1.306	1.013
	MW Reduction	0.000	0.000	0.000	0.000	0.000
	Participants	0.5	0.6	0.6	0.6	0.4
Efficient Ice Machines Batch Type - remote condensing	MWh Savings	0.673	0.828	0.858	0.827	0.641
	MW Reduction	0.000	0.000	0.000	0.000	0.000
	Participants	0.3	0.3	0.3	0.3	0.2
Efficient Ice Machines Continuous Type - ice making head	MWh Savings	3.854	4.745	4.917	4.737	3.674
	MW Reduction	0.001	0.001	0.001	0.001	0.001
	Participants	1.3	1.6	1.7	1.6	1.2
Efficient Ice Machines Continuous Type - remote condensing	MWh Savings	0.470	0.579	0.600	0.578	0.448
	MW Reduction	0.000	0.000	0.000	0.000	0.000
	Participants	0.3	0.3	0.3	0.3	0.2
Efficient Ice Machines Continuous Type - self contained	MWh Savings	1.264	1.556	1.612	1.553	1.205
	MW Reduction	0.000	0.000	0.000	0.000	0.000
	Participants	0.5	0.6	0.6	0.6	0.4

Table 8B: Estimated Savings and Participants – Nonresidential (continued)

Measure	Metric	PY13	PY14	PY15	PY16	PY17
Exit Sign Retrofit	MWh Savings	491.753	605.447	627.365	604.428	468.828
	MW Reduction	0.065	0.080	0.083	0.080	0.062
	Participants	1,701.5	2,094.9	2,170.7	2,091.4	1,622.2
Heat Pump Water Heaters	MWh Savings	22.875	28.164	29.183	28.116	21.809
	MW Reduction	0.005	0.007	0.007	0.007	0.005
	Participants	29.5	36.3	37.6	36.2	28.1
High Efficiency Pumps 1 ≤ HP < 3, Constant Speed	MWh Savings	14.253	17.548	18.183	17.518	13.588
	MW Reduction	0.002	0.002	0.002	0.002	0.002
	Participants	69.6	85.7	88.8	85.6	66.4
High Efficiency Pumps 1 ≤ HP < 3, Variable Speed	MWh Savings	4.724	5.816	6.026	5.806	4.503
	MW Reduction	0.001	0.001	0.001	0.001	0.001
	Participants	24.8	30.6	31.7	30.5	23.7
High Efficiency Pumps 3 ≤ HP ≤ 50, Constant Speed	MWh Savings	2.856	3.516	3.643	3.510	2.723
	MW Reduction	0.000	0.000	0.000	0.000	0.000
	Participants	13.9	17.2	17.8	17.1	13.3
High Efficiency Pumps 3 ≤ HP ≤ 50, Variable Speed	MWh Savings	52.899	65.129	67.487	65.020	50.433
	MW Reduction	0.006	0.007	0.008	0.007	0.006
	Participants	245.2	301.9	312.9	301.4	233.8
High Efficiency Pumps 50 < HP ≤ 200, Constant Speed	MWh Savings	43.933	54.090	56.049	53.999	41.885
	MW Reduction	0.005	0.006	0.006	0.006	0.005
	Participants	245.2	301.9	312.9	301.4	233.8
High Efficiency Pumps 50 < HP ≤ 200, Variable Speed	MWh Savings	40.347	49.675	51.473	49.591	38.466
	MW Reduction	0.005	0.006	0.006	0.006	0.004
	Participants	245.2	301.9	312.9	301.4	233.8
High-Efficiency Evaporator Fan Motors for Walk-Ins/Reach-In Refrigerated Cases	MWh Savings	86.951	107.055	110.930	106.875	82.898
	MW Reduction	0.010	0.012	0.013	0.012	0.009
	Participants	64.4	79.3	82.2	79.2	61.4
High-Efficiency Refrigeration/Freezer Cases	MWh Savings	34.563	42.554	44.094	42.482	32.951
	MW Reduction	0.004	0.005	0.005	0.005	0.004
	Participants	225.5	277.6	287.6	277.1	214.9
Insulation on suction pipes	MWh Savings	55.420	68.233	70.703	68.118	52.836
	MW Reduction	0.011	0.014	0.014	0.014	0.011
	Participants	2,234.7	2,751.3	2,850.9	2,746.7	2,130.5
Kitchen Exhaust VFD	MWh Savings	1.730	2.130	2.207	2.126	1.649
	MW Reduction	0.000	0.000	0.000	0.000	0.000
	Participants	0.4	0.5	0.5	0.5	0.4
LED 2' Linear Replacement Lamp	MWh Savings	100.660	123.933	128.419	123.724	95.967
	MW Reduction	0.019	0.024	0.024	0.023	0.018
	Participants	3,207.1	3,948.6	4,091.5	3,942.0	3,057.6
LED 3' Linear Replacement Lamp	MWh Savings	0.002	0.002	0.002	0.002	0.002
	MW Reduction	0.000	0.000	0.000	0.000	0.000
	Participants	0.1	0.2	0.2	0.2	0.1
LED 4' Interior Linear Strip Fixture or Retrofit Kit	MWh Savings	152.487	187.742	194.538	187.426	145.378
	MW Reduction	0.028	0.035	0.036	0.035	0.027
	Participants	860.2	1,059.1	1,097.4	1,057.3	820.1
LED 4' Linear Replacement Lamp	MWh Savings	8,327.304	10,252.587	10,623.743	10,235.327	7,939.080
	MW Reduction	1.638	2.017	2.090	2.013	1.562
	Participants	188,164.6	231,668.6	240,055.2	231,278.5	179,392.3
LED 8' Interior Linear Strip Fixture or Retrofit Kit	MWh Savings	295.768	364.149	377.332	363.536	281.979
	MW Reduction	0.055	0.068	0.070	0.068	0.053
	Participants	3,567.1	4,391.8	4,550.8	4,384.4	3,400.8
LED 8' Linear Replacement Lamp	MWh Savings	126.130	155.291	160.913	155.030	120.250
	MW Reduction	0.025	0.031	0.032	0.031	0.024
	Participants	1,747.9	2,152.0	2,229.9	2,148.4	1,666.4
LED Display Case Lighting	MWh Savings	6.897	8.491	8.799	8.477	6.575
	MW Reduction	0.001	0.001	0.001	0.001	0.001
	Participants	41.3	50.9	52.7	50.8	39.4

Table 8B: Estimated Savings and Participants – Nonresidential (continued)

Measure	Metric	PY13	PY14	PY15	PY16	PY17
LED Exit Sign	MWh Savings	164.213	202.179	209.498	201.838	156.557
	MW Reduction	0.022	0.027	0.028	0.027	0.021
	Participants	568.2	699.6	724.9	698.4	541.7
LED Exterior Area Lighting 0-49 Watt LED Fixture	MWh Savings	257.312	316.802	328.271	316.269	245.316
	MW Reduction	0.059	0.072	0.075	0.072	0.056
	Participants	1,139.2	1,402.6	1,453.3	1,400.2	1,086.1
LED Exterior Area Lighting 1,000 watt HID lamp	MWh Savings	416.039	512.228	530.772	511.366	396.643
	MW Reduction	0.080	0.098	0.102	0.098	0.076
	Participants	191.8	236.1	244.7	235.7	182.8
LED Exterior Area Lighting 100 watt HID lamp	MWh Savings	36.332	44.732	46.352	44.657	34.638
	MW Reduction	0.007	0.009	0.009	0.009	0.007
	Participants	116.0	142.9	148.0	142.6	110.6
LED Exterior Area Lighting 110-149 Watt LED Fixture	MWh Savings	164.374	202.377	209.703	202.036	156.710
	MW Reduction	0.038	0.046	0.048	0.046	0.036
	Participants	692.7	852.8	883.7	851.4	660.4
LED Exterior Area Lighting 150-191 Watt LED Fixture	MWh Savings	49.402	60.824	63.026	60.722	47.099
	MW Reduction	0.011	0.014	0.014	0.014	0.011
	Participants	166.1	204.6	212.0	204.2	158.4
LED Exterior Area Lighting 175 watt HID lamp	MWh Savings	147.689	181.835	188.418	181.529	140.804
	MW Reduction	0.028	0.035	0.036	0.035	0.027
	Participants	304.2	374.6	388.1	374.0	290.1
LED Exterior Area Lighting 192-224 Watt LED Fixture	MWh Savings	20.921	25.759	26.691	25.715	19.946
	MW Reduction	0.005	0.006	0.006	0.006	0.005
	Participants	51.9	63.9	66.2	63.8	49.5
LED Exterior Area Lighting 225-264 Watt LED Fixture	MWh Savings	109.838	135.232	140.128	135.005	104.717
	MW Reduction	0.025	0.031	0.032	0.031	0.024
	Participants	282.5	347.8	360.4	347.2	269.3
LED Exterior Area Lighting 250 watt HID lamp	MWh Savings	204.533	251.821	260.937	251.397	194.997
	MW Reduction	0.039	0.048	0.050	0.048	0.037
	Participants	314.2	386.8	400.8	386.2	299.5
LED Exterior Area Lighting 265-499 Watt LED Fixture	MWh Savings	381.551	469.766	486.772	468.975	363.763
	MW Reduction	0.087	0.107	0.111	0.107	0.083
	Participants	380.2	468.1	485.0	467.3	362.5
LED Exterior Area Lighting 400 watt HID lamp	MWh Savings	150.194	184.919	191.613	184.607	143.192
	MW Reduction	0.029	0.035	0.037	0.035	0.027
	Participants	153.5	188.9	195.8	188.6	146.3
LED Exterior Area Lighting 50-69 Watt LED Fixture	MWh Savings	266.573	328.205	340.086	327.653	254.145
	MW Reduction	0.061	0.075	0.078	0.075	0.058
	Participants	770.5	948.7	983.0	947.1	734.6
LED Exterior Area Lighting 70-109 Watt LED Fixture	MWh Savings	65.870	81.099	84.035	80.962	62.799
	MW Reduction	0.015	0.019	0.019	0.019	0.014
	Participants	217.3	267.6	277.3	267.1	207.2
LED Exterior Area Lighting 750 watt HID lamp	MWh Savings	377.283	464.511	481.327	463.729	359.693
	MW Reduction	0.072	0.089	0.092	0.089	0.069
	Participants	213.3	262.6	272.1	262.1	203.3
LED Interior 1' X 2'	MWh Savings	0.993	1.223	1.267	1.220	0.947
	MW Reduction	0.000	0.000	0.000	0.000	0.000
	Participants	19.3	23.8	24.6	23.7	18.4
LED Interior 1' X 4'	MWh Savings	1.021	1.258	1.303	1.256	0.974
	MW Reduction	0.000	0.000	0.000	0.000	0.000
	Participants	12.3	15.2	15.7	15.1	11.7
LED Interior 2' X 2'	MWh Savings	206.080	253.725	262.910	253.298	196.472
	MW Reduction	0.047	0.058	0.060	0.058	0.045
	Participants	2,485.4	3,060.0	3,170.8	3,054.9	2,369.5
LED Interior 2' X 2' Kit, Less than 3500 Lumens	MWh Savings	0.004	0.005	0.005	0.005	0.004
	MW Reduction	0.000	0.000	0.000	0.000	0.000
	Participants	0.1	0.2	0.2	0.2	0.1

Table 8B: Estimated Savings and Participants – Nonresidential (continued)

Measure	Metric	PY13	PY14	PY15	PY16	PY17
LED Interior 2' X 2' Kit, More than 3500 Lumens	MWh Savings	11.968	14.735	15.269	14.710	11.410
	MW Reduction	0.003	0.003	0.003	0.003	0.003
	Participants	144.9	178.4	184.9	178.1	138.1
LED Interior 2' X 2', Less than 3500 Lumens	MWh Savings	2.994	3.686	3.820	3.680	2.854
	MW Reduction	0.001	0.001	0.001	0.001	0.001
	Participants	105.3	129.7	134.4	129.5	100.4
LED Interior 2' X 2', More than 3500 Lumens	MWh Savings	111.892	137.762	142.749	137.530	106.676
	MW Reduction	0.026	0.032	0.033	0.031	0.024
	Participants	1,485.1	1,828.5	1,894.7	1,825.4	1,415.9
LED Interior 2' X 4'	MWh Savings	477.685	588.127	609.418	587.137	455.415
	MW Reduction	0.109	0.135	0.139	0.134	0.104
	Participants	3,797.1	4,675.0	4,844.2	4,667.1	3,620.1
LED Interior 2' X 4' Kit, Max 4261 lumens	MWh Savings	136.460	168.010	174.092	167.727	130.098
	MW Reduction	0.03121	0.03843	0.03982	0.03837	0.02976
	Participants	1,437.6	1,769.9	1,834.0	1,767.0	1,370.5
LED Interior 2' X 4' Kit, Max 6392 lumens	MWh Savings	50.126	61.715	63.949	61.611	47.789
	MW Reduction	0.01147	0.01412	0.01463	0.01409	0.01093
	Participants	346.1	426.1	441.5	425.4	329.9
LED Interior 2' X 4' Kit, Max 9140 lumens	MWh Savings	5.066	6.238	6.463	6.227	4.830
	MW Reduction	0.00116	0.00143	0.00148	0.00142	0.00110
	Participants	31.5	38.8	40.2	38.8	30.1
LED Interior 2' X 4', Max 2132 lumens	MWh Savings	6.665	8.206	8.503	8.192	6.355
	MW Reduction	0.00152	0.00188	0.00195	0.00187	0.00145
	Participants	151.9	187.0	193.8	186.7	144.8
LED Interior 2' X 4', Max 4261 lumens	MWh Savings	113.589	139.851	144.914	139.615	108.293
	MW Reduction	0.02598	0.03199	0.03315	0.03194	0.02477
	Participants	1,272.4	1,566.6	1,623.3	1,564.0	1,213.1
LED Interior 2' X 4', Max 6392 lumens	MWh Savings	214.150	263.662	273.206	263.218	204.166
	MW Reduction	0.04899	0.06031	0.06249	0.06021	0.04670
	Participants	1,547.7	1,905.5	1,974.5	1,902.3	1,475.5
LED Interior 2' X 4', Max 9140 lumens	MWh Savings	15.050	18.529	19.200	18.498	14.348
	MW Reduction	0.00344	0.00424	0.00439	0.00423	0.00328
	Participants	97.5	120.0	124.4	119.8	92.9
LED Interior High-Bay Fixture 1,000 watt HID lamp/ T8 HLO	MWh Savings	388.845	478.746	496.077	477.940	370.717
	MW Reduction	0.089	0.110	0.113	0.109	0.085
	Participants	177.6	218.7	226.6	218.3	169.3
LED Interior High-Bay Fixture 131-159W	MWh Savings	32.935	40.549	42.017	40.481	31.399
	MW Reduction	0.008	0.009	0.010	0.009	0.007
	Participants	160.0	197.0	204.1	196.6	152.5
LED Interior High-Bay Fixture 150 watt HID lamp/ T8 HLO	MWh Savings	46.358	57.077	59.143	56.980	44.197
	MW Reduction	0.011	0.013	0.014	0.013	0.010
	Participants	147.2	181.2	187.8	180.9	140.3
LED Interior High-Bay Fixture 160-186W	MWh Savings	38.424	47.308	49.020	47.228	36.633
	MW Reduction	0.009	0.011	0.011	0.011	0.008
	Participants	124.4	153.2	158.7	152.9	118.6
LED Interior High-Bay Fixture 175 watt HID lamp/ T8 HLO	MWh Savings	68.442	84.265	87.316	84.123	65.251
	MW Reduction	0.016	0.019	0.020	0.019	0.015
	Participants	178.0	219.2	227.1	218.8	169.7
LED Interior High-Bay Fixture 187-219W	MWh Savings	9.398	11.571	11.990	11.552	8.960
	MW Reduction	0.002	0.003	0.003	0.003	0.002
	Participants	22.7	27.9	28.9	27.9	21.6
LED Interior High-Bay Fixture 200 watt HID lamp/ T8 HLO	MWh Savings	77.531	95.457	98.912	95.296	73.917
	MW Reduction	0.018	0.022	0.023	0.022	0.017
	Participants	178.0	219.2	227.1	218.8	169.7
LED Interior High-Bay Fixture 220-261W	MWh Savings	6.265	7.714	7.993	7.701	5.973
	MW Reduction	0.001	0.002	0.002	0.002	0.001
	Participants	15.9	19.6	20.3	19.5	15.1

Table 8B: Estimated Savings and Participants – Nonresidential (continued)

Measure	Metric	PY13	PY14	PY15	PY16	PY17
LED Interior High-Bay Fixture 250 watt HID lamp/ T8 HLO	MWh Savings	342.748	421.991	437.268	421.281	326.769
	MW Reduction	0.078	0.097	0.100	0.096	0.075
	Participants	644.7	793.8	822.5	792.5	614.7
LED Interior High-Bay Fixture 262-279W	MWh Savings	6.265	7.714	7.993	7.701	5.973
	MW Reduction	0.001	0.002	0.002	0.002	0.001
	Participants	12.3	15.2	15.7	15.1	11.7
LED Interior High-Bay Fixture 280-319W	MWh Savings	8.415	10.361	10.736	10.343	8.023
	MW Reduction	0.002	0.002	0.002	0.002	0.002
	Participants	15.7	19.3	20.0	19.2	14.9
LED Interior High-Bay Fixture 320 watt HID lamp/ T8 HLO	MWh Savings	943.375	1,161.484	1,203.531	1,159.529	899.394
	MW Reduction	0.216	0.266	0.275	0.265	0.206
	Participants	1,365.7	1,681.4	1,742.3	1,678.6	1,302.0
LED Interior High-Bay Fixture 320-499W	MWh Savings	669.721	824.561	854.411	823.173	638.498
	MW Reduction	0.153	0.189	0.195	0.188	0.146
	Participants	669.2	824.0	853.8	822.6	638.0
LED Interior High-Bay Fixture 400 watt HID lamp/ T8 HLO	MWh Savings	813.795	1,001.946	1,038.217	1,000.259	775.855
	MW Reduction	0.186	0.229	0.237	0.229	0.177
	Participants	934.3	1,150.3	1,192.0	1,148.4	890.8
LED Interior High-Bay Fixture 40-130W	MWh Savings	781.037	961.614	996.425	959.995	744.625
	MW Reduction	0.179	0.220	0.228	0.220	0.170
	Participants	3,252.0	4,003.9	4,148.8	3,997.2	3,100.4
LED Interior High-Bay Fixture 500-750W	MWh Savings	83.715	103.070	106.801	102.897	79.812
	MW Reduction	0.019	0.024	0.024	0.024	0.018
	Participants	88.7	109.2	113.2	109.1	84.6
LED Interior High-Bay Fixture 750 watt HID lamp/ T8 HLO	MWh Savings	455.863	561.259	581.577	560.314	434.610
	MW Reduction	0.104	0.128	0.133	0.128	0.099
	Participants	281.6	346.7	359.3	346.1	268.5
Night Covers for Display Cases	MWh Savings	2.088	2.570	2.663	2.566	1.990
	MW Reduction	0.000	0.000	0.000	0.000	0.000
	Participants	31.8	39.1	40.5	39.1	30.3
Omnidirectional, General Service Lamp, Screw-based 1050-1489 lumens	MWh Savings	5.953	7.329	7.594	7.316	5.675
	MW Reduction	0.002	0.002	0.002	0.002	0.001
	Participants	153.5	189.0	195.9	188.7	146.4
Omnidirectional, General Service Lamp, Screw-based 1490-1999 lumens	MWh Savings	9.524	11.726	12.151	11.706	9.080
	MW Reduction	0.002	0.003	0.003	0.003	0.002
	Participants	153.5	189.0	195.9	188.7	146.4
Omnidirectional, General Service Lamp, Screw-based 2000-2600 lumens	MWh Savings	11.823	14.556	15.083	14.532	11.272
	MW Reduction	0.003	0.004	0.004	0.004	0.003
	Participants	153.5	189.0	195.9	188.7	146.4
Omnidirectional, General Service Lamp, Screw-based 250-309 lumens	MWh Savings	8.826	10.867	11.260	10.849	8.415
	MW Reduction	0.002	0.003	0.003	0.003	0.002
	Participants	153.5	189.0	195.9	188.7	146.4
Omnidirectional, General Service Lamp, Screw-based 2601-3000 lumens	MWh Savings	20.115	24.766	25.663	24.725	19.178
	MW Reduction	0.005	0.006	0.007	0.006	0.005
	Participants	153.5	189.0	195.9	188.7	146.4
Omnidirectional, General Service Lamp, Screw-based 3001-3300 lumens	MWh Savings	18.145	22.340	23.149	22.303	17.299
	MW Reduction	0.005	0.006	0.006	0.006	0.004
	Participants	153.5	189.0	195.9	188.7	146.4
Omnidirectional, General Service Lamp, Screw-based 310-449 lumens	MWh Savings	1.103	1.358	1.407	1.355	1.051
	MW Reduction	0.000	0.000	0.000	0.000	0.000
	Participants	114.6	141.1	146.2	140.8	109.2
Omnidirectional, General Service Lamp, Screw-based 3301-3999 lumens	MWh Savings	69.049	85.014	88.091	84.871	65.830
	MW Reduction	0.018	0.022	0.023	0.022	0.017
	Participants	153.5	189.0	195.9	188.7	146.4
Omnidirectional, General Service Lamp, Screw-based 4000-6000 lumens	MWh Savings	109.198	134.445	139.312	134.219	104.107
	MW Reduction	0.028	0.035	0.036	0.034	0.027
	Participants	153.5	189.0	195.9	188.7	146.4

Table 8B: Estimated Savings and Participants – Nonresidential (continued)

Measure	Metric	PY13	PY14	PY15	PY16	PY17
Omnidirectional, General Service Lamp, Screw-based 450-749 lumens	MWh Savings	2.709	3.336	3.457	3.330	2.583
	MW Reduction	0.001	0.001	0.001	0.001	0.001
	Participants	153.5	189.0	195.9	188.7	146.4
Omnidirectional, General Service Lamp, Screw-based 750-1049 lumens	MWh Savings	153.262	188.697	195.528	188.379	146.117
	MW Reduction	0.039	0.048	0.050	0.048	0.038
	Participants	5,732.1	7,057.3	7,312.8	7,045.5	5,464.9
Packaged Terminal AC or PTHP 11.0 EER	MWh Savings	14.252	17.547	18.182	17.517	13.587
	MW Reduction	0.002	0.003	0.003	0.003	0.002
	Participants	63.4	78.0	80.8	77.9	60.4
Packaged Terminal AC or PTHP 12.0 EER	MWh Savings	22.347	27.513	28.509	27.467	21.305
	MW Reduction	0.007	0.009	0.009	0.009	0.007
	Participants	63.4	78.0	80.8	77.9	60.4
Packaged Terminal AC or PTHP 13.0 or higher EER	MWh Savings	56.841	69.983	72.516	69.865	54.191
	MW Reduction	0.021	0.026	0.027	0.026	0.020
	Participants	126.5	155.7	161.3	155.4	120.6
Pre-Rinse Sprayers	MWh Savings	75.823	93.353	96.733	93.196	72.288
	MW Reduction	0.014	0.017	0.018	0.017	0.013
	Participants	42.7	52.6	54.5	52.5	40.7
Reflector Lamp; PAR, MR, MRX 1260-1399 lumens	MWh Savings	10.954	13.487	13.975	13.464	10.443
	MW Reduction	0.003	0.003	0.004	0.003	0.003
	Participants	315.1	388.0	402.0	387.3	300.4
Reflector Lamp; PAR, MR, MRX 400-472 lumens	MWh Savings	1.587	1.954	2.024	1.950	1.513
	MW Reduction	0.000	0.001	0.001	0.001	0.000
	Participants	164.8	203.0	210.3	202.6	157.2
Reflector Lamp; PAR, MR, MRX 473-524 lumens	MWh Savings	1.543	1.899	1.968	1.896	1.471
	MW Reduction	0.000	0.000	0.001	0.000	0.000
	Participants	164.8	203.0	210.3	202.6	157.2
Reflector Lamp; PAR, MR, MRX 525-714 lumens	MWh Savings	2.689	3.310	3.430	3.305	2.563
	MW Reduction	0.001	0.001	0.001	0.001	0.001
	Participants	164.8	203.0	210.3	202.6	157.2
Reflector Lamp; PAR, MR, MRX 715-937 lumens	MWh Savings	2.865	3.527	3.655	3.521	2.731
	MW Reduction	0.001	0.001	0.001	0.001	0.001
	Participants	164.8	203.0	210.3	202.6	157.2
Reflector Lamp; PAR, MR, MRX 938-1259 lumens	MWh Savings	194.128	239.010	247.663	238.608	185.077
	MW Reduction	0.050	0.061	0.064	0.061	0.048
	Participants	5,951.2	7,327.1	7,592.4	7,314.8	5,673.7
Refrigerated Case Light Occupancy Controls	MWh Savings	0.992	1.221	1.266	1.219	0.946
	MW Reduction	0.000	0.000	0.000	0.000	0.000
	Participants	317.8	391.2	405.4	390.6	303.0
Refrigerated Display Cases with Doors Replacing Open Cases	MWh Savings	7.068	8.702	9.017	8.687	6.738
	MW Reduction	0.001	0.001	0.001	0.001	0.001
	Participants	17.5	21.5	22.3	21.5	16.7
Refrigeration Economizers	MWh Savings	22.733	27.989	29.002	27.942	21.673
	MW Reduction	0.000	0.000	0.000	0.000	0.000
	Participants	38.6	47.6	49.3	47.5	36.8
Replacement door w/ anti-sweat heater	MWh Savings	38.388	47.263	48.974	47.183	36.598
	MW Reduction	0.004	0.005	0.006	0.005	0.004
	Participants	58.8	72.4	75.0	72.3	56.1
Special Doors with Low or No Anti-Sweat Heat for Low Temp Case	MWh Savings	2.074	2.554	2.646	2.549	1.977
	MW Reduction	0.000	0.000	0.000	0.000	0.000
	Participants	3.2	3.9	4.1	3.9	3.0
Strip Curtains for Walk-In Freezers and Coolers	MWh Savings	7.035	8.662	8.976	8.647	6.707
	MW Reduction	0.001	0.001	0.001	0.001	0.001
	Participants	57.2	70.4	73.0	70.3	54.5
Suction Pipe Insulation for Walk-In Coolers and Freezers	MWh Savings	6.305	7.762	8.043	7.749	6.011
	MW Reduction	0.001	0.002	0.002	0.002	0.001
	Participants	254.2	313.0	324.3	312.5	242.4

Table 8B: Estimated Savings and Participants – Nonresidential (continued)

Measure	Metric	PY13	PY14	PY15	PY16	PY17
Unitary HVAC <65k Packaged 3-phase AC unit, Min 15 SEER (cooling mode only)	MWh Savings	2.907	3.579	3.709	3.573	2.772
	MW Reduction	0.005	0.006	0.006	0.006	0.005
	Participants	62.6	77.0	79.8	76.9	59.7
Unitary HVAC <65k Packaged 3-phase AC unit, Min 16 SEER (cooling mode only)	MWh Savings	1.405	1.730	1.793	1.727	1.340
	MW Reduction	0.001	0.001	0.001	0.001	0.001
	Participants	13.9	17.2	17.8	17.1	13.3
Unitary HVAC <65k Packaged 3-phase AC unit, Min 18 SEER (cooling mode only)	MWh Savings	0.184	0.226	0.235	0.226	0.175
	MW Reduction	0.000	0.000	0.000	0.000	0.000
	Participants	1.0	1.3	1.3	1.3	1.0
Unitary HVAC <65k Split 3-phase AC unit, Min 15 SEER (cooling mode only)	MWh Savings	24.818	30.556	31.662	30.505	23.661
	MW Reduction	0.040	0.049	0.051	0.049	0.038
	Participants	487.7	600.5	622.2	599.4	465.0
Unitary HVAC <65k Split 3-phase AC unit, Min 16 SEER (cooling mode only)	MWh Savings	20.591	25.352	26.270	25.309	19.631
	MW Reduction	0.017	0.021	0.022	0.021	0.016
	Participants	193.5	238.2	246.8	237.8	184.4
Unitary HVAC <65k Split 3-phase AC unit, Min 18 SEER (cooling mode only)	MWh Savings	0.563	0.693	0.718	0.692	0.537
	MW Reduction	0.000	0.001	0.001	0.000	0.000
	Participants	3.8	4.7	4.8	4.6	3.6
Unitary HVAC ≥760k AC unit, min 9.7 EER 13 IEER (cooling mode only)	MWh Savings	12.077	14.870	15.408	14.845	11.514
	MW Reduction	0.001	0.002	0.002	0.002	0.001
	Participants	101.2	124.6	129.1	124.4	96.5
Unitary HVAC ≥760k AC unit, min 9.7 EER 14 IEER (cooling mode only)	MWh Savings	31.494	38.776	40.179	38.710	30.026
	MW Reduction	0.008	0.009	0.010	0.009	0.007
	Participants	164.7	202.8	210.1	202.5	157.0
Unitary HVAC ≥760k AC unit, min 9.7 EER 16 IEER (cooling mode only)	MWh Savings	25.765	31.722	32.871	31.669	24.564
	MW Reduction	0.005	0.007	0.007	0.007	0.005
	Participants	105.4	129.7	134.4	129.5	100.5
Unitary HVAC 135-240k AC unit, Min 11.5 EER 13 IEER (cooling mode only)	MWh Savings	19.614	24.148	25.022	24.108	18.699
	MW Reduction	0.018	0.023	0.023	0.023	0.017
	Participants	384.0	472.7	489.9	471.9	366.1
Unitary HVAC 135-240k AC unit, Min 11.5 EER 14 IEER (cooling mode only)	MWh Savings	29.435	36.240	37.552	36.179	28.063
	MW Reduction	0.013	0.016	0.017	0.016	0.013
	Participants	256.5	315.8	327.3	315.3	244.6
Unitary HVAC 135-240k AC unit, min 11.5 EER 16 IEER (cooling mode only)	MWh Savings	10.657	13.121	13.596	13.099	10.160
	MW Reduction	0.003	0.003	0.003	0.003	0.002
	Participants	44.6	55.0	56.9	54.9	42.6
Unitary HVAC 240-760k AC unit, min 9.8 EER 12 IEER (cooling mode only)	MWh Savings	73.350	90.308	93.578	90.156	69.930
	MW Reduction	0.025	0.031	0.032	0.031	0.024
	Participants	967.4	1,191.1	1,234.2	1,189.1	922.3
Unitary HVAC 240-760k AC unit, min 9.8 EER 13 IEER (cooling mode only)	MWh Savings	33.320	41.024	42.509	40.955	31.767
	MW Reduction	0.013	0.016	0.016	0.015	0.012
	Participants	238.6	293.7	304.4	293.2	227.4
Unitary HVAC 240-760k AC unit, min 9.8 EER 14 IEER (cooling mode only)	MWh Savings	3.304	4.068	4.216	4.062	3.150
	MW Reduction	0.001	0.002	0.002	0.002	0.001
	Participants	16.6	20.4	21.1	20.4	15.8
Unitary HVAC 65-135k AC unit, Min 11.5 EER 13.2 IEER (cooling mode only)	MWh Savings	15.926	19.609	20.318	19.576	15.184
	MW Reduction	0.023	0.028	0.029	0.028	0.022
	Participants	312.0	384.1	398.0	383.4	297.4
Unitary HVAC 65-135k AC unit, Min 11.5 EER 14 IEER (cooling mode only)	MWh Savings	39.126	48.172	49.916	48.091	37.302
	MW Reduction	0.025	0.030	0.031	0.030	0.024
	Participants	464.5	571.9	592.6	570.9	442.8
Unitary HVAC 65-135k AC unit, Min 11.5 EER 17.8 IEER (cooling mode only)	MWh Savings	15.015	18.486	19.155	18.455	14.315
	MW Reduction	0.004	0.005	0.006	0.005	0.004
	Participants	63.5	78.2	81.0	78.0	60.5
Variable Speed Refrigeration Compressor	MWh Savings	7.057	8.688	9.003	8.674	6.728
	MW Reduction	0.001	0.001	0.001	0.001	0.001
	Participants	40.0	49.3	51.1	49.2	38.2

Table 8B: Estimated Savings and Participants – Nonresidential (continued)

Measure	Metric	PY13	PY14	PY15	PY16	PY17
VCx Custom Cooling - Small C&I	MWh Savings	1,052.171	1,295.192	1,354.027	1,316.682	1,035.667
	MW Reduction	0.387	0.477	0.498	0.485	0.381
	Participants	30.1	37.0	38.7	37.6	29.6
VCx Custom Cooling - Large C&I	MWh Savings	714.909	880.310	906.573	867.724	666.310
	MW Reduction	0.263	0.324	0.334	0.319	0.245
	Participants	11.5	14.2	14.6	14.0	10.7
VFD - HVAC Fan Motor	MWh Savings	2,720.862	3,349.928	3,471.200	3,344.289	2,594.013
	MW Reduction	0.186	0.229	0.237	0.229	0.177
	Participants	1,375.6	1,693.7	1,755.0	1,690.8	1,311.5
Water Source and Geothermal Heat Pumps 14 EER	MWh Savings	12.050	14.835	15.373	14.811	11.488
	MW Reduction	0.006	0.007	0.007	0.007	0.005
	Participants	126.5	155.7	161.3	155.4	120.6
Water Source and Geothermal Heat Pumps 15 EER	MWh Savings	34.373	42.320	43.852	42.248	32.770
	MW Reduction	0.018	0.022	0.023	0.022	0.017
	Participants	252.9	311.4	322.7	310.9	241.1
Water Source and Geothermal Heat Pumps 16 EER	MWh Savings	84.914	104.547	108.331	104.371	80.956
	MW Reduction	0.035	0.043	0.044	0.043	0.033
	Participants	252.9	311.4	322.7	310.9	241.1
Water-Cooled Chiller (Centrifugal) ≥150 tons, < 300 tons	MWh Savings	18.122	22.312	23.120	22.274	17.277
	MW Reduction	0.004	0.005	0.005	0.005	0.004
	Participants	125.4	154.4	160.0	154.1	119.6
Water-Cooled Chiller (Centrifugal) ≥300 tons, < 400 tons	MWh Savings	47.773	58.818	60.947	58.719	45.546
	MW Reduction	0.024	0.030	0.031	0.030	0.023
	Participants	401.5	494.3	512.2	493.4	382.7
Water-Cooled Chiller (Centrifugal) ≥400 tons, < 600 tons	MWh Savings	41.910	51.600	53.468	51.513	39.956
	MW Reduction	0.041	0.051	0.052	0.051	0.039
	Participants	410.9	505.9	524.2	505.0	391.7
Water-Cooled Chiller (Centrifugal) Greater than 600 tons	MWh Savings	136.924	168.581	174.684	168.297	130.541
	MW Reduction	0.188	0.231	0.240	0.231	0.179
	Participants	1,342.4	1,652.8	1,712.6	1,650.0	1,279.8
Water-Cooled Chiller (Centrifugal) Less than 150 tons	MWh Savings	4.693	5.778	5.988	5.769	4.475
	MW Reduction	0.001	0.001	0.001	0.001	0.001
	Participants	30.5	37.6	38.9	37.5	29.1
Water-Cooled Chiller (Scroll) >150 tons, <300 Tons	MWh Savings	20.564	25.319	26.236	25.276	19.606
	MW Reduction	0.008	0.010	0.010	0.010	0.008
	Participants	133.9	164.9	170.8	164.6	127.7
Water-Cooled Chiller (Scroll) >300 tons, <600 Tons	MWh Savings	10.629	13.087	13.561	13.065	10.134
	MW Reduction	0.003	0.003	0.003	0.003	0.003
	Participants	78.2	96.3	99.8	96.1	74.6
Water-Cooled Chiller (Scroll) >75 tons, <150 tons	MWh Savings	6.492	7.993	8.283	7.980	6.190
	MW Reduction	0.003	0.004	0.004	0.004	0.003
	Participants	38.2	47.0	48.7	46.9	36.4
Water-Cooled Chiller (Scroll) Greater than 600 tons	MWh Savings	5.087	6.263	6.489	6.252	4.849
	MW Reduction	0.000	0.000	0.000	0.000	0.000
	Participants	41.7	51.4	53.2	51.3	39.8
Water-Cooled Chiller (Scroll) Less than 75 tons	MWh Savings	8.546	10.521	10.902	10.504	8.147
	MW Reduction	0.003	0.004	0.004	0.004	0.003
	Participants	43.7	53.8	55.8	53.7	41.7

Table 9: Program Budget (continued)

All Programs

Cost Element Total Budget (\$000)	Metric	PY13	PY14	PY15	PY16	PY17	Phase IV Total
Incentives	Rebates	\$6,665.85	\$8,054.37	\$8,311.06	\$8,042.80	\$6,553.31	\$37,627.39
	Upstream/Midstream Buydown	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
	Kits	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
	Direct-Install Materials and Labor	\$3,178.99	\$3,600.55	\$3,664.01	\$3,597.60	\$3,297.38	\$17,338.52
	Incentive Total	\$9,844.84	\$11,654.92	\$11,975.07	\$11,640.39	\$9,850.69	\$54,965.91
Non-Incentives	Program Design	\$45.25	\$63.35	\$66.37	\$63.35	\$63.35	\$301.67
	Administrative	\$786.16	\$922.08	\$946.34	\$921.00	\$786.33	\$4,361.92
	EDC Delivery Costs	\$405.97	\$476.16	\$488.68	\$475.60	\$406.05	\$2,252.46
	CSP Delivery Fees	\$5,277.12	\$6,088.63	\$6,230.71	\$6,082.34	\$5,314.10	\$28,992.89
	Marketing	\$214.01	\$251.01	\$257.61	\$250.72	\$214.06	\$1,187.41
	EM&V	\$713.37	\$836.71	\$858.72	\$835.73	\$713.53	\$3,958.05
	Implementation Services	\$308.10	\$361.37	\$370.87	\$360.94	\$308.17	\$1,709.45
Non-Incentive Total	\$7,759.11	\$8,999.73	\$9,218.38	\$8,990.02	\$7,796.62	\$42,763.85	
Percent Incentives		55.9%	56.4%	56.5%	56.4%	55.8%	56.2%

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

EE&C Program	Cost Elements (\$)								Total Cost \$	Acquisition Cost (\$/MWh)	Levelized Cost (\$/MWh)	Acquisition Cost (\$/MW)
	Incentives	Program Design	Administrative	EDC Delivery Costs	CSP Delivery Fees	Marketing	EM&V	Other				
Residential Portfolio												
Residential - Appliance Recycling	\$772,717.35	\$6,774.49	\$97,954.45	\$50,582.83	\$674,606.47	\$26,665.48	\$88,884.90	\$38,388.75	\$1,756,575	\$207.93	\$45.56	\$1,451,412
Residential - Down Stream Incentives	\$2,754,042.53	\$19,727.63	\$285,248.06	\$147,299.63	\$1,964,486.40	\$77,651.16	\$258,837.09	\$111,789.89	\$5,619,082	\$237.10	\$29.15	\$2,165,648
Residential - Midstream Incentives	\$144,594.08	\$478.20	\$6,914.50	\$3,570.59	\$47,619.78	\$1,882.29	\$6,274.29	\$2,709.82	\$214,044	\$358.94	\$38.68	\$1,684,399
Residential - Upstream Incentives	\$2,176,562.09	\$10,910.27	\$157,755.05	\$81,463.35	\$1,086,449.65	\$42,944.59	\$143,148.60	\$61,824.86	\$3,761,058	\$276.45	\$42.81	\$2,638,031
Residential - Low Income EE	\$9,238,053.79	\$33,323.35	\$481,832.90	\$248,814.34	\$3,804,521.00	\$131,166.12	\$437,221.00	\$188,832.30	\$14,563,765	\$680.99	\$28.23	\$5,838,493
Residential - Behavioral Efficiency	\$0.00	\$12,453.02	\$180,062.19	\$92,982.56	\$3,597,241.00	\$49,017.12	\$163,390.00	\$70,567.12	\$4,165,713	\$83.82	\$0.09	\$618,058
Low Income Behavioral Efficiency	\$0.00	\$12,537.56	\$181,284.59	\$93,613.79	\$542,843.21	\$49,349.88	\$164,499.00	\$71,046.18	\$1,115,174	\$148.69	\$0.15	\$1,096,423
Nonresidential Portfolio												
Small C&I Direct-Install	\$8,100,469.65	\$20,812.05	\$300,928.0	\$155,396.6	\$659,358.7	\$81,919.6	\$273,065.5	\$117,934.9	\$9,709,885	\$419.73	\$60.79	\$2,169,659
Small C&I Downstream	\$5,608,845.70	\$48,050.60	\$694,778.9	\$358,777.8	\$1,522,319.3	\$189,135.0	\$630,450.3	\$272,286.7	\$9,324,644	\$185.70	\$40.62	\$1,085,481
Small C&I Midstream	\$4,415,666.72	\$24,732.43	\$357,614.0	\$184,668.8	\$783,562.6	\$97,350.9	\$324,503.1	\$140,150.4	\$6,328,249	\$230.19	\$101.45	\$936,731
Small C&I VCX	\$1,174,425.44	\$5,446.27	\$78,749.3	\$40,665.5	\$172,546.4	\$21,437.4	\$71,458.0	\$30,862.2	\$1,595,591	\$263.57	\$19.61	\$716,226
Large Commercial - Downstream	\$8,897,267.46	\$59,036.52	\$853,627.9	\$440,806.1	\$7,842,526.1	\$232,377.4	\$774,591.3	\$334,540.3	\$19,434,773	\$232.21	\$20.55	\$1,263,882
Large Commercial - Midstream	\$3,813,150.72	\$11,773.68	\$170,239.3	\$87,910.1	\$1,564,037.9	\$46,343.1	\$154,477.0	\$66,717.5	\$5,914,649	\$341.88	\$110.84	\$1,236,681
Large Commercial VCx	\$534,752.79	\$1,875.90	\$27,124.2	\$14,006.7	\$249,197.6	\$7,383.8	\$24,612.8	\$10,630.1	\$869,584	\$315.47	\$19.61	\$857,260
Large Industrial - Downstream	\$3,707,536.48	\$27,400.92	\$396,198.6	\$204,593.5	\$3,639,991.0	\$107,854.5	\$359,515.0	\$155,271.9	\$8,598,362	\$221.34	\$20.55	\$1,204,754
Large Industrial - Midstream	\$1,425,033.44	\$5,464.58	\$79,014.0	\$40,802.2	\$725,924.8	\$21,509.5	\$71,698.2	\$30,965.9	\$2,400,413	\$298.94	\$110.84	\$1,081,360
Large Industrial - VCx	\$248,197.50	\$870.67	\$12,589.3	\$6,501.0	\$115,661.3	\$3,427.1	\$11,423.6	\$4,933.8	\$403,604	\$315.47	\$19.61	\$857,260
Pilot Program	\$1,954,595.00								\$1,954,595			
Portfolio Total	\$54,965,910.74								\$97,729,760	\$254.6816	\$42.80	\$1,423,386

Table 11: Allocation of Common Costs to Applicable Customer Sector

Common Cost Element	Total Cost	Basis for Cost Allocation	Sector Cost Allocation (\$)		
			Residential <i>(Including Low-Income)</i>	Commercial/ Industrial Small	Commercial/ Industrial Large
Common Utility Staff	\$864,922	% Plan Savings	\$281,597	\$240,928	\$342,397
Marketing	\$1,177,260	% Plan Savings	\$383,287	\$327,931	\$466,041
Implementation Services	\$1,778,382	% Plan Savings	\$578,998	\$495,377	\$704,008
Tracking System Upgrade and Maintenance	\$2,500,000	% Plan Savings	\$813,939	\$696,387	\$989,674
Total	\$6,320,564		\$2,057,821	\$1,760,623	\$2,502,120

Table 12: Summary of Portfolio EE&C Costs

Portfolio	Total Sector Portfolio-specific Costs¹	Total Common Costs²	Total of all Costs²
Residential (Including Low-Income)	\$29,137,590	\$2,057,821	\$31,195,411
Commercial/Industrial Small	\$25,197,746	\$1,760,623	\$26,958,369
Commercial/Industrial Large	\$35,119,265	\$2,502,120	\$37,621,385
Pilot Program (Experimental Equip.)	\$1,954,595		\$1,954,595
Totals	\$91,409,196	\$6,320,564	\$97,729,760

1-Cost figures are carried over from Table 10, Total Cost Column.

2-Cost figures are to be carried over from the bottom row of Table 11

Common or indirect cost are allocated based on savings contributions from each sector program.

Table 13A: TRC Benefits Table (Gross)

Portfolio	NTGR & TRC			TRC Costs by Program Year (\$000)				TRC Benefits By Program Per Year (\$000)				
	Program Year	NTGR	TRC	Incremental Measure Cost		Program Admin Cost	Total TRC Costs	Capacity Benefits	Energy Benefits	Fossil Fuel / Water Benefits	O&M Benefits	Total TRC Benefits
				Paid by EDC	Paid by Participants							
Residential Appliance Recycling	PY13	1	1.06	\$115.91	\$115.91	\$147.58	\$263.49	\$77.98	\$201.86	\$0.00	\$0.00	\$279.84
	PY14	1	1.06	\$162.27	\$162.27	\$206.61	\$368.88	\$109.17	\$282.60	\$0.00	\$0.00	\$391.77
	PY15	1	1.06	\$170.00	\$170.00	\$216.45	\$386.45	\$114.36	\$296.06	\$0.00	\$0.00	\$410.42
	PY16	1	1.06	\$162.27	\$162.27	\$206.61	\$368.88	\$109.17	\$282.60	\$0.00	\$0.00	\$391.77
	PY17	1	1.06	\$162.27	\$162.27	\$206.61	\$368.88	\$109.17	\$282.60	\$0.00	\$0.00	\$391.77
	Program Total	1	1.06	\$772.72	\$772.72	\$983.86	\$1,756.57	\$519.84	\$1,345.73	\$0.00	\$0.00	\$1,865.57
Residential Downstream Incentives	PY13	1	2.09	\$523.27	\$932.37	\$544.36	\$1,476.73	\$406.84	\$1,361.48	\$1,160.16	\$163.54	\$3,092.02
	PY14	1	2.09	\$550.81	\$981.45	\$573.01	\$1,554.46	\$428.26	\$1,433.14	\$1,221.22	\$172.14	\$3,254.76
	PY15	1	2.09	\$550.81	\$981.45	\$573.01	\$1,554.46	\$428.26	\$1,433.14	\$1,221.22	\$172.14	\$3,254.76
	PY16	1	2.09	\$550.81	\$981.45	\$573.01	\$1,554.46	\$428.26	\$1,433.14	\$1,221.22	\$172.14	\$3,254.76
	PY17	1	2.09	\$578.35	\$1,030.52	\$601.66	\$1,632.18	\$449.67	\$1,504.80	\$1,282.28	\$180.75	\$3,417.50
	Program Total	1	2.09	\$2,754.04	\$4,907.24	\$2,865.04	\$7,772.28	\$2,141.28	\$7,165.70	\$6,106.12	\$860.72	\$16,273.81
Residential Midstream Incentives	PY13	1	1.22	\$27.47	\$33.83	\$13.20	\$47.03	\$20.86	\$36.74	-\$0.45	\$0.00	\$57.16
	PY14	1	1.22	\$28.92	\$35.61	\$13.89	\$49.50	\$21.96	\$38.68	-\$0.47	\$0.00	\$60.17
	PY15	1	1.22	\$28.92	\$35.61	\$13.89	\$49.50	\$21.96	\$38.68	-\$0.47	\$0.00	\$60.17
	PY16	1	1.22	\$28.92	\$35.61	\$13.89	\$49.50	\$21.96	\$38.68	-\$0.47	\$0.00	\$60.17
	PY17	1	1.22	\$30.36	\$37.39	\$14.58	\$51.98	\$23.06	\$40.61	-\$0.49	\$0.00	\$63.18
	Program Total	1	1.22	\$144.59	\$178.06	\$69.45	\$247.51	\$109.79	\$193.39	-\$2.35	\$0.00	\$300.84
Residential Upstream Incentives	PY13	1	1.00	\$413.55	\$1,095.05	\$301.05	\$1,396.10	\$322.49	\$1,224.10	-\$155.92	\$0.00	\$1,390.67
	PY14	1	1.00	\$435.31	\$1,152.68	\$316.90	\$1,469.58	\$339.46	\$1,288.53	-\$164.13	\$0.00	\$1,463.86
	PY15	1	1.00	\$435.31	\$1,152.68	\$316.90	\$1,469.58	\$339.46	\$1,288.53	-\$164.13	\$0.00	\$1,463.86
	PY16	1	1.00	\$435.31	\$1,152.68	\$316.90	\$1,469.58	\$339.46	\$1,288.53	-\$164.13	\$0.00	\$1,463.86
	PY17	1	1.00	\$457.08	\$1,210.31	\$332.74	\$1,543.06	\$356.43	\$1,352.96	-\$172.33	\$0.00	\$1,537.06
	Program Total	1	1.00	\$2,176.56	\$5,763.40	\$1,584.50	\$7,347.89	\$1,697.30	\$6,442.65	-\$820.64	\$0.00	\$7,319.32
Low Income Energy Efficiency	PY13	1	1.02	\$1,755.23	\$814.18	\$1,011.89	\$1,826.07	\$362.96	\$1,164.52	\$109.17	\$221.79	\$1,858.44
	PY14	1	1.02	\$1,847.61	\$857.03	\$1,065.14	\$1,922.17	\$382.06	\$1,225.81	\$114.92	\$233.46	\$1,956.25
	PY15	1	1.02	\$1,847.61	\$857.03	\$1,065.14	\$1,922.17	\$382.06	\$1,225.81	\$114.92	\$233.46	\$1,956.25
	PY16	1	1.02	\$1,847.61	\$857.03	\$1,065.14	\$1,922.17	\$382.06	\$1,225.81	\$114.92	\$233.46	\$1,956.25
	PY17	1	1.02	\$1,939.99	\$899.88	\$1,118.40	\$2,018.28	\$401.16	\$1,287.10	\$120.66	\$245.14	\$2,054.06
	Program Total	1	1.02	\$9,238.05	\$4,285.16	\$5,325.71	\$9,610.87	\$1,910.29	\$6,129.06	\$574.58	\$1,167.31	\$9,781.24

Table 13A: TRC Benefits Table (Gross) - continued

Portfolio	NTGR & TRC			TRC Costs by Program Year (\$000)				TRC Benefits By Program Per Year (\$000)				
	Program Year	NTGR	TRC	Incremental Measure Cost		Program Admin Cost	Total TRC Costs	Capacity Benefits	Energy Benefits	Fossil Fuel / Water Benefits	O&M Benefits	Total TRC Benefits
				Paid by EDC	Paid by Participants							
Residential Behavioral Efficiency	PY13	1	1.09	\$0.00	\$0.00	\$833.14	\$833.14	\$262.25	\$644.65	\$0.00	\$0.00	\$906.90
	PY14	1	1.09	\$0.00	\$0.00	\$833.14	\$833.14	\$262.25	\$644.65	\$0.00	\$0.00	\$906.90
	PY15	1	1.09	\$0.00	\$0.00	\$833.14	\$833.14	\$262.25	\$644.65	\$0.00	\$0.00	\$906.90
	PY16	1	1.09	\$0.00	\$0.00	\$833.14	\$833.14	\$262.25	\$644.65	\$0.00	\$0.00	\$906.90
	PY17	1	1.09	\$0.00	\$0.00	\$833.14	\$833.14	\$262.25	\$644.65	\$0.00	\$0.00	\$906.90
	Program Total	1	1.09	\$0.00	\$0.00	\$4,165.71	\$4,165.71	\$1,311.27	\$3,223.25	\$0.00	\$0.00	\$4,534.52
Low Income Behavioral Efficiency	PY13	1	0.61	\$0.00	\$0.00	\$223.03	\$223.03	\$39.58	\$97.28	\$0.00	\$0.00	\$136.86
	PY14	1	0.61	\$0.00	\$0.00	\$223.03	\$223.03	\$39.58	\$97.28	\$0.00	\$0.00	\$136.86
	PY15	1	0.61	\$0.00	\$0.00	\$223.03	\$223.03	\$39.58	\$97.28	\$0.00	\$0.00	\$136.86
	PY16	1	0.61	\$0.00	\$0.00	\$223.03	\$223.03	\$39.58	\$97.28	\$0.00	\$0.00	\$136.86
	PY17	1	0.61	\$0.00	\$0.00	\$223.03	\$223.03	\$39.58	\$97.28	\$0.00	\$0.00	\$136.86
	Program Total	1	0.61	\$0.00	\$0.00	\$1,115.17	\$1,115.17	\$197.88	\$486.41	\$0.00	\$0.00	\$684.28
Small C&I Direct-Install	PY13	1	1.09	\$1,423.76	\$2,446.46	\$282.88	\$2,729.33	\$917.99	\$1,908.75	-\$190.79	\$340.31	\$2,976.25
	PY14	1	1.09	\$1,752.94	\$3,012.08	\$348.28	\$3,360.36	\$1,130.23	\$2,350.05	-\$234.91	\$419.00	\$3,664.37
	PY15	1	1.09	\$1,816.40	\$3,121.12	\$360.88	\$3,482.01	\$1,171.14	\$2,435.12	-\$243.41	\$434.16	\$3,797.02
	PY16	1	1.09	\$1,749.99	\$3,007.01	\$347.69	\$3,354.70	\$1,128.33	\$2,346.09	-\$234.51	\$418.29	\$3,658.20
	PY17	1	1.09	\$1,357.39	\$2,332.40	\$269.69	\$2,602.09	\$875.19	\$1,819.76	-\$181.90	\$324.45	\$2,837.50
	Program Total	1	1.09	\$8,100.47	\$13,919.07	\$1,609.42	\$15,528.49	\$5,222.88	\$10,859.77	-\$1,085.52	\$1,936.21	\$16,933.34
Small C&I Downstream Incentives	PY13	1	1.48	\$985.83	\$3,548.04	\$653.10	\$4,201.14	\$1,784.50	\$4,134.50	-\$228.71	\$523.87	\$6,214.15
	PY14	1	1.48	\$1,213.75	\$4,368.35	\$804.10	\$5,172.45	\$2,197.08	\$5,090.40	-\$281.59	\$644.98	\$7,650.87
	PY15	1	1.48	\$1,257.69	\$4,526.49	\$833.21	\$5,359.70	\$2,276.61	\$5,274.68	-\$291.78	\$668.33	\$7,927.84
	PY16	1	1.48	\$1,211.71	\$4,361.00	\$802.74	\$5,163.74	\$2,193.38	\$5,081.83	-\$281.11	\$643.90	\$7,637.99
	PY17	1	1.48	\$939.87	\$3,382.63	\$622.65	\$4,005.28	\$1,701.30	\$3,941.75	-\$218.05	\$499.44	\$5,924.45
	Program Total	1	1.48	\$5,608.85	\$20,186.52	\$3,715.80	\$23,902.32	\$10,152.86	\$23,523.16	-\$1,301.24	\$2,980.53	\$35,355.31
Small C&I Midstream Incentives	PY13	1	0.68	\$776.11	\$4,851.80	\$336.16	\$5,187.97	\$1,415.97	\$2,311.27	-\$212.39	\$0.00	\$3,514.85
	PY14	1	0.68	\$955.55	\$5,973.55	\$413.88	\$6,387.43	\$1,743.35	\$2,845.63	-\$261.50	\$0.00	\$4,327.49
	PY15	1	0.68	\$990.14	\$6,189.80	\$428.86	\$6,618.66	\$1,806.46	\$2,948.65	-\$270.96	\$0.00	\$4,484.15
	PY16	1	0.68	\$953.94	\$5,963.49	\$413.19	\$6,376.68	\$1,740.41	\$2,840.84	-\$261.06	\$0.00	\$4,320.20
	PY17	1	0.68	\$739.93	\$4,625.61	\$320.49	\$4,946.10	\$1,349.96	\$2,203.51	-\$202.49	\$0.00	\$3,350.98
	Program Total	1	0.68	\$4,415.67	\$27,604.25	\$1,912.58	\$29,516.83	\$8,056.16	\$13,149.90	-\$1,208.39	\$0.00	\$19,997.67

Table 13A: TRC Benefits Table (Gross) - continued

Portfolio	NTGR & TRC			TRC Costs by Program Year (\$000)				TRC Benefits By Program Per Year (\$000)				
	Program Year	NTGR	TRC	Incremental Measure Cost		Program Admin Cost	Total TRC Costs	Capacity Benefits	Energy Benefits	Fossil Fuel / Water Benefits	O&M Benefits	Total TRC Benefits
				Paid by EDC	Paid by Participants							
Small C&I Virtual Commissioning (VCx)	PY13	1	3.41	\$206.42	\$206.42	\$74.03	\$280.45	\$470.80	\$484.49	\$0.00	\$0.00	\$955.29
	PY14	1	3.41	\$254.15	\$254.15	\$91.14	\$345.29	\$579.65	\$596.51	\$0.00	\$0.00	\$1,176.16
	PY15	1	3.41	\$263.35	\$263.35	\$94.44	\$357.78	\$600.63	\$618.11	\$0.00	\$0.00	\$1,218.74
	PY16	1	3.41	\$253.72	\$253.72	\$90.99	\$344.70	\$578.67	\$595.51	\$0.00	\$0.00	\$1,174.18
	PY17	1	3.41	\$196.80	\$196.80	\$70.57	\$267.37	\$448.85	\$461.91	\$0.00	\$0.00	\$910.76
	Program Total	1	3.41	\$1,174.43	\$1,174.43	\$421.17	\$1,595.59	\$2,678.61	\$2,756.52	\$0.00	\$0.00	\$5,435.13
Large Commercial Downstream Incentives	PY13	1	2.16	\$1,563.81	\$2,991.12	\$1,852.10	\$4,843.22	\$3,249.66	\$7,031.86	-\$201.86	\$392.63	\$10,472.29
	PY14	1	2.16	\$1,925.36	\$3,682.67	\$2,280.31	\$5,962.98	\$4,000.98	\$8,657.64	-\$248.52	\$483.40	\$12,893.50
	PY15	1	2.16	\$1,995.07	\$3,815.98	\$2,362.86	\$6,178.85	\$4,145.82	\$8,971.06	-\$257.52	\$500.90	\$13,360.26
	PY16	1	2.16	\$1,922.12	\$3,676.47	\$2,276.47	\$5,952.94	\$3,994.25	\$8,643.06	-\$248.11	\$482.59	\$12,871.80
	PY17	1	2.16	\$1,490.90	\$2,851.67	\$1,765.76	\$4,617.43	\$3,098.16	\$6,704.03	-\$192.44	\$374.32	\$9,984.07
	Program Total	1	2.16	\$8,897.27	\$17,017.91	\$10,537.51	\$27,555.41	\$18,488.88	\$40,007.66	-\$1,148.45	\$2,233.84	\$59,581.92
Large Commercial Midstream Incentives	PY13	1	0.63	\$670.21	\$3,335.81	\$369.37	\$3,705.18	\$1,009.62	\$1,440.71	-\$131.90	\$0.00	\$2,318.43
	PY14	1	0.63	\$825.16	\$4,107.06	\$454.76	\$4,561.82	\$1,243.05	\$1,773.80	-\$162.39	\$0.00	\$2,854.46
	PY15	1	0.63	\$855.04	\$4,255.74	\$471.23	\$4,726.96	\$1,288.05	\$1,838.02	-\$168.27	\$0.00	\$2,957.79
	PY16	1	0.63	\$823.77	\$4,100.14	\$454.00	\$4,554.14	\$1,240.96	\$1,770.82	-\$162.12	\$0.00	\$2,849.65
	PY17	1	0.63	\$638.96	\$3,180.30	\$352.15	\$3,532.44	\$962.55	\$1,373.54	-\$125.75	\$0.00	\$2,210.35
	Program Total	1	0.63	\$3,813.15	\$18,979.04	\$2,101.50	\$21,080.54	\$5,744.23	\$8,196.89	-\$750.43	\$0.00	\$13,190.69
Large Commercial VCx	PY13	1	2.85	\$93.99	\$93.99	\$58.85	\$152.84	\$214.37	\$221.23	\$0.00	\$0.00	\$435.60
	PY14	1	2.85	\$115.72	\$115.72	\$72.46	\$188.18	\$263.93	\$272.38	\$0.00	\$0.00	\$536.32
	PY15	1	2.85	\$119.91	\$119.91	\$75.08	\$194.99	\$273.49	\$282.25	\$0.00	\$0.00	\$555.73
	PY16	1	2.85	\$115.53	\$115.53	\$72.34	\$187.86	\$263.49	\$271.93	\$0.00	\$0.00	\$535.41
	PY17	1	2.85	\$89.61	\$89.61	\$56.11	\$145.72	\$204.38	\$210.92	\$0.00	\$0.00	\$415.30
	Program Total	1	2.85	\$534.75	\$534.75	\$334.83	\$869.58	\$1,219.65	\$1,258.71	\$0.00	\$0.00	\$2,478.37
Large Industrial Downstream Incentives	PY13	1	2.16	\$651.65	\$1,388.28	\$859.63	\$2,247.91	\$1,508.28	\$3,263.73	-\$93.69	\$182.23	\$4,860.56
	PY14	1	2.16	\$802.31	\$1,709.26	\$1,058.37	\$2,767.63	\$1,857.00	\$4,018.31	-\$115.35	\$224.36	\$5,984.33
	PY15	1	2.16	\$831.35	\$1,771.13	\$1,096.69	\$2,867.82	\$1,924.22	\$4,163.78	-\$119.52	\$232.49	\$6,200.97
	PY16	1	2.16	\$800.96	\$1,706.38	\$1,056.59	\$2,762.97	\$1,853.87	\$4,011.55	-\$115.15	\$223.99	\$5,974.25
	PY17	1	2.16	\$621.27	\$1,323.56	\$819.55	\$2,143.11	\$1,437.96	\$3,111.58	-\$89.32	\$173.74	\$4,633.96
	Program Total	1	2.16	\$3,707.54	\$7,898.61	\$4,890.83	\$12,789.43	\$8,581.33	\$18,568.95	-\$533.04	\$1,036.81	\$27,654.06

Table 13A: TRC Benefits Table (Gross) - continued

Portfolio	NTGR & TRC			TRC Costs by Program Year (\$000)				TRC Benefits By Program Per Year (\$000)				
	Program Year	NTGR	TRC	Incremental Measure Cost		Program Admin Cost	Total TRC Costs	Capacity Benefits	Energy Benefits	Fossil Fuel / Water Benefits	O&M Benefits	Total TRC Benefits
				Paid by EDC	Paid by Participants							
Large Industrial Midstream Incentives	PY13	1	0.63	\$250.47	\$1,548.27	\$171.44	\$1,719.70	\$468.60	\$668.68	-\$61.22	\$0.00	\$1,076.07
	PY14	1	0.63	\$308.38	\$1,906.23	\$211.07	\$2,117.30	\$576.94	\$823.28	-\$75.37	\$0.00	\$1,324.85
	PY15	1	0.63	\$319.54	\$1,975.24	\$218.71	\$2,193.95	\$597.83	\$853.09	-\$78.10	\$0.00	\$1,372.82
	PY16	1	0.63	\$307.86	\$1,903.02	\$210.72	\$2,113.74	\$575.97	\$821.90	-\$75.25	\$0.00	\$1,322.62
	PY17	1	0.63	\$238.79	\$1,476.09	\$163.44	\$1,639.53	\$446.75	\$637.51	-\$58.36	\$0.00	\$1,025.90
	Program Total		1	0.63	\$1,425.03	\$8,808.84	\$975.38	\$9,784.22	\$2,666.10	\$3,804.46	-\$348.30	\$0.00
Large Industrial VCx	PY13	1	2.85	\$43.62	\$43.62	\$27.31	\$70.94	\$99.50	\$102.68	\$0.00	\$0.00	\$202.18
	PY14	1	2.85	\$53.71	\$53.71	\$33.63	\$87.34	\$122.50	\$126.42	\$0.00	\$0.00	\$248.92
	PY15	1	2.85	\$55.65	\$55.65	\$34.85	\$90.50	\$126.94	\$131.00	\$0.00	\$0.00	\$257.93
	PY16	1	2.85	\$53.62	\$53.62	\$33.57	\$87.19	\$122.29	\$126.21	\$0.00	\$0.00	\$248.50
	PY17	1	2.85	\$41.59	\$41.59	\$26.04	\$67.63	\$94.86	\$97.90	\$0.00	\$0.00	\$192.75
	Program Total		1	2.85	\$248.20	\$248.20	\$155.41	\$403.60	\$566.08	\$584.21	\$0.00	\$0.00
Pilot/Experimental	PY13	1		\$348.31								
	PY14	1		\$417.42								
	PY15	1		\$430.16								
	PY16	1		\$416.83								
	PY17	1		\$341.87								
	Program Total				\$1,954.60							
All Programs	PY13	1	1.31	\$9,501.30	\$23,445.16	\$7,759.11	\$31,204.26	\$12,632.24	\$26,298.56	-\$7.59	\$1,824.37	\$40,747.57
	PY14	1	1.31	\$11,231.95	\$28,371.81	\$8,999.73	\$37,371.54	\$15,297.44	\$31,565.14	-\$208.09	\$2,177.35	\$48,831.84
	PY15	1	1.31	\$11,536.78	\$29,291.18	\$9,218.38	\$38,509.56	\$15,799.12	\$32,539.90	-\$258.03	\$2,241.49	\$50,322.48
	PY16	1	1.31	\$11,218.13	\$28,329.41	\$8,990.02	\$37,319.43	\$15,274.35	\$31,520.43	-\$205.77	\$2,174.37	\$48,763.39
	PY17	1	1.31	\$9,523.16	\$22,840.63	\$7,796.62	\$30,637.25	\$12,261.29	\$25,772.41	\$161.80	\$1,797.84	\$39,993.33
	Portfolio Total		1.31	\$54,965.91	\$132,278.19	\$42,763.85	\$175,042.03	\$71,264.44	\$147,696.43	-\$517.67	\$10,215.42	\$228,658.61

Table 13B: TRC Benefits Table (Net)

Portfolio	NTGR & TRC			TRC Costs by Program Year (\$000)				TRC Benefits By Program Per Year (\$000)				
	Program Year	NTGR	TRC	Incremental Measure Cost		Program Admin Cost	Total TRC Costs	Capacity Benefits	Energy Benefits	Fossil Fuel / Water Benefits	O&M Benefits	Total TRC Benefits
				Paid by EDC	Paid by Participants							
Residential Appliance Recycling	PY13	0.46	0.49	\$115.91	\$115.91	\$147.58	\$263.49	\$35.87	\$92.86	\$0.00	\$0.00	\$128.72
	PY14	0.46	0.49	\$162.27	\$162.27	\$206.61	\$368.88	\$50.22	\$130.00	\$0.00	\$0.00	\$180.21
	PY15	0.46	0.49	\$170.00	\$170.00	\$216.45	\$386.45	\$52.61	\$136.19	\$0.00	\$0.00	\$188.80
	PY16	0.46	0.49	\$162.27	\$162.27	\$206.61	\$368.88	\$50.22	\$130.00	\$0.00	\$0.00	\$180.21
	PY17	0.46	0.49	\$162.27	\$162.27	\$206.61	\$368.88	\$50.22	\$130.00	\$0.00	\$0.00	\$180.21
	Program Total	0.46	0.49	\$772.72	\$772.72	\$983.86	\$1,756.57	\$239.13	\$619.04	\$0.00	\$0.00	\$858.16
Residential Downstream Incentives	PY13	0.61	1.69	\$523.27	\$568.75	\$544.36	\$1,113.11	\$248.17	\$830.50	\$707.70	\$99.76	\$1,886.13
	PY14	0.61	1.69	\$550.81	\$598.68	\$573.01	\$1,171.69	\$261.24	\$874.22	\$744.95	\$105.01	\$1,985.41
	PY15	0.61	1.69	\$550.81	\$598.68	\$573.01	\$1,171.69	\$261.24	\$874.22	\$744.95	\$105.01	\$1,985.41
	PY16	0.61	1.69	\$550.81	\$598.68	\$573.01	\$1,171.69	\$261.24	\$874.22	\$744.95	\$105.01	\$1,985.41
	PY17	0.61	1.69	\$578.35	\$628.62	\$601.66	\$1,230.28	\$274.30	\$917.93	\$782.19	\$110.26	\$2,084.68
	Program Total	0.61	1.69	\$2,754.04	\$2,993.41	\$2,865.04	\$5,858.45	\$1,306.18	\$4,371.08	\$3,724.73	\$525.04	\$9,927.03
Residential Midstream Incentives	PY13	0.43	0.89	\$27.47	\$14.55	\$13.20	\$27.74	\$8.97	\$15.80	-\$0.19	\$0.00	\$24.58
	PY14	0.43	0.89	\$28.92	\$15.31	\$13.89	\$29.20	\$9.44	\$16.63	-\$0.20	\$0.00	\$25.87
	PY15	0.43	0.89	\$28.92	\$15.31	\$13.89	\$29.20	\$9.44	\$16.63	-\$0.20	\$0.00	\$25.87
	PY16	0.43	0.89	\$28.92	\$15.31	\$13.89	\$29.20	\$9.44	\$16.63	-\$0.20	\$0.00	\$25.87
	PY17	0.43	0.89	\$30.36	\$16.08	\$14.58	\$30.66	\$9.91	\$17.46	-\$0.21	\$0.00	\$27.17
	Program Total	0.43	0.89	\$144.59	\$76.57	\$69.45	\$146.01	\$47.21	\$83.16	-\$1.01	\$0.00	\$129.36
Residential Upstream Incentives	PY13	0.43	0.77	\$413.55	\$470.87	\$301.05	\$771.92	\$138.67	\$526.36	-\$67.05	\$0.00	\$597.99
	PY14	0.43	0.77	\$435.31	\$495.65	\$316.90	\$812.55	\$145.97	\$554.07	-\$70.57	\$0.00	\$629.46
	PY15	0.43	0.77	\$435.31	\$495.65	\$316.90	\$812.55	\$145.97	\$554.07	-\$70.57	\$0.00	\$629.46
	PY16	0.43	0.77	\$435.31	\$495.65	\$316.90	\$812.55	\$145.97	\$554.07	-\$70.57	\$0.00	\$629.46
	PY17	0.43	0.77	\$457.08	\$520.43	\$332.74	\$853.18	\$153.27	\$581.77	-\$74.10	\$0.00	\$660.93
	Program Total	0.43	0.77	\$2,176.56	\$2,478.26	\$1,584.50	\$4,062.76	\$729.84	\$2,770.34	-\$352.87	\$0.00	\$3,147.31
Low Income Energy Efficiency	PY13	1.00	1.02	\$1,755.23	\$814.18	\$1,011.89	\$1,826.07	\$362.96	\$1,164.52	\$109.17	\$221.79	\$1,858.44
	PY14	1.00	1.02	\$1,847.61	\$857.03	\$1,065.14	\$1,922.17	\$382.06	\$1,225.81	\$114.92	\$233.46	\$1,956.25
	PY15	1.00	1.02	\$1,847.61	\$857.03	\$1,065.14	\$1,922.17	\$382.06	\$1,225.81	\$114.92	\$233.46	\$1,956.25
	PY16	1.00	1.02	\$1,847.61	\$857.03	\$1,065.14	\$1,922.17	\$382.06	\$1,225.81	\$114.92	\$233.46	\$1,956.25
	PY17	1.00	1.02	\$1,939.99	\$899.88	\$1,118.40	\$2,018.28	\$401.16	\$1,287.10	\$120.66	\$245.14	\$2,054.06
	Program Total	1.00	1.02	\$9,238.05	\$4,285.16	\$5,325.71	\$9,610.87	\$1,910.29	\$6,129.06	\$574.58	\$1,167.31	\$9,781.24

Table 13B: TRC Benefits Table (Net) -- continued

Portfolio	NTGR & TRC			TRC Costs by Program Year (\$000)				TRC Benefits By Program Per Year (\$000)				
	Program Year	NTGR	TRC	Incremental Measure Cost		Program Admin Cost	Total TRC Costs	Capacity Benefits	Energy Benefits	Fossil Fuel / Water Benefits	O&M Benefits	Total TRC Benefits
				Paid by EDC	Paid by Participants							
Residential Behavioral Efficiency	PY13	1.00	1.09	\$0.00	\$0.00	\$833.14	\$833.14	\$262.25	\$644.65	\$0.00	\$0.00	\$906.90
	PY14	1.00	1.09	\$0.00	\$0.00	\$833.14	\$833.14	\$262.25	\$644.65	\$0.00	\$0.00	\$906.90
	PY15	1.00	1.09	\$0.00	\$0.00	\$833.14	\$833.14	\$262.25	\$644.65	\$0.00	\$0.00	\$906.90
	PY16	1.00	1.09	\$0.00	\$0.00	\$833.14	\$833.14	\$262.25	\$644.65	\$0.00	\$0.00	\$906.90
	PY17	1.00	1.09	\$0.00	\$0.00	\$833.14	\$833.14	\$262.25	\$644.65	\$0.00	\$0.00	\$906.90
	Program Total	1.00	1.09	\$0.00	\$0.00	\$4,165.71	\$4,165.71	\$1,311.27	\$3,223.25	\$0.00	\$0.00	\$4,534.52
Low Income Behavioral Efficiency	PY13	1.00	0.61	\$0.00	\$0.00	\$223.03	\$223.03	\$39.58	\$97.28	\$0.00	\$0.00	\$136.86
	PY14	1.00	0.61	\$0.00	\$0.00	\$223.03	\$223.03	\$39.58	\$97.28	\$0.00	\$0.00	\$136.86
	PY15	1.00	0.61	\$0.00	\$0.00	\$223.03	\$223.03	\$39.58	\$97.28	\$0.00	\$0.00	\$136.86
	PY16	1.00	0.61	\$0.00	\$0.00	\$223.03	\$223.03	\$39.58	\$97.28	\$0.00	\$0.00	\$136.86
	PY17	1.00	0.61	\$0.00	\$0.00	\$223.03	\$223.03	\$39.58	\$97.28	\$0.00	\$0.00	\$136.86
	Program Total	1.00	0.61	\$0.00	\$0.00	\$1,115.17	\$1,115.17	\$197.88	\$486.41	\$0.00	\$0.00	\$684.28
Small C&I Direct-Install	PY13	1.00	1.09	\$1,423.76	\$2,446.46	\$282.88	\$2,729.33	\$917.99	\$1,908.75	-\$190.79	\$340.31	\$2,976.25
	PY14	1.00	1.09	\$1,752.94	\$3,012.08	\$348.28	\$3,360.36	\$1,130.23	\$2,350.05	-\$234.91	\$419.00	\$3,664.37
	PY15	1.00	1.09	\$1,816.40	\$3,121.12	\$360.88	\$3,482.01	\$1,171.14	\$2,435.12	-\$243.41	\$434.16	\$3,797.02
	PY16	1.00	1.09	\$1,749.99	\$3,007.01	\$347.69	\$3,354.70	\$1,128.33	\$2,346.09	-\$234.51	\$418.29	\$3,658.20
	PY17	1.00	1.09	\$1,357.39	\$2,332.40	\$269.69	\$2,602.09	\$875.19	\$1,819.76	-\$181.90	\$324.45	\$2,837.50
	Program Total	1.00	1.09	\$8,100.47	\$13,919.07	\$1,609.42	\$15,528.49	\$5,222.88	\$10,859.77	-\$1,085.52	\$1,936.21	\$16,933.34
Small C&I Downstream Incentives	PY13	0.90	1.45	\$985.83	\$3,193.24	\$653.10	\$3,846.34	\$1,606.05	\$3,721.05	-\$205.84	\$471.48	\$5,592.74
	PY14	0.90	1.45	\$1,213.75	\$3,931.52	\$804.10	\$4,735.62	\$1,977.37	\$4,581.36	-\$253.43	\$580.49	\$6,885.79
	PY15	0.90	1.45	\$1,257.69	\$4,073.84	\$833.21	\$4,907.05	\$2,048.95	\$4,747.21	-\$262.60	\$601.50	\$7,135.06
	PY16	0.90	1.45	\$1,211.71	\$3,924.90	\$802.74	\$4,727.64	\$1,974.04	\$4,573.65	-\$253.00	\$579.51	\$6,874.19
	PY17	0.90	1.45	\$939.87	\$3,044.37	\$622.65	\$3,667.02	\$1,531.17	\$3,547.57	-\$196.24	\$449.50	\$5,332.00
	Program Total	0.90	1.45	\$5,608.85	\$18,167.87	\$3,715.80	\$21,883.66	\$9,137.58	\$21,170.84	-\$1,171.12	\$2,682.48	\$31,819.78
Small C&I Midstream Incentives	PY13	0.72	0.66	\$776.11	\$3,493.30	\$336.16	\$3,829.46	\$1,019.50	\$1,664.11	-\$152.92	\$0.00	\$2,530.69
	PY14	0.72	0.66	\$955.55	\$4,300.95	\$413.88	\$4,714.84	\$1,255.21	\$2,048.86	-\$188.28	\$0.00	\$3,115.79
	PY15	0.72	0.66	\$990.14	\$4,456.65	\$428.86	\$4,885.52	\$1,300.65	\$2,123.03	-\$195.09	\$0.00	\$3,228.59
	PY16	0.72	0.66	\$953.94	\$4,293.71	\$413.19	\$4,706.90	\$1,253.10	\$2,045.41	-\$187.96	\$0.00	\$3,110.54
	PY17	0.72	0.66	\$739.93	\$3,330.44	\$320.49	\$3,650.93	\$971.97	\$1,586.53	-\$145.79	\$0.00	\$2,412.71
	Program Total	0.72	0.66	\$4,415.67	\$19,875.06	\$1,912.58	\$21,787.64	\$5,800.43	\$9,467.93	-\$870.04	\$0.00	\$14,398.32
Small C&I Virtual Commissioning (VCx)	PY13	0.72	3.09	\$206.42	\$148.62	\$74.03	\$222.65	\$338.98	\$348.84	\$0.00	\$0.00	\$687.81
	PY14	0.72	3.09	\$254.15	\$182.98	\$91.14	\$274.12	\$417.35	\$429.49	\$0.00	\$0.00	\$846.84
	PY15	0.72	3.09	\$263.35	\$189.61	\$94.44	\$284.05	\$432.46	\$445.04	\$0.00	\$0.00	\$877.49
	PY16	0.72	3.09	\$253.72	\$182.68	\$90.99	\$273.66	\$416.65	\$428.76	\$0.00	\$0.00	\$845.41
	PY17	0.72	3.09	\$196.80	\$141.69	\$70.57	\$212.27	\$323.17	\$332.57	\$0.00	\$0.00	\$655.75
	Program Total	0.72	3.09	\$1,174.43	\$845.59	\$421.17	\$1,266.75	\$1,928.60	\$1,984.70	\$0.00	\$0.00	\$3,913.30

Table 13B: TRC Benefits Table (Net) -- continued

Portfolio	NTGR & TRC			TRC Costs by Program Year (\$000)				TRC Benefits By Program Per Year (\$000)				
	Program Year	NTGR	TRC	Incremental Measure Cost		Program Admin Cost	Total TRC Costs	Capacity Benefits	Energy Benefits	Fossil Fuel / Water Benefits	O&M Benefits	Total TRC Benefits
				Paid by EDC	Paid by Participants							
All Programs	PY13	0.90	1.17	\$9,501.30	\$17,569.07	\$7,759.11	\$25,328.18	\$9,172.74	\$19,084.94	-\$121.27	\$1,487.93	\$29,624.35
	PY14	0.90	1.17	\$11,231.95	\$21,317.00	\$8,999.73	\$30,316.73	\$11,094.27	\$22,888.48	-\$283.17	\$1,774.52	\$35,474.10
	PY15	0.90	1.17	\$11,536.78	\$22,019.36	\$9,218.38	\$31,237.73	\$11,456.62	\$23,595.01	-\$321.98	\$1,826.51	\$36,556.16
	PY16	0.90	1.17	\$11,218.13	\$21,284.70	\$8,990.02	\$30,274.72	\$11,077.53	\$22,855.91	-\$281.36	\$1,772.11	\$35,424.18
	PY17	0.89	1.17	\$9,523.16	\$17,085.53	\$7,796.62	\$24,882.15	\$8,890.44	\$18,656.61	-\$1.76	\$1,467.40	\$29,012.69
Portfolio Total		0.90	1.17	\$54,965.91	\$99,275.66	\$42,763.85	\$142,039.51	\$51,691.60	\$107,080.96	-\$1,009.54	\$8,328.47	\$166,091.48

12. Gantt Charts of Program Schedule Summary

Chart 1: Gantt Chart of Program Schedule Summary (For Section 1.4)

Chart will be formatted to fit on one 8½ - 11 page

It will use color to differentiate schedule items

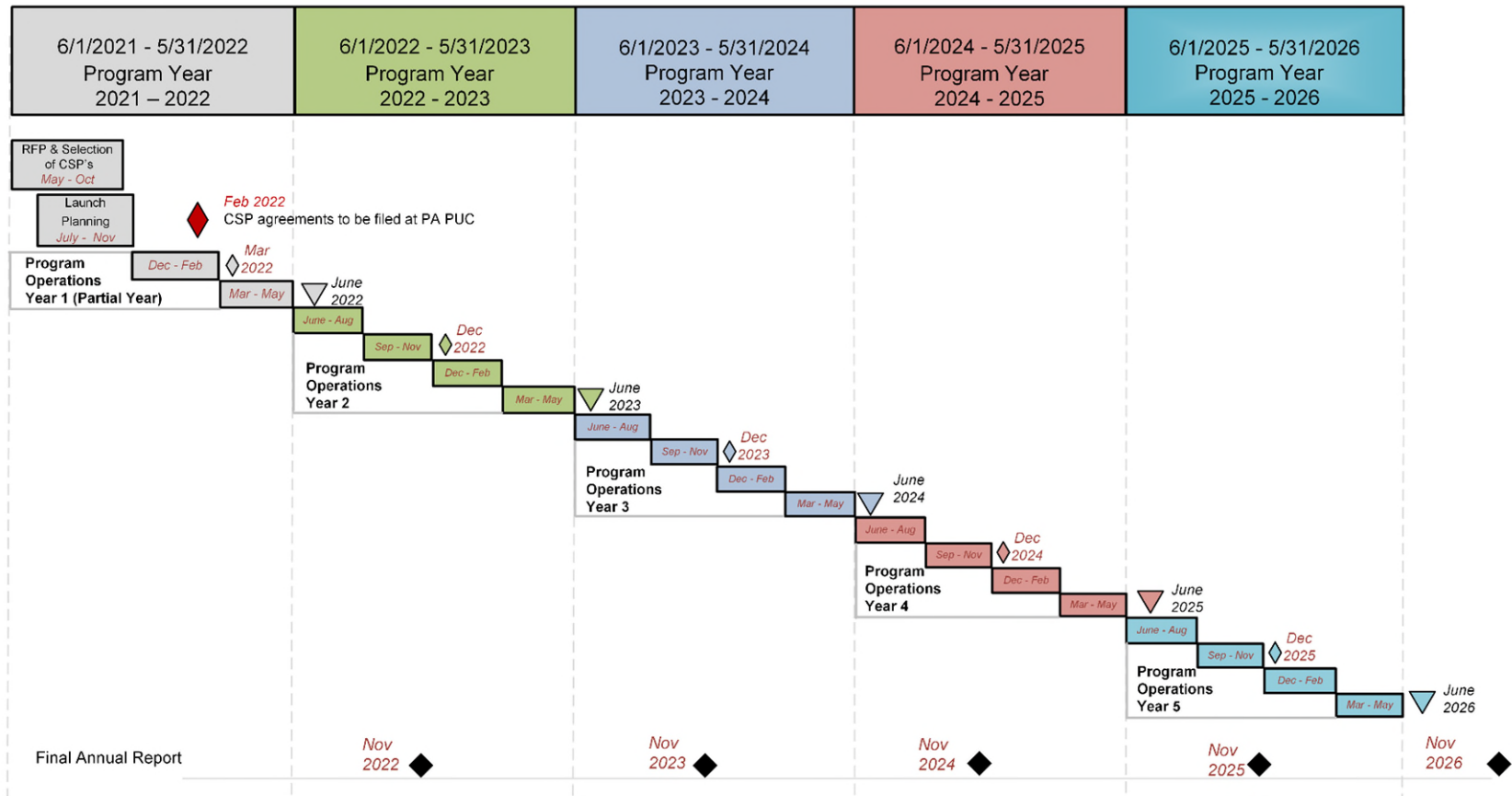
Provide a separate chart for each Portfolio that includes:

- Start and completion dates for the launch and close of Residential Portfolio programs for Program Years 2021, 2022, 2023, 2024 and 2025
- Start and completion dates for the launch and close of Commercial/Industrial Small portfolio programs for Program Years 2021, 2022, 2023, 2024 and 2025
- Start and completion dates for the launch and close of Commercial/Industrial Large portfolio programs for Program Years 2021, 2022, 2023, 2024 and 2025
- Start and completion dates for the launch and close of Residential and Low Income Behavioral programs for Program Years 2021, 2022, 2023, 2024 and 2025

As well, include the following for each chart:

- Start and completion dates for design of each Program Year
- Dates at which CSPs will be selected and placed under contract for each portfolio

**Chart 1:
Energy Efficiency and Conservation Plans
Gantt Chart of Program Schedule Summary
Residential Portfolio Programs**



Assumptions:

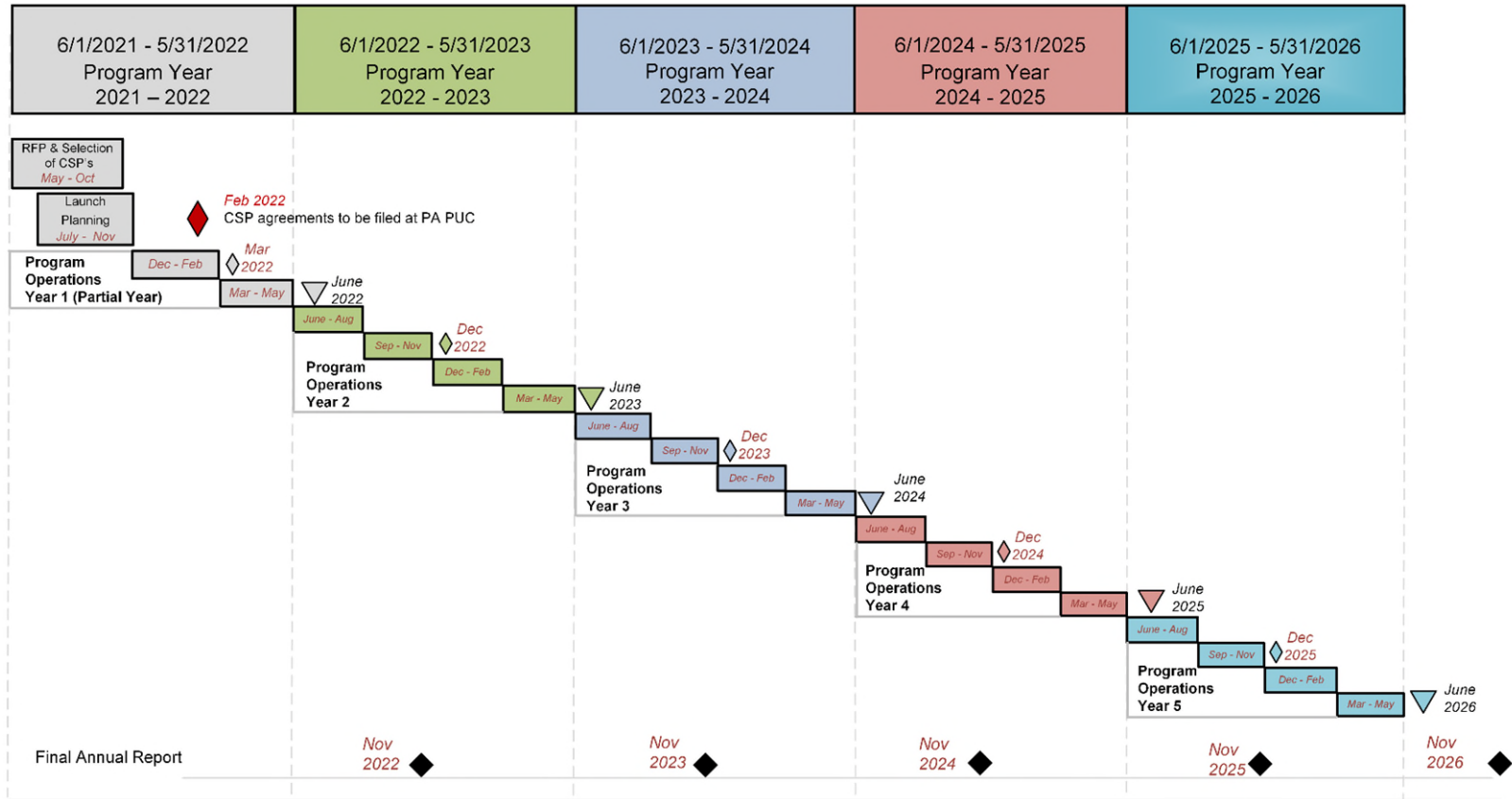
Duquesne Light will file the Act 129 Phase IV EE&C Plan by November 30, 2020
PA PUC approval by March 2021

Key

- ◇ Semi-Annual Report
- ▽ Annual Report PUC
- ◆ Final Annual Report

Note: Program Year Ending May 31

**Chart 2:
Energy Efficiency and Conservation Plans
Gantt Chart of Program Schedule Summary
Small Commercial and Industrial Portfolio Programs**



Assumptions:

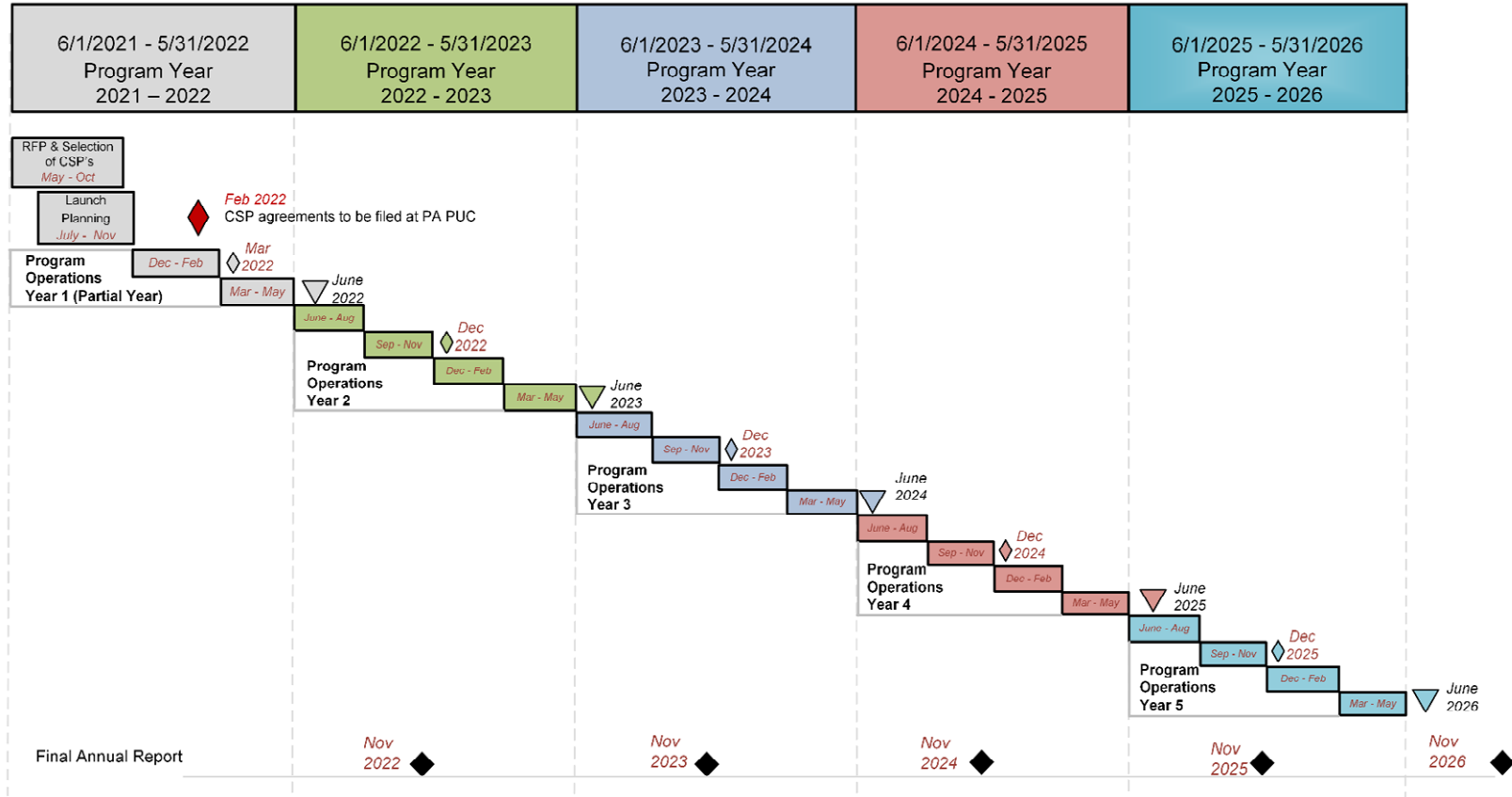
Duquesne Light will file the Act 129 Phase IV EE&C Plan by November 30, 2020
PA PUC approval by March 2021

Key

- ◆ Semi-Annual Report
- ▽ Annual Report PUC
- ◆ Final Annual Report

Note: Program Year Ending May 31

Chart 3:
Energy Efficiency and Conservation Plans
Gantt Chart of Program Schedule Summary
Large Commercial and Industrial Portfolio Programs



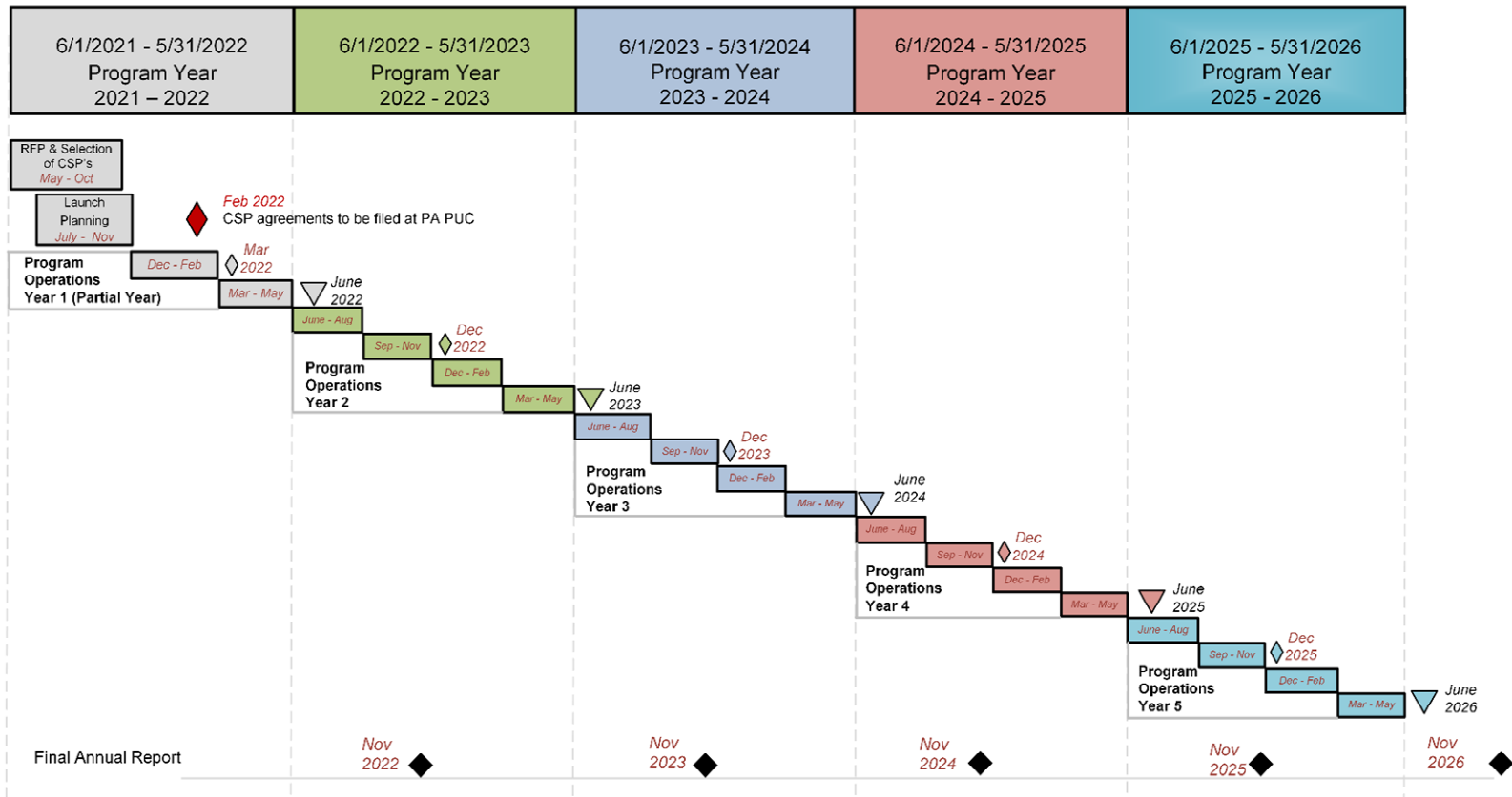
Assumptions:

Duquesne Light will file the Act 129 Phase IV EE&C Plan by November 30, 2020
 PA PUC approval by March 2021

Key	
◇	Semi-Annual Report
▽	Annual Report PUC
◆	Final Annual Report

Note: Program Year Ending May 31

**Chart 4:
Energy Efficiency and Conservation Plans
Gantt Chart of Program Schedule Summary
Residential and Low Income Behavioral Programs**



Assumptions:

Duquesne Light will file the Act 129 Phase IV EE&C Plan by November 30, 2020
PA PUC approval by March 2021

Key

- ◊ Semi-Annual Report
- ▽ Annual Report PUC
- ◆ Final Annual Report

Note: Program Year Ending May 31

13. CSP Agreement (CONFIDENTIAL)

Guidehouse's Phase IV CSP Agreement filed separately due to confidentiality.

14. Avoided Cost Calculator

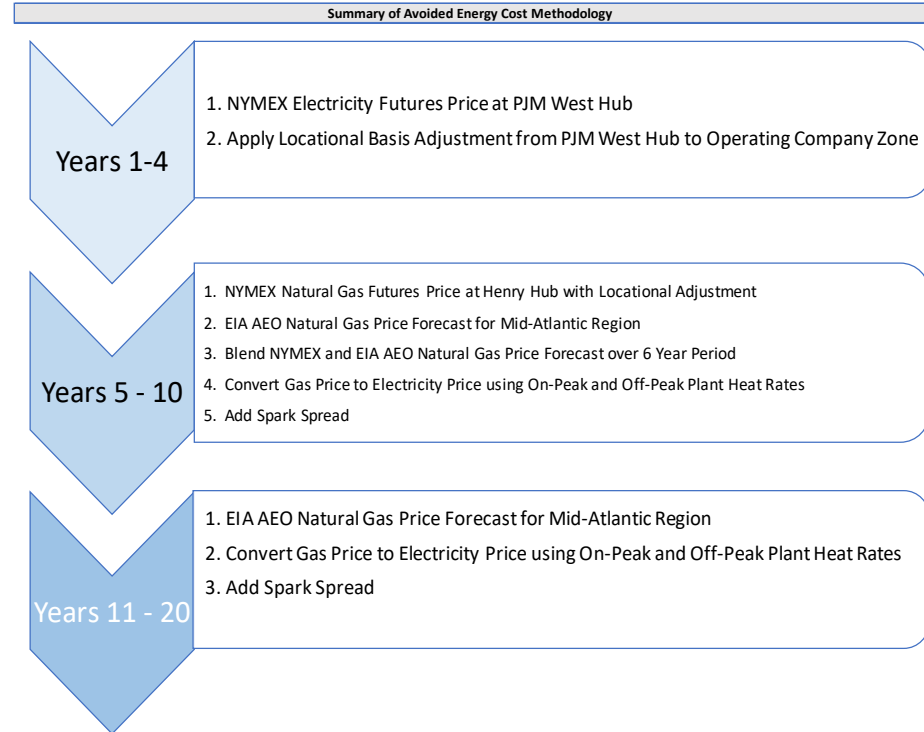
Pennsylvania Act 129 IV Avoided Energy and Capacity Cost Calculator
 This calculator is to be utilized with the Pennsylvania Act 129 Phase IV Total Resource Cost (TRC) test Order. This calculator, developed by the State Wide Evaluator (SWE), executes the methodology outlined within the TRC Order to develop 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

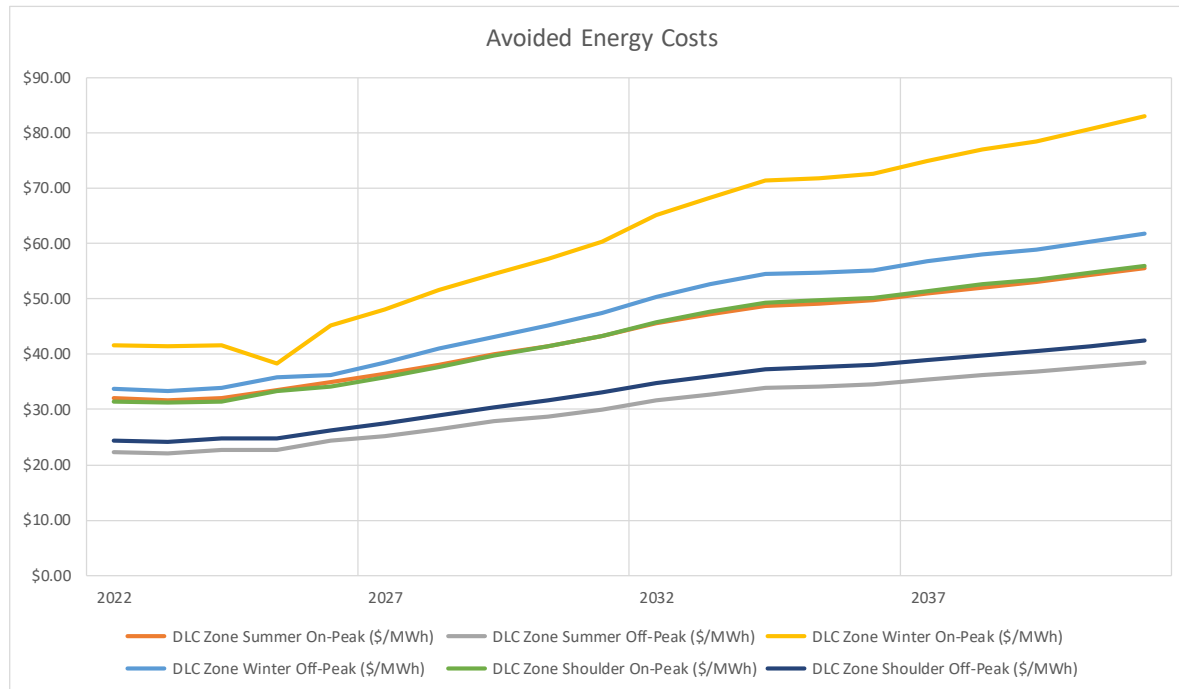
Monetary Issues: All output dollars are nominal

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			Calendar				
Company Name	DLC		Act 129 PY	PY Start	PY End	Avoided Energy YR	AEPS Cost
Start Year (Program)	13	2022	13	2021	2022	2022	\$0.83
Discount Rate	5%	TRC Order A.4 page 8	14	2022	2023	2023	\$0.85
Inflation Rate	2%	TRC Order A.4 page 8	15	2023	2024	2024	\$0.87
AEPS Avoided Cost (\$/MWh)	\$0.83	TRC Order B.8 page 20	16	2024	2025	2025	\$0.89
Plant Specifications			17	2025	2026	2026	\$0.90
	Heat Rate (Btu/kWh)		18	2026	2027	2027	\$0.92
Low Efficiency Plant	11,176	TRC Order B.2.b.v page 15	19	2027	2028	2028	\$0.94
High Efficiency Plant	7,649	TRC Order B.2.b.v page 15	20	2028	2029	2029	\$0.96
Electric Distribution Companies			21	2029	2030	2030	\$0.98
		NYMEX NG Futures Source	22	2030	2031	2031	\$1.00
Duquesne Light Co	DLC	Tetco M-3	23	2031	2032	2032	\$1.02
Metropolitan Edison Co	Met-Ed	Transco 6 (Non-NY)	24	2032	2033	2033	\$1.04
PECO Energy Co	PECO	Transco 6 (Non-NY)	25	2033	2034	2034	\$1.06
Pennsylvania Electric Co	Penelec	Tetco M-3	26	2034	2035	2035	\$1.08
Pennsylvania Power Co	Penn Power	Tetco M-3	27	2035	2036	2036	\$1.10
PPL Utilities	PPL	Transco 6 (Non-NY)	28	2036	2037	2037	\$1.12
West Penn Power Co	West Penn	Tetco M-3	29	2037	2038	2038	\$1.14
Seasonal Definitions			30	2038	2039	2039	\$1.17
Jan	Winter		31	2039	2040	2040	\$1.19
Feb	Winter		32	2040	2041	2041	\$1.21
Mar	Shoulder		33	2041	2042	2042	\$1.24
Apr	Shoulder		34	2042	2043	2043	\$1.26
May	Summer		35	2043	2044	2044	\$1.29
Jun	Summer		36	2044	2045	2045	\$1.32
Jul	Summer		37	2045	2046	2046	\$1.34
Aug	Summer		38	2046	2047	2047	\$1.37
Sep	Summer		39	2047	2048	2048	\$1.40
Oct	Shoulder		40	2048	2049	2049	\$1.42
Nov	Shoulder		41	2049	2050	2050	\$1.45
Dec	Winter		42	2050	2051	2051	\$1.48

PA ACT 129 Program Year	Year	DLC Zone Summer On-Peak (\$/MWh)	DLC Zone Summer Off-Peak (\$/MWh)	DLC Zone Winter On-Peak (\$/MWh)	DLC Zone Winter Off-Peak (\$/MWh)	DLC Zone Shoulder On-Peak (\$/MWh)	DLC 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	\$32.09	\$22.24	\$41.63	\$33.74	\$31.39	\$24.29	\$53.13	\$31.27	\$16.29	\$2.70	Segment 1
14	2023	\$31.74	\$22.20	\$41.45	\$33.24	\$31.27	\$24.19	\$40.16	\$31.90	\$16.62	\$2.65	
15	2024	\$32.09	\$22.66	\$41.64	\$34.00	\$31.41	\$24.70	\$40.96	\$32.53	\$16.95	\$2.68	
16	2025	\$33.56	\$22.75	\$38.39	\$35.75	\$33.22	\$24.74	\$41.78	\$33.18	\$17.29	\$2.75	
17	2026	\$34.91	\$24.29	\$45.07	\$36.32	\$34.06	\$26.34	\$42.62	\$33.85	\$17.63	\$2.92	Segment 2
18	2027	\$36.35	\$25.29	\$48.16	\$38.55	\$35.76	\$27.56	\$43.47	\$34.52	\$17.99	\$3.08	
19	2028	\$38.15	\$26.53	\$51.50	\$40.94	\$37.78	\$29.01	\$44.34	\$35.22	\$18.35	\$3.28	
20	2029	\$40.03	\$27.83	\$54.57	\$43.16	\$39.78	\$30.44	\$45.23	\$35.92	\$18.71	\$3.47	
21	2030	\$41.46	\$28.81	\$57.19	\$45.07	\$41.42	\$31.62	\$46.13	\$36.64	\$19.09	\$3.62	Segment 3
22	2031	\$43.29	\$30.07	\$60.35	\$47.35	\$43.38	\$33.03	\$47.05	\$37.37	\$19.47	\$3.81	
23	2032	\$45.53	\$31.62	\$65.03	\$50.45	\$45.86	\$34.80	\$47.99	\$38.12	\$19.86	\$4.05	
24	2033	\$47.20	\$32.77	\$68.27	\$52.56	\$47.65	\$36.09	\$48.95	\$38.88	\$20.25	\$4.22	
25	2034	\$48.77	\$33.85	\$71.27	\$54.51	\$49.33	\$37.31	\$49.93	\$39.66	\$20.66	\$4.38	
26	2035	\$49.19	\$34.15	\$71.84	\$54.80	\$49.68	\$37.62	\$50.93	\$40.45	\$21.07	\$4.40	
27	2036	\$49.72	\$34.52	\$72.61	\$55.22	\$50.14	\$38.01	\$51.95	\$41.26	\$21.49	\$4.44	
28	2037	\$50.98	\$35.40	\$74.93	\$56.72	\$51.46	\$38.98	\$52.99	\$42.09	\$21.92	\$4.56	
29	2038	\$52.11	\$36.17	\$76.94	\$58.00	\$52.61	\$39.84	\$54.05	\$42.93	\$22.36	\$4.66	
30	2039	\$53.01	\$36.80	\$78.47	\$58.95	\$53.50	\$40.53	\$55.13	\$43.79	\$22.81	\$4.74	
31	2040	\$54.24	\$37.65	\$80.68	\$60.37	\$54.76	\$41.48	\$56.23	\$44.66	\$23.27	\$4.85	
32	2041	\$55.50	\$38.53	\$82.94	\$61.83	\$56.06	\$42.44	\$57.36	\$45.55	\$23.73	\$4.97	



Period	NYMEX: PJM Western Hub On-peak (\$/MWh)	NYMEX: PJM Western Hub Off-peak (\$/MWh)	DLC Zone Adjusted On-Peak (\$/MWh)	DLC Zone Adjusted Off-Peak (\$/MWh)
Aug-23	\$29.65	\$20.30	\$31.46	\$21.54
Sep-23	\$28.65	\$19.60	\$30.39	\$20.79
Oct-23	\$27.20	\$19.85	\$28.86	\$21.06
Nov-23	\$27.50	\$20.40	\$29.17	\$21.64
Dec-23	\$30.30	\$23.50	\$32.14	\$24.93
Jan-24	\$43.90	\$36.25	\$46.57	\$38.46
Feb-24	\$41.30	\$33.40	\$43.81	\$35.43
Mar-24	\$31.30	\$26.45	\$33.21	\$28.06
Apr-24	\$28.55	\$22.15	\$30.29	\$23.50
May-24	\$28.15	\$19.75	\$29.86	\$20.95
Jun-24	\$27.90	\$19.65	\$29.60	\$20.85
Jul-24	\$32.75	\$22.35	\$34.74	\$23.71
Aug-24	\$30.00	\$20.90	\$31.83	\$22.17
Sep-24	\$28.35	\$20.05	\$30.08	\$21.27
Oct-24	\$27.55	\$20.35	\$29.23	\$21.59
Nov-24	\$27.75	\$20.90	\$29.44	\$22.17
Dec-24	\$30.10	\$24.05	\$31.93	\$25.51
Jan-25	\$38.10	\$38.75	\$40.42	\$41.11
Feb-25	\$36.80	\$35.75	\$39.04	\$37.93
Mar-25	\$31.75	\$26.50	\$33.68	\$28.11
Apr-25	\$30.35	\$22.15	\$32.20	\$23.50
May-25	\$30.15	\$19.90	\$31.99	\$21.11
Jun-25	\$30.00	\$19.90	\$31.83	\$21.11
Jul-25	\$32.50	\$22.30	\$34.48	\$23.66
Aug-25	\$31.10	\$20.90	\$32.99	\$22.17
Sep-25	\$30.25	\$20.05	\$32.09	\$21.27
Oct-25	\$29.85	\$20.40	\$31.67	\$21.64
Nov-25	\$29.95	\$20.90	\$31.77	\$22.17
Dec-25	\$31.15	\$24.10	\$33.05	\$25.57
End of Segment I				

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
Year	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042
Real	\$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
Nominal	\$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

Period	NYMEX: Henry Hub Natural Gas Price	NYMEX: DLC Natural Gas Price \$/MMBTU	EIA AEO Gas Prices	DLC Natural Gas Price (\$/MMBTU)
Jan-21	\$3.01	\$4.94	\$0.00	\$4.94
Feb-21	\$2.98	\$4.82	\$0.00	\$4.82
Mar-21	\$2.87	\$2.99	\$0.00	\$2.99
Apr-21	\$2.61	\$2.40	\$0.00	\$2.40
May-21	\$2.58	\$2.25	\$0.00	\$2.25
Jun-21	\$2.62	\$2.28	\$0.00	\$2.28
Jul-21	\$2.66	\$2.36	\$0.00	\$2.36
Aug-21	\$2.67	\$2.35	\$0.00	\$2.35
Sep-21	\$2.66	\$2.10	\$0.00	\$2.10
Oct-21	\$2.67	\$2.14	\$0.00	\$2.14
Nov-21	\$2.72	\$2.66	\$0.00	\$2.66
Dec-21	\$2.84	\$3.42	\$0.00	\$3.42
Jan-22	\$2.94	\$4.87	\$5.32	\$4.87
Feb-22	\$2.90	\$4.74	\$5.18	\$4.74
Mar-22	\$2.75	\$2.87	\$3.10	\$2.87
Apr-22	\$2.37	\$2.17	\$2.37	\$2.17
May-22	\$2.34	\$2.01	\$2.20	\$2.01
Jun-22	\$2.38	\$2.04	\$2.23	\$2.04
Jul-22	\$2.42	\$2.12	\$2.31	\$2.12
Aug-22	\$2.43	\$2.10	\$2.30	\$2.10
Sep-22	\$2.42	\$1.87	\$2.04	\$1.87
Oct-22	\$2.44	\$1.91	\$2.09	\$1.91
Nov-22	\$2.51	\$2.45	\$2.69	\$2.45
Dec-22	\$2.68	\$3.26	\$3.60	\$3.26
Jan-23	\$2.80	\$4.77	\$5.45	\$4.77
Feb-23	\$2.77	\$4.64	\$5.31	\$4.64
Mar-23	\$2.62	\$2.74	\$3.17	\$2.74
Apr-23	\$2.33	\$2.12	\$2.43	\$2.12
May-23	\$2.30	\$1.97	\$2.26	\$1.97
Jun-23	\$2.34	\$2.00	\$2.28	\$2.00
Jul-23	\$2.38	\$2.07	\$2.37	\$2.07

Period	NYMEX: Henry Hub Natural Gas Price (\$/MMBTU)	NYMEX: DLC Natural Gas Price (\$/MMBTU)	EIA AEO Gas Prices	DLC Natural Gas Price (\$/MMBTU)
Aug-23	\$2.39	\$2.06	\$2.36	\$2.06
Sep-23	\$2.39	\$1.82	\$2.09	\$1.82
Oct-23	\$2.42	\$1.88	\$2.15	\$1.88
Nov-23	\$2.50	\$2.43	\$2.76	\$2.43
Dec-23	\$2.68	\$3.27	\$3.69	\$3.27
Jan-24	\$2.81	\$4.82	\$5.79	\$4.82
Feb-24	\$2.77	\$4.69	\$5.63	\$4.69
Mar-24	\$2.64	\$2.77	\$3.37	\$2.77
Apr-24	\$2.37	\$2.16	\$2.57	\$2.16
May-24	\$2.35	\$2.01	\$2.39	\$2.01
Jun-24	\$2.38	\$2.03	\$2.42	\$2.03
Jul-24	\$2.43	\$2.11	\$2.51	\$2.11
Aug-24	\$2.43	\$2.09	\$2.50	\$2.09
Sep-24	\$2.43	\$1.85	\$2.22	\$1.85
Oct-24	\$2.45	\$1.91	\$2.28	\$1.91
Nov-24	\$2.53	\$2.47	\$2.93	\$2.47
Dec-24	\$2.71	\$3.31	\$3.92	\$3.31
Jan-25	\$2.84	\$4.89	\$6.29	\$4.89
Feb-25	\$2.81	\$4.76	\$6.12	\$4.76
Mar-25	\$2.69	\$2.81	\$3.66	\$2.81
Apr-25	\$2.44	\$2.21	\$2.80	\$2.21
May-25	\$2.42	\$2.07	\$2.60	\$2.07
Jun-25	\$2.45	\$2.09	\$2.63	\$2.09
Jul-25	\$2.49	\$2.17	\$2.73	\$2.17
Aug-25	\$2.50	\$2.15	\$2.72	\$2.15
Sep-25	\$2.49	\$1.91	\$2.41	\$1.91
Oct-25	\$2.53	\$1.97	\$2.47	\$1.97
Nov-25	\$2.60	\$2.54	\$3.19	\$2.54
Dec-25	\$2.78	\$3.39	\$4.26	\$3.39
Jan-26	\$2.91	\$5.00	\$6.51	\$5.21
Feb-26	\$2.88	\$4.87	\$6.34	\$5.08

Period	NYMEX: Henry Hub Natural Gas Price (\$/MMBTU)	NYMEX: DLC Natural Gas Price (\$/MMBTU)	EIA AEO Gas Prices	DLC Natural Gas Price (\$/MMBTU)
Mar-26	\$2.75	\$2.88	\$3.79	\$3.01
Apr-26	\$2.49	\$2.27	\$2.90	\$2.36
May-26	\$2.47	\$2.12	\$2.69	\$2.20
Jun-26	\$2.50	\$2.14	\$2.73	\$2.23
Jul-26	\$2.54	\$2.21	\$2.83	\$2.30
Aug-26	\$2.55	\$2.19	\$2.81	\$2.28
Sep-26	\$2.54	\$1.94	\$2.49	\$2.02
Oct-26	\$2.56	\$1.99	\$2.56	\$2.07
Nov-26	\$2.63	\$2.56	\$3.30	\$2.67
Dec-26	\$2.80	\$3.42	\$4.41	\$3.57
Jan-27	\$2.92	\$5.05	\$6.78	\$5.55
Feb-27	\$2.89	\$4.92	\$6.60	\$5.40
Mar-27	\$2.76	\$2.89	\$3.95	\$3.20
Apr-27	\$2.49	\$2.26	\$3.02	\$2.47
May-27	\$2.47	\$2.11	\$2.81	\$2.31
Jun-27	\$2.50	\$2.13	\$2.84	\$2.33
Jul-27	\$2.54	\$2.20	\$2.95	\$2.41
Aug-27	\$2.54	\$2.18	\$2.93	\$2.39
Sep-27	\$2.55	\$1.93	\$2.60	\$2.12
Oct-27	\$2.57	\$1.99	\$2.67	\$2.19
Nov-27	\$2.64	\$2.57	\$3.44	\$2.82
Dec-27	\$2.81	\$3.45	\$4.59	\$3.77
Jan-28	\$2.93	\$5.10	\$6.94	\$5.89
Feb-28	\$2.90	\$4.97	\$6.75	\$5.73
Mar-28	\$2.78	\$2.91	\$4.04	\$3.40
Apr-28	\$2.50	\$2.26	\$3.09	\$2.62
May-28	\$2.48	\$2.12	\$2.87	\$2.44
Jun-28	\$2.52	\$2.15	\$2.91	\$2.47
Jul-28	\$2.57	\$2.22	\$3.01	\$2.56
Aug-28	\$2.58	\$2.21	\$3.00	\$2.55
Sep-28	\$2.59	\$1.97	\$2.66	\$2.26

Period	NYMEX: Henry Hub Natural Gas Price (\$/MMBTU)	NYMEX: DLC Natural Gas Price (\$/MMBTU)	EIA AEO Gas Prices	DLC Natural Gas Price (\$/MMBTU)
Oct-28	\$2.63	\$2.04	\$2.73	\$2.33
Nov-28	\$2.70	\$2.63	\$3.52	\$3.01
Dec-28	\$2.88	\$3.53	\$4.70	\$4.03
Jan-29	\$3.01	\$5.23	\$6.97	\$6.23
Feb-29	\$2.98	\$5.10	\$6.78	\$6.06
Mar-29	\$2.88	\$3.01	\$4.06	\$3.61
Apr-29	\$2.60	\$2.36	\$3.10	\$2.78
May-29	\$2.58	\$2.21	\$2.88	\$2.59
Jun-29	\$2.62	\$2.23	\$2.92	\$2.63
Jul-29	\$2.66	\$2.31	\$3.03	\$2.72
Aug-29	\$2.67	\$2.29	\$3.01	\$2.70
Sep-29	\$2.67	\$2.04	\$2.67	\$2.40
Oct-29	\$2.69	\$2.09	\$2.74	\$2.46
Nov-29	\$2.76	\$2.69	\$3.53	\$3.17
Dec-29	\$2.92	\$3.58	\$4.72	\$4.23
Jan-30	\$3.05	\$5.31	\$6.98	\$6.50
Feb-30	\$3.01	\$5.17	\$6.79	\$6.33
Mar-30	\$2.92	\$3.06	\$4.06	\$3.78
Apr-30	\$2.62	\$2.38	\$3.10	\$2.90
May-30	\$2.60	\$2.22	\$2.89	\$2.70
Jun-30	\$2.64	\$2.24	\$2.92	\$2.73
Jul-30	\$2.68	\$2.32	\$3.03	\$2.83
Aug-30	\$2.72	\$2.33	\$3.01	\$2.82
Sep-30	\$2.73	\$2.08	\$2.67	\$2.50
Oct-30	\$2.78	\$2.16	\$2.75	\$2.58
Nov-30	\$2.85	\$2.78	\$3.54	\$3.32
Dec-30	\$3.00	\$3.68	\$4.73	\$4.43
Jan-31	\$3.13	\$5.44	\$7.07	\$6.84
Feb-31	\$3.10	\$5.30	\$6.88	\$6.66
Mar-31	\$3.03	\$3.18	\$4.12	\$3.98
Apr-31	\$2.74	\$2.49	\$3.15	\$3.05

Period	NYMEX: Henry Hub Natural Gas Price (\$/MMBTU)	NYMEX: DLC Natural Gas Price (\$/MMBTU)	EIA AEO Gas Prices	DLC Natural Gas Price (\$/MMBTU)
May-31	\$2.72	\$2.33	\$2.92	\$2.84
Jun-31	\$2.75	\$2.35	\$2.96	\$2.88
Jul-31	\$2.79	\$2.43	\$3.07	\$2.98
Aug-31	\$2.83	\$2.44	\$3.06	\$2.97
Sep-31	\$2.85	\$2.19	\$2.71	\$2.63
Oct-31	\$2.89	\$2.26	\$2.78	\$2.71
Nov-31	\$2.96	\$2.89	\$3.58	\$3.48
Dec-31	\$3.12	\$3.81	\$4.79	\$4.65
Jan-32	\$3.25	\$5.60	\$7.30	\$7.30
Feb-32	\$3.21	\$5.45	\$7.10	\$7.10
Mar-32	\$3.15	\$3.29	\$4.25	\$4.25
Apr-32	\$2.84	\$2.59	\$3.25	\$3.25
May-32	\$2.82	\$2.43	\$3.02	\$3.02
Jun-32	\$2.86	\$2.45	\$3.06	\$3.06
Jul-32	\$2.90	\$2.53	\$3.17	\$3.17
Aug-32	\$2.94	\$2.54	\$3.15	\$3.15
Sep-32	\$2.95	\$2.28	\$2.80	\$2.80
Oct-32	\$3.00	\$2.36	\$2.87	\$2.87
Nov-32	\$3.07	\$3.00	\$3.70	\$3.70
Dec-32	\$3.22	\$3.93	\$4.94	\$4.94
Jan-33	No Value	No Value	\$7.61	\$7.61
Feb-33			\$7.41	\$7.41
Mar-33			\$4.43	\$4.43
Apr-33			\$3.39	\$3.39
May-33			\$3.15	\$3.15
Jun-33			\$3.19	\$3.19
Jul-33			\$3.31	\$3.31
Aug-33			\$3.29	\$3.29
Sep-33			\$2.91	\$2.91
Oct-33			\$2.99	\$2.99
Nov-33			\$3.86	\$3.86

Period	NYMEX: Henry Hub Natural Gas Price (\$/MMBTU)	NYMEX: DLC Natural Gas Price (\$/MMBTU)	EIA AEO Gas Prices	DLC Natural Gas Price (\$/MMBTU)
Dec-33	No Value	No Value	\$5.15	\$5.15
Jan-34			\$7.90	\$7.90
Feb-34			\$7.68	\$7.68
Mar-34			\$4.60	\$4.60
Apr-34			\$3.51	\$3.51
May-34			\$3.27	\$3.27
Jun-34			\$3.31	\$3.31
Jul-34			\$3.43	\$3.43
Aug-34			\$3.41	\$3.41
Sep-34			\$3.02	\$3.02
Oct-34			\$3.11	\$3.11
Nov-34			\$4.00	\$4.00
Dec-34			\$5.35	\$5.35
Jan-35			\$7.94	\$7.94
Feb-35			\$7.72	\$7.72
Mar-35			\$4.62	\$4.62
Apr-35			\$3.53	\$3.53
May-35			\$3.28	\$3.28
Jun-35			\$3.33	\$3.33
Jul-35			\$3.45	\$3.45
Aug-35			\$3.43	\$3.43
Sep-35			\$3.04	\$3.04
Oct-35			\$3.12	\$3.12
Nov-35			\$4.02	\$4.02
Dec-35			\$5.37	\$5.37
Jan-36			\$8.00	\$8.00
Feb-36			\$7.78	\$7.78
Mar-36			\$4.65	\$4.65
Apr-36			\$3.56	\$3.56
May-36			\$3.31	\$3.31
Jun-36			\$3.35	\$3.35

Period	NYMEX: Henry Hub Natural Gas Price (\$/MMBTU)	NYMEX: DLC Natural Gas Price (\$/MMBTU)	EIA AEO Gas Prices	DLC Natural Gas Price (\$/MMBTU)
Jul-36	No Value	No Value	\$3.47	\$3.47
Aug-36			\$3.45	\$3.45
Sep-36			\$3.06	\$3.06
Oct-36			\$3.15	\$3.15
Nov-36			\$4.05	\$4.05
Dec-36			\$5.41	\$5.41
Jan-37			\$8.22	\$8.22
Feb-37			\$7.99	\$7.99
Mar-37			\$4.78	\$4.78
Apr-37			\$3.65	\$3.65
May-37			\$3.40	\$3.40
Jun-37			\$3.44	\$3.44
Jul-37			\$3.57	\$3.57
Aug-37			\$3.55	\$3.55
Sep-37			\$3.15	\$3.15
Oct-37			\$3.23	\$3.23
Nov-37			\$4.16	\$4.16
Dec-37			\$5.56	\$5.56
Jan-38			\$8.40	\$8.40
Feb-38			\$8.17	\$8.17
Mar-38			\$4.89	\$4.89
Apr-38			\$3.74	\$3.74
May-38			\$3.47	\$3.47
Jun-38			\$3.52	\$3.52
Jul-38			\$3.65	\$3.65
Aug-38			\$3.63	\$3.63
Sep-38			\$3.22	\$3.22
Oct-38			\$3.31	\$3.31
Nov-38			\$4.26	\$4.26
Dec-38			\$5.69	\$5.69
Jan-39			\$8.54	\$8.54

Period	NYMEX: Henry Hub Natural Gas Price (\$/MMBTU)	NYMEX: DLC Natural Gas Price (\$/MMBTU)	EIA AEO Gas Prices	DLC Natural Gas Price (\$/MMBTU)
Feb-39	No Value	No Value	\$8.31	\$8.31
Mar-39			\$4.97	\$4.97
Apr-39			\$3.80	\$3.80
May-39			\$3.53	\$3.53
Jun-39			\$3.58	\$3.58
Jul-39			\$3.71	\$3.71
Aug-39			\$3.69	\$3.69
Sep-39			\$3.27	\$3.27
Oct-39			\$3.36	\$3.36
Nov-39			\$4.33	\$4.33
Dec-39			\$5.78	\$5.78
Jan-40			\$8.75	\$8.75
Feb-40			\$8.51	\$8.51
Mar-40			\$5.09	\$5.09
Apr-40			\$3.89	\$3.89
May-40			\$3.62	\$3.62
Jun-40			\$3.67	\$3.67
Jul-40			\$3.80	\$3.80
Aug-40			\$3.78	\$3.78
Sep-40			\$3.35	\$3.35
Oct-40			\$3.44	\$3.44
Nov-40			\$4.43	\$4.43
Dec-40			\$5.92	\$5.92
Jan-41			\$8.96	\$8.96
Feb-41			\$8.72	\$8.72
Mar-41			\$5.21	\$5.21
Apr-41			\$3.99	\$3.99
May-41			\$3.71	\$3.71
Jun-41			\$3.75	\$3.75
Jul-41			\$3.89	\$3.89
Aug-41			\$3.87	\$3.87

Period	NYMEX: Henry Hub Natural Gas Price (\$/MMBTU)	NYMEX: DLC Natural Gas Price (\$/MMBTU)	EIA AEO Gas Prices	DLC Natural Gas Price (\$/MMBTU)
Sep-41	No Value	No Value	\$3.43	\$3.43
Oct-41			\$3.53	\$3.53
Nov-41			\$4.54	\$4.54
Dec-41			\$6.07	\$6.07
Jan-42			\$9.20	\$9.20
Feb-42			\$8.95	\$8.95
Mar-42			\$5.35	\$5.35
Apr-42			\$4.09	\$4.09
May-42			\$3.80	\$3.80
Jun-42			\$3.85	\$3.85
Jul-42			\$3.99	\$3.99
Aug-42			\$3.97	\$3.97
Sep-42			\$3.52	\$3.52
Oct-42			\$3.62	\$3.62
Nov-42			\$4.66	\$4.66
Dec-42			\$6.23	\$6.23

Period	Season	DLC Zone Adjusted On-Peak (\$/MWh)	DLC Zone Adjusted Off-Peak (\$/MWh)	DLC Zone NG Converted On-Peak (\$/MWh)	DLC Zone NG Converted Off-Peak (\$/MWh)	DLC Zone Spark Spread On-Peak (\$/MWh)	DLC Zone Spark Spread Off-Peak (\$/MWh)	DLC Zone On-Peak (\$/MWh)	DLC Zone Off-Peak (\$/MWh)
Jan-21	Winter	\$47.47	\$36.76	\$55.21	\$37.79	n/a	n/a	\$47.47	\$36.76
Feb-21	Winter	\$44.08	\$33.95	\$53.81	\$36.83	n/a	n/a	\$44.08	\$33.95
Mar-21	Shoulder	\$35.06	\$28.06	\$33.44	\$22.89	n/a	n/a	\$35.06	\$28.06
Apr-21	Shoulder	\$31.24	\$23.23	\$26.84	\$18.37	n/a	n/a	\$31.24	\$23.23
May-21	Summer	\$31.19	\$20.63	\$25.19	\$17.24	n/a	n/a	\$31.19	\$20.63
Jun-21	Summer	\$30.34	\$20.74	\$25.48	\$17.44	n/a	n/a	\$30.34	\$20.74
Jul-21	Summer	\$35.17	\$23.45	\$26.36	\$18.04	n/a	n/a	\$35.17	\$23.45
Aug-21	Summer	\$32.73	\$22.07	\$26.23	\$17.95	n/a	n/a	\$32.73	\$22.07
Sep-21	Summer	\$32.89	\$21.27	\$23.51	\$16.09	n/a	n/a	\$32.89	\$21.27
Oct-21	Shoulder	\$31.24	\$22.12	\$23.97	\$16.41	n/a	n/a	\$31.24	\$22.12
Nov-21	Shoulder	\$32.04	\$22.97	\$29.69	\$20.32	n/a	n/a	\$32.04	\$22.97
Dec-21	Winter	\$33.63	\$26.52	\$38.17	\$26.12	n/a	n/a	\$33.63	\$26.52
Jan-22	Winter	\$46.36	\$37.77	\$54.40	\$37.24	-\$8.04	\$0.53	\$46.36	\$37.77
Feb-22	Winter	\$43.18	\$34.80	\$52.94	\$36.23	-\$9.76	-\$1.44	\$43.18	\$34.80
Mar-22	Shoulder	\$34.05	\$27.69	\$32.07	\$21.95	\$1.99	\$5.74	\$34.05	\$27.69
Apr-22	Shoulder	\$29.39	\$22.23	\$24.20	\$16.56	\$5.18	\$5.66	\$29.39	\$22.23
May-22	Summer	\$29.60	\$20.79	\$22.51	\$15.41	\$7.08	\$5.38	\$29.60	\$20.79
Jun-22	Summer	\$28.91	\$20.85	\$22.80	\$15.60	\$6.11	\$5.24	\$28.91	\$20.85
Jul-22	Summer	\$34.74	\$23.50	\$23.64	\$16.18	\$11.10	\$7.32	\$34.74	\$23.50
Aug-22	Summer	\$32.09	\$21.48	\$23.52	\$16.10	\$8.57	\$5.38	\$32.09	\$21.48
Sep-22	Summer	\$30.92	\$20.42	\$20.87	\$14.28	\$10.05	\$6.14	\$30.92	\$20.42
Oct-22	Shoulder	\$29.23	\$21.54	\$21.40	\$14.65	\$7.83	\$6.89	\$29.23	\$21.54
Nov-22	Shoulder	\$29.55	\$22.38	\$27.38	\$18.74	\$2.16	\$3.64	\$29.55	\$22.38
Dec-22	Winter	\$32.83	\$26.15	\$36.41	\$24.92	-\$3.58	\$1.23	\$32.83	\$26.15
Jan-23	Winter	\$46.25	\$37.61	\$53.34	\$36.51	-\$7.08	\$1.10	\$46.25	\$37.61
Feb-23	Winter	\$43.39	\$34.64	\$51.89	\$35.51	-\$8.50	-\$0.87	\$43.39	\$34.64
Mar-23	Shoulder	\$33.79	\$27.53	\$30.64	\$20.97	\$3.15	\$6.56	\$33.79	\$27.53
Apr-23	Shoulder	\$29.86	\$23.13	\$23.72	\$16.23	\$6.14	\$6.89	\$29.86	\$23.13
May-23	Summer	\$29.65	\$20.63	\$22.04	\$15.08	\$7.61	\$5.55	\$29.65	\$20.63
Jun-23	Summer	\$28.70	\$20.58	\$22.34	\$15.29	\$6.35	\$5.29	\$28.70	\$20.58
Jul-23	Summer	\$34.27	\$23.18	\$23.15	\$15.84	\$11.12	\$7.34	\$34.27	\$23.18
Aug-23	Summer	\$31.46	\$21.54	\$23.01	\$15.75	\$8.44	\$5.79	\$31.46	\$21.54
Sep-23	Summer	\$30.39	\$20.79	\$20.38	\$13.95	\$10.02	\$6.85	\$30.39	\$20.79
Oct-23	Shoulder	\$28.86	\$21.06	\$20.99	\$14.37	\$7.87	\$6.69	\$28.86	\$21.06

Period	Season	DLC Zone Adjusted On-Peak (\$/MWh)	DLC Zone Adjusted Off-Peak (\$/MWh)	DLC Zone NG Converted On-Peak (\$/MWh)	DLC Zone NG Converted Off-Peak (\$/MWh)	DLC Zone Spark Spread On-Peak (\$/MWh)	DLC Zone Spark Spread Off-Peak (\$/MWh)	DLC Zone On-Peak (\$/MWh)	DLC Zone Off-Peak (\$/MWh)
Nov-23	Shoulder	\$29.17	\$21.64	\$27.20	\$18.62	\$1.97	\$3.03	\$29.17	\$21.64
Dec-23	Winter	\$32.14	\$24.93	\$36.53	\$25.00	-\$4.39	-\$0.07	\$32.14	\$24.93
Jan-24	Winter	\$46.57	\$38.46	\$53.85	\$36.85	-\$7.27	\$1.60	\$46.57	\$38.46
Feb-24	Winter	\$43.81	\$35.43	\$52.36	\$35.84	-\$8.55	-\$0.40	\$43.81	\$35.43
Mar-24	Shoulder	\$33.21	\$28.06	\$30.93	\$21.17	\$2.28	\$6.89	\$33.21	\$28.06
Apr-24	Shoulder	\$30.29	\$23.50	\$24.09	\$16.48	\$6.20	\$7.01	\$30.29	\$23.50
May-24	Summer	\$29.86	\$20.95	\$22.48	\$15.39	\$7.38	\$5.57	\$29.86	\$20.95
Jun-24	Summer	\$29.60	\$20.85	\$22.71	\$15.55	\$6.88	\$5.30	\$29.60	\$20.85
Jul-24	Summer	\$34.74	\$23.71	\$23.64	\$16.18	\$11.11	\$7.53	\$34.74	\$23.71
Aug-24	Summer	\$31.83	\$22.17	\$23.39	\$16.01	\$8.44	\$6.17	\$31.83	\$22.17
Sep-24	Summer	\$30.08	\$21.27	\$20.70	\$14.17	\$9.38	\$7.10	\$30.08	\$21.27
Oct-24	Shoulder	\$29.23	\$21.59	\$21.31	\$14.58	\$7.92	\$7.01	\$29.23	\$21.59
Nov-24	Shoulder	\$29.44	\$22.17	\$27.60	\$18.89	\$1.84	\$3.28	\$29.44	\$22.17
Dec-24	Winter	\$31.93	\$25.51	\$37.03	\$25.35	-\$5.10	\$0.17	\$31.93	\$25.51
Jan-25	Winter	\$40.42	\$41.11	\$54.63	\$37.39	-\$14.21	\$3.72	\$40.42	\$41.11
Feb-25	Winter	\$39.04	\$37.93	\$53.20	\$36.41	-\$14.16	\$1.51	\$39.04	\$37.93
Mar-25	Shoulder	\$33.68	\$28.11	\$31.45	\$21.52	\$2.24	\$6.59	\$33.68	\$28.11
Apr-25	Shoulder	\$32.20	\$23.50	\$24.75	\$16.94	\$7.45	\$6.56	\$32.20	\$23.50
May-25	Summer	\$31.99	\$21.11	\$23.19	\$15.87	\$8.80	\$5.24	\$31.99	\$21.11
Jun-25	Summer	\$31.83	\$21.11	\$23.41	\$16.02	\$8.42	\$5.09	\$31.83	\$21.11
Jul-25	Summer	\$34.48	\$23.66	\$24.20	\$16.57	\$10.28	\$7.09	\$34.48	\$23.66
Aug-25	Summer	\$32.99	\$22.17	\$24.04	\$16.45	\$8.96	\$5.72	\$32.99	\$22.17
Sep-25	Summer	\$32.09	\$21.27	\$21.32	\$14.59	\$10.77	\$6.68	\$32.09	\$21.27
Oct-25	Shoulder	\$31.67	\$21.64	\$21.99	\$15.05	\$9.68	\$6.59	\$31.67	\$21.64
Nov-25	Shoulder	\$31.77	\$22.17	\$28.35	\$19.40	\$3.43	\$2.77	\$31.77	\$22.17
Dec-25	Winter	\$33.05	\$25.57	\$37.94	\$25.96	-\$4.89	-\$0.40	\$33.05	\$25.57
Jan-26	Winter			\$58.28	\$39.89	-\$8.19	\$0.88	\$50.09	\$40.77
Feb-26	Winter			\$56.76	\$38.84	-\$9.88	-\$1.25	\$46.87	\$37.59
Mar-26	Shoulder			\$33.66	\$23.04	\$2.78	\$6.66	\$36.44	\$29.70
Apr-26	Shoulder			\$26.35	\$18.03	\$6.13	\$6.80	\$32.48	\$24.83
May-26	Summer			\$24.63	\$16.85	\$7.95	\$5.92	\$32.58	\$22.77
Jun-26	Summer			\$24.87	\$17.02	\$6.75	\$5.70	\$31.62	\$22.72
Jul-26	Summer			\$25.68	\$17.57	\$12.03	\$7.93	\$37.71	\$25.51
Aug-26	Summer			\$25.50	\$17.45	\$9.21	\$6.04	\$34.70	\$23.50
Sep-26	Summer			\$22.56	\$15.44	\$10.86	\$7.03	\$33.42	\$22.46

Period	Season	DLC Zone Adjusted On-Peak (\$/MWh)	DLC Zone Adjusted Off-Peak (\$/MWh)	DLC Zone NG Converted On-Peak (\$/MWh)	DLC Zone NG Converted Off-Peak (\$/MWh)	DLC Zone Spark Spread On-Peak (\$/MWh)	DLC Zone Spark Spread Off-Peak (\$/MWh)	DLC Zone On-Peak (\$/MWh)	DLC Zone Off-Peak (\$/MWh)
Oct-26	Shoulder			\$23.16	\$15.85	\$8.49	\$7.35	\$31.65	\$23.20
Nov-26	Shoulder			\$29.82	\$20.41	\$2.24	\$3.61	\$32.06	\$24.02
Dec-26	Winter			\$39.85	\$27.27	-\$4.31	\$0.63	\$35.54	\$27.90
Jan-27	Winter			\$62.01	\$42.44	-\$8.35	\$0.90	\$53.65	\$43.34
Feb-27	Winter			\$60.35	\$41.30	-\$10.08	-\$1.28	\$50.27	\$40.03
Mar-27	Shoulder			\$35.71	\$24.44	\$2.84	\$6.79	\$38.54	\$31.23
Apr-27	Shoulder			\$27.65	\$18.92	\$6.25	\$6.93	\$33.91	\$25.86
May-27	Summer			\$25.84	\$17.69	\$8.11	\$6.04	\$33.95	\$23.72
Jun-27	Summer			\$26.09	\$17.86	\$6.88	\$5.81	\$32.97	\$23.67
Jul-27	Summer			\$26.97	\$18.46	\$12.27	\$8.09	\$39.23	\$26.55
Aug-27	Summer			\$26.76	\$18.32	\$9.39	\$6.17	\$36.16	\$24.48
Sep-27	Summer			\$23.74	\$16.25	\$11.08	\$7.17	\$34.82	\$23.42
Oct-27	Shoulder			\$24.42	\$16.72	\$8.66	\$7.50	\$33.09	\$24.21
Nov-27	Shoulder			\$31.53	\$21.58	\$2.28	\$3.68	\$33.81	\$25.26
Dec-27	Winter			\$42.18	\$28.87	-\$4.40	\$0.64	\$37.79	\$29.51
Jan-28	Winter			\$65.84	\$45.06	-\$8.52	\$0.92	\$57.32	\$45.98
Feb-28	Winter			\$64.07	\$43.85	-\$10.28	-\$1.30	\$53.78	\$42.55
Mar-28	Shoulder			\$37.95	\$25.97	\$2.89	\$6.93	\$40.84	\$32.90
Apr-28	Shoulder			\$29.23	\$20.01	\$6.38	\$7.07	\$35.61	\$27.08
May-28	Summer			\$27.29	\$18.68	\$8.28	\$6.16	\$35.57	\$24.84
Jun-28	Summer			\$27.64	\$18.92	\$7.02	\$5.93	\$34.66	\$24.85
Jul-28	Summer			\$28.63	\$19.60	\$12.51	\$8.25	\$41.15	\$27.85
Aug-28	Summer			\$28.49	\$19.50	\$9.58	\$6.29	\$38.07	\$25.79
Sep-28	Summer			\$25.31	\$17.32	\$11.30	\$7.31	\$36.61	\$24.63
Oct-28	Shoulder			\$26.08	\$17.85	\$8.84	\$7.65	\$34.91	\$25.50
Nov-28	Shoulder			\$33.66	\$23.04	\$2.33	\$3.76	\$35.99	\$26.79
Dec-28	Winter			\$45.05	\$30.83	-\$4.49	\$0.65	\$40.56	\$31.48
Jan-29	Winter			\$69.57	\$47.62	-\$8.69	\$0.94	\$60.89	\$48.56
Feb-29	Winter			\$67.74	\$46.36	-\$10.49	-\$1.33	\$57.25	\$45.03
Mar-29	Shoulder			\$40.35	\$27.62	\$2.95	\$7.07	\$43.30	\$34.68
Apr-29	Shoulder			\$31.12	\$21.30	\$6.51	\$7.21	\$37.62	\$28.51
May-29	Summer			\$29.00	\$19.85	\$8.44	\$6.28	\$37.44	\$26.13
Jun-29	Summer			\$29.34	\$20.08	\$7.16	\$6.05	\$36.50	\$26.13
Jul-29	Summer			\$30.38	\$20.79	\$12.76	\$8.42	\$43.15	\$29.21
Aug-29	Summer			\$30.20	\$20.67	\$9.77	\$6.41	\$39.97	\$27.09

Period	Season	DLC Zone Adjusted On-Peak (\$/MWh)	DLC Zone Adjusted Off-Peak (\$/MWh)	DLC Zone NG Converted On-Peak (\$/MWh)	DLC Zone NG Converted Off-Peak (\$/MWh)	DLC Zone Spark Spread On-Peak (\$/MWh)	DLC Zone Spark Spread Off-Peak (\$/MWh)	DLC Zone On-Peak (\$/MWh)	DLC Zone Off-Peak (\$/MWh)
Sep-29	Summer			\$26.80	\$18.34	\$11.53	\$7.46	\$38.32	\$25.80
Oct-29	Shoulder			\$27.51	\$18.83	\$9.01	\$7.80	\$36.52	\$26.63
Nov-29	Shoulder			\$35.46	\$24.27	\$2.38	\$3.83	\$37.83	\$28.10
Dec-29	Winter			\$47.29	\$32.37	-\$4.58	\$0.66	\$42.71	\$33.03
Jan-30	Winter			\$72.67	\$49.74	-\$8.86	\$0.96	\$63.81	\$50.70
Feb-30	Winter			\$70.72	\$48.40	-\$10.70	-\$1.35	\$60.02	\$47.05
Mar-30	Shoulder			\$42.20	\$28.88	\$3.01	\$7.21	\$45.21	\$36.09
Apr-30	Shoulder			\$32.38	\$22.16	\$6.64	\$7.36	\$39.02	\$29.52
May-30	Summer			\$30.14	\$20.63	\$8.61	\$6.41	\$38.75	\$27.03
Jun-30	Summer			\$30.51	\$20.88	\$7.30	\$6.17	\$37.81	\$27.05
Jul-30	Summer			\$31.60	\$21.63	\$13.02	\$8.59	\$44.62	\$30.22
Aug-30	Summer			\$31.52	\$21.57	\$9.97	\$6.54	\$41.48	\$28.11
Sep-30	Summer			\$27.98	\$19.15	\$11.76	\$7.61	\$39.74	\$26.76
Oct-30	Shoulder			\$28.82	\$19.72	\$9.19	\$7.96	\$38.01	\$27.68
Nov-30	Shoulder			\$37.10	\$25.39	\$2.42	\$3.91	\$39.52	\$29.30
Dec-30	Winter			\$49.47	\$33.86	-\$4.67	\$0.68	\$44.80	\$34.54
Jan-31	Winter			\$76.44	\$52.32	-\$9.04	\$0.98	\$67.40	\$53.30
Feb-31	Winter			\$74.38	\$50.91	-\$10.91	-\$1.38	\$63.47	\$49.53
Mar-31	Shoulder			\$44.51	\$30.46	\$3.07	\$7.35	\$47.58	\$37.81
Apr-31	Shoulder			\$34.11	\$23.35	\$6.77	\$7.50	\$40.88	\$30.85
May-31	Summer			\$31.74	\$21.72	\$8.78	\$6.53	\$40.52	\$28.26
Jun-31	Summer			\$32.14	\$22.00	\$7.45	\$6.29	\$39.59	\$28.29
Jul-31	Summer			\$33.30	\$22.79	\$13.28	\$8.76	\$46.58	\$31.55
Aug-31	Summer			\$33.16	\$22.70	\$10.16	\$6.67	\$43.33	\$29.37
Sep-31	Summer			\$29.43	\$20.14	\$11.99	\$7.76	\$41.42	\$27.90
Oct-31	Shoulder			\$30.27	\$20.72	\$9.38	\$8.12	\$39.65	\$28.83
Nov-31	Shoulder			\$38.94	\$26.65	\$2.47	\$3.99	\$41.42	\$30.64
Dec-31	Winter			\$51.95	\$35.56	-\$4.76	\$0.69	\$47.19	\$36.25
Jan-32	Winter			\$81.61	\$55.86	-\$8.86	\$0.96	\$72.75	\$56.81
Feb-32	Winter			\$79.40	\$54.35	-\$10.69	-\$1.35	\$68.71	\$52.99
Mar-32	Shoulder			\$47.50	\$32.51	\$3.13	\$7.50	\$50.63	\$40.01
Apr-32	Shoulder			\$36.30	\$24.84	\$6.91	\$7.65	\$43.20	\$32.50
May-32	Summer			\$33.75	\$23.10	\$8.96	\$6.66	\$42.71	\$29.76
Jun-32	Summer			\$34.19	\$23.40	\$7.60	\$6.42	\$41.79	\$29.82
Jul-32	Summer			\$35.44	\$24.26	\$13.55	\$8.93	\$48.98	\$33.19

Period	Season	DLC Zone Adjusted On-Peak (\$/MWh)	DLC Zone Adjusted Off-Peak (\$/MWh)	DLC Zone NG Converted On-Peak (\$/MWh)	DLC Zone NG Converted Off-Peak (\$/MWh)	DLC Zone Spark Spread On-Peak (\$/MWh)	DLC Zone Spark Spread Off-Peak (\$/MWh)	DLC Zone On-Peak (\$/MWh)	DLC Zone Off-Peak (\$/MWh)
Aug-32	Summer			\$35.25	\$24.13	\$10.37	\$6.81	\$45.62	\$30.93
Sep-32	Summer			\$31.25	\$21.38	\$12.23	\$7.91	\$43.48	\$29.30
Oct-32	Shoulder			\$32.11	\$21.98	\$9.57	\$8.28	\$41.67	\$30.25
Nov-32	Shoulder			\$41.34	\$28.30	\$2.52	\$4.07	\$43.87	\$32.36
Dec-32	Winter			\$55.25	\$37.82	-\$4.67	\$0.68	\$50.59	\$38.49
Jan-33	Winter			\$85.07	\$58.22	-\$8.68	\$0.94	\$76.38	\$59.16
Feb-33	Winter			\$82.76	\$56.65	-\$10.48	-\$1.33	\$72.29	\$55.32
Mar-33	Shoulder			\$49.51	\$33.88	\$3.19	\$7.65	\$52.70	\$41.53
Apr-33	Shoulder			\$37.83	\$25.89	\$7.04	\$7.81	\$44.88	\$33.70
May-33	Summer			\$35.18	\$24.07	\$9.14	\$6.80	\$44.31	\$30.87
Jun-33	Summer			\$35.64	\$24.39	\$7.75	\$6.55	\$43.39	\$30.94
Jul-33	Summer			\$36.94	\$25.28	\$13.82	\$9.11	\$50.76	\$34.39
Aug-33	Summer			\$36.74	\$25.15	\$10.58	\$6.94	\$47.32	\$32.09
Sep-33	Summer			\$32.57	\$22.29	\$12.48	\$8.07	\$45.04	\$30.36
Oct-33	Shoulder			\$33.47	\$22.91	\$9.76	\$8.44	\$43.22	\$31.35
Nov-33	Shoulder			\$43.09	\$29.49	\$2.57	\$4.15	\$45.67	\$33.64
Dec-33	Winter			\$57.59	\$39.42	-\$4.57	\$0.66	\$53.02	\$40.08
Jan-34	Winter			\$88.26	\$60.41	-\$8.51	\$0.92	\$79.75	\$61.33
Feb-34	Winter			\$85.87	\$58.77	-\$10.27	-\$1.30	\$75.60	\$57.47
Mar-34	Shoulder			\$51.37	\$35.16	\$3.26	\$7.80	\$54.63	\$42.96
Apr-34	Shoulder			\$39.26	\$26.87	\$7.18	\$7.96	\$46.44	\$34.83
May-34	Summer			\$36.50	\$24.98	\$9.32	\$6.93	\$45.82	\$31.91
Jun-34	Summer			\$36.98	\$25.31	\$7.90	\$6.68	\$44.88	\$31.99
Jul-34	Summer			\$38.33	\$26.23	\$14.09	\$9.29	\$52.42	\$35.53
Aug-34	Summer			\$38.12	\$26.09	\$10.79	\$7.08	\$48.91	\$33.17
Sep-34	Summer			\$33.79	\$23.13	\$12.73	\$8.23	\$46.52	\$31.36
Oct-34	Shoulder			\$34.73	\$23.77	\$9.95	\$8.61	\$44.68	\$32.38
Nov-34	Shoulder			\$44.71	\$30.60	\$2.62	\$4.23	\$47.34	\$34.83
Dec-34	Winter			\$59.76	\$40.90	-\$4.48	\$0.65	\$55.28	\$41.55
Jan-35	Winter			\$88.71	\$60.71	-\$8.34	\$0.90	\$80.37	\$61.61
Feb-35	Winter			\$86.31	\$59.07	-\$10.06	-\$1.27	\$76.24	\$57.80
Mar-35	Shoulder			\$51.63	\$35.34	\$3.32	\$7.96	\$54.95	\$43.29
Apr-35	Shoulder			\$39.45	\$27.00	\$7.33	\$8.12	\$46.78	\$35.12
May-35	Summer			\$36.68	\$25.11	\$9.51	\$7.07	\$46.19	\$32.18
Jun-35	Summer			\$37.17	\$25.44	\$8.06	\$6.81	\$45.23	\$32.25

Period	Season	DLC Zone Adjusted On-Peak (\$/MWh)	DLC Zone Adjusted Off-Peak (\$/MWh)	DLC Zone NG Converted On-Peak (\$/MWh)	DLC Zone NG Converted Off-Peak (\$/MWh)	DLC Zone Spark Spread On-Peak (\$/MWh)	DLC Zone Spark Spread Off-Peak (\$/MWh)	DLC Zone On-Peak (\$/MWh)	DLC Zone Off-Peak (\$/MWh)
Jul-35	Summer			\$38.52	\$26.36	\$14.37	\$9.48	\$52.90	\$35.84
Aug-35	Summer			\$38.31	\$26.22	\$11.00	\$7.22	\$49.32	\$33.45
Sep-35	Summer			\$33.96	\$23.24	\$12.98	\$8.40	\$46.94	\$31.64
Oct-35	Shoulder			\$34.90	\$23.89	\$10.15	\$8.79	\$45.05	\$32.67
Nov-35	Shoulder			\$44.94	\$30.76	\$2.68	\$4.31	\$47.61	\$35.07
Dec-35	Winter			\$60.06	\$41.10	-\$4.39	\$0.64	\$55.67	\$41.74
Jan-36	Winter			\$89.38	\$61.17	-\$8.17	\$0.88	\$81.21	\$62.06
Feb-36	Winter			\$86.96	\$59.52	-\$9.86	-\$1.25	\$77.10	\$58.27
Mar-36	Shoulder			\$52.02	\$35.60	\$3.39	\$8.12	\$55.41	\$43.72
Apr-36	Shoulder			\$39.75	\$27.21	\$7.47	\$8.28	\$47.23	\$35.49
May-36	Summer			\$36.96	\$25.30	\$9.70	\$7.21	\$46.66	\$32.51
Jun-36	Summer			\$37.45	\$25.63	\$8.22	\$6.95	\$45.67	\$32.58
Jul-36	Summer			\$38.81	\$26.56	\$14.66	\$9.67	\$53.48	\$36.23
Aug-36	Summer			\$38.61	\$26.42	\$11.22	\$7.37	\$49.83	\$33.79
Sep-36	Summer			\$34.22	\$23.42	\$13.24	\$8.57	\$47.46	\$31.99
Oct-36	Shoulder			\$35.17	\$24.07	\$10.35	\$8.96	\$45.52	\$33.03
Nov-36	Shoulder			\$45.28	\$30.99	\$2.73	\$4.40	\$48.01	\$35.39
Dec-36	Winter			\$60.51	\$41.42	-\$4.30	\$0.62	\$56.21	\$42.04
Jan-37	Winter			\$91.82	\$62.84	-\$8.01	\$0.87	\$83.81	\$63.71
Feb-37	Winter			\$89.34	\$61.14	-\$9.67	-\$1.22	\$79.67	\$59.92
Mar-37	Shoulder			\$53.44	\$36.57	\$3.46	\$8.28	\$56.90	\$44.85
Apr-37	Shoulder			\$40.84	\$27.95	\$7.62	\$8.45	\$48.46	\$36.40
May-37	Summer			\$37.97	\$25.99	\$9.89	\$7.36	\$47.86	\$33.34
Jun-37	Summer			\$38.47	\$26.33	\$8.39	\$7.09	\$46.86	\$33.42
Jul-37	Summer			\$39.87	\$27.29	\$14.95	\$9.86	\$54.83	\$37.15
Aug-37	Summer			\$39.66	\$27.14	\$11.45	\$7.52	\$51.11	\$34.66
Sep-37	Summer			\$35.15	\$24.06	\$13.51	\$8.74	\$48.66	\$32.80
Oct-37	Shoulder			\$36.13	\$24.72	\$10.56	\$9.14	\$46.69	\$33.86
Nov-37	Shoulder			\$46.51	\$31.84	\$2.79	\$4.49	\$49.30	\$36.32
Dec-37	Winter			\$62.16	\$42.55	-\$4.22	\$0.61	\$57.95	\$43.16
Jan-38	Winter			\$93.90	\$64.27	-\$7.85	\$0.85	\$86.05	\$65.12
Feb-38	Winter			\$91.36	\$62.53	-\$9.47	-\$1.20	\$81.89	\$61.33
Mar-38	Shoulder			\$54.65	\$37.40	\$3.53	\$8.44	\$58.18	\$45.85
Apr-38	Shoulder			\$41.76	\$28.58	\$7.78	\$8.62	\$49.54	\$37.20
May-38	Summer			\$38.83	\$26.58	\$10.09	\$7.51	\$48.92	\$34.08

Period	Season	DLC Zone Adjusted On-Peak (\$/MWh)	DLC Zone Adjusted Off-Peak (\$/MWh)	DLC Zone NG Converted On-Peak (\$/MWh)	DLC Zone NG Converted Off-Peak (\$/MWh)	DLC Zone Spark Spread On-Peak (\$/MWh)	DLC Zone Spark Spread Off-Peak (\$/MWh)	DLC Zone On-Peak (\$/MWh)	DLC Zone Off-Peak (\$/MWh)
Jun-38	Summer			\$39.34	\$26.93	\$8.55	\$7.23	\$47.90	\$34.16
Jul-38	Summer			\$40.78	\$27.91	\$15.25	\$10.06	\$56.03	\$37.97
Aug-38	Summer			\$40.56	\$27.76	\$11.68	\$7.67	\$52.23	\$35.42
Sep-38	Summer			\$35.95	\$24.61	\$13.78	\$8.91	\$49.73	\$33.52
Oct-38	Shoulder			\$36.94	\$25.29	\$10.77	\$9.32	\$47.72	\$34.61
Nov-38	Shoulder			\$47.57	\$32.56	\$2.84	\$4.58	\$50.41	\$37.14
Dec-38	Winter			\$63.57	\$43.51	-\$4.13	\$0.60	\$59.44	\$44.11
Jan-39	Winter			\$95.45	\$65.32	-\$7.69	\$0.83	\$87.76	\$66.16
Feb-39	Winter			\$92.86	\$63.56	-\$9.28	-\$1.17	\$83.58	\$62.38
Mar-39	Shoulder			\$55.55	\$38.02	\$3.60	\$8.61	\$59.15	\$46.63
Apr-39	Shoulder			\$42.45	\$29.05	\$7.93	\$8.79	\$50.38	\$37.84
May-39	Summer			\$39.47	\$27.01	\$10.29	\$7.66	\$49.76	\$34.67
Jun-39	Summer			\$39.99	\$27.37	\$8.73	\$7.37	\$48.72	\$34.74
Jul-39	Summer			\$41.45	\$28.37	\$15.56	\$10.26	\$57.01	\$38.63
Aug-39	Summer			\$41.23	\$28.22	\$11.91	\$7.82	\$53.13	\$36.03
Sep-39	Summer			\$36.54	\$25.01	\$14.05	\$9.09	\$50.59	\$34.10
Oct-39	Shoulder			\$37.55	\$25.70	\$10.99	\$9.51	\$48.54	\$35.21
Nov-39	Shoulder			\$48.35	\$33.09	\$2.90	\$4.67	\$51.25	\$37.76
Dec-39	Winter			\$64.62	\$44.23	-\$4.05	\$0.59	\$60.57	\$44.82
Jan-40	Winter			\$97.76	\$66.91	-\$7.54	\$0.81	\$90.23	\$67.72
Feb-40	Winter			\$95.12	\$65.10	-\$9.10	-\$1.15	\$86.02	\$63.95
Mar-40	Shoulder			\$56.90	\$38.94	\$3.67	\$8.78	\$60.57	\$47.73
Apr-40	Shoulder			\$43.48	\$29.76	\$8.09	\$8.97	\$51.57	\$38.73
May-40	Summer			\$40.43	\$27.67	\$10.50	\$7.81	\$50.92	\$35.48
Jun-40	Summer			\$40.96	\$28.03	\$8.90	\$7.52	\$49.86	\$35.55
Jul-40	Summer			\$42.45	\$29.06	\$15.87	\$10.47	\$58.32	\$39.52
Aug-40	Summer			\$42.23	\$28.90	\$12.15	\$7.98	\$54.37	\$36.88
Sep-40	Summer			\$37.43	\$25.62	\$14.33	\$9.27	\$51.76	\$34.89
Oct-40	Shoulder			\$38.46	\$26.32	\$11.21	\$9.70	\$49.67	\$36.02
Nov-40	Shoulder			\$49.53	\$33.90	\$2.96	\$4.76	\$52.48	\$38.66
Dec-40	Winter			\$66.19	\$45.30	-\$3.97	\$0.58	\$62.22	\$45.88
Jan-41	Winter			\$100.13	\$68.53	-\$7.39	\$0.80	\$92.75	\$69.33
Feb-41	Winter			\$97.43	\$66.68	-\$8.92	-\$1.13	\$88.51	\$65.55
Mar-41	Shoulder			\$58.28	\$39.89	\$3.74	\$8.96	\$62.02	\$48.85
Apr-41	Shoulder			\$44.54	\$30.48	\$8.25	\$9.15	\$52.79	\$39.63

Period	Season	DLC Zone Adjusted On-Peak (\$/MWh)	DLC Zone Adjusted Off-Peak (\$/MWh)	DLC Zone NG Converted On-Peak (\$/MWh)	DLC Zone NG Converted Off-Peak (\$/MWh)	DLC Zone Spark Spread On-Peak (\$/MWh)	DLC Zone Spark Spread Off-Peak (\$/MWh)	DLC Zone On-Peak (\$/MWh)	DLC Zone Off-Peak (\$/MWh)
May-41	Summer			\$41.41	\$28.34	\$10.71	\$7.96	\$52.11	\$36.30
Jun-41	Summer			\$41.96	\$28.71	\$9.08	\$7.67	\$51.03	\$36.39
Jul-41	Summer			\$43.48	\$29.76	\$16.19	\$10.68	\$59.67	\$40.44
Aug-41	Summer			\$43.25	\$29.60	\$12.39	\$8.14	\$55.64	\$37.74
Sep-41	Summer			\$38.34	\$26.24	\$14.62	\$9.46	\$52.96	\$35.70
Oct-41	Shoulder			\$39.40	\$26.96	\$11.43	\$9.89	\$50.83	\$36.86
Nov-41	Shoulder			\$50.73	\$34.72	\$3.01	\$4.86	\$53.74	\$39.58
Dec-41	Winter			\$67.79	\$46.40	-\$3.89	\$0.56	\$63.90	\$46.96
Jan-42	Winter			\$102.77	\$70.34	-\$7.24	\$0.78	\$95.54	\$71.12
Feb-42	Winter			\$99.99	\$68.44	-\$8.74	-\$1.11	\$91.26	\$67.33
Mar-42	Shoulder			\$59.82	\$40.94	\$3.82	\$9.14	\$63.63	\$50.08
Apr-42	Shoulder			\$45.71	\$31.28	\$8.42	\$9.33	\$54.13	\$40.61
May-42	Summer			\$42.50	\$29.09	\$10.92	\$8.12	\$53.42	\$37.21
Jun-42	Summer			\$43.06	\$29.47	\$9.26	\$7.82	\$52.32	\$37.30
Jul-42	Summer			\$44.63	\$30.54	\$16.51	\$10.89	\$61.14	\$41.43
Aug-42	Summer			\$44.39	\$30.38	\$12.64	\$8.30	\$57.03	\$38.68
Sep-42	Summer			\$39.35	\$26.93	\$14.91	\$9.65	\$54.26	\$36.58
Oct-42	Shoulder			\$40.44	\$27.67	\$11.66	\$10.09	\$52.09	\$37.77
Nov-42	Shoulder			\$52.06	\$35.63	\$3.08	\$4.96	\$55.14	\$40.59
Dec-42	Winter			\$69.58	\$47.62	-\$3.81	\$0.55	\$65.77	\$48.18

PJM BRA Results			
PJM BRA \$/MW-day			
EDC	2019/2020	2020/2021	2021/2022
DLC	\$98.07	\$77.31	\$142.71
Met-Ed			
PECO			
Penelec			
Penn Power			
PPL			
West Penn			

Commentary: At the time of the final TRC Order, the schedule of PJM Base Residential Auctions (BRAs) is unknown. The input data field to the left assumes the 2022/2023 BRA is completed prior to use of this tool. If no BRA is completed beyond the already completed 2021/2022 BRA, the 2021/2022 would be the last BRA used. In this event, the application of inflation to the 3-year average (in rows 14 through 20) and the application of inflation in row 26.

\$/kW-year				
EDC	2019/2020	2020/2021	2021/2022	3 year average
DLC	\$37.99	\$29.36	\$53.13	\$40.16
Met-Ed	\$0.00	\$0.00	\$0.00	\$0.00
PECO	\$0.00	\$0.00	\$0.00	\$0.00
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

Note: Utilized 2019/2020, 2020/2021 and 2021/2022 for inputs since 2022/2023 was not available
 Entered data in \$/MW-day in row 4 as the label in row 2 was incorrect as \$/kw-day
 Changed the headers in row 3 and 13 to reflect the changed data
 Changed the formula in E24 to = E14 as that is the inflation adjusted result
 Changed the formula in E25 to equal the 3 year average as the first year of the forecast

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	\$53.13	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
14	2022	2023	\$40.16	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
15	2023	2024	\$40.96	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
16	2024	2025	\$41.78	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
17	2025	2026	\$42.62	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
18	2026	2027	\$43.47	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
19	2027	2028	\$44.34	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
20	2028	2029	\$45.23	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
21	2029	2030	\$46.13	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
22	2030	2031	\$47.05	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
23	2031	2032	\$47.99	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
24	2032	2033	\$48.95	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
25	2033	2034	\$49.93	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
26	2034	2035	\$50.93	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
27	2035	2036	\$51.95	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
28	2036	2037	\$52.99	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
29	2037	2038	\$54.05	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
30	2038	2039	\$55.13	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
31	2039	2040	\$56.23	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
32	2040	2041	\$57.36	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
33	2041	2042	\$58.50	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
34	2042	2043	\$59.67	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00

Avoided Transmission 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	\$31.27						
14	2022	2023	\$31.90	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
15	2023	2024	\$32.53	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
16	2024	2025	\$33.18	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
17	2025	2026	\$33.85	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
18	2026	2027	\$34.52	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
19	2027	2028	\$35.22	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
20	2028	2029	\$35.92	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
21	2029	2030	\$36.64	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
22	2030	2031	\$37.37	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
23	2031	2032	\$38.12	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
24	2032	2033	\$38.88	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
25	2033	2034	\$39.66	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
26	2034	2035	\$40.45	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
27	2035	2036	\$41.26	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
28	2036	2037	\$42.09	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
29	2037	2038	\$42.93	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
30	2038	2039	\$43.79	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
31	2039	2040	\$44.66	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
32	2040	2041	\$45.55	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00

Avoided Distribution Capacity Forecast in Nominal Dollars (\$/kW-year)						
DLC	Met-Ed	PECO	Penelec	Penn Power	PPL	West Penn
\$16.29						
\$16.62	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
\$16.95	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
\$17.29	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
\$17.63	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
\$17.99	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
\$18.35	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
\$18.71	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
\$19.09	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
\$19.47	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
\$19.86	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
\$20.25	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
\$20.66	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
\$21.07	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
\$21.49	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
\$21.92	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
\$22.36	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
\$22.81	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
\$23.27	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
\$23.73	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00

Period	Tetco M-3		Locational Adjustment	Load Shape	Spark Spread On-Peak (\$/MWh)	Spark Spread Off-Peak (\$/MWh)
Jan-21	\$2.24	Jan	\$1.93	180.2%	-\$7.56	\$0.82
Feb-21	\$2.15	Feb	\$1.84	175.4%	-\$9.13	-\$1.16
Mar-21	\$0.41	Mar	\$0.12	104.9%	\$2.57	\$6.15
Apr-21	-\$0.22	Apr	-\$0.21	80.2%	\$5.66	\$6.28
May-21	-\$0.33	May	-\$0.32	74.5%	\$7.35	\$5.47
Jun-21	-\$0.35	Jun	-\$0.34	75.5%	\$6.23	\$5.27
Jul-21	-\$0.27	Jul	-\$0.30	78.3%	\$11.11	\$7.33
Aug-21	-\$0.28	Aug	-\$0.33	77.8%	\$8.51	\$5.58
Sep-21	-\$0.60	Sep	-\$0.55	69.0%	\$10.03	\$6.49
Oct-21	-\$0.53	Oct	-\$0.53	70.9%	\$7.85	\$6.79
Nov-21	-\$0.05	Nov	-\$0.06	91.3%	\$2.07	\$3.34
Dec-21	\$0.63	Dec	\$0.58	122.0%	-\$3.98	\$0.58
Jan-22	\$1.99					
Feb-22	\$1.89					
Mar-22	\$0.22					
Apr-22	-\$0.21					
May-22	-\$0.33					
Jun-22	-\$0.33					
Jul-22	-\$0.28					
Aug-22	-\$0.30					
Sep-22	-\$0.56					
Oct-22	-\$0.59					
Nov-22	-\$0.06					
Dec-22	\$0.57					
Jan-23	\$1.87					
Feb-23	\$1.79					
Mar-23	\$0.02					
Apr-23	-\$0.21					
May-23	-\$0.32					
Jun-23	-\$0.34					
Jul-23	-\$0.33					
Aug-23	-\$0.35					
Sep-23	-\$0.55					
Oct-23	-\$0.46					
Nov-23	-\$0.06					
Dec-23	\$0.59					
Jan-24	\$1.97					
Feb-24	\$1.89					
Mar-24	-\$0.03					
Apr-24	-\$0.30					
May-24	-\$0.41					
Jun-24	-\$0.43					
Jul-24	-\$0.42					
Aug-24	-\$0.45					
Sep-24	-\$0.64					
Oct-24	-\$0.56					
Nov-24	-\$0.07					
Dec-24	\$0.61					

Commentary: In some cases, the spark spread may be a negative monetary value. In the marketplace, this may occur for a short period, but usually for an entire month. However, this factor accounts for differences in the heat rate assumptions and the real market values. Escalation is later applied in a positive manner as not to over devalue future spark spreads.

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

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

**BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION**

**Petition of Duquesne Light Company for
Approval of its Energy Efficiency and
Conservation Plan, Phase IV**

Docket Nos. P-2020-_____
M-2020-_____

Direct Testimony

Witness: David Defide

Subject: EE&C Phase IV Plan Development

DIRECT TESTIMONY OF DAVID DEFIDE

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23

Q. Please state your full name and business address.

A. My name is David Defide. My business address is 411 Seventh Avenue, Pittsburgh Pennsylvania 15219.

Q. By whom are you employed and in what capacity?

A. I am employed by Duquesne Light Company (“Duquesne Light” or the “Company”) as the Senior Manager of Customer Programs.

Q. What are your current responsibilities as the Manager of Customer Programs?

A. As the Senior Manager of Customer Programs, I am responsible for the development and implementation of Duquesne Light’s Energy Efficiency and Conservation (“EE&C”) programs for Act 129 Phase IV. I have been responsible for implementing the Company’s EE&C Phase I, Phase II and Phase III Plans. I also assist with the implementation of related customer programs such as universal services, including through the Income Eligible Advisory Group (“IEAG”), to facilitate coordination among the participants.

Q. Please state your educational and professional qualifications.

A. I received a Bachelor of Arts degree in Administration and Management in 1994 from LaRoche College. In 1997, I received a Master of Business Administration degree from Robert Morris University. I have been working for Duquesne Light Company since August 2009 as the Manager of Customer Programs. In August 2019 I was promoted to Senior Manager of Customer Programs. In that position, I currently manage a staff of four

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1 professionals. Prior to my work with Duquesne Light, I was the Chief Finance/Operating
2 Officer for Conservation Consultants, Inc. for ten years. Prior to working for Conservation
3 Consultants, I was the Finance Director and Special Assistant to the Executive Director for
4 the Housing Authority City of Pittsburgh. Prior to this position, I worked for National City
5 Bank as an Operations Supervisor.

6
7 **Q. What is the purpose of your direct testimony?**

8 A. The purpose of my testimony is two-fold. First, I will briefly explain Duquesne Light's
9 energy efficiency plan requirements pursuant to Act 129 of 2008 ("Act 129") and the
10 Public Utility Commission ("Commission") Implementation Order issued June 18, 2020 at
11 Docket No. M-2020-3015228. Second, I will explain the methodology used to design,
12 develop, analyze, and implement Duquesne Light's Energy Efficiency and Conservation
13 Phase IV Plan ("EE&C Phase IV Plan").

14
15 **Q. Are you sponsoring any exhibits as part of your direct testimony?**

16 A. Yes. Duquesne Light's Energy Efficiency and Conservation Phase IV Plan is attached to
17 the Company's Petition and has been marked as Exhibit 1.

18
19 **Q. Have you previously testified before the Pennsylvania Public Utility Commission?**

20 A. Yes. I provided direct testimony on behalf of Duquesne Light in *Petition of PECO Energy*
21 *for an Evidentiary Hearing on the Energy Efficiency Benchmarks*, at Docket No. P-2012-
22 2320334,; in support of Duquesne Light's Energy Efficiency and Conservation Petition for
23 Approval of Modifications to its Demand Response Programs and at Docket No. M-2009-

1 2093217; in support of Duquesne Light’s Energy Efficiency and Conservation Phase II
2 and Phase III Plans at Docket Nos. M-2012-2334399 and Phase III Plan at Docket No. M-
3 2014-2424864; and on behalf of Duquesne Light in *Petition of Peoples Natural Gas*
4 *Company, LLC for Approval of its Energy Efficiency and Conservation Plan*, Docket No.
5 M-2017-2640306.

6
7 **I. BACKGROUND**

8 **Q. Please explain the Company’s energy efficiency conservation and demand response**
9 **obligations under Act 129 of 2008 (“Act 129”).**

10 A. Pursuant to Act 129 of 2008 (“Act 129”) Electric Distribution Companies (“EDCs”) with
11 at least 100,000 customers are required to achieve consumption reductions of at least one
12 percent (1%) by May 31, 2011, and at least three percent (3%) by May 31, 2013. 66 Pa.C.S.
13 § 2806.1(c)(1), (2). Additionally, pursuant to section § 2806.1(d), EDCs are required to
14 achieve a four and one-half (4.5%) percent peak demand reduction of the one hundred
15 (100) highest hours by May 31, 2013. These energy consumption and demand response
16 targets applied to Phase I of the EEC&DR Program. Act 129 further required the
17 Commission to evaluate the cost and benefits of the EE&C plans by November 30, 2013,
18 and implement additional incremental consumption and peak demand reductions only if
19 the benefits of the EE&C plans exceed the costs. 66 Pa.C.S. § 2806.1(c)(3). The energy
20 consumption reduction target for the Phase II three-year energy efficiency consumption
21 was 276,722 MWh. The Phase III five-year energy efficiency consumption target was
22 440,916 MWh and the demand reduction target was 42 MW. The Phase IV five-year energy
23 efficiency consumption target is 348,126 MWh and 62 MW. In compliance with the

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1 requirements of Act 129 and the Commission's Orders implementing Phase IV, Duquesne
2 has used the energy consumption reductions established by the Commission to develop its
3 energy efficiency and conservation plan, which is submitted herewith.

4
5 **Q. Did the Commission order EDCs to develop and implement a plan to achieve**
6 **additional energy efficiency conservation targets beyond those required by Act 129**
7 **for Phase III?**

8 A. Yes. Having found the Phase I program to be cost effective, on August 3, 2012, the
9 Commission entered its Energy Efficiency and Conservation Phase II Implementation
10 Order ("*Phase II Implementation Order*"). The Commission's EE&C Phase II Order
11 provided that Duquesne Light was required to achieve a 2.0% energy consumption target,
12 or 276,722 MWhs, over a three year period spanning June 1, 2013 through May 31, 2016
13 ("*Phase II*"). *Phase II Implementation Order* at p. 24. The Statewide Evaluator (SWE)
14 was directed by the Commission to provide a Demand Response (DR) Potential Study to
15 analyze the cost effectiveness of the legislative peak demand reduction requirements and
16 of potential improvements to the peak demand reduction program. In addition, SWE was
17 tasked with performing an Energy Efficiency (EE) Potential Study to determine the cost
18 effective consumption reduction potential in the Commonwealth. After issuing a Tentative
19 Order and receiving Comments and Reply Comments from a number of interested parties,
20 the Commission issued its Energy Efficiency and Conservation Phase III Implementation
21 Order ("*Phase III Implementation Order*") on June 11, 2015. The Commission
22 subsequently issued a Clarification Order on August 20, 2015, to clarify certain aspects of
23 the *Phase III Implementation Order*. After issuing a Tentative Order and receiving

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1 Comments and Reply Comments from a number of interested parties, the Commission
2 issued its Energy Efficiency and Conservation Phase IV Implementation Order (“*Phase IV*
3 *Implementation Order*”) on June 18, 2020.

4
5 **Q. Please summarize the Phase IV consumption reduction and demand reductions that**
6 **the Commission adopted for Duquesne Light.**

7 A. The Commission has adopted for Duquesne Light a consumption reduction for the five
8 year Phase IV period of 348,126 MWh and demand reduction target of 62 MW.

9
10 **Q. Does Duquesne Light’s Phase IV EE&C Plan meet these targets?**

11 A. The Company’s Phase IV EE&C Plan is designed to exceed these levels, and includes a
12 consumption reduction target of 383,733 MWh and a demand reduction target of 68.7 MW.

13
14 **Q. Provide your rationale for developing savings targets above the mandatory amounts.**

15 A. The Phase IV EE&C Plan exceeds kWh and kW savings mandate by 10% to provide a
16 minimum buffer. There are several reasons for this design. At the writing of this testimony,
17 it is anticipated that there will be no Phase III carry-over savings into Phase IV as there has
18 been in the previous two phases. Moreover, Phase IV represents the first phase in which
19 residential lighting savings potentials will fully reflect the effects of federal Energy
20 Independence and Security Act of 2007 (“EISA”). Historically, residential upstream
21 lighting contributed between 40 and 60 percent of annual savings in the previous 11 years.
22 Due to changes to the TRM based upon those changes in federal law, the Company will
23 have considerably less opportunity to realize comparable savings from lighting projects in

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1 Phase IV. Given impacts of the 2021 TRM baseline requirements, no residential upstream
2 lighting is planned. Total Residential (lighting and all other measures) Phase IV impacts
3 are projected at 17 percent of the portfolio. This contrasts sharply from the previous three
4 Act 129 phases.

5 Making the savings and demand reductions forecast in the EEPDR Phase IV
6 Forecast will be difficult, given the removal of Residential Upstream Lighting savings. As
7 stated in Duquesne's comments in the Tentative Implementation Order, the absence of
8 residential lighting will make it more difficult to achieve the mandated reductions.
9 Planning to exceed the mandate by ten percent accounts for increased uncertainty
10 associated with untested program options.

11
12 **Q. How will Duquesne Light's EE&C Phase IV Plan achieve demand reduction targets?**

13 A. In the Phase IV Implementation Order, the Commission chose to exclude dispatchable
14 demand response ("DDR") from Phase IV goal-setting. Duquesne Light's Phase IV EE&C
15 Plan therefore does not include a demand response program. The Company will instead
16 achieve its demand reduction targets through its energy efficiency programs described in
17 the Plan.

18
19 **Q. Does Act 129 provide guidance on EDCs' allowable spending levels for their EE&C
20 Plans?**

21 A. Yes. Act 129 provides that "[t]he total cost of any plan required under this section shall
22 not exceed 2% of the electric distribution company's total annual revenue as of December
23 31, 2006." An EDC's total annual revenue is defined as "[a]mounts paid to the electric

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1 distribution company for generation, transmission, distribution and surcharges by retail
2 customers.” The Commission has interpreted this to include amounts paid to the EDC for
3 generation service, including generation revenues collected by an EDC for an electric
4 generation supplier that uses consolidated billing.

5
6 **Q. Has the Commission provided further guidance on the definition of “EDC total
7 annual revenue?”**

8 A. Yes. On January 16, 2009, the Commission issued its EEC&DR Phase I Implementation
9 Order at Docket No. M-2008-2069887 (“*Phase I Order*”). On pages 34-35 of the *Phase I*
10 *Order*, the Commission stated:

11 “...[T]he Commission interprets “amounts paid to the [EDC] for
12 generation, transmission, distribution and surcharges by retail customer,”
13 set forth as the definition of EDC total annual revenue in 66 Pa. C.S. §
14 2806.1(m), **to include all amounts paid to the EDC for generation
15 service, including generation revenues collected by an EDC for an EGS
16 that uses consolidated billing.** This result will bring Duquesne’s program
17 budget closer to a level of parity with the other EDCs, and ensure that it has
18 a more meaningful opportunity to comply with the EE&C provisions of Act
19 129.”

20 The Commission retained its interpretation of EDC total annual revenues provided in Phase
21 I, Phase II, Phase III and now Phase IV.

22
23 **Q. What is Duquesne Light’s budget for its Phase IV EE&C Plan?**

24 A. Duquesne Light’s total 2006 annual revenues were \$723,299,451. EGS total generation
25 and transmission revenues in Duquesne Light’s service territory in December 2006 were
26 \$253,998,128. Combined, Duquesne Light and EGS 2006 annual revenues totaled
27 \$977,297,579. Applying simple arithmetic, 2% of \$977,297,579 equals \$19,545,951.58.

1 Therefore, Duquesne Light’s annual budget is \$19,545,951.58, and the total five year
2 program spending cap is \$97,739,968.

3
4 **II. EE&C PHASE IV PLAN DEVELOPMENT**

5 **Q. How will Duquesne Light measure energy savings for the programs it proposes to**
6 **implement?**

7 A. Under Act 129, the Commission was required to implement an energy efficiency program
8 that includes a process to monitor and verify data collection and plan results. In the Phase
9 I Order, the Commission adopted the *Energy Efficiency and DSM Rules for Pennsylvania’s*
10 *Alternative Energy Portfolio Standard, Technical Reference Manual* (“TRM”) as a
11 component of the EE&C Program evaluation process. The Commission continued its use
12 of the TRM for the Phase II, Phase III and will do the same for Phase IV programs. The
13 TRM in Phase I and Phase II was updated annually and used to measure and verify
14 applicable energy efficiency measures used by EDCs to meet the Act 129 consumption
15 reduction targets. For Phase III, the Commission applied the 2016 TRM, as periodically
16 amended, for the entirety of Phase III. The Commission is following a similar approach in
17 Phase IV. For Phase IV, the Implementation Order at page 98 states that the 2021 TRM be
18 applicable for the entirety of Phase IV unless a mid-phase TRM update is deemed
19 necessary. In addition, in its Final Order issued August 8, 2019 at Docket No. M-2019-
20 3006867 (“TRM Final Order”), the Commission adopted a new process for incorporating
21 updates to codes, standards and Energy Star specifications occurring during Phase IV
22 without undertaking a new TRM update. Based on the extent of code updates, the SWE
23 will recommend whether to open the TRM for a code refresh for the following program

1 year. Code updates that are not finalized before July 1 of a program year will not be
2 considered for inclusion in the TRM for that update cycle. The expected savings discussed
3 later in this testimony are based on the 2021 TRM.

4
5 **Q. Duquesne Light’s EE&C Phase IV Plan must be cost effective. How did Duquesne**
6 **Light determine if its EE&C Phase IV plan is cost effective?**

7 A. Under Act 129, the Commission is required to use a Total Resource Cost (“TRC”) test to
8 analyze the costs and benefits of EDC energy efficiency and conservation plans. Act 129
9 defines the TRC as “a standard test that is met if, over the effective life of each plan not to
10 exceed 15 years, the net present value of the avoided monetary cost of supplying electricity
11 is greater than the net present value of the monetary cost of energy efficiency conservation
12 measures.” Under Act 129, EDCs must demonstrate that its Phase IV EE&C Plan is cost
13 effective using the TRC test. Use of the TRC test was specified in a series of five (5)
14 Commission TRC Orders, issued sequentially, each partially modifying its predecessor.

- 15 1. *TRC Test Order*, June 18, 2009 Docket No. M-2009-2108601
- 16 2. *TRC Test Order*, July 28, 2011, Docket No. M-2009-2108601
- 17 3. *TRC Test Order*, August 20, 2012, Docket No. M-2012-2300653, M2009-
18 2108601
- 19 4. *TRC Test Order*, June 11, 2015, Docket M-2015-2468992
- 20 5. *TRC Test Order*, December 19, 2019, Docket M-2019-3006868

21
22 Duquesne Light measured the cost effectiveness of its EE&C Phase IV Plan based on all
23 of the applicable provisions of all of these TRC Test Orders. The results of the TRC are
24 expressed as the net present value and benefit/cost (“B/C”) ratio. Consistent with the
25 aforementioned TRC Test Orders, a B/C ratio greater than one indicates that the program

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1 is beneficial to the utility and its ratepayers on a total resource cost basis. Duquesne Light's
2 proposed EE&C Phase IV Plan overall TRC score is 1.31. Accordingly, the Plan is cost
3 effective as a whole.
4

5 **Q. Please describe the process used to develop Duquesne Light's EE&C Phase IV Plan.**

6 A. The Company's EE&C Phase IV Plan was developed in partnership with prospective
7 implementation providers to leverage industry expertise and streamline the transition from
8 Phase III. The EE&C Plan forecast measure detail is directly linked to prospective CSP
9 responses to competitive solicitations, issued by Duquesne Light, for the design and
10 implementation of the programs presented in this Plan. Accordingly, the measure mix was
11 taken from proposals selected based on CSP expertise and innovation. The Plan measure
12 content was reconciled with content of the 2021 Technical Reference Manual (TRM) and
13 information provided in the SWE saturation studies and potential forecast (2021 Statewide
14 EE Potential Study¹). Measure deemed savings were updated consistent with the 2021
15 TRM. Measure costs were documented using the SWE incremental costs database,
16 contractor values, EDC research and specific measure cost web research. Incentive
17 amounts were established starting with baseline assumptions applied in the 2021 Statewide
18 EE Potential Study. These were adjusted based upon historic incentives provided by
19 Duquesne Light, the other six Pennsylvania EDCs, escalated for the Phase IV performance
20 period and adjusted as required to achieve budgetary requirements. Avoided cost
21 assumptions were updated consistent with the Total Resource Cost Test (TRC) Order and
22 applied to render measure, program, portfolio and Plan level cost-effectiveness as

¹ *Pennsylvania Act 129 - Phase IV Energy Efficiency and Peak Demand Reduction Market Potential Study Report*, submitted by Optimal Energy, Inc., et. al., February 28, 2020.

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1 expressed by the TRC ratio. Programs were defined based upon delivery channels within
2 each customer sector.

3 Duquesne Light worked with CSPs to establish program definitions. Residential
4 sector programs retain the successful downstream and upstream rebate offerings. The
5 Commercial and Industrial portfolios retain proven customer market segment engagement
6 channels. The Small Commercial Direct-Install Program and Multifamily Housing Retrofit
7 Program were both successful in Phase III and are continued in Phase IV. Such programs
8 demonstrate Duquesne Light's commitment to providing comprehensive measures to
9 under-served market segments.

10 Program goal allocation and associated program budgets were designed based upon
11 SWE Energy Efficiency Potential Study and adjusted to accommodate the Commission's
12 Implementation Order, which required segment carve-outs for the low income segment and
13 specified program comprehensiveness requirements. Goal allocation for the remaining
14 customer segments was based on segment energy use, as well as requirements to achieve
15 mandated reductions at authorized budgets.

16
17 **Q. What carve-outs for the low income customer segment did the Commission establish**
18 **for Duquesne Light?**

19 **A.** The Phase IV Implementation Order provides that Duquesne Light's Phase IV Plan must
20 obtain at least 18,566 MWh in energy savings from the low-income customer segment.
21 Phase IV Implementation Order p. 35. This constitutes approximately 5.3% of the energy
22 savings from the residential customer class. Additionally, the Company's Phase IV Plan
23 must provide a "proportionate number of measures equivalent to the low-income sector's

Duquesne Light Company Statement No. 1

1 share of usage,” or 8.40 measures. Phase IV Implementation Order pp. 27, 35. As discussed
2 further below, the Company’s Phase IV Plan exceeds both these required carve-outs.

3
4 **Q. You mentioned that the Company considered stakeholder input. Please describe the
5 process used to gather stakeholder input on the Company’s EE&C Phase IV Plan.**

6 A. During the planning process, individual stakeholder meetings were held to discuss
7 Duquesne Light’s program plans for Phase IV. Participants included and invitations were
8 extended to regulatory parties such as Office of Consumer Advocate, Office of Small
9 Business Advocate, Duquesne Industrial Intervenors, Duquesne Light’s Income Eligible
10 Advisory Group (“IEAG”), lighting vendors, Conservation Service Providers, EM&V
11 contractor, gas distribution companies, KEEA, and CAUSE PA.

12
13 **Q. Did the stakeholder meetings influence the Company’s EE&C Phase IV Plan
14 development?**

15 A. Yes. Based on stakeholder input, Duquesne’s Phase IV Plan proposes continuing with the
16 Income Eligible Advisory Group meetings throughout the Phase. Members of this group
17 include community based organizations, NGDCs, OCA, CAUSE-PA, and various non-
18 profit social service agencies. At these meetings marketing material and outreach
19 opportunities will be discussed. Furthermore, DLC will conduct a stakeholder meeting
20 with the Housing Alliance of Pennsylvania, PHFA, other interested affordable housing
21 trade groups, and other interested stakeholders in Phase IV to coordinate and tailor the
22 measures targeted in the development of affordable housing opportunities.

Duquesne Light Company Statement No. 1

1 Moreover, during Phase IV, the Company plans to continue to work with NGDCs
2 in conjunction with the IEAG to encourage participation beyond the current Smart Comfort
3 low income program. Duquesne Light and its non-residential CSP(s) also plan to hold
4 additional meetings after plan approval to discuss the logistics around continued
5 partnership with the NGDCs to increase awareness of CHP rebate opportunities under the
6 Phase IV plan.

8 **III. EE&C PHASE IV PLAN PROGRAMS**

9 **Q. What programs are proposed in the Company's EE&C Phase IV Plan?**

10 A. Generally, Duquesne Light's proposed EE&C Phase IV Plan is designed to educate
11 customers about energy efficiency and conservation and lower customer energy
12 consumption. The Phase IV Plan is largely composed of home energy audits, building
13 retrofits, lighting programs, appliance recycling and rebates program that have been
14 customized to meet the needs of specific customer segments within Duquesne Light's
15 service territory. The programs are organized to facilitate participation by three broad
16 customer sectors: residential, commercial, and industrial customers. Additionally, each of
17 the three customer sectors are offered additional programs tailored to meet the specific
18 needs of certain customer segments, such as income eligible customers, small to medium
19 commercial and industrial customers, and large commercial and industrial customers. In
20 addition, Behavioral Energy Efficiency Program reports will be sent to residential and
21 income eligible residential customers.

23 **Q. Please describe the Residential Energy Efficiency program ("REEP").**

Duquesne Light Company Statement No. 1

1 A. The REEP includes these programs: 1) REEP Rebate Program with Downstream,
2 Midstream and Upstream delivery channels; 2) Residential Appliance Recycling Program
3 (“RARP”); 3) Residential and Low Income Behavioral Energy Efficiency Programs (“R-
4 BEEP” and “LI-BEEP”); and 4) the Residential Low Income Energy Efficiency Program
5 (“LIEEP”). These programs are explained in detail in Section 3 of the Company’s Phase
6 IV EE&C Plan, but I will provide a brief summary:

REEP Rebate Program

7
8
9 The REEP rebate program encourages customers to make an energy efficient choice
10 when purchasing and installing household appliances and equipment by offering
11 educational materials on energy efficiency options and rebate incentives. This
12 rebate program is offered via three channels, upstream, midstream and downstream.
13 Program educational materials and rebates are provided in conjunction with the
14 Duquesne Light on-line home energy audit and other programs offered to
15 residential customers.
16

Residential Appliance Recycling Program (“RARP”)

17
18
19 The Residential Appliance Recycling Program encourages residential customers in
20 Duquesne Light’s service territory to turn in their older refrigerators, dehumidifiers,
21 air conditioners, and freezers to be recycled. To encourage participation in this
22 program, this program provides no-cost pickup and disposal as well as a small
23 rebate for each appliance recycled.
24

Residential Behavioral Energy Efficiency Programs (“R-BEEP” and “LI-BEEP”)

25
26
27
28 The R-BEEP and LI-BEEP programs send, via direct mail, home energy use reports
29 that compare recipient customer’s energy use to the use of customers with similar
30 home type and size. The programs provide for comparison the last two months of
31 energy consumption by 1) the most efficient of the peer group, 2) the BEEP
32 recipient, and 3) the entire peer group. The reports generate verifiable savings
33 ranging from 1.5%-3.5% of total home energy use.
34
35

Residential Low Income Energy Efficiency Program (“LIEEP”)

36
37
38 LIEEP is an income-qualified program providing services designed to assist low-
39 income households to conserve energy and reduce electricity costs. LIEEP relies
40 on several, low income segment-specific, contributing programs to achieve

1 projected savings impacts and program cost-effectiveness. The Company intends
2 to achieve the mandated 5.3% of its energy consumption reduction savings from
3 this program and LI-BEEP.
4

5 **Q. What are the projected energy consumption savings and demand reductions for the**
6 **residential programs?**

7 A. The Company expects to achieve 37,900,182 kWhs in energy savings and 4,148 kW in
8 demand reductions from the REEP rebate program; 8,447,770 kWhs in energy savings and
9 1,210 kW in demand reductions from the Residential Appliance Recycling program;
10 57,200,000 kWhs in energy savings and 7,757 kW in demand reductions from the
11 Residential and Low Income Behavioral Efficiency programs; and 21,386,149 kWhs in
12 energy savings and 2,494 kW in demand reductions from LIEEP.
13

14 **Q. Are the residential energy efficiency programs described herein cost effective?**

15 A. Yes. The residential programs offered are collectively cost-effective. Except for LI-BEEP,
16 each program achieved a TRC score at or above 1. Specifically, the REEP rebate program
17 TRC scores for upstream, midstream, and downstream incentives are 1.00, 1.22, and 2.09,
18 respectively; the Residential Appliance Recycling Program TRC score is 1.06; the
19 Residential Behavioral Efficiency Program TRC score is 1.09; and the Low Income
20 Behavioral Efficiency Program TRC score is 0.61. The LIEEP TRC score is 1.02. The
21 overall residential energy efficiency TRC score in aggregate is 1.27.
22

23 **Q. Are any of the residential customer programs currently in operation as part of**
24 **Duquesne Light's Phase III programs?**

Duquesne Light Company Statement No. 1

1 A. Yes. Programs currently in place as part of Duquesne Light’s Phase III program include:
2 REEP Rebate Program; Residential Behavioral Energy Efficiency and Low Income
3 Behavioral Energy Efficiency; Residential Appliance Recycling Program; and the
4 Residential LIEEP.

5
6 **Q. Are there any REEP downstream measures that you would like to describe in more
7 detail?**

8 A. Yes. The student energy efficiency education component is designed to challenge students
9 to think about energy, learning where it comes from, why we need it, and how we can use
10 it more efficiently. The program seeks to help advance a positive energy efficiency
11 lifestyle. Key features of the student energy efficiency education component are school
12 presentations with hands-on activities for the students and teachers, Poster Contests,
13 provisions for energy efficiency kits for participating students and teachers, and a data
14 collection and tracking process used to compile, analyze, and report electric energy
15 savings.

16
17 **Q. Do LIEEP and LI-BEEP satisfy the low-income carve-outs established in the Phase
18 IV Implementation Order?**

19 A. Yes. The Plan will obtain approximately 28,886 MWh of energy savings from the low-
20 income customer segment, as compared to the Phase IV Implementation Order’s
21 corresponding target of 18,566 MWh. The Plan will also meet the “proportionate number
22 of measures” carve-out of 8.40 measures. Of the 329 measures provided under the Plan, 30
23 of them – or about 9.1% percent – will be available to low-income customers.

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Q. Please describe the energy consumption reduction programs available for Small/Medium Commercial and Industrial customers.

A. Customers served under this sector are small/medium commercial and industrial customers with demands less than 300 kW. They will have the opportunity to participate in four (4) programs: Small Business Direct Install Program; Small Business Solutions Program; Small Midstream Program, and Small Virtual Commissioning Program. These programs are explained in detail in Section 3 of the Company’s Phase IV EE&C Plan, but I will provide a brief summary:

Small Business Direct Install Program (“SBDI”)

The SBDI Program is a direct install program that offers Duquesne Light’s small business customers the opportunity to retrofit existing equipment with more energy-efficient technologies. The program’s incentives are designed to encourage early equipment replacement and target discretionary retrofit opportunities. Energy-efficient lighting remains the focus of the program, along with refrigeration and electric water heater measures. The program is turnkey that offers customers a single source of information, technical assistance, and financial incentives. Turnkey programs incorporate an end-to-end approach, from initial marketing and the resulting audit process through to final equipment installation conducted by a third-party implementation contractor.

Small Business Solutions Program (“SBS”)

The SBS Program helps Duquesne Light’s small and medium C&I customers and/or their trade allies select the most efficient electric technologies when they consider purchasing new equipment or retrofitting existing inefficient technologies. The SBS Program offers two core participation tracks: prescriptive and custom. Program components include energy use auditing, provision of targeted financing and incentives, project management and retrofit measure installation, training, and technical assistance. Energy audit results provide business customers a readily available, reliable source of information about their energy use and outline ways to save energy.

Small Midstream Program

1 The Small Midstream Program provides incentives directly to distributors and
2 manufacturers, rather than to end users, for efficient products, offsetting the higher
3 costs and effectively driving uptake of the most efficient equipment options.
4 Incentives are structured to mitigate the price premium between conventional and
5 high-efficiency products at the point of purchase, which places efficient products
6 in direct competition with conventional products based on quality and efficiency
7 alone. By working with market actors directly, equipment stocking patterns are
8 altered over time to move inefficient products off the shelves and to enable faster
9 adoption and decreased customer costs for efficient equipment.

10
11 **Small Virtual Commissioning Program (“SVCx”)**
12

13 The SVCx Program leverages advanced metering infrastructure's (“AMI”)
14 advanced data analytics to identify and qualify customers with significant potential
15 for energy savings. The prospect identification process uses data modeling
16 techniques (e.g., weather normalization, etc.) to selectively, and without bias,
17 pinpoint individual meters and accounts with energy usage conditions that indicate
18 the potential for operational savings; this process does not exclude or diminish
19 opportunities based on business industry, size, or location. Once identified, the
20 program implementer offers customers personalized remote engagement by phone
21 and email to help them understand their energy usage and provide instructions for
22 self-correction. Upon successful program participation, the customer’s electric
23 usage at the meter is continuously monitored to ensure savings persistence; if
24 predetermined level of savings drift is detected, customers are re-engaged.
25 Participants are encouraged to take part in additional energy efficiency programs
26 offered by Duquesne Light upon a successful SVCx Program engagement. Under
27 this program, customers also receive 1) real-time standalone energy monitoring
28 equipment, 2) payments towards the installation costs for monitoring and control
29 systems, and 3) energy management software.
30
31

32 **Q. What are the projected energy consumption savings and demand reductions expected**
33 **from the small/medium commercial and industrial programs?**

34 A. The SBDI Program is projected to achieve 23,133,399 kWhs of energy savings and 4,475
35 kW in demand reductions. The SBS Program is projected to achieve 50,212,478 kWhs of
36 energy savings and 8,590 kW in demand reductions. The Small Midstream Program is
37 expected to achieve 27,491,056 kWhs of energy savings and 6,756 kW in demand
38 reductions. The SVCx Program is expected to achieve 6,053,739 kWhs of energy savings
39 and 2,228 kW in demand reductions.

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Q. Are the energy efficiency programs available under the small/medium commercial and industrial sector cost effective?

A. Yes. All of the programs proposed except the Small Midstream Program score above 1 on the Commission’s TRC test. The SBDI Program TRC score is 1.09; the SBS Program TRC score is 1.48; the Small Midstream Program TRC score is 0.68; and the SVCx Program TRC score is 3.41. In total the programs for this sector have a TRC score of 1.10.

Q. Are any of the commercial programs currently in operation as part of Duquesne Light’s Phase III programs?

A. Yes. The Small Business Direct-Install Program and Small Midstream Program were introduced and successfully operated in Phase III.

Q. Please describe the energy consumption reduction programs available to large commercial and industrial customers.

A. Customers served under this sector are commercial and industrial customers with demands equal to or greater than 300 kW. They will have the opportunity to participate in three (3) programs: Large Business Solutions Program; Large Midstream Program; and Large Virtual Commissioning Program. These programs are explained in detail in Section 3 of the Company’s Phase IV EE&C Plan, but I will provide a brief summary:

Large Business Solutions Program (“LBS”)

The LBS Program helps Duquesne Light’s large C&I customers and/or their trade allies select the most efficient electric technologies when they consider purchasing new equipment or retrofitting existing inefficient technologies. The LBS Program offers two core participation tracks: prescriptive and custom. Program components

1 include energy use auditing, provision of targeted financing and incentives, project
2 management and retrofit measure installation, training, and technical assistance.
3 Energy audits results provide business customers a readily available, reliable source
4 of information about their energy use and outline ways to save energy that, when
5 implemented, will result in energy savings. Solutions can include
6 retrocommissioning and combined heat and power.
7

8 **Large Midstream Program**

9 The Large Midstream Program provides incentives directly to distributors or
10 manufacturers, rather than to end users, for efficient products, offsetting the
11 higher costs and effectively driving uptake of the most efficient equipment
12 options. Incentives are structured to mitigate the price premium between
13 conventional and high-efficiency products at the point of purchase, which places
14 efficient products in direct competition with conventional products based on
15 quality and efficiency alone. By working with market actors directly, equipment
16 stocking patterns are altered over time to move inefficient products off the shelves
17 and to enable faster adoption and decreased customer costs for efficient
18 equipment.

19
20 **Large Virtual Commissioning Program (“LVCx”)**

21
22 The LVCx Program leverages AMI advanced data analytics to identify and qualify
23 customers with significant potential for energy savings. The prospect identification
24 process uses data modeling techniques (e.g., weather normalization, etc.) to
25 selectively, and without bias, pinpoint individual meters and accounts with energy
26 usage conditions that indicate the potential for operational savings; this process
27 does not exclude or diminish opportunities based on business industry, size, or
28 location. Once identified, the program implementer offers customers personalized
29 remote engagement by phone and email to help them understand their energy usage
30 and provide instructions for self-correction. Upon successful program participation,
31 the customer’s electric usage at the meter is continuously monitored to ensure
32 savings persistence; if pre-specified savings drift is detected, customers are re-
33 engaged. Participants are encouraged to take part in additional energy efficiency
34 programs offered by Duquesne Light upon a successful LVCx Program
35 engagement. Under this program customers also receive 1) real-time standalone
36 energy monitoring equipment, 2) payments towards the installation costs for
37 monitoring and control systems, 3) energy management software, and 4) control
38 systems equipment tailored to large organizations and institutional accounts.
39

40
41 **Q. What are the projected energy consumption reductions and demand reductions**
42 **expected from the large commercial and industrial efficiency program?**

Duquesne Light Company Statement No. 1

1 A. The LBS Program is projected to achieve 83,696,145 kWhs and 38,846,312 kWhs of
2 energy savings for Large Commercial and Large Industrial customers, respectively. The
3 LBS Program is projected to achieve 815,377 kW and 7,137 kW in demand reductions for
4 Large Commercial and Large Industrial customers, respectively. The Large Midstream
5 Program is projected to achieve 17,300,344 kWhs and 8,029,695 kWhs of energy savings
6 for Large Commercial and Large Industrial customers, respectively. The Large Midstream
7 Program is projected to achieve 4,783 kW and 2,220 kW in demand reductions for Large
8 Commercial and Large Industrial customers, respectively. The LVCx Program is projected
9 to achieve 2,756,458 kWhs and 1,279,369 kWhs of energy savings for Large Commercial
10 and Large Industrial customers, respectively. The LVCx Program is projected to achieve
11 1,014 kW and 471 kW in demand reductions for Large Commercial and Large Industrial
12 customers, respectively.

13
14 **Q. Are the energy efficiency programs proposed under the large commercial and**
15 **industrial sectors cost effective?**

16 A. Yes. The large business sector programs offered are collectively cost-effective. Except
17 for Large Midstream Program, each program achieved a TRC score at or above 1. The
18 LBS Program TRC score is 2.16; the Large Midstream Program TRC score is 0.63; and
19 the LVCx Program TRC score is 2.85. In total, the programs for this sector have a TRC
20 score of 1.52.

21
22 **Q. Are any of the large commercial and industrial programs currently in operation part**
23 **of Duquesne Light's Phase III programs?**

1 A. Yes. The Large Business Solutions and Midstream are an evolution of Phase III express
2 efficiency programs serving the office buildings sectors, retail stores segment, primary
3 metals, chemical products and other mixed industrial segments.

4

5 **IV. PHASE IV PJM BASE RESIDUAL AUCTION PARTICIPATION**

6 **Q. Is Duquesne Light proposing to participate in the PJM Base Residual Auction in its**
7 **Phase IV EE&C Plan?**

8 A. Yes. Duquesne Light plans to offer a portion of the peak demand reductions from its Phase
9 IV Plan into PJM's Forward Capacity Market from the portfolio of programs and measures
10 that are eligible for PJM as provided in PJM Manuals 18 and 18B or their successors.

11 Duquesne Light intends to nominate EE Resource demand reductions beginning with
12 PJM's Base Residual Auction (BRA) for delivery year 2025/2026, which expected to occur
13 in early 2023. This appears to be the earliest opportunity following the portfolio launch,
14 orientation of new CSPs, refinement of tracking system interfaces and operational practices
15 as well as developing and implementing marketing outreach strategies.

16 Duquesne Light intends to create a single EE Resource modeled in PJM's Capacity
17 Exchange system representing commercial (office, retail or healthcare) interior lighting
18 with the intent of employing partially measured retrofit isolation and/or stipulated
19 measurement and verification. The measure type will render reliable summer and winter
20 demand reductions and employ proxy variables in combination with well-established
21 algorithms and/or stipulated factors, to provide an accurate estimate of Nominated EE
22 values. Duquesne Light will combine documented energy savings and demand reductions

1 with modeled annual hourly load shapes to calculate demand reductions during summer
2 and winter performance hours.

3 Additional EE Resources will be considered and modeled using PJM’s Capacity
4 Exchange system depending upon actual program activity and need to add isolated retrofit,
5 whole facility regression or calibrated simulation measured EE Resources for differing
6 types of measure end-uses. It is anticipated that all commercial and industrial sector
7 programs may contribute to annual nominations.

8 Based on projected savings impacts, Duquesne Light currently plans to nominate
9 up to 2 MW into PJM’s Forward Capacity Market beginning with the BRA for delivery
10 year 2025/2026, and continue in each successive BRA, applicable during Phase IV.

11
12 **V. PROGRAM COST**

13 **Q. What is the Company’s Phase IV spending cap?**

14 A. As I discussed previously, Duquesne Light’s Phase IV annual budget is \$19,545,951.58,
15 and the total five year program spending cap is \$97,739,968.

16
17 **Q. What is the cumulative cost of the Company’s proposed EE&C Phase IV Plan and
18 what is the implementation strategy to acquire at least 15% of the consumption
19 reduction target in each program year as directed by the Commission?**

20 A. The Company’s EE&C Phase IV Plan has a budget cap of \$97,729,760. This Plan includes
21 programs that are being continued as previously implemented, modified based on previous
22 years’ experiences, plus newly added programs. The forecast ramp-rates by projected
23 saving impacts across the five–year period are found in the proposed plan in Figure 1,

1 which provides for acquiring at least 15% of the consumption target in each of the Phase
2 IV program years.

3

4 **Q. Please provide an overview of the EE&C Phase IV Plan cost by customer sector.**

5 A. As provided in the table on Section 3.1.1 of the EE&C Phase IV Plan, residential energy
6 efficiency programs comprise 32.5% of the plan cost, or \$31,751,650. Small/Medium
7 Commercial energy efficiency programs comprise 28.3% of the plan cost, or \$27,669,963.
8 Large Commercial energy efficiency programs comprise 27.3% of the plan cost, or
9 \$26,707,373. Finally, Large Industrial energy efficiency programs comprise 11.9% of the
10 plan cost, or \$11,600,775. In his direct testimony, Duquesne St. No. 2, Mr. Ogden
11 describes how the Company will ensure that the programs are funded by the customer
12 sector that benefits from the programs and measures offered in the Plan.

13

14 **Q. Does this conclude your testimony?**

15 A. Yes.

Duquesne Light Company Statement No. 2

**BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION**

**PETITION OF DUQUESNE LIGHT COMPANY
FOR APPROVAL OF ITS ENERGY EFFICIENCY AND CONSERVATION PLAN
PHASE IV**

Docket Nos. P-2020-_____
M-2020-_____

Direct Testimony

Witness: David B. Ogden

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I. INTRODUCTION

Q. Please state your full name and business address.

A. My name is David B. Ogden. My business address is 411 7th Avenue, Pittsburgh, PA 15219.

Q. By whom are you employed and in what capacity?

A. I am Manager, Rates & Tariff Services, for Duquesne Light Company (“Duquesne Light” or “Company”).

Q. What are your qualifications, work experience and educational background?

A. I received a Bachelor of Science in Business Administration Degree with a major in Accounting from Clarion University of Pennsylvania in 2001. I am a Certified Public Accountant. I began my career at the Company in 2008 as the Supervisor of Derivative Accounting and Special Projects. Over the last twelve years, I have held supervisory and managerial positions within Accounting, Financial Planning and Analysis and currently the Rates Department. Prior to joining Duquesne Light, I was a senior audit associate in the Pittsburgh office of PricewaterhouseCoopers LLP, a public accounting firm, where I performed attestation, advisory and compliance services for clients throughout the United States. Prior to joining PricewaterhouseCoopers, I held audit positions within the Allegheny County Controllers Office.

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Q. Please describe your current responsibilities.

A. In my current role as Manager of Rates and Tariff Services, I am responsible for overseeing the Company’s retail rates and wholesale transmission rates. In addition, it is my responsibility to ensure the rates are properly distributed to Customer Billing.

Q. Have you previously testified before the Pennsylvania Public Utility Commission (“Commission”) or other regulatory bodies?

A. Yes. I have testified in the Company’s Default Service Plan VIII (“DSP VIII”) proceeding at Docket No. P-2016-2543140, the Company’s Distribution System Improvement Charge (“DSIC”) proceeding at Docket No. P-2016-2540046, the Company’s 2018 base rate proceeding at Docket No. R-2018-3000124, and the Company’s Default Service Plan IX (“DSP IX”) proceeding at Docket No. P-2020-3019522.

Q. What is the purpose of your testimony?

A. The purpose of my testimony is three-fold. First, I will provide an overview of the Company’s current Energy Efficiency and Conservation (“EEC”) Phase III Plan Surcharge (“EEC Surcharge”). Second, I will describe the proposed changes to the EEC Surcharge to implement Duquesne Light’s proposed Phase IV EEC Plan. Third, I will summarize the costs that Duquesne Light anticipates it will recover through the EEC Surcharge to implement the Company’s Phase IV EEC Plan and provide an estimate of the surcharges for each customer group.

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Q. Are you sponsoring any exhibits?

- A. Yes. I am sponsoring the following exhibits:
- Exhibit DBO-1 – Proposed Tariff Supplement (Clean)
 - Exhibit DBO-2 – Proposed Tariff Supplement (Redline)
 - Exhibit DBO-3 – EEC Plan Cost for Planning Years 2021-2025
 - Exhibit DBO-4 – EEC Plan Surcharge Calculation Example
 - Exhibit DBO-5 – EEC Plan 1307e Reconciliation Excerpt

II. COST RECOVERY MECHANISM

Q. Does Act 129 provide guidance on how the costs of providing EEC programs are to be recovered by the Company?

A. Yes. Act 129 of 2008 (“Act”) permits electric distribution companies (“EDCs”) to fully recover the costs of implementing its EEC Plan. The Act permits affected EDCs to recover on a full and current basis from customers, through a reconcilable adjustment clause under 66 Pa. C.S. § 1307, (“Section 1307”), all reasonable and prudent costs incurred in the provision or management of its plan. 66 Pa. C.S. § 2806.1(k)(1).

Q. Please summarize the methodology used by Duquesne Light in the development of its EEC Phase I Surcharge.

A. The Act required that each EDC's plan include a Section 1307 cost-recovery tariff mechanism in its EEC Plan in order to fund all reasonable and prudent costs incurred in the provision and management of its EEC Plan. To that end, on July 1, 2009, the

Duquesne Light Company Statement No. 2

1 Company filed its Phase I EEC Plan with the Commission pursuant to the requirements
2 of Act 129. The EEC Plan proposed five surcharges to recover costs as close as
3 reasonably possible to the customer class receiving the benefit. The five surcharges
4 associated with the customer classes were: residential, small and medium commercial,
5 small and medium industrial, large commercial, and large industrial. The Company
6 designed the EEC Surcharge and reconciliation mechanism in a manner that recovered
7 the cost of the Phase I EEC Plan via a non-bypassable charge to all of the Company's
8 customers.

9
10 **Q. Please describe the Phase I Surcharge as approved by the Commission.**

11 A. Pursuant to the Commission's order entered October 27, 2009 at Docket No. M-2009-
12 2093217, Duquesne Light submitted a Compliance Filing on November 9, 2009
13 establishing Rider No. 15 in the Company's tariff, "Energy Efficiency and Conservation
14 and Demand Response Surcharge," effective December 1, 2009, that contained the five
15 surcharges described above. The residential, small and medium commercial, and small
16 and medium industrial surcharges were designed to recover costs on a cents per kilowatt-
17 hour ("kWh") basis; and the large commercial and large industrial surcharges were
18 designed to recover administrative costs through a fixed monthly charge and recover
19 incentive costs through a variable demand charge based on the customer's Peak Load
20 Contribution ("PLC").

21
22 **Q. Is the Phase I Surcharge currently in effect?**

Duquesne Light Company Statement No. 2

1 A. No. The Phase I Surcharge ended December 2014 and was completely reconciled
2 through May 31, 2015. The residual over collection was included in the e-factor
3 component of the Phase II rate that went into effect on September 1, 2015.
4

5 **Q. How does the Company assign customers to the commercial or industrial customer**
6 **classes stated in the EEC Surcharges?**

7 A. The commercial or industrial classification is based on the North American Industry
8 Classification System (“NAICS”) code or the Standard Industrial Classification (“SIC”) code
9 provided by the customer for their business. The small, medium and large
10 commercial and industrial (“C&I”) customer classifications are based on the customer’s
11 peak monthly metered demand. Small and medium C&I customers are those customers
12 with monthly metered demand less than 300 kW. Large C&I customers are those
13 customers with monthly metered demand 300 kW or more. This segmentation of
14 customers is appropriate because it aligns programs and program costs with the current
15 tariffed rates for distribution service. This segmentation has worked successfully in the
16 Company’s Phase I and II Plans and in the current EEC Phase III Plan.
17

18 **Q. Please describe the Phase II surcharge as approved by the Commission.**

19 A. On March 14, 2013 at Docket No. M-2012-2334399, the Commission issued an Opinion
20 and Order approving the Company’s EEC Phase II Plan. Duquesne Light submitted a
21 filing on April 2, 2013 establishing Rider No. 15a in the Company’s tariff, “Phase II
22 Energy Efficiency and Conservation Surcharge,” effective June 1, 2013. Having both a
23 Phase I and Phase II surcharge in the tariff ensured that expense recovery was kept

1 separate for each phase. The EEC Phase II Surcharge is essentially identical to the EEC
2 Phase I surcharge except for clarifying language to explain the reconciliation process at
3 the end of each Plan period.

4
5 **Q. Please describe the Phase III surcharge as approved by the Commission.**

6 A. On March 10, 2016 at Docket No. M-2015-2515375, the Commission issued an Opinion
7 and Order approving the Company's EEC Phase III Plan. Duquesne Light submitted a
8 filing on April 1, 2016 that updated Rider No. 15A in the Company's tariff, to reflect
9 "Phase III Energy Efficiency and Conservation Surcharge," effective June 1, 2016. The
10 EEC Phase III Surcharge was essentially identical to the EEC Phase II surcharge except
11 for clarifying language to explain the reconciliation process at the end of each Plan
12 period, as well as a detailed description of the allocation methodology that is used to
13 assign costs to the various customer classes.

14 Pursuant to the parties' settlement in Phase III, on November 15, 2019, the
15 Company filed *Duquesne Light Company – Revised Phase III Energy Efficiency and*
16 *Conservation Plan – Petition for Modification* within Docket M-2015-2515375. In its
17 Petition, Duquesne requested approval to modify its Phase III EEC Plan as well as Rider
18 No. 15A of its Retail Tariff. The Company specifically proposed to implement a single
19 EEC surcharge for its Small & Medium Commercial customers and its Small & Medium
20 Industrial customers, to go into effect on June 1, 2020. The Commission approved the
21 Company's Petition by Order entered March 12, 2020, and the Company implemented
22 the combined Small & Medium Commercial and Industrial Phase III EEC Surcharge on
23 June 1, 2020.

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Q. Please describe how the Company currently prepares its EEC Phase III Surcharge.

A. On or about May 1 of each year, the Company submits a filing to the Commission to reconcile and update the EEC Phase III Surcharge effective June 1 of that year. The Company uses the program budgets, approved by the Commission, for the Phase III EEC Plan year, June 1 to May 31. Costs are assigned to each customer class for cost recovery purposes to ensure the customer class that receives the benefits is the same customer class financing the programs. For the large commercial and large industrial classes, the budget is separated into administrative costs and incentive costs. The program budgets are then divided by the applicable billing determinants to derive per unit rates. The rates are then adjusted to recover Pennsylvania Gross Receipts Tax (“GRT”) and to establish final tariff rates.

Q. Does the EEC Phase III Surcharge include a reconciliation component?

A. Yes. The reconciliation period for Phase III is the twelve (12) months beginning April 1 of the previous year and ending March 31 of the current year. In the May 1 filing, the Company reconciles revenue collected through the EEC Surcharge for each customer class with the actual expenses incurred for that class in order to calculate an over or under recovery. The over or under collection amount, or “e-factor” is included in the derivation of the final EEC Surcharge for each class effective June 1 of each year. An over-collection is refunded through a positive e-factor and an under-collection is recovered through a negative e-factor. There is no interest on over or under collections.

Duquesne Light Company Statement No. 2

1 **Q. Does the EEC Phase III Surcharge apply to all customers in the customer class?**

2 A. Yes. The EEC Phase III Surcharge is a non-bypassable charge applicable to all
3 customers in the customer class regardless of whether they are being supplied as a default
4 service customer or by an electric generation supplier.

5
6 **Q. Does the Company recover lost revenues associated with the EEC programs in the
7 EEC Phase III Surcharge?**

8 A. No. In accordance with the Act, lost revenues due to reduced energy consumption or
9 changes in energy demand that result from the Company's Act 129 EEC programs are not
10 recoverable under the adjustment clause. EDCs may reflect reduced revenue and
11 consumption in the revenue and sales data to calculate proposed rates in a distribution
12 base rate proceeding under 66 Pa. C.S. § 1308. 66 Pa. C.S. §§ 2806.1(k)(2) - (3).

13
14 **Q. Has the Commission provided direction for cost recovery for Phase IV?**

15 A. Yes. The Commission's June 18, 2020 Implementation Order at Docket No. M-2020-
16 3015228, provides further guidance for the Phase IV EEC Plans.

17
18 **Q. Please explain the Commissions guidance for cost recovery in its Implementation
19 Order for Duquesne Light's Phase IV Plan.**

20 A. The cost provisions for the Phase IV Plan are similar to those for Phase III with a few
21 changes defined in the Phase IV Implementation Order. The Commission adopted a plan
22 regarding the transition from the cost recovery methodology utilized during Phase III,
23 ending May 31, 2021, to the cost recovery methodology to be utilized during Phase IV,

Duquesne Light Company Statement No. 2

1 beginning on June 1, 2021. Each EDC must reconcile its total actual recoverable EEC
2 Phase III Plan expenditures incurred through March 31, 2021, with its actual EEC Phase
3 III Plan revenues received through March 31, 2021. The net over or under recovered
4 amount shall be reflected as a separate line item of the e-factor calculation of the Phase
5 IV rates to become effective June 1, 2021. In addition, each EDC should include, as part
6 of the calculation of the Phase IV E-factor rates to become effective June 1, 2021, as
7 clearly identified separate line items, projections of the: expenses to finalize any
8 measures installed and commercially operable on or before May 31, 2021 (i.e., in April
9 2021 and May 2021); expenses to finalize any contracts; and other Phase III
10 administrative obligations. The Phase III rate that became effective June 1, 2020 will
11 remain effective through May 31, 2021. The reconciliation period for Phase IV will
12 continue to run from April 1 to March 31 of a given plan year. This reconciliation will
13 reconcile actual expenses incurred with actual revenues received in order to calculate an
14 over or under recovery. Per the Implementation Order, no interest will be charged on
15 over or under recoveries.

16
17 **Q. Please explain the cost recovery changes that were defined in the Phase IV**
18 **Implementation Order.**

19 A. Section B.2 of the Phase IV Implementation Order directs EDCs to nominate a portion of
20 the expected peak demand savings in its Phase IV EEC Plans into PJM's Forward
21 Capacity Market ("FCM"). The Commission further directed EDCs to reflect the
22 proceeds from resources that clear in the PJM FCM to be used to reduce Act 129
23 surcharges and collections from the customer classes from which the savings were

Duquesne Light Company Statement No. 2

1 acquired, via the reconciliation for over or under collections. Resources that clear in the
2 FCM are subject to deficiency charges from PJM. The Commission concluded that any
3 such PJM deficiency charges be handled symmetrically with FCM proceeds and be borne
4 by the relevant customer class. As such, cost recovery from the customer class providing
5 the capacity will be adjusted to reflect the proceeds or penalties from this activity. For
6 transparency purposes, the 1307(e) reconciliation statement will clearly identify PJM
7 FCM proceeds as cost reductions and PJM FCM penalties as cost increases.

8
9 **Q. Will the Company be responsible for nominating a portion of the planned peak**
10 **demand reduction from the Company's Phase IV EEC Plan into PJM's FCM?**

11 A. Yes. As Company witness David Defide discusses in his testimony, DLC St. No. 1, the
12 Company plans to nominate a portion of the expected peak demand savings in the Phase
13 IV EEC Plans into PJM's FCM. The Company is currently predicting that its first
14 opportunity to nominate a portion of the expected peak demand savings will be in the
15 2025/2026 PJM capacity auction.

16
17 **Q. How will the Company ensure that the FCM proceeds or penalties are borne by the**
18 **relevant customer class?**

19 A. The Company is proposing to create separate PJM billing subaccounts for each applicable
20 EEC customer class (i.e. residential, small and medium commercial & industrial, large
21 commercial, and large industrial). Individual PJM billing subaccounts will help ensure
22 that resources that clear in the PJM FCM are bifurcated, and tracked separately so that
23 any applicable proceeds and/or penalties are captured by the relevant customer class.

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Q. How will the Company ensure that the cost recovery from the customer class providing the capacity will be adjusted to reflect the proceeds or penalties from this activity?

A. For transparency purposes, the Company is proposing to modify its 1307(e) reconciliation statement to clearly identify PJM FCM proceeds as cost reductions and PJM FCM penalties as cost increases. The Company proposes to reflect the PJM FCM proceeds and/or penalties as a customer class expense adjustment in the over or under collection calculation with the 1307(e) reconciliation.

Q. Has the Company prepared an illustrative exhibit that shows the inclusion of the PJM FCM proceeds/penalties in the Company’s Rider No. 15A - EEC Surcharge 1307(e) reconciliation?

A. Yes. Exhibit DBO-5 is an illustrative example showing the inclusion of the PJM FCM proceeds/penalties as red-line modifications to the Rider No. 15A 1307(e) reconciliation.

Q. Is the Company proposing to implement a new EEC Surcharge to accommodate its Phase IV EEC Plan?

A. No. The Company is proposing to continue to use its current EEC Phase III Surcharge to recover the costs remaining for Phase III and recovery of its Phase IV EEC Plan costs in accordance with the Implementation Order. Any Phase III costs that remain through the end of Phase III on March 31, 2021 will be included and reconciled separately as separate

1 line items in the April 1, 2021 through March 31, 2022 reconciliation period for Phase
2 IV.

3
4 **Q. Have you prepared any exhibits showing the proposed change to the EEC Phase IV**
5 **Surcharge to reflect this change?**

6 A. Yes. Exhibit DBO-1 is a clean version of the proposed tariff supplement and Exhibit
7 DBO-2 is a redline version of the proposed tariff supplement showing these changes.

8
9 **III. EEC PLAN SURCHARGE CALCULATION**

10 **Q. Has the Company established program costs by customer class for its proposed EEC**
11 **Phase IV Plan?**

12 A. Yes. Exhibit DBO-3 shows the estimated annual EEC Phase IV Plan costs for each
13 program for 2021 to 2026. This exhibit is based on the program costs defined in the
14 Company's EEC Plan and includes the costs for energy efficiency programs, program
15 administration, and program incentives. Additional cost detail for customer class
16 assignment and assignment of administrative costs is provided in the EEC Phase IV Plan
17 and testimony of Duquesne Light's witness David Defide.

18
19 **Q. Do the customer class costs in Exhibit DBO-3 include excess costs from current**
20 **Phase III EEC programs?**

21 A. No. The costs shown in Exhibit DBO-3 are for the Phase IV EEC Plan only.

22
23 **Q. Do the customer class costs in Exhibit DBO-3 include capital costs?**

Duquesne Light Company Statement No. 2

1 A. No. The costs shown in Exhibit DBO-3 are 100% expense.

2

3 **Q. Do the customer class costs in Exhibit DBO-3 include the cost of the Statewide**
4 **Evaluator?**

5 A. No. Once actual costs are known for the Statewide Evaluator (“SWE”), the Company
6 will allocate the SWE costs to each customer class based on the forecast sales (kWh) for
7 that customer class.

8

9 **Q. How long does the Company propose to keep the EEC Surcharge in effect?**

10 A. The EEC Surcharge will remain in effect until the final reconciliation statement is
11 approved and all charges are fully recovered or refunded or until otherwise directed by
12 the Commission.

13

14 **Q. Have you prepared an exhibit showing the estimated customer class surcharges**
15 **using these proposed costs?**

16 A. Yes. Exhibit DBO-4 provides an illustrative calculation of what the surcharges for each
17 customer class would be for the June 2021 to May 2022 Phase IV EEC Plan year at the
18 estimated annual costs in Exhibit DBO-3. The estimated surcharges are calculated using
19 the forecast cost divided by the forecast billing determinants adjusted for GRT. The
20 actual surcharges will differ due to final program costs and the Phase III E-factor
21 adjustment for the period June 1, 2021 through March 31, 2022.

22

23 **Q. Does that conclude your direct testimony?**

Duquesne Light Company Statement No. 2

1 A. Yes.

SUPPLEMENT NO. XX
TO ELECTRIC – PA. P.U.C. NO. 25



SCHEDULE OF RATES

For Electric Service in Allegheny and Beaver Counties

(For List of Communities Served, see Pages No. 4 and 5)

Issued By

DUQUESNE LIGHT COMPANY

411 Seventh Avenue
Pittsburgh, PA 15219

Steven E. Malnight
President and Chief Executive Officer

ISSUED: Xxxxxxxx XX, XXXX

EFFECTIVE: Xxxxxxxx XX, XXXX

Issued in compliance with the
Commission's Orders entered June 18, 2020, at Docket No. M-2020-3015228
and entered Xxxx XX, 20XX, at Docket No. M-20XX-XXXXXXX.

NOTICE

**THIS TARIFF SUPPLEMENT REVISES LANGUAGE IN THE
TABLE OF CONTENTS, RIDER MATRIX AND AN EXISTING RIDER**

See Page Two

LIST OF MODIFICATIONS MADE BY THIS TARIFF

CHANGE

Table of Contents

**Second Revised Page No. 3
 Cancelling First Revised Page No. 3**

Rider Matrix

**First Revised Page No. 87
 Cancelling Original Page No. 87**

Rider No. 15A – Phase III Energy Efficiency and Conservation Surcharge has been renamed “Rider No. 15A - Phase IV Energy Efficiency and Conservation Surcharge” in accordance with the provisions of the Order entered June 18, 2020, at Docket No. M-2020-3015228, Page No. 142, and, therefore, is being renamed in the *Table of Contents* and the *Rider Matrix*.

**Rider No. 15A – Phase IV Energy Efficiency and Conservation Surcharge Second Revised Page No. 118
 Cancelling Third Revised Page No. 118**

**First Revised Page No. 119
 Cancelling Original Page No. 119**

**First Revised Page No. 120
 Cancelling Original Page No. 120**

**First Revised Page No. 121
 Cancelling Original Page No. 121**

**First Revised Page No. 122
 Cancelling Original Page No. 122**

Rider No. 15A has been renamed “Rider No. 15A - Phase IV Energy Efficiency and Conservation Surcharge” in accordance with the provisions of the Order entered June 18, 2020, at Docket No. M-2020-3015228, Page No. 142.

Language in Rider No. 15A - Phase IV Energy Efficiency and Conservation Surcharge has been revised to comply with the provisions of the Order entered June 18, 2020, at Docket No. M-2020-3015228.

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STANDARD CONTRACT RIDERS – (Continued)

RIDER MATRIX

	RS	RH	RA	GS/GM	GMH	GL	GLH	L	HVPS	AL	SE	SM	SH	UMS	PAL
Rider No. 1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Rider No. 2				X	X	X	X								
Rider No. 3				X	X	X	X	X							
Rider No. 4															
Rider No. 5	X	X	X												
Rider No. 6				X											
Rider No. 7															
Rider No. 8	X	X	X	X	X					X	X	X	X	X	X
Rider No. 9				X	X	X	X	X	X						
Rider No. 10	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Rider No. 11				X		X									
Rider No. 12				X	X										
Rider No. 13				X											
Rider No. 14	X														
Rider No. 15															
Rider No. 15A	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Rider No. 16				X	X	X	X	X							
Rider No. 17						X	X	X	X						
Rider No. 18	X	X	X	X	X	X	X								
Rider No. 19															
Rider No. 20	X	X	X	X	X	X	X	X	X	X					
Rider No. 21	X	X	X	X	X	X									
Rider No. 22	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Appendix A	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

Rider Titles:

- Rider No. 1 — Retail Market Enhancement Surcharge
- Rider No. 2 — Untransformed Service
- Rider No. 3 — School and Government Service Discount Period
- Rider No. 4 — Intentionally Left Blank
- Rider No. 5 — Universal Service Charge
- Rider No. 6 — Temporary Service
- Rider No. 7 — Intentionally Left Blank
- Rider No. 8 — Default Service Supply
- Rider No. 9 — Day-Ahead Hourly Price Service
- Rider No. 10 — State Tax Adjustment
- Rider No. 11 — Street Railway Service
- Rider No. 12 — Billing Option – Volunteer Fire Companies and Nonprofit Senior Citizen Centers
- Rider No. 13 — General Service Separately Metered Electric Space Heating Service
- Rider No. 14 — Residential Service Separately Metered Electric Space and Water Heating
- Rider No. 15 — Intentionally Left Blank
- Rider No. 15A — Phase IV Energy Efficiency and Conservation Surcharge
- Rider No. 16 — Service to Non-Utility Generating Facilities
- Rider No. 17 — Emergency Energy Conservation
- Rider No. 18 — Rates for Purchase of Electric Energy from Customer-Owned Renewable Resources Generating Facilities
- Rider No. 19 — Intentionally Left Blank
- Rider No. 20 — Smart Meter Charge
- Rider No. 21 — Net Metering Service
- Rider No. 22 — Distribution System Improvement Charge (“DSIC”)
- Appendix A — Transmission Service Charges

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ISSUED: XXXXXXXX XX, XXXX

EFFECTIVE: XXXXXXXX XX, XXXX

STANDARD CONTRACT RIDERS - (Continued)

RIDER NO. 15A – PHASE IV ENERGY EFFICIENCY AND CONSERVATION SURCHARGE

(C)

(Applicable to all Rates)

The Phase IV Energy Efficiency and Conservation Surcharge (“EEC IV”) is instituted as a cost recovery mechanism to recover the costs associated with implementing Phase IV of the Company’s Energy Efficiency and Conservation Plan in effect from June 1, 2021, through May 31, 2026. Act 129 of 2008 became law on October 15, 2008, requiring the Pennsylvania Public Utility Commission (“Commission”) to develop an Energy Efficiency and Conservation Program applicable to electric distribution companies (“EDCs”) with at least 100,000 customers. This EEC IV is implemented in compliance with Docket No. M-2020-3015228 renaming the current Rider No. 15A – Phase III Energy Efficiency and Conservation Surcharge. The EEC IV is a non-bypassable Surcharge and shall be applied to all customers’ bills.

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RATES

Monthly Surcharge

Customer Class	Applicable Tariff Rate Schedule	¢/kWh	Fixed Charge \$/Month	\$/kW⁽¹⁾
Residential	RS, RH, RA	X.XX		
Small & Medium Commercial and Industrial	GS, GM & GMH	X.XX		
Large Commercial	GL, GLH, L		\$XXX.XX	\$X.XX
Large Industrial	GL, GLH, L, HVPS		\$X,XXX.XX	\$X.XX
Lighting	AL, SE, SM, SH, PAL	X.XX		
Unmetered	UMS	X.XX		

⁽¹⁾Monthly Surcharge applicable to the customer’s Peak Load Contribution.

CALCULATION OF SURCHARGE

The rate, calculated independently for each customer class in this Tariff, shall be applied to all customers served under the Tariff. The rate shall be determined in accordance with the formulas set forth below and shall be applied to all customers served during any part of a billing month:

RESIDENTIAL CUSTOMER CLASS

$$EEC (r) = [((B - e) / S) * 100] * [(1 / (1 - T))]$$

Where: **EEC (r)** = The Energy Efficiency and Conservation Surcharge (residential) in one-hundredth of a cent which shall be added to the distribution rates for billing purposes for all residential customers.

(C) – Indicates Change

STANDARD CONTRACT RIDERS - (Continued)**RIDER NO. 15A – PHASE IV ENERGY EFFICIENCY AND CONSERVATION SURCHARGE – (Continued)** (C)

(Applicable to all Rates)

CALCULATION OF SURCHARGE – (Continued)**RESIDENTIAL CUSTOMER CLASS – (Continued)**

- B =** The projected costs of the EEC (r) Plan applicable to the residential customer class for the planning year June 1 through May 31.
- e =** The over or under recovery for the reconciliation year. The reconciliation year shall be the twelve (12) months ended March 31.
- S =** Projected distribution sales in kWh for the residential customer class for the planning year.
- T =** The Pennsylvania Gross Receipts Tax in effect during the billing month, expressed in decimal form.

SMALL AND MEDIUM COMMERCIAL & INDUSTRIAL, LIGHTING AND UNMETERED CUSTOMER CLASSES

$$EEC (s) = [((B - e) / S) * 100] * [(1 / (1 - T))]$$

- Where: **EEC (s)** = The Energy Efficiency and Conservation Surcharge (small commercial & industrial) in one-hundredth of a cent. This Surcharge shall be a separate line item for billing purposes for all small and medium C&I customers.
- B =** The projected costs of the EEC (s) Plan applicable to the small and medium C&I customer class for the planning year June 1 through May 31.
- e =** The over or under recovery for the reconciliation year. The reconciliation year shall be the twelve (12) months ended March 31.
- S =** Projected distribution sales in kWh for the small and medium C&I customer class for the planning year.
- T =** The Pennsylvania Gross Receipts Tax in effect during the billing month, expressed in decimal form.

STANDARD CONTRACT RIDERS - (Continued)**RIDER NO. 15A – PHASE IV ENERGY EFFICIENCY AND CONSERVATION SURCHARGE — Continued****(C)****(Applicable to all Rates)****CALCULATION OF SURCHARGE – (Continued)****LARGE COMMERCIAL & INDUSTRIAL CUSTOMER CLASSES**

$$\text{EEC (I) (Fixed)} = [(B_A - e_A) / C] * [(1 / (1 - T))]$$

$$\text{EEC (I) (Demand)} = [(B_i - e_i) / L] * [(1 / (1 - T))]$$

Where: **EEC (I)** = The Energy Efficiency and Conservation Surcharge (large commercial & industrial) is a two-part Surcharge. EEC (I) (Fixed) is a monthly fixed Surcharge designed to recover projected program administrative costs and EEC (I) (Demand) is a monthly demand Surcharge designed to recover projected program incentive costs. Combined, the two components are designed to recover the total projected program costs. This Surcharge shall be shown separately for billing purposes for all large C&I customers.

B = The projected costs of the EEC (I) Plan applicable to the large C&I customer class for the planning year June 1 through May 31. B_A is the projected administrative costs applicable to each customer class and B_i is the projected incentive costs applicable to each customer class.

e = The over or under recovery for the reconciliation year. e_A is the over or under recovery of program administrative costs for the reconciliation year. e_i is the over or under recovery of program incentive costs for the reconciliation year. The reconciliation year shall be the twelve (12) months ended March 31.

C = Projected distribution customers for the planning year.

L = Projected Peak Load Contribution (PLC) in kilowatts (kW) for the large C&I customer class for the planning year.

T = The Pennsylvania Gross Receipts Tax in effect during the billing month, expressed in decimal form.

ANNUAL UPDATE

The Surcharges defined herein will be updated effective June 1 of each year. On or about May 1 of the filing year, the Company will file revised EEC IV rates with the Commission defining rates in effect from June 1 to May 31 of the following year. The reconciliation year shall be the twelve (12) months beginning April 1 of the previous year and ending March 31 of the current year. The rates for EEC (r) and EEC (s) shall be determined based on the projected costs and sales for the planning year and the over or under collection of expenses based on actual EEC (r) and EEC (s) revenue and expense incurred for the reconciliation year.

(C)**(C) – Indicates Change**

ISSUED: XXXXXXXX XX, XXXX

EFFECTIVE: XXXXXXXX XX, XXXX

STANDARD CONTRACT RIDERS - (Continued)

RIDER NO. 15A – PHASE IV ENERGY EFFICIENCY AND CONSERVATION SURCHARGE — Continued (C)

(Applicable to all Rates)

ANNUAL UPDATE – (Continued)

The rates for EEC (I) shall be determined based on the projected costs and the projected Peak Load Contribution for the planning year and the over or under collection of expenses based on actual EEC (I) revenue and expense incurred for the reconciliation year. In accordance with 66 Pa. C.S. § 1307(e), a reconciliation statement filing will be made with the Commission by April 30 of each year. A final reconciliation statement will be filed with the Commission within thirty (30) days after the completion of the final over or under collection refund/recovery period.

Upon determination that any EEC IV, if left unchanged, would result in material over- or under-collection of costs incurred or expected to be incurred during the twelve (12) month period ending March 31, the Company may request that the Commission authorize interim revisions to the EEC IV to become effective upon no less than ten (10) days' notice from the date of filing upon Commission approval. (C)

MISCELLANEOUS

Rider No. 10 – State Tax Adjustment Surcharge (STAS) shall be applicable to the Surcharges defined in this Rider.

The EEC IV shall be subject to review and audit by the Commission. (C)

There shall be no interest applicable to over or under collections for the reconciliation period.

Customer class programs are designed to achieve reduction mandates in a cost effective manner using developed delivery channels. The projected program costs for the Residential, Small and Medium C&I and Large C&I customer classes are developed in proportion to their approximate annual energy consumption. Projected program costs are first directly assigned to customer classes based on eligibility and those costs applicable to more than one class are allocated according to their electric loads and history of program participation. Actual program costs will be assigned to customer classes based on customer class program participation. Non-direct program administrative costs are allocated to programs based on projected energy savings for the programs in that customer class. The Company will only recover actual program costs for each customer class based on customer participation in each program.

In compliance with Commission Order at M-2020-3015228, the EEC IV effective June 1, 2021, will include a reconciliation component for the Energy Efficiency and Conservation Phase III program costs, ending March 31, 2021. The total actual recoverable EEC Phase III Plan expenditures incurred for the twelve (12) months ended March 31, 2021, will be reconciled with actual EEC Phase III Plan revenues received for the twelve (12) months ended March 31, 2021. The net over- or under-recovered amount shall be reflected as a separate line item, without interest, as an E-factor adjustment of the EEC Phase IV rates effective June 1, 2021. In addition, as a separate line item, the Phase IV rates effective June 1, 2021, shall include projections of the: expenses to finalize any measures installed and commercially operable on or before May 31, 2021; expenses to finalize any contracts; and other Phase III administrative obligations. The reconciliation of actual Phase III expenses with actual EEC Phase III surcharge revenue for April and May 2021 shall be reconciled with EEC Phase IV revenue and expense for the twelve (12) months ending March 31, 2022. (C)

(C) – Indicates Change

STANDARD CONTRACT RIDERS - (Continued)

RIDER NO. 15A – PHASE IV ENERGY EFFICIENCY AND CONSERVATION SURCHARGE — Continued (C)

(Applicable to all Rates)

MISCELLANEOUS – (Continued)

In order to facilitate the termination of this Rider, the Company may propose a rate adjustment to become effective on no less than ten (10) days' notice to achieve a zero (-0-) balance at calendar year end. This interim filing will adjust the E-factor in effect June 1, 2026, for reconciliation of actual revenue and expense in April and May 2026. (C)

This Rider will remain in effect until the final reconciliation statement is approved and all charges are fully recovered or refunded or until otherwise directed by the Commission.

SUPPLEMENT NO. 44XX
TO ELECTRIC – PA. P.U.C. NO. 25



SCHEDULE OF RATES

For Electric Service in Allegheny and Beaver Counties

(For List of Communities Served, see Pages No. 4 and 5)

Issued By

DUQUESNE LIGHT COMPANY

411 Seventh Avenue
Pittsburgh, PA 15219

Steven E. Malnight
President and Chief Executive Officer

ISSUED: Xxxxxxxxx XX, XXXX

EFFECTIVE: Xxxxxxxxx XX, XXXX

Issued in compliance with the
Commission's Orders entered June 18, 2020, at Docket No. M-2020-3015228
and entered Xxxxx XX, 20XX, at Docket No. M-20XX-XXXXXXX.

NOTICE

THIS TARIFF SUPPLEMENT REVISES LANGUAGE IN THE
TABLE OF CONTENTS, RIDER MATRIX AND AN EXISTING RIDER

See Page Two

LIST OF MODIFICATIONS MADE BY THIS TARIFF

CHANGE

Table of Contents Second Revised Page No. 3
Cancelling First Revised Page No. 3

Rider Matrix First Revised Page No. 87
Cancelling Original Page No. 87

Rider No. 15A – Phase III Energy Efficiency and Conservation Surcharge has been renamed “Rider No. 15A - Phase IV Energy Efficiency and Conservation Surcharge” in accordance with the provisions of the Order entered June 18, 2020, at Docket No. M-2020-3015228, Page No. 142, and, therefore, is being renamed in the *Table of Contents* and the *Rider Matrix*.

Rider No. 15A – Phase IV Energy Efficiency and Conservation Surcharge Second Revised Page No. 118
Cancelling Third Revised Page No. 118

First Revised Page No. 119
Cancelling Original Page No. 119

First Revised Page No. 120
Cancelling Original Page No. 120

First Revised Page No. 121
Cancelling Original Page No. 121

First Revised Page No. 122
Cancelling Original Page No. 122

Rider No. 15A has been renamed “Rider No. 15A - Phase IV Energy Efficiency and Conservation Surcharge” in accordance with the provisions of the Order entered June 18, 2020, at Docket No. M-2020-3015228, Page No. 142.

Language in Rider No. 15A - Phase IV Energy Efficiency and Conservation Surcharge has been revised to comply with the provisions of the Order entered June 18, 2020, at Docket No. M-2020-3015228.

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STANDARD CONTRACT RIDERS – (Continued)

RIDER MATRIX

	RS	RH	RA	GS/GM	GMH	GL	GLH	L	HVPS	AL	SE	SM	SH	UMS	PAL
Rider No. 1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Rider No. 2				X	X	X	X								
Rider No. 3				X	X	X	X	X							
Rider No. 4															
Rider No. 5	X	X	X												
Rider No. 6				X											
Rider No. 7															
Rider No. 8	X	X	X	X	X					X	X	X	X	X	X
Rider No. 9				X	X	X	X	X	X						
Rider No. 10	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Rider No. 11				X		X									
Rider No. 12				X	X										
Rider No. 13				X											
Rider No. 14	X														
Rider No. 15															
Rider No. 15A	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Rider No. 16				X	X	X	X	X							
Rider No. 17						X	X	X	X						
Rider No. 18	X	X	X	X	X	X	X								
Rider No. 19															
Rider No. 20	X	X	X	X	X	X	X	X	X	X					
Rider No. 21	X	X	X	X	X	X									
Rider No. 22	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Appendix A	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

Rider Titles:

- Rider No. 1 — Retail Market Enhancement Surcharge
- Rider No. 2 — Untransformed Service
- Rider No. 3 — School and Government Service Discount Period
- Rider No. 4 — Intentionally Left Blank
- Rider No. 5 — Universal Service Charge
- Rider No. 6 — Temporary Service
- Rider No. 7 — Intentionally Left Blank
- Rider No. 8 — Default Service Supply
- Rider No. 9 — Day-Ahead Hourly Price Service
- Rider No. 10 — State Tax Adjustment
- Rider No. 11 — Street Railway Service
- Rider No. 12 — Billing Option – Volunteer Fire Companies and Nonprofit Senior Citizen Centers
- Rider No. 13 — General Service Separately Metered Electric Space Heating Service
- Rider No. 14 — Residential Service Separately Metered Electric Space and Water Heating
- Rider No. 15 — Intentionally Left Blank
- Rider No. 15A — Phase ~~III~~IV Energy Efficiency and Conservation Surcharge
- Rider No. 16 — Service to Non-Utility Generating Facilities
- Rider No. 17 — Emergency Energy Conservation
- Rider No. 18 — Rates for Purchase of Electric Energy from Customer-Owned Renewable Resources Generating Facilities
- Rider No. 19 — Intentionally Left Blank
- Rider No. 20 — Smart Meter Charge
- Rider No. 21 — Net Metering Service
- Rider No. 22 — Distribution System Improvement Charge (“DSIC”)
- Appendix A — Transmission Service Charges

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ISSUED: XXXXXXXX XX, XXXX

EFFECTIVE: XXXXXXXX XX, XXXX

STANDARD CONTRACT RIDERS - (Continued)

RIDER NO. 15A – PHASE ~~III-IV~~ ENERGY EFFICIENCY AND CONSERVATION SURCHARGE

(C)

(Applicable to all Rates)

The Phase ~~III-IV~~ Energy Efficiency and Conservation Surcharge (“EEC ~~III-IV~~”) is instituted as a cost recovery mechanism to recover the costs associated with implementing Phase ~~III-IV~~ of the Company’s Energy Efficiency and Conservation Plan in effect from June 1, ~~2016~~2021, through May 31, ~~2021~~2026. Act 129 of 2008 became law on October 15, 2008, requiring the Pennsylvania Public Utility Commission (“Commission”) to develop an Energy Efficiency and Conservation Program applicable to electric distribution companies (“EDCs”) with at least 100,000 customers. This EEC ~~III-IV~~ is implemented in compliance with Docket No. ~~M-2014-2424864~~M-2020-3015228 renaming the current Rider No. 15A – Phase ~~III-IV~~ Energy Efficiency and Conservation Surcharge. The EEC ~~III-IV~~ is a non-bypassable Surcharge and shall be applied to all customers’ bills.

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RATES

Monthly Surcharge

Customer Class	Applicable Tariff Rate Schedule	¢/kWh	Fixed Charge \$/Month	\$/kW ⁽¹⁾
Residential	RS, RH, RA	0.15 X.XX		
Small & Medium Commercial and Industrial	GS, GM & GMH	0.13 X.XX		
Large Commercial	GL, GLH, L		\$216.04 \$XXX.XX	\$0.27 \$X.XX
Large Industrial	GL, GLH, L, HVPS		\$1,053.86 \$X,XXX.XX	\$0.40 \$X.XX
Lighting	AL, SE, SM, SH, PAL	0.00 X.XX		
Unmetered	UMS	0.00 X.XX		

⁽¹⁾Monthly Surcharge applicable to the customer’s Peak Load Contribution.

CALCULATION OF SURCHARGE

The rate, calculated independently for each customer class in this Tariff, shall be applied to all customers served under the Tariff. The rate shall be determined in accordance with the formulas set forth below and shall be applied to all customers served during any part of a billing month:

RESIDENTIAL CUSTOMER CLASS

$$EEC (r) = [((B - e) / S) * 100] * [(1 / (1 - T))]$$

Where: **EEC (r)** = The Energy Efficiency and Conservation Surcharge (residential) in one-hundredth of a cent which shall be added to the distribution rates for billing purposes for all residential customers.

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ISSUED: ~~XXXXXXXX XX, XXXX~~

EFFECTIVE: ~~XXXXXXXX XX, XXXX~~

STANDARD CONTRACT RIDERS - (Continued)

RIDER NO. 15A – PHASE ~~III~~IV ENERGY EFFICIENCY AND CONSERVATION SURCHARGE – (Continued)

(C)

(Applicable to all Rates)

CALCULATION OF SURCHARGE – (Continued)

RESIDENTIAL CUSTOMER CLASS – (Continued)

- B =** The projected costs of the EEC (r) Plan applicable to the residential customer class for the planning year June 1 through May 31.
- e =** The over or under recovery for the reconciliation year. The reconciliation year shall be the twelve (12) months ended March 31.
- S =** Projected distribution sales in kWh for the residential customer class for the planning year.
- T =** The Pennsylvania Gross Receipts Tax in effect during the billing month, expressed in decimal form.

SMALL AND MEDIUM COMMERCIAL & INDUSTRIAL, LIGHTING AND UNMETERED CUSTOMER CLASSES

$$EEC (s) = [((B - e) / S) * 100] * [(1 / (1 - T))]$$

- Where: **EEC (s)** = The Energy Efficiency and Conservation Surcharge (small commercial & industrial) in one-hundredth of a cent. This Surcharge shall be a separate line item for billing purposes for all small and medium C&I customers.
- B =** The projected costs of the EEC (s) Plan applicable to the small and medium C&I customer class for the planning year June 1 through May 31.
- e =** The over or under recovery for the reconciliation year. The reconciliation year shall be the twelve (12) months ended March 31.
- S =** Projected distribution sales in kWh for the small and medium C&I customer class for the planning year.
- T =** The Pennsylvania Gross Receipts Tax in effect during the billing month, expressed in decimal form.

(C) – Indicates Change

ISSUED: XXXXXXXX XX, XXXX

EFFECTIVE: XXXXXXXX XX, XXXX

STANDARD CONTRACT RIDERS - (Continued)

RIDER NO. 15A – PHASE ~~III~~IV ENERGY EFFICIENCY AND CONSERVATION SURCHARGE — Continued

(C)

(Applicable to all Rates)

CALCULATION OF SURCHARGE – (Continued)

LARGE COMMERCIAL & INDUSTRIAL CUSTOMER CLASSES

$$\text{EEC (I) (Fixed)} = [(B_A - e_A) / C] * [(1 / (1 - T))]$$

$$\text{EEC (I) (Demand)} = [(B_i - e_i) / L] * [(1 / (1 - T))]$$

Where: **EEC (I)** = The Energy Efficiency and Conservation Surcharge (large commercial & industrial) is a two-part Surcharge. EEC (I) (Fixed) is a monthly fixed Surcharge designed to recover projected program administrative costs and EEC (I) (Demand) is a monthly demand Surcharge designed to recover projected program incentive costs. Combined, the two components are designed to recover the total projected program costs. This Surcharge shall be shown separately for billing purposes for all large C&I customers.

B = The projected costs of the EEC (I) Plan applicable to the large C&I customer class for the planning year June 1 through May 31. B_A is the projected administrative costs applicable to each customer class and B_i is the projected incentive costs applicable to each customer class.

e = The over or under recovery for the reconciliation year. e_A is the over or under recovery of program administrative costs for the reconciliation year. e_i is the over or under recovery of program incentive costs for the reconciliation year. The reconciliation year shall be the twelve (12) months ended March 31.

C = Projected distribution customers for the planning year.

L = Projected Peak Load Contribution (PLC) in kilowatts (kW) for the large C&I customer class for the planning year.

T = The Pennsylvania Gross Receipts Tax in effect during the billing month, expressed in decimal form.

ANNUAL UPDATE

The Surcharges defined herein will be updated effective June 1 of each year. On or about May 1 of the filing year, the Company will file revised EEC ~~III~~IV rates with the Commission defining rates in effect from June 1 to May 31 of the following year. The reconciliation year shall be the twelve (12) months beginning April 1 of the previous year and ending March 31 of the current year. The rates for EEC (r) and EEC (s) shall be determined based on the projected costs and sales for the planning year and the over or under collection of expenses based on actual EEC (r) and EEC (s) revenue and expense incurred for the reconciliation year.

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ISSUED: XXXXXXXX XX, XXXX

EFFECTIVE: XXXXXXXX XX, XXXX

STANDARD CONTRACT RIDERS - (Continued)

RIDER NO. 15A – PHASE ~~III~~ IV ENERGY EFFICIENCY AND CONSERVATION SURCHARGE — Continued

(C)

(Applicable to all Rates)

ANNUAL UPDATE – (Continued)

The rates for EEC (I) shall be determined based on the projected costs and the projected Peak Load Contribution for the planning year and the over or under collection of expenses based on actual EEC (I) revenue and expense incurred for the reconciliation year. In accordance with 66 Pa. C.S. § 1307(e), a reconciliation statement filing will be made with the Commission by April 30 of each year. A final reconciliation statement will be filed with the Commission within thirty (30) days after the completion of the final over or under collection refund/recovery period.

Upon determination that any EEC ~~III~~ IV, if left unchanged, would result in material over- or under-collection of costs incurred or expected to be incurred during the twelve (12) month period ending March 31, the Company may request that the Commission authorize interim revisions to the EEC ~~III~~ IV to become effective upon no less than ten (10) days' notice from the date of filing upon Commission approval.

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MISCELLANEOUS

Rider No. 10 – State Tax Adjustment Surcharge (STAS) shall be applicable to the Surcharges defined in this Rider.

The EEC ~~III~~ IV shall be subject to review and audit by the Commission.

(C)

There shall be no interest applicable to over or under collections for the reconciliation period.

Customer class programs are designed to achieve reduction mandates in a cost effective manner using developed delivery channels. The projected program costs for the Residential, Small and Medium C&I and Large C&I customer classes are developed in proportion to their approximate annual energy consumption. Projected program costs are first directly assigned to customer classes based on eligibility and those costs applicable to more than one class are allocated according to their electric loads and history of program participation. Actual program costs will be assigned to customer classes based on customer class program participation. Non-direct program administrative costs are allocated to programs based on projected energy savings for the programs in that customer class. The Company will only recover actual program costs for each customer class based on customer participation in each program.

In compliance with Commission Order at ~~M-2014-2424864~~ M-2020-3015228, the EEC ~~III~~ IV effective June 1, ~~2016~~ 2021, will include a reconciliation component for the Energy Efficiency and Conservation Phase ~~II~~ III program costs, ending March 31, ~~2016~~ 2021. The total actual recoverable EEC Phase ~~II~~ III Plan expenditures incurred for the ~~ten (10)~~ twelve (12) months ended March 31, ~~2016~~ 2021, will be reconciled with actual EEC Phase ~~II~~ III Plan revenues received for the ~~ten (10)~~ twelve (12) months ended March 31, ~~2016~~ 2021. The net over- or under-recovered amount shall be reflected as a separate line item, without interest, as an E-factor adjustment of the EEC Phase ~~III~~ IV rates effective June 1, ~~2016~~ 2021. In addition, as a separate line item, the Phase ~~III~~ IV rates effective June 1, ~~2016~~ 2021, shall include projections of the: expenses to finalize any measures installed and commercially operable on or before May 31, ~~2016~~ 2021; expenses to finalize any contracts; and other Phase ~~II~~ III administrative obligations. The reconciliation of actual Phase ~~II~~ III expenses with actual EEC Phase ~~II~~ III surcharge revenue for April and May ~~2016~~ 2021 shall be reconciled with EEC Phase ~~III~~ IV revenue and expense for the twelve (12) months ending March 31, ~~2017~~ 2022.

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ISSUED: XXXXXXXX XX, XXXX

EFFECTIVE: XXXXXXXX XX, XXXX

STANDARD CONTRACT RIDERS - (Continued)

RIDER NO. 15A – PHASE ~~III~~ IV ENERGY EFFICIENCY AND CONSERVATION SURCHARGE — Continued

(C)

(Applicable to all Rates)

MISCELLANEOUS – (Continued)

In order to facilitate the termination of this Rider, the Company may propose a rate adjustment to become effective on no less than ten (10) days' notice to achieve a zero (-0-) balance at calendar year end. This interim filing will adjust the E-factor in effect June 1, ~~2024~~2026, for reconciliation of actual revenue and expense in April and May ~~2024~~2026.

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This Rider will remain in effect until the final reconciliation statement is approved and all charges are fully recovered or refunded or until otherwise directed by the Commission.

Duquesne Light Company
Energy Efficiency and Conservation Phase IV Portfolio Costs
Act 129 Years

Exhibit DBO-3

	PY 2021 <u>6/1/21- 5/31/22</u>	PY 2022 <u>6/1/22- 5/31/23</u>	PY 2023 <u>6/1/23 - 5/31/24</u>	PY 2024 <u>6/1/24 - 5/31/25</u>	PY 2025 <u>6/1/25 - 5/31/26</u>	<u>Total</u>
<u>Annual Cost Estimate</u>						
1 Residential	\$6,032,814	\$6,350,330	\$6,350,330	\$6,350,330	\$6,667,847	\$31,751,650
2 Small & Medium Commercial & Industrial	\$4,809,180	\$5,919,963	\$6,188,883	\$6,018,189	\$4,733,747	\$27,669,963
3 Large Commercial & Industrial	\$6,785,928	\$8,355,921	\$8,605,214	\$8,236,454	\$6,324,631	\$38,308,147
4 Total Portfolio Annual Budget	\$17,627,922	\$20,626,214	\$21,144,427	\$20,604,973	\$17,726,225	\$97,729,760
<u>Assignment of Costs to Customer Classes</u>						
5 Residential	\$6,032,814	\$6,350,330	\$6,350,330	\$6,350,330	\$6,667,847	\$31,751,650
6 Small & Medium Commercial & Industrial	\$4,809,180	\$5,919,963	\$6,188,883	\$6,018,189	\$4,733,747	\$27,669,963
7 Large Commercial	\$4,730,960	\$5,825,515	\$5,999,315	\$5,742,226	\$4,409,356	\$26,707,373
8 Large Industrial	\$2,054,968	\$2,530,406	\$2,605,899	\$2,494,228	\$1,915,274	\$11,600,775
9 Total	\$17,627,922	\$20,626,214	\$21,144,427	\$20,604,973	\$17,726,225	\$97,729,760
<u>Assignment of Costs for Rate Design Purposes</u>						
10 Residential	\$6,032,814	\$6,350,330	\$6,350,330	\$6,350,330	\$6,667,847	\$31,751,650
11 Small & Medium Commercial & Industrial	\$4,809,180	\$5,919,963	\$6,188,883	\$6,018,189	\$4,733,747	\$27,669,963
12 Large Commercial (Fixed-Administrative)	\$2,298,193	\$2,829,903	\$2,914,331	\$2,789,443	\$2,141,965	\$12,973,835
13 Large Commercial (Variable-Incentive)	\$2,432,767	\$2,995,612	\$3,084,984	\$2,952,783	\$2,267,391	\$13,733,537
14 Large Industrial (Fixed-Administrative)	\$1,066,672	\$1,313,457	\$1,352,643	\$1,294,678	\$994,161	\$6,021,611
15 Large Industrial (Variable-Incentive)	\$988,296	\$1,216,949	\$1,253,255	\$1,199,549	\$921,113	\$5,579,163
16 Total	\$17,627,922	\$20,626,214	\$21,144,427	\$20,604,973	\$17,726,225	\$97,729,760

Duquesne Light Company
Energy Efficiency and Conservation, Phase-IV
Calculation of Proposed Surcharge, Effective June 1, 2021 (1)

Exhibit DBO-4

A	B	C	D	E	F
			= B / C * 100	= 1 / (1 - .059)	= D * E
			Proposed Monthly Charge	PA GRT Factor	Proposed Surcharge Rate
<u>Customer Class</u>	<u>2021-2022 Budget</u>	<u>Forecast Billing Units June 2021-May 2022</u>	<u>Excl. GRT</u>		<u>Inc. GRT</u>
1 Residential (RS, RH, RA)	\$6,032,814	3,933,431,388	0.15	1.0627	0.16 cents/kWh
2 Small & Medium Commercial & Industrial (GS, GM, GMH)	\$4,809,180	3,084,624,448	0.16	1.0627	0.17 cents/kWh
3 Large Commercial (GL, GLH, L) [Fixed]	\$2,298,193	7,799	\$294.66	1.0627	\$313.13 \$/Mo.
4 Large Commercial (GL, GLH, L) [Variable]	\$2,432,767	6,555,826	\$0.37	1.0627	\$0.39 \$/kW [PLC] (2)
5 Large Industrial (GL, GLH, L, HVPS) [Fixed]	\$1,066,672	2,469	\$431.94	1.0627	\$459.02 \$/Mo.
6 Large Industrial (GL, GLH, L, HVPS) [Variable]	\$988,296	3,908,764	\$0.25	1.0627	\$0.27 \$/kW [PLC] (2)
7 Total	\$17,627,922				

(1) Excludes component for Energy Efficiency and Conservation Phase III reconciliation for the period April 1, 2020 to March 31, 2021.

(2) PLC = Peak Load Contribution

**Duquesne Light Company
Phase IV Energy Efficiency and Conservation Plan
EEC Plan 1307e Reconciliation Excerpt**

Exhibit DBO-5

**Duquesne Light Company
Rider No. 15A - Phase III Energy Efficiency and Conservation Surcharge
Proposed Surcharge Effective June 1, 20xx**

Expense by Month

	<u>April</u>	<u>May</u>	<u>June</u>	<u>July</u>	<u>August</u>	<u>September</u>	<u>October</u>	<u>November</u>	<u>December</u>	<u>January</u>	<u>February</u>	<u>March</u>	<u>Total</u>
A. Actual Expense by Customer Class													
1 Residential (RS, RH, RA)	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
2 Small & Medium Commercial and Industrial (GS, GM, GMH)	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
3 Large Commercial (GL, GLH, L) [Fixed]	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
4 Large Commercial (GL, GLH, L) [Variable]	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
5 Large Industrial (GL, GLH, L, HVPS) [Fixed]	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
6 Large Industrial (GL, GLH, L, HVPS) [Variable]	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
7 Lighting (AL, SE, SM, SH, PAL)	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
8 Unmetered (UMS)	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
9 Total	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
	<u>April</u>	<u>May</u>	<u>June</u>	<u>July</u>	<u>August</u>	<u>September</u>	<u>October</u>	<u>November</u>	<u>December</u>	<u>January</u>	<u>February</u>	<u>March</u>	<u>Total</u>
B. Actual PJM Forward Capacity Market (Proceeds)/Penalties by Customer Class													
10 Residential (RS, RH, RA)	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
11 Small & Medium Commercial and Industrial (GS, GM, GMH)	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
12 Large Commercial (GL, GLH, L) [Fixed]	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
13 Large Commercial (GL, GLH, L) [Variable]	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
14 Large Industrial (GL, GLH, L, HVPS) [Fixed]	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
15 Large Industrial (GL, GLH, L, HVPS) [Variable]	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
16 Lighting (AL, SE, SM, SH, PAL)	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
17 Unmetered (UMS)	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
18 Total	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
	<u>April</u>	<u>May</u>	<u>June</u>	<u>July</u>	<u>August</u>	<u>September</u>	<u>October</u>	<u>November</u>	<u>December</u>	<u>January</u>	<u>February</u>	<u>March</u>	<u>Total</u>
C. Total by Customer Class (Section A + Section B)													
19 Residential (RS, RH, RA)	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
20 Small & Medium Commercial and Industrial (GS, GM, GMH)	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
21 Large Commercial (GL, GLH, L) [Fixed]	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
22 Large Commercial (GL, GLH, L) [Variable]	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
23 Large Industrial (GL, GLH, L, HVPS) [Fixed]	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
24 Large Industrial (GL, GLH, L, HVPS) [Variable]	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
25 Lighting (AL, SE, SM, SH, PAL)	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
26 Unmetered (UMS)	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
27 Total	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0