Duquesne Light Company – Revised Phase IV Energy Efficiency and Conservation Plan

March 19, 2025

Contents

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 1st through May 31st
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

Table of Figures

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 Study[1], 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 database[4], 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) Order[5] 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 Commercial[8] 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.

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[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	16%	23%	21%	23%	17%	100%
LI-BEEP	15%	21%	22%	27%	15%	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%	24%	23%	14%	101%
Virtual Commissioning	14%	22%	22%	22%	20%	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%	22%	22%	20%	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 maintained and managed. The above coordination will be accomplished in partnership among CSP, contractors, trade allies and Duquesne Light.

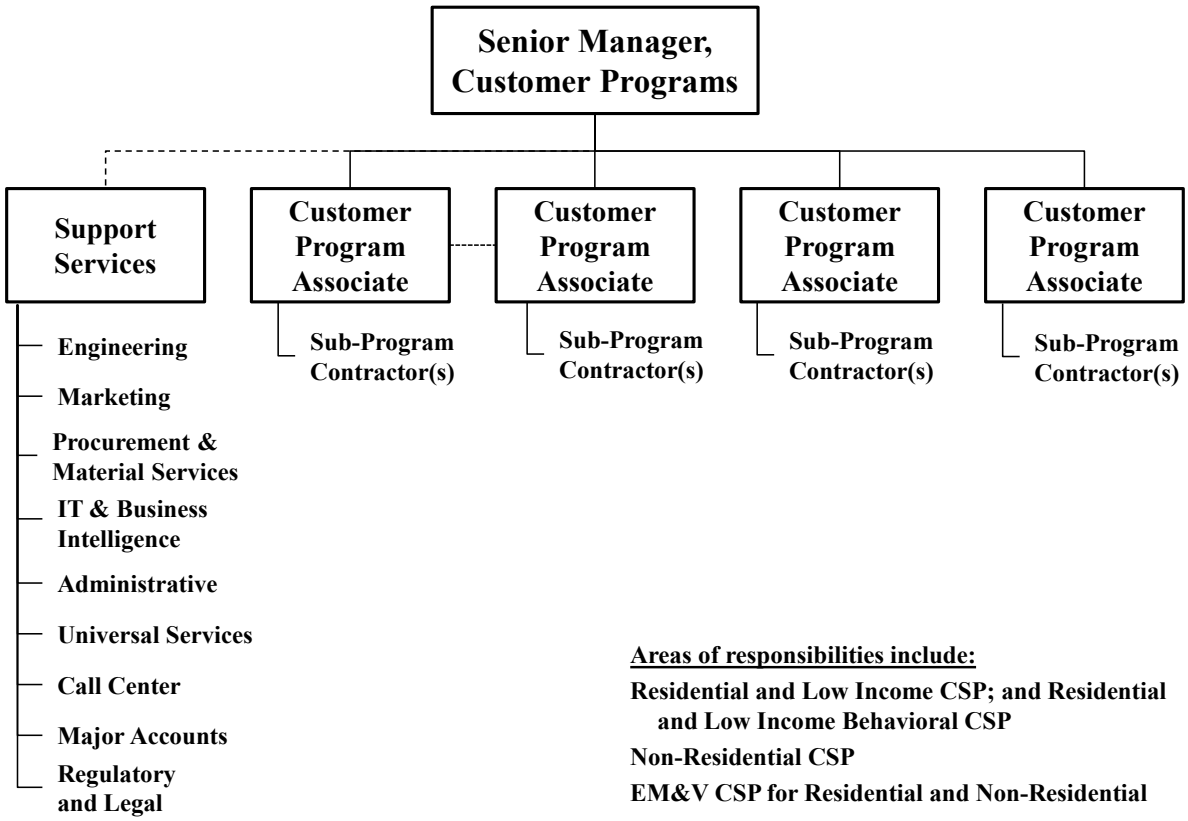
Customers will be engaged through at least three channels. First, Duquesne Light promotes the programs directly to its customers through marketing approaches such as mass media advertising, direct marketing, direct contact, events, conferences, account representatives and

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

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 Conservations 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%	98,519,288	27.3%	30.0%
Small C&I	25.2%	93,389,648	25.9%	29.7%
Large Commercial	24.5%	119,785,120	33.2%	23.1%
Large Industrial	18.2%	49,342,160	13.7%	17.2%
Total	100.0%	361,036,216	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 kWh	Savings kW
Appliance Recycling	7,192,233	1,390
Downstream Incentives	25,496,156	6,774
Midstream Incentives	383,812	73
Upstream Incentives	4,407,630	1,257
Low Income Energy Efficiency	16,586,803	4,286
Residential Behavioral Energy Efficiency	39,797,494	5,397
Low Income Behavioral Efficiency	4,655,160	631
Total	**98,519,288**	**19,810**

Small C&I	Savings kWh	Savings kW
Small Business Direct Install	5,287,105	1,002
Small Business Solutions	41,494,244	7,529
Small Business Midstream Solutions	44,943,298	10,883
Small Business Virtual Commissioning	1,665,000	613
Total	**93,389,648**	**20,026**

Large Commercial	Savings kWh	Savings kW
Large Business Solutions	97,434,775	18,123
Large Business Midstream Solutions	18,559,712	5,105
Large Business Virtual Commissioning	3,790,634	1,395
Total	**119,785,120**	**24,623**

Large Industrial	Savings kWh	Savings kW
Large Business Solutions	30,963,344	5,908
Large Business Midstream Solutions	16,783,658	4,617
Large Business Virtual Commissioning	1,595,159	587
Total	**49,342,160**	**11,112**

Grand Total	**361,036,216**	**75,571**

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 Categories[16]

Residential		**Small C&I[17]**		**Large C&I[18]**
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.

[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

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 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 EEPRDRMPSR 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

[19] Ibid, footnote 6

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 retail[20] 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

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

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.

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 implemented[21]
- 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

[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).

- 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.
- 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) ratio[23] 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 abroad 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-

[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.

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, 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 Order[24] 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 59.5% offsetting on average 40.7% 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,

[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.

marketing, purchasing, regulatory, legal, data processing and clerical staff, as well as contracted CSP services.

Estimated Participation: See the following table.

Savings Targets and Estimated Participation:[25]

	PY13	PY14	PY15	PY16	PY17	Total
MWh	391.1	1,729.5	1,453.4	1,714.8	1,903.4	7,192.2
MW	0.069	0.364	0.274	0.324	0.359	1.390
Participation	545.0	2,759.0	2,455.5	2,897.2	3,215.9	11,873

Estimated Program Budget:

	PY13	PY14	PY15	PY16	PY17	Total
Program Cost	$118,838	$601,601	$535,432	$631,728	$701,227	$2,588,827
Incentives	$75,648	$382,959	$340,838	$402,137	$446,378	$1,647,961
Percent Incentives	63.7%	63.7%	63.7%	63.7%	63.7%	63.7%
Percent Non-Incentives	36.3%	36.3%	36.3%	36.3%	36.3%	36.3%

Estimated Percentage of Sector Budget Attributed to Program:

	PY13	PY14	PY15	PY16	PY17	Total
Residential Sector Budget	$5,144,663	$5,387,194	$6,079,424	$6,978,769	$7,605,680	$31,195,387
Appliance Recycling	$118,838	$601,601	$535,432	$631,728	$701,227	$2,588,827
Percent Sector Budget	2.3%	11.2%	8.8%	9.1%	9.2%	8.3%

Cost Effectiveness:

- Gross TRC: 1.87
- NTG Ratio: 0.47
- Net TRC: 0.87

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.

[25] Participation for this program is measured in units recycled.

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.

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-widget" 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 Order[26] 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 59.5% offsetting on average 40.7% 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 web-page. 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.

[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.

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.

Savings Targets and Estimated Participation:[27]

	PY13	PY14	PY15	PY16	PY17	Total
MWh	1,099.5	2,039.9	6,407.3	7,558.9	8,390.5	25,496.2
MW	0.268	0.308	1.776	2.096	2.326	6.774
Participation	21,730.0	29,151.0	18,423.6	21,737.0	24,128.4	115,171

Estimated Program Budget:

	PY13	PY14	PY15	PY16	PY17	Total
Program Cost	$1,128,840	$784,449	$1,676,427	$1,937,727	$2,126,388	$7,653,831
Incentives	$202,840	$376,343	$1,182,068	$1,394,541	$1,547,961	$4,703,754
Percent Incentives	18.0%	48.0%	70.5%	72.0%	72.8%	3.6%
Percent Non-Incentives	82.0%	52.0%	29.5%	28.0%	27.2%	38.5%

Estimated Percentage of Sector Budget Attributed to Program:

	PY13	PY14	PY15	PY16	PY17	Total
Residential Sector Budget	$5,144,663	$5,387,194	$6,079,424	$6,978,769	$7,605,680	$31,195,387
Downstream Incentives	$1,128,840	$784,449	$1,676,427	$1,937,727	$2,126,388	$7,653,831
Percent Sector Budget	21.9%	14.6%	27.6%	27.8%	28.0%	24.5%

Cost Effectiveness:

- Gross TRC: 3.60
- NTG Ratio: 0.68
- Net TRC: 3.13

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.

[27] Participation in this program is measure units delivered.

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 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 Order[28] 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 59.5% offsetting on average 40.7% of participant incremental costs.

[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.

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.

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	0.0	3.0	109.1	128.8	142.9	383.8
MW	0.000	0.001	0.021	0.024	0.027	0.073
Participation	0	6	143	169	188	506

Estimated Program Budget:

	PY13	PY14	PY15	PY16	PY17	Total
Program Cost	$22,500	$1,652	$60,865	$71,812	$57,215	$214,044
Incentives	$0	$1,110	$40,892	$48,247	$53,555	$143,807
Percent Incentives	0.0%	67.2%	67.2%	67.2%	93.6%	67.2%
Percent Non-Incentives	100.0%	32.8%	32.8%	32.8%	6.4%	32.8%

Estimated Percentage of Sector Budget Attributed to Program:

	PY13	PY14	PY15	PY16	PY17	Total
Residential Sector Budget	$5,144,663	$5,387,194	$6,079,424	$6,978,769	$7,605,680	$31,195,387
Midstream Incentives	$22,500	$1,652	$60,865	$71,812	$57,215	$214,044
Percent Sector Budget	0.4%	0.0%	1.0%	1.0%	0.8%	0.7%

Cost Effectiveness:

- Gross TRC: 0.56
- NTG Ratio: 1.00
- Net TRC: 0.56

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

[29] Participation in this program is measure units incented.

appliances. For 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 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 Order[30] 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 59.5% offsetting on average 40.7% of participant incremental costs.

[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.

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.

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]

	PY13	PY14	PY15	PY16	PY17	Total
MWh	1,473.5	1,498.8	411.3	485.3	538.7	4,407.6
MW	0.238	0.227	0.227	0.268	0.298	1.257
Participation	89,646	99,225	89,696	105,819	117,461	501,847

Estimated Program Budget:

	PY13	PY14	PY15	PY16	PY17	Total
Program Cost	$913,081	$928,760	$254,887	$300,708	$333,791	$2,731,211
Incentives	$682,829	$694,555	$190,616	$224,879	$249,619	$2,042,481
Percent Incentives	74.8%	74.8%	74.8%	74.8%	74.8%	74.8%
Percent Non-Incentives	25.2%	25.2%	25.2%	25.2%	25.2%	25.2%

Estimated Percentage of Sector Budget Attributed to Program:

	PY13	PY14	PY15	PY16	PY17	Total
Residential Sector Budget	$5,144,663	$5,387,194	$6,079,424	$6,978,769	$7,605,680	$31,195,387
Upstream Incentives	$913,081	$928,760	$254,887	$300,708	$333,791	$2,731,211
Percent Sector Budget	17.7%	17.2%	4.2%	4.3%	4.4%	8.8%

Cost Effectiveness:

- Gross TRC: 0.37
- NTG Ratio: 0.65
- Net TRC: 0.35

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.

[31] Participation in this program is measure units incented.

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	5,226.4	8,642.8	8,642.8	8,642.8	8,642.8	39,797.5
MW	0.349	1.262	1.262	1.262	1.262	5.397
Participation	183,940	183,940	183,940	183,940	183,940	183,940

Estimated Program Budget:

	PY13	PY14	PY15	PY16	PY17	Total
Program Cost	$438,057	$724,403	$724,403	$724,403	$724,403	$3,335,667
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	$5,144,663	$5,387,194	$6,079,424	$6,978,769	$7,605,680	$31,195,387
Residential Behavioral Energy Efficien	$438,057	$724,403	$724,403	$724,403	$724,403	$3,335,667
Percent Sector Budget	8.5%	13.4%	11.9%	10.4%	9.5%	10.7%

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.

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 abroad range direct-install

[32] Estimated participation is customers within treatment cohorts.

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.

Duquesne Light will track the numbers of, and reasons for, LIEEP jobs that do not move forward and the total number of LIEEP baseload and heating jobs all separately tracked for low income single-family, master metered multifamily and individually metered multifamily tenants. In addition, the average LIEEP job costs and energy savings will be tracked. These data will be provided at the IEAG working group meetings.

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 Order[33] 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 59.5% offsetting on average 40.7% 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.

[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.

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 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 Order[34] 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 59.5% offsetting on average 40.7% 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

[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.

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.

LIEEP Savings Targets and Estimated Participation:[35]

	PY13	**PY14**	**PY15**	**PY16**	**PY17**	**Total**
MWh	2,783.0	2,631.3	3,201.7	3,777.6	4,193.1	16,586.8
MW	0.347	0.346	1.030	1.215	1.348	4.286
Participation	51,160	54,717	56,677	66,865	74,221	303,640

Estimated Program Budget:

	PY13	**PY14**	**PY15**	**PY16**	**PY17**	**Total**
Program Cost	$2,345,578	$2,217,728	$2,698,480	$3,183,791	$3,534,056	$13,979,633
Incentives	$1,658,083	$1,745,351	$1,745,351	$1,745,351	$1,832,618	$8,726,753
Percent Incentives	70.7%	78.7%	64.7%	54.8%	51.9%	62.4%
Percent Non-Incentives	29.3%	21.3%	35.3%	45.2%	48.1%	37.6%

Estimated Percentage of Sector Budget Attributed to Program:

	PY13	PY14	PY15	PY16	PY17	Total
Residential Sector Budget	$5,144,663	$5,387,194	$6,079,424	$6,978,769	$7,605,680	$31,195,387
Low Income Energy Efficiency	$2,345,578	$2,217,728	$2,698,480	$3,183,791	$3,534,056	$13,979,633
Percent Sector Budget	45.6%	41.2%	44.4%	45.6%	46.5%	44.8%

Cost Effectiveness:

- Gross TRC: 0.79
- NTG Ratio: 1.00
- Net TRC: 0.79

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

3.2.2.2. Low Income Behavioral Efficiency Program

[35] Participation is units of measures installed.

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	1,195.6	864.9	864.9	864.9	864.9	4,655.2
MW	0.091	0.135	0.135	0.135	0.135	0.631
Participation	15,600	15,600	15,600	15,600	15,600	15,600

Estimated Program Budget:

	PY13	**PY14**	**PY15**	**PY16**	**PY17**	**Total**
Program Cost	$177,769	$128,601	$128,601	$128,601	$128,601	$692,175
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	$5,144,663	$5,387,194	$6,079,424	$6,978,769	$7,605,680	$31,195,387
Low Income Behavioral Efficiency	$177,769	$128,601	$128,601	$128,601	$128,601	$692,175
Percent Sector Budget	3.5%	2.4%	2.1%	1.8%	1.7%	2.2%

Cost Effectiveness:

- Gross TRC: 0.61
- NTG Ratio: 1.00
- Net TRC: 0.61

[36] Estimated participation is customers within treatment cohorts.

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 up to 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 Order[37] requirement for at least 50% of EE&C Plan spending, at the Plan level, to come from incentives has caused

[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.

incentive levels to increase to a portfolio average of 59.5% offsetting on average 40.7% 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 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	733.1	2,472.8	693.7	693.7	693.7	5,287.1
MW	0.087	0.365	0.183	0.183	0.183	1.002
Participation	6,001.0	14,076.0	13,758.1	16,232.4	18,018.2	68,087

Estimated Program Budget:

	PY13	PY14	PY15	PY16	PY17	Total
Program Cost	$676,850	$2,282,946	$640,487	$640,487	$640,487	$4,881,256
Incentives	$458,163	$1,545,338	$433,549	$433,549	$433,549	$3,304,148
Percent Incentives	67.7%	67.7%	67.7%	67.7%	67.7%	67.7%
Percent Non-Incentives	32.3%	32.3%	32.3%	32.3%	32.3%	32.3%

Estimated Percentage of Sector Budget Attributed to Program:

	PY13	PY14	PY15	PY16	PY17	Total
Small-Medium C&I Sector	$4,310,627	$14,165,115	$2,827,547	$2,827,547	$2,827,547	$26,958,384
Small Business Direct Install	$676,850	$2,282,946	$640,487	$640,487	$640,487	$4,881,256
Percent Sector Budget	15.7%	16.1%	22.7%	22.7%	22.7%	18.1%

Cost Effectiveness:

- Gross TRC: 0.79
- NTG Ratio: 0.99
- Net TRC: 0.79

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.

[38] Participation is units of measures installed.

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 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 Order[39] 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 59.5% offsetting on average 40.7% 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

[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.

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 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	8,551.4	7,500.9	8,480.6	8,480.6	8,480.6	41,494.2
MW	2.382	1.562	1.195	1.195	1.195	7.529
Participation	35,149.0	34,454.3	55,573.9	65,568.6	72,782.1	263,533

[40] Participation is units of measures incented.

Estimated Program Budget:

	PY13	PY14	PY15	PY16	PY17	Total
Program Cost	$1,939,065	$1,700,854	$1,923,009	$1,923,009	$1,923,009	$9,408,947
Incentives	$1,000,440	$877,537	$992,156	$992,156	$992,156	$4,854,445
Percent Incentives	51.6%	51.6%	51.6%	51.6%	51.6%	51.6%
Percent Non-Incentives	48.4%	48.4%	48.4%	48.4%	48.4%	48.4%

Estimated Percentage of Sector Budget Attributed to Program:

	PY13	PY14	PY15	PY16	PY17	Total
Small-Medium C&I Sector	$4,310,627	$14,165,115	$2,827,547	$2,827,547	$2,827,547	$26,958,384
Small Business Solutions	$1,939,065	$1,700,854	$1,923,009	$1,923,009	$1,923,009	$9,408,947
Percent Sector Budget	45.0%	12.0%	68.0%	68.0%	68.0%	34.9%

Cost Effectiveness:

- Gross TRC: 1.35
- NTG Ratio: 0.79
- Net TRC: 1.28

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 Order[41] 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 59.5% offsetting on average 40.7% 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 the cost of the project (as no customer incentives are provided). Random samples shall comply with SWE Audit Plan confidence and precision levels.

[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.

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	6,324.5	35,928.9	896.6	896.6	896.6	44,943.3
MW	1.408	7.268	0.736	0.736	0.736	10.883
Participation	28,722.0	100,370.0	58,924.7	69,515.8	77,163.6	334,696

Estimated Program Budget:

	PY13	PY14	PY15	PY16	PY17	Total
Program Cost	$1,694,713	$9,627,444	$240,261	$240,261	$240,261	$12,042,940
Incentives	$1,084,262	$6,159,555	$153,717	$153,717	$153,717	$7,704,968
Percent Incentives	64.0%	64.0%	64.0%	64.0%	64.0%	64.0%
Percent Non-Incentives	36.0%	36.0%	36.0%	36.0%	36.0%	36.0%

Estimated Percentage of Sector Budget Attributed to Program:

	PY13	PY14	PY15	PY16	PY17	Total
Small-Medium C&I Sector	$4,310,627	$14,165,115	$2,827,547	$2,827,547	$2,827,547	$26,958,384
Midstream Incentives Program	$1,694,713	$9,627,444	$240,261	$240,261	$240,261	$12,042,940
Percent Sector Budget	39.3%	68.0%	8.5%	8.5%	8.5%	44.7%

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.

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.

[42] Participation is units of measures incented.

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 59.5% offsetting on average 40.7% 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 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 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	0.0	1,474.9	63.4	63.4	63.4	1,665.0
MW	0.000	0.025	0.196	0.196	0.196	0.613
Participation	0.0	20.0	43.8	51.7	57.4	173

Estimated Program Budget:

	PY13	**PY14**	**PY15**	**PY16**	**PY17**	**Total**
Program Cost	$0	$553,871	$23,790	$23,790	$23,790	$625,242
Incentives	$0	$286,139	$12,290	$12,290	$12,290	$323,010
Percent Incentives	0.0%	51.7%	51.7%	51.7%	51.7%	51.7%
Percent Non-Incentives	100.0%	48.3%	48.3%	48.3%	48.3%	48.3%

Estimated Percentage of Sector Budget Attributed to Program:

	PY13	PY14	PY15	PY16	PY17	Total
Small-Medium C&I Sector	$4,310,627	$14,165,115	$2,827,547	$2,827,547	$2,827,547	$26,958,384
Small Business Virtual Commi	$0	$553,871	$23,790	$23,790	$23,790	$625,242
Percent Sector Budget	0.0%	3.9%	0.8%	0.8%	0.8%	2.3%

[43] Participation is measured in customers' projects.

Cost Effectiveness:

- Gross TRC: 2.39
- NTG Ratio: 1.00
- Net TRC: 2.39

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 59.5% offsetting on average 40.7% 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.
- **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.

[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.

- **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	10,439.2	5,205.1	27,263.5	27,263.5	27,263.5	97,434.8
MW	2.021	1.061	5.014	5.014	5.014	18.123
Participation	35,229	31,231	81,243	95,846	106,391	349,939

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

Large Industrial:

	PY13	PY14	PY15	PY16	PY17	Total
MWh	1,932.5	15,058.3	4,657.5	4,657.5	4,657.5	30,963.3
MW	0.308	1.142	1.486	1.486	1.486	5.908
Participation	2,081	1,850	33,444	39,459	43,800	120,636

Estimated Program Budget:

Large Commercial:

	PY13	PY14	PY15	PY16	PY17	Total
Program Cost	$2,085,584	$1,039,895	$5,446,759	$5,446,759	$5,446,759	$19,465,951
Incentives	$1,202,855	$599,756	$3,141,403	$3,141,403	$3,141,403	$11,226,934
Percent Incentives	57.7%	57.7%	57.7%	57.7%	57.7%	57.7%
Percent Non-Incentives	42.3%	42.3%	42.3%	42.3%	42.3%	42.3%

Large Industrial:

	PY13	PY14	PY15	PY16	PY17	Total
Program Cost	$389,990	$3,038,894	$939,928	$939,928	$939,928	$6,248,668
Incentives	$201,966	$1,573,763	$486,764	$486,764	$486,764	$3,236,020
Percent Incentives	51.8%	51.8%	51.8%	51.8%	51.8%	51.8%
Percent Non-Incentives	48.2%	48.2%	48.2%	48.2%	48.2%	48.2%

Estimated Percentage of Sector Budget Attributed to Program:

Large Commercial:

	PY13	PY14	PY15	PY16	PY17	Total
Large Commercial Sector	$3,565,202	$3,630,128	$6,341,156	$6,341,156	$6,341,156	$26,218,994
Large Business Solutions	$2,085,584	$1,039,895	$5,446,759	$5,446,759	$5,446,759	$19,465,951
Percent Sector Budget	58.5%	28.6%	85.9%	85.9%	85.9%	74.2%

Large Industrial:

	PY13	PY14	PY15	PY16	PY17	Total
Large Industrial Sector	$1,550,216	$6,210,469	$1,213,897	$1,213,897	$1,213,897	$11,402,376
Large Business Solutions	$389,990	$3,038,894	$939,928	$939,928	$939,928	$6,248,668
Percent Sector Budget	25.2%	48.9%	77.4%	77.4%	77.4%	54.8%

Cost Effectiveness – Large Commercial:

- Gross TRC: 2.47
- NTG Ratio: 0.79
- Net TRC: 2.28

Cost Effectiveness – Large Industrial:

- Gross TRC: 2.34
- NTG Ratio: 0.61
- Net TRC: 1.94

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 Order[46] 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 59.5% offsetting on average 40.7% 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.

[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.

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.

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:[47]

Large Commercial:

	PY13	PY14	PY15	PY16	PY17	Total
MWh	4,726.6	5,528.5	2,768.2	2,768.2	2,768.2	18,559.7
MW	0.593	1.005	1.169	1.169	1.169	5.105
Participation	22,177	28,391	32,471	38,311	42,526	163,878

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

Large Industrial:

	PY13	PY14	PY15	PY16	PY17	Total
MWh	4,096.8	11,199.1	495.9	495.9	495.9	16,783.7
MW	0.609	2.464	0.515	0.515	0.515	4.617
Participation	3,613	8,654	38,953	45,958	51,014	148,196

Estimated Program Budget:

Large Commercial:

	PY13	PY14	PY15	PY16	PY17	Total
Program Cost	$1,479,618	$1,730,647	$866,567	$866,567	$866,567	$5,809,967
Incentives	$1,005,266	$1,175,817	$588,753	$588,753	$588,753	$3,947,343
Percent Incentives	67.9%	67.9%	67.9%	67.9%	67.9%	67.9%
Percent Non-Incentives	32.1%	32.1%	32.1%	32.1%	32.1%	32.1%

Large Industrial:

	PY13	PY14	PY15	PY16	PY17	Total
Program Cost	$1,160,226	$3,171,575	$140,445	$140,445	$140,445	$4,753,138
Incentives	$806,821	$2,205,512	$97,666	$97,666	$97,666	$3,305,330
Percent Incentives	69.5%	69.5%	69.5%	69.5%	69.5%	69.5%
Percent Non-Incentives	30.5%	30.5%	30.5%	30.5%	30.5%	30.5%

Estimated Percentage of Sector Budget Attributed to Program:

Large Commercial:

	PY13	PY14	PY15	PY16	PY17	Total
Large Commercial Sector	$3,565,202	$3,630,128	$6,341,156	$6,341,156	$6,341,156	$26,218,994
Large Business Midstream Se	$1,479,618	$1,730,647	$866,567	$866,567	$866,567	$5,809,967
Percent Sector Budget	41.5%	47.7%	13.7%	13.7%	13.7%	22.2%

Large Industrial:

	PY13	PY14	PY15	PY16	PY17	Total
Large Industrial Sector	$1,550,216	$6,210,469	$1,213,897	$1,213,897	$1,213,897	$11,402,376
Large Business Midstream Sol	$1,160,226	$3,171,575	$140,445	$140,445	$140,445	$4,753,138
Percent Sector Budget	74.8%	51.1%	11.6%	11.6%	11.6%	41.7%

Cost Effectiveness – Large Commercial:

- Gross TRC: 0.66
- NTG Ratio: 0.72
- Net TRC: 0.63

Cost Effectiveness – Large Industrial:

- Gross TRC: 0.66
- NTG Ratio: 0.72
- Net TRC: 0.65

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 59.5% of projected Portfolio costs offsetting on average 40.7% 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 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:[48]

[48] Participation is measured in customers' projects.

Large Commercial:

	PY13	PY14	PY15	PY16	PY17	Total
MWh	0.0	3,455.1	111.9	111.9	111.9	3,790.6
MW	0.000	0.041	0.451	0.451	0.451	1.395
Participation	0	10	10	12	13	44

Large Industrial:

	PY13	PY14	PY15	PY16	PY17	Total
MWh	0.0	0.0	531.7	531.7	531.7	1,595.2
MW	0.000	0.000	0.196	0.196	0.196	0.587
Participation	0	0	6	7	8	21

Estimated Program Budget:

Large Commercial:

	PY13	PY14	PY15	PY16	PY17	Total
Program Cost	$0	$859,586	$27,830	$27,830	$27,830	$943,075
Incentives	$0	$670,281	$21,701	$21,701	$21,701	$735,383
Percent Incentives	0%	78.0%	78.0%	78.0%	78.0%	78.0%
Percent Non-Incentives	0%	22.0%	22.0%	22.0%	22.0%	22.0%

Large Industrial:

	PY13	PY14	PY15	PY16	PY17	Total
Program Cost	$0	$0	$133,523	$133,523	$133,523	$400,570
Incentives	$0	$0	$103,154	$103,154	$103,154	$309,461
Percent Incentives	0.0%	0.0%	77.3%	77.3%	77.3%	77.3%
Percent Non-Incentives	0.0%	0.0%	22.7%	22.7%	22.7%	22.7%

Estimated Percentage of Sector Budget Attributed to Program:

Large Commercial:

	PY13	PY14	PY15	PY16	PY17	Total
Large Commercial Sector	$3,565,202	$3,630,128	$6,341,156	$6,341,156	$6,341,156	$26,218,994
Large Business Virtual Commissioning	$0	$859,586	$27,830	$27,830	$27,830	$943,075
Percent Sector Budget	0.0%	23.7%	0.4%	0.4%	0.4%	3.6%

Large Industrial:

	PY13	PY14	PY15	PY16	PY17	Total
Large Industrial Sector	$1,550,216	$6,210,469	$1,213,897	$1,213,897	$1,213,897	$11,402,376
Large Business Virtual Commiss	$0	$0	$133,523	$133,523	$133,523	$400,570
Percent Sector Budget	0.0%	0.0%	11.0%	11.0%	11.0%	3.5%

Cost Effectiveness – Large Commercial:

- Gross TRC: 3.61
- NTG Ratio: 1.00
- Net TRC: 3.61

Cost Effectiveness – Large Industrial:

- Gross TRC: 3.58
- NTG Ratio: 1.00
- Net TRC: 3.58

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.

Opportunities for increased coordination with CBO's, other weatherization, energy efficiency, or housing remediation assistance programs will be discussed at IEAG meetings and IEAG recommendations will be considered in good faith.

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.

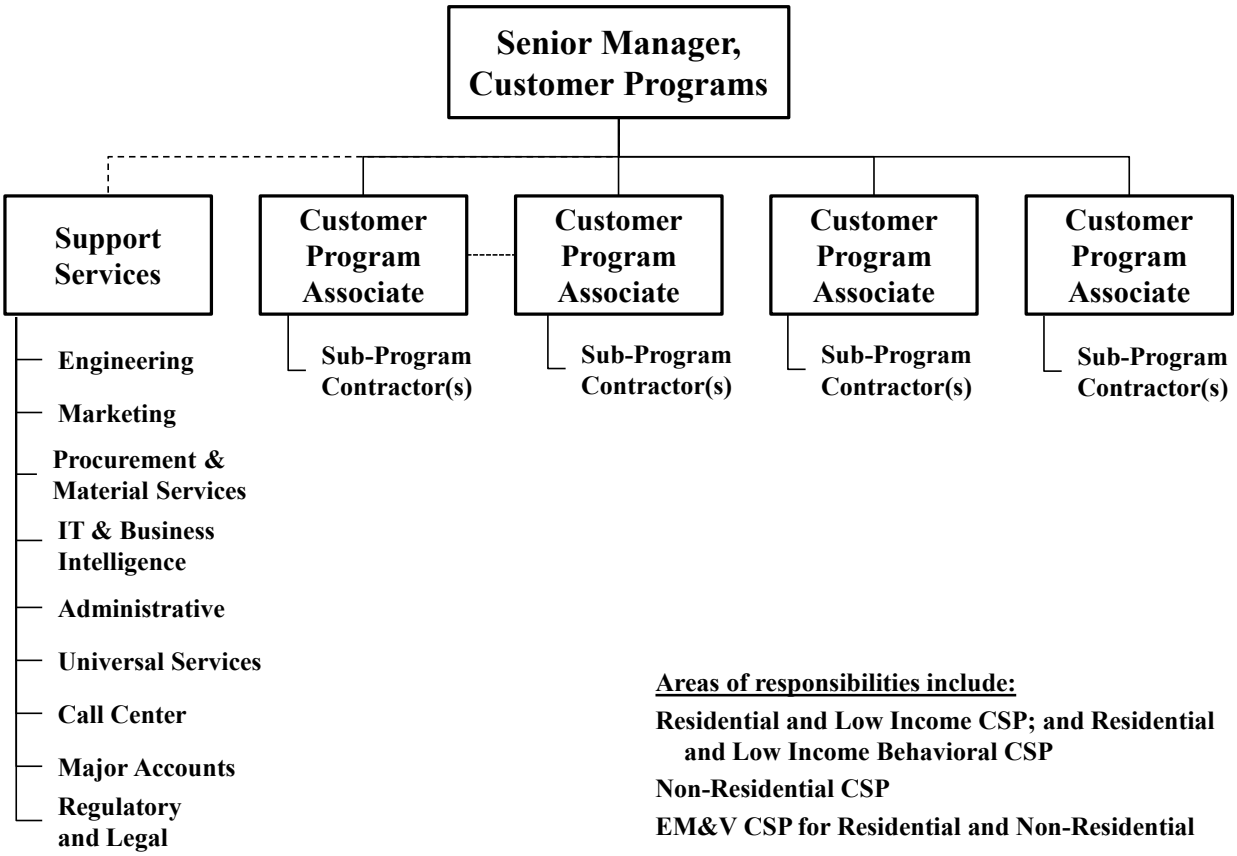
4.2. Executive management structure:

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 Systems[51]

(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	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

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.

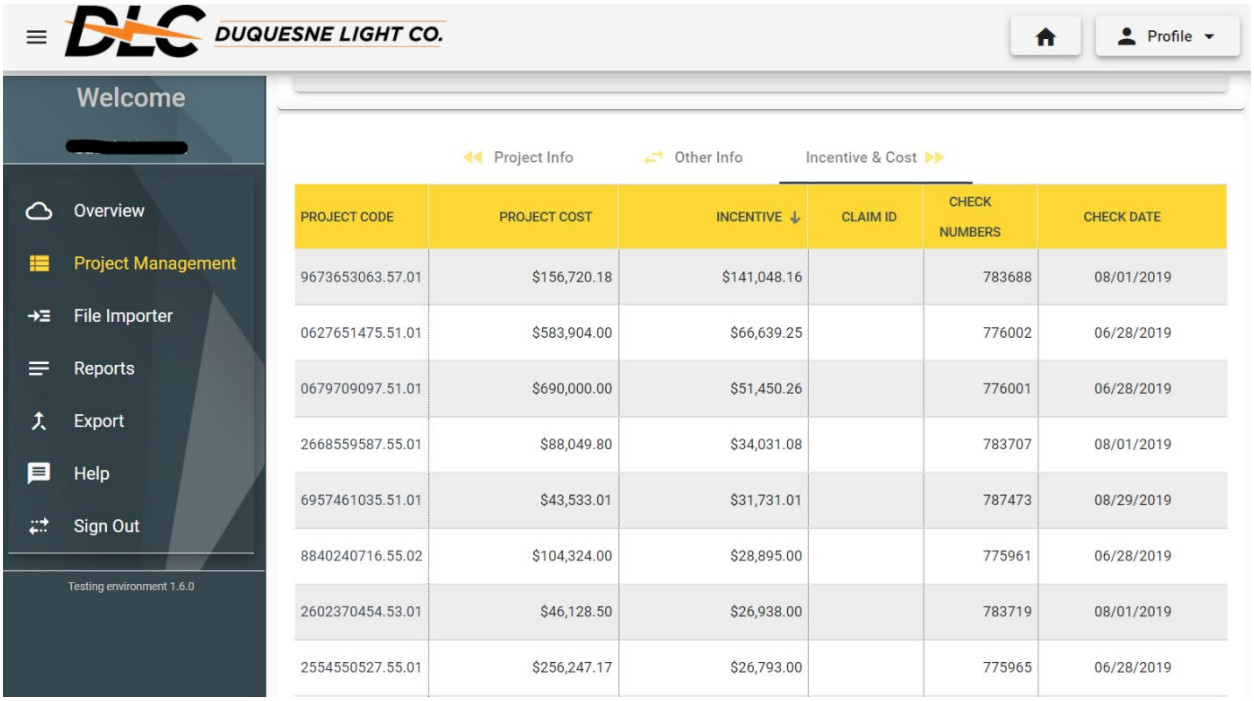
5.2.2. Describe the software format, data exchange format, and database structure you will use for tracking participant and savings data. Provide examples of data fields captured.

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



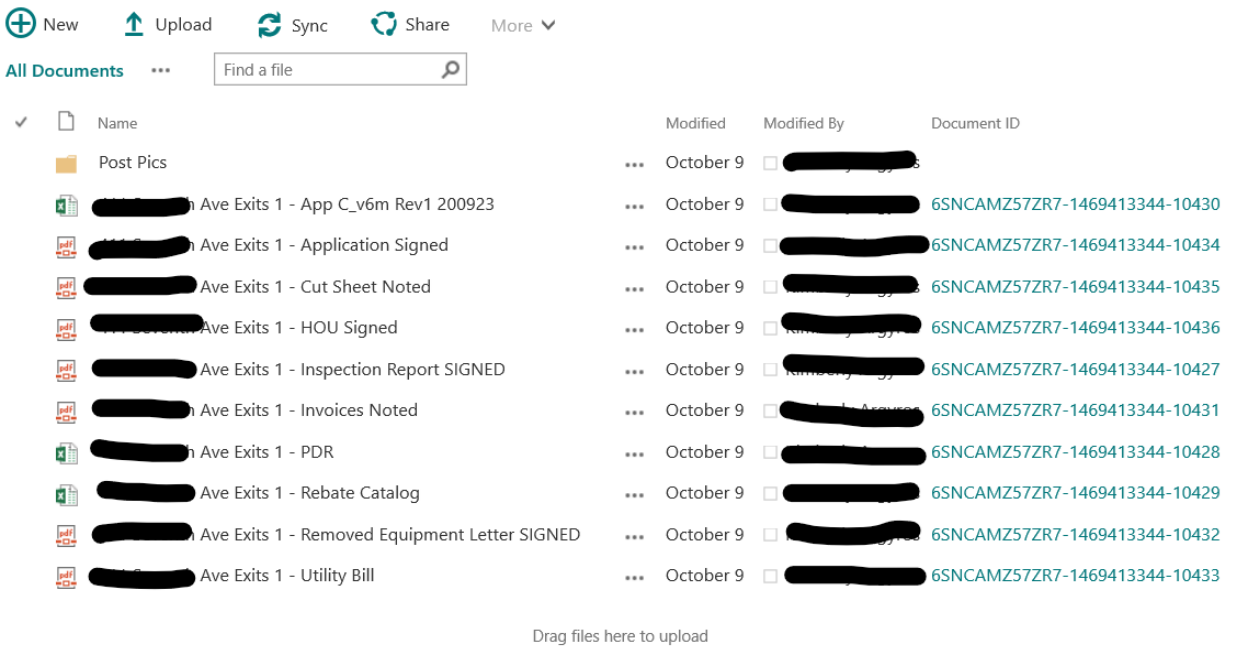
PROJECT CODE	PROJECT COST	INCENTIVE	CLAIM ID	CHECK NUMBERS	CHECK DATE
9673653063.57.01	$156,720.18	$141,048.16		783688	08/01/2019
0627651475.51.01	$583,904.00	$66,639.25		776002	06/28/2019
0679709097.51.01	$690,000.00	$51,450.26		776001	06/28/2019
2668559587.55.01	$88,049.80	$34,031.08		783707	08/01/2019
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

Tabular | CDR | My Reports | **Program - Summary**

	Pending Projects					Completed Projects				
Program Name	**(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 Commerical 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

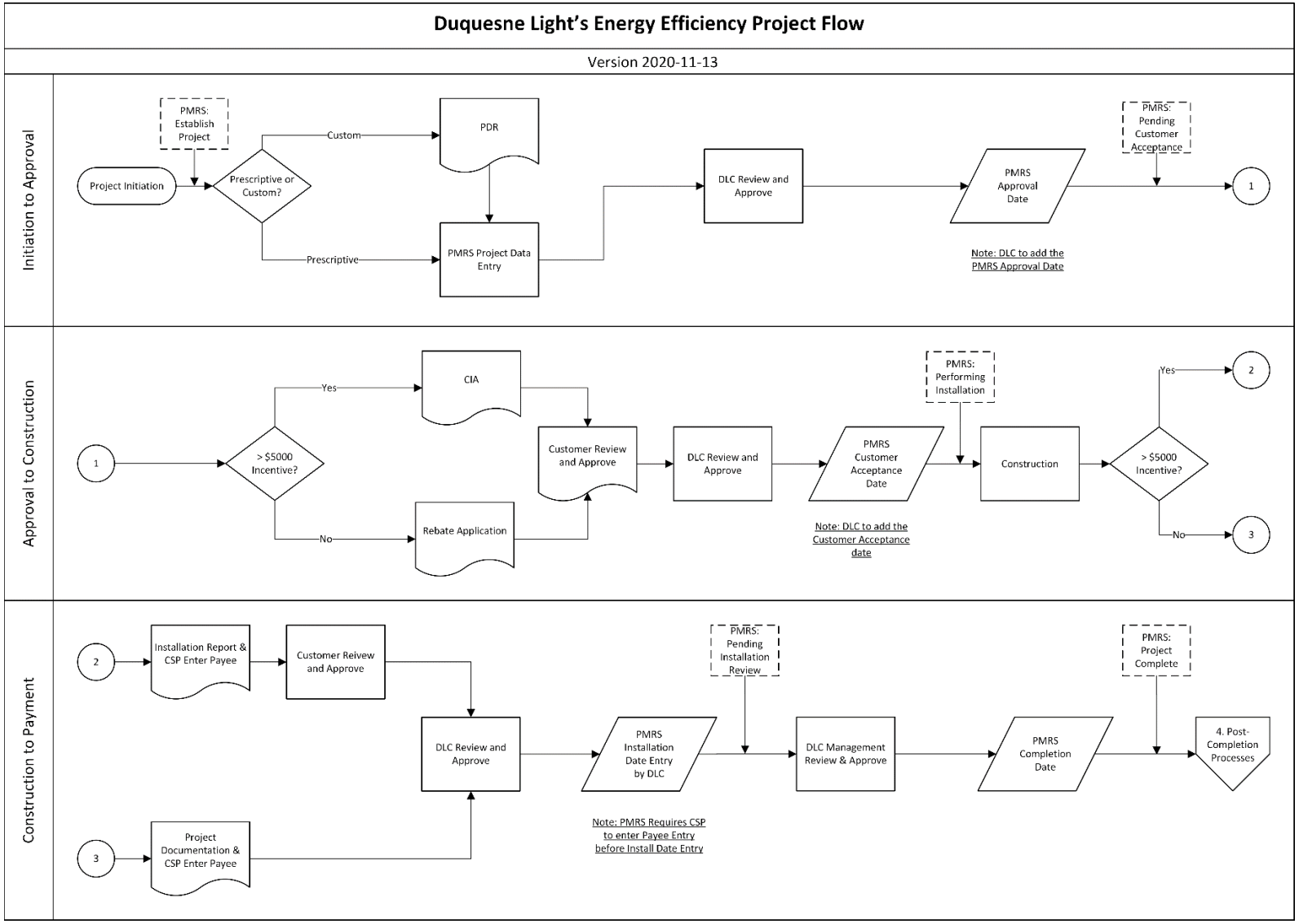
Procedures are in place to ensure prospective projects receive appropriate and consistent review prior to approval and incentive payment processing.

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 is 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

- PA TRM 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

[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.

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. 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 Order[56]. 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.aspx
[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 Exchange[58]. 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	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	
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 annunciated 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).

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[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 kWh	Savings kW
Appliance Recycling	7,192,233	1,390
Downstream Incentives	25,496,156	6,774
Midstream Incentives	383,812	73
Upstream Incentives	4,407,630	1,257
Low Income Energy Efficiency	16,586,803	4,286
Residential Behavioral Energy Efficiency	39,797,494	5,397
Low Income Behavioral Efficiency	4,655,160	631
Total	**98,519,288**	**19,810**

Small C&I	Savings kWh	Savings kW
Small Business Direct Install	5,287,105	1,002
Small Business Solutions	41,494,244	7,529
Small Business Midstream Solutions	44,943,298	10,883
Small Business Virtual Commissioning	1,665,000	613
Total	**93,389,648**	**20,026**

Large Commercial	Savings kWh	Savings kW
Large Business Solutions	97,434,775	18,123
Large Business Midstream Solutions	18,559,712	5,105
Large Business Virtual Commissioning	3,790,634	1,395
Total	**119,785,120**	**24,623**

Large Industrial	Savings kWh	Savings kW
Large Business Solutions	30,963,344	5,908
Large Business Midstream Solutions	16,783,658	4,617
Large Business Virtual Commissioning	1,595,159	587
Total	**49,342,160**	**11,112**

Grand Total	**361,036,216**	**75,571**

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.

A portion of the two percent of funds will be used to explore measures for the residential sector that are reasonably cost-effective, achievable, implementable, and allowable under applicable law and Commission directives. At least one stakeholder meeting will be held in the first program year of Phase IV with additional meetings as warranted to discuss potential new measures and associated budgets. Duquesne Light shall identify measures to be implemented through the residential Pilot Program by the end of program year 14 and shall implement before the end of Phase IV, to the extent such measures are reasonably cost-effective, achievable, implementable, and allowable under applicable law and Commission directives.

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 initiates 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.

Appendix A

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

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.

Appendix A

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.

Appendix A

22. PUBLICITY

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.

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.

Appendix A

32. HAZARDOUS AND DANGEROUS GOODS

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.

Appendix A

39. RECORD RETENTION

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 ($000)	**Portfolio**	**Common**	**CSP**	**Total**	
Program Design	$303			$303	*0.77%*
Administrative	$3,520	$865		$4,385	*11.08%*
EDC Delivery Costs	$1,909	$2,500		$2,264	*5.72%*
CSP Delivery Fees			$25,792	$25,792	*65.19%*
Marketing		$1,177		$1,194	*3.02%*
EM&V	$1,718			$3,907	*9.88%*
Implementation Services		$1,778		$1,718	*4.34%*
Total	**$7,450**	**$6,321**	**$25,792**	**$39,563**	***100.00%***
	19%	*16%*	*65%*		

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 refiling.
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.

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 Order[65] and TRC Order[66] 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 59.5 percent of the Portfolio Budget offsetting, on average, 1 percent of measure incremental costs. Incremental measure costs are documented, referenced to the SWE incremental costs database[68], 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]

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).

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[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

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

Appendix C

Residential Programs	Qty	Savings kWh	Savings kW	Lifetime kWh	Portfolio Administration	Direct Program Costs Administration	Direct Program Costs Incentives	Total Program Cost	Total Admin	Measure Cost	TRC Cost	Program Benefits	Demand Reduction Benefits Capacity	Demand Reduction Benefits Trans/Dist	O&M/Fossil/Water	Energy Benefits	TRC
Appliance Recycling	11,873	7,192,233	1,390	36,318,032	$455,390	$485,476	$1,647,961	$2,588,827	$940,865	$581,835	$940,867	$1,761,679	$278,148	$331,028	$0	$1,152,504	1.87
Downstream Incentives	115,171	25,496,156	6,774	228,248,631	$932,836	$2,017,241	$4,703,754	$7,653,831	$2,950,077	$6,325,451	$9,275,528	$33,372,038	$2,188,754	$2,619,750	$21,668,462	$6,895,073	3.60
Midstream Incentives	506	383,812	73	5,757,176	$21,830	$48,407	$143,807	$214,044	$70,237	$401,609	$471,846	$264,779	$40,124	$48,206	-$11,349	$187,798	0.56
Upstream Incentives	501,847	4,407,630	1,257	29,608,262	$498,047	$190,683	$2,042,481	$2,731,211	$688,729	$3,910,724	$4,599,453	$1,715,111	$365,580	$437,119	-$53,557	$965,969	0.37
Low Income Energy Efficiency	303,640	16,586,803	4,286	123,028,629	$1,674,004	$3,578,876	$8,726,753	$13,979,633	$5,252,879	$3,131,775	$8,384,654	$6,623,520	$1,089,135	$1,300,334	$324,016	$3,910,034	0.79
Residential Behavioral Energy Efficiency	183,940	39,797,494	5,397	79,594,987	$454,328	$2,881,339	$0	$3,335,667	$3,335,667	$0	$3,335,667	$3,631,035	$484,280	$565,722	$0	$2,581,032	1.09
Low Income Behavioral Efficiency	15,600	4,655,160	631	9,310,320	$355,239	$336,936	$0	$692,175	$692,175	$0	$692,175	$424,726	$56,647	$66,173	$0	$301,906	0.61
Total	**1,132,577**	**98,519,288**	**19,810**	**511,866,038**	**$4,391,674**	**$9,538,956**	**$17,264,757**	**$31,195,387**	**$13,930,630**	**$14,351,394**	**$27,700,191**	**$47,792,889**	**$4,502,668**	**$5,368,332**	**$21,927,571**	**$15,994,318**	1.73

Small C&I	Qty	Savings kWh	Savings kW	Life-Cycle kWh	Portfolio Administration	Direct Program Costs Administration	Direct Program Costs Incentives	Total Program Cost	Total Admin	Measure Cost	TRC Cost	Program Benefits	Demand Reduction Benefits Capacity	Demand Reduction Benefits Trans/Dist	O&M/Fossil/Water	Energy Benefits	TRC
Small Business Direct Install	68,087	5,287,105	1,002	77,582,159	$950,057	$627,051	$3,304,148	$4,881,256	$1,577,107	$3,304,148	$4,881,256	$3,859,196	$530,258	$636,957	$214,992	$2,476,990	0.79
Small Business Solutions	263,533	41,494,244	7,529	617,936,217	$2,193,479	$2,361,023	$4,854,445	$9,408,947	$4,554,502	$17,225,525	$21,780,027	$29,498,238	$3,991,024	$4,794,480	$1,354,828	$19,357,906	1.35
Small Business Midstream Solutions	334,696	44,943,298	10,883	666,347,520	$1,129,020	$3,208,952	$7,704,968	$12,042,940	$4,337,971	$43,589,079	$47,927,050	$32,511,493	$5,909,615	$7,099,749	-$1,984,532	$21,486,660	0.68
Small Business Virtual Commissioning	173	1,665,000	613	24,975,000	$248,619	$53,613	$323,010	$625,242	$302,232	$323,010	$625,242	$1,494,861	$334,653	$402,062	$0	$758,145	2.39
Total	**666,488**	**93,389,648**	**20,026**	**1,386,840,896**	**$4,521,174**	**$6,250,638**	**$16,186,572**	**$26,958,384**	**$10,771,812**	**$64,441,763**	**$75,213,575**	**$67,363,787**	**$10,765,551**	**$12,933,248**	**-$414,712**	**$44,079,701**	0.90

Large Commercial	Qty	Savings kWh	Savings kW	Life-Cycle kWh	Portfolio Administration	Direct Program Costs Administration	Direct Program Costs Incentives	Total Program Cost	Total Admin	Measure Cost	TRC Cost	Program Benefits	Demand Reduction Benefits Capacity	Demand Reduction Benefits Trans/Dist	O&M/Fossil/Water	Energy Benefits	TRC
Large Business Solutions	349,939	97,434,775	18,123	1,461,521,620	$2,694,979	$5,544,039	$11,226,934	$19,465,951	$8,239,018	$19,467,817	$27,706,835	$68,315,313	$9,860,102	$11,846,199	$1,196,266	$45,412,745	2.47
Large Business Midstream Solutions	163,878	18,559,712	5,105	277,673,505	$537,461	$1,325,163	$3,947,343	$5,809,967	$1,862,624	$19,646,955	$21,509,579	$14,118,395	$2,785,396	$3,346,433	-$808,605	$8,795,171	0.66
Large Business Virtual Commissioning	44	3,790,634	1,395	56,859,510	$85,633	$122,058	$735,383	$943,075	$207,692	$735,383	$943,075	$3,408,206	$761,891	$915,357	$0	$1,730,958	3.61
Total	**513,862**	**119,785,120**	**24,623**	**1,796,054,634**	**$3,318,073**	**$6,991,261**	**$15,909,660**	**$26,218,994**	**$10,309,334**	**$39,850,155**	**$50,159,489**	**$85,841,914**	**$13,407,390**	**$16,107,988**	**$387,662**	**$55,938,875**	1.71

Large Industrial	Qty	Savings kWh	Savings kW	Life-Cycle kWh	Portfolio Administration	Direct Program Costs Administration	Direct Program Costs Incentives	Total Program Cost	Total Admin	Measure Cost	TRC Cost	Program Benefits	Demand Reduction Benefits Capacity	Demand Reduction Benefits Trans/Dist	O&M/Fossil/Water	Energy Benefits	TRC
Large Business Solutions	120,636	30,963,344	5,908	463,998,790	$1,250,834	$1,761,814	$3,236,020	$6,248,668	$3,012,648	$6,365,935	$9,378,583	$21,985,558	$3,191,303	$3,834,119	$389,480	$14,570,656	2.34
Large Business Midstream Solutions	148,196	16,783,658	4,617	251,101,798	$249,454	$1,198,353	$3,305,330	$4,753,138	$1,447,808	$17,766,858	$19,214,666	$12,767,349	$2,518,851	$3,026,199	-$731,226	$7,953,525	0.66
Large Business Virtual Commissioning	21	1,595,159	587	23,927,378	$39,745	$51,364	$309,461	$400,570	$91,110	$309,461	$400,570	$1,434,227	$320,616	$385,197	$0	$728,415	3.58
Total	**268,853**	**49,342,160**	**11,112**	**739,027,966**	**$1,540,034**	**$3,011,532**	**$6,850,811**	**$11,402,376**	**$4,551,565**	**$24,442,253**	**$28,993,819**	**$36,187,133**	**$6,030,769**	**$7,245,515**	**-$341,746**	**$23,252,596**	1.25

Pilot Program (Experimental Equip.)							$1,954,595	$95,775,140									
Grand Total	**2,581,779**	**361,036,216**	**75,571**	**4,433,789,535**	**$13,770,955**	**$25,792,386**	**$58,166,394**	**$97,729,735**	**$39,563,341**	**$143,085,566**	**$182,067,073**	**$237,185,724**	**$34,706,377**	**$41,655,083**	**$21,558,774**	**$139,265,490**	**1.30**

11. Tables for Pennsylvania EDC Energy Efficiency and Conservation Plan

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Contents

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	$15,287,694	$37,113,609	$21,825,914	2.43
Residential Low-Income	$8,384,654	$6,623,520	-$1,761,135	0.79
Residential Behavioral	$3,335,667	$3,631,035	$295,368	1.09
Low-Income Behavioral	$692,175	$424,726	-$267,449	0.61
Large Commercial (C)	$50,159,489	$85,841,914	$35,682,425	1.71
Large Industrial (I)	$28,993,819	$36,187,133	$7,193,314	1.25
Small C&I	$75,213,575	$67,363,787	-$7,849,787	0.90
Total	$182,067,073	$237,185,724	$55,118,651	1.30

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	8,190	42,300	22,104	93,923	39,128	175,771	57,659	272,339	77,277	379,531	77,277.194	379,531
Low-Income Cumulative Savings	3,979	15,132	7,475	29,018	11,541	58,626	16,184	93,560	21,242	132,336	21,241.963	132,336
Commercial/Industrial, Small Cumulative	15,609	241,494	62,987	940,610	73,121	1,089,354	83,255	1,238,097	93,390	1,386,841	93,389.648	1,386,841
Commercial/Industrial, Large Cumulative	21,195	317,625	61,641	892,601	97,470	1,440,095	133,299	1,987,589	169,127	2,535,083	169,127.280	2,535,083
EE&C Plan Total Incremental Annual	48,973	616,551	105,234	1,339,601	67,054	807,694	69,136	827,739	70,639	842,206	361,036	4,433,791
Percent of Plan Total Annual	13.6%		29.1%		18.6%		19.1%		19.6%			
EE&C Plan Total Cumulative	48,973	616,551	154,207	1,956,152	221,261	2,763,846	290,397	3,591,585	361,036	4,433,791	361,036	4,433,791
Percent of Plan Total	13.6%		42.7%		61.3%		80.4%		100.0%			
Estimated Phase III Carryover Savings											28,137	
Total Cumulative Plan + Carryover	48,973	616,551	154,207	1,956,152	221,261	2,763,846	290,397	3,591,585	361,036	4,433,791	389,173	4,433,791
Percent of Plan Total	13.6%		42.7%		61.3%		80.4%		100.0%			
Percent Reduction from Baseline	0.35%		1.09%		1.57%		2.06%		2.56%			
Phase IV Target[1]											348,126	
Portfolio Percent of Phase IV Target	14.1%		44.3%		63.6%		83.4%		103.7%		111.8%	

[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	0.924	0.924	3.086	3.086	6.646	6.646	10.620	10.620	14.892	14.892	14.892	14.892
Low-Income Cumulative Savings	0.438	0.438	0.919	0.919	2.084	2.084	3.433	3.433	4.917	4.917	4.917	4.917
Commercial/Industrial, Small Cumulative	3.877	3.877	13.097	13.097	15.407	15.407	17.717	17.717	20.026	20.026	20.026	20.026
Commercial/Industrial, Large Cumulative	3.531	3.531	9.244	9.244	18.074	18.074	26.905	26.905	35.735	35.735	35.735	35.735
EE&C Plan Total Incremental Annual	8.770	8.770	17.576	17.576	15.865	15.865	16.464	16.464	16.896	16.896	75.571	75.571
Percent of Plan Total Annual	11.6%		23.3%		21.0%		21.8%		22.4%			
EE&C Plan Total Cumulative	8.770	8.770	26.346	26.346	42.211	42.211	58.675	58.675	75.571	75.571	75.571	75.571
Percent of Plan Total	11.6%		34.9%		55.9%		77.6%		100.0%			
Estimated Phase III Carryover Savings											0	
Total Cumulative Plan + Carryover	8.770	8.770	26.346	26.346	42.211	42.211	58.675	58.675	75.571	75.571	75.571	75.571
Percent of Plan Total	11.6%		34.9%		55.9%		77.6%		100.0%			
Percent Reduction from Baseline	0.35%		1.05%		1.68%		2.33%		3.00%			
Phase IV Target[1]											62.000	
Portfolio Percent of Phase IV Target	14.1%		42.5%		68.1%		94.6%		121.9%		121.9%	

[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	2,319	15.5%	2,739	9.2%	2,951	17.5%	3,365	19.0%	3,641	19.8%
Residential Low-Income Portfolio Budget	2,591	17.3%	2,414	8.1%	2,895	17.2%	3,381	19.0%	3,731	20.3%
Commercial/Industrial Small Portfolio Budget	4,126	27.6%	13,980	46.9%	2,643	15.7%	2,643	14.9%	2,643	14.4%
Commercial/Industrial Large Portfolio Budget	4,661	31.2%	9,386	31.5%	7,100	42.1%	7,100	40.0%	7,100	38.6%
Common Costs	1,264	8.4%	1,264	4.2%	1,264	7.5%	1,264	7.1%	1,264	6.9%
Total Portfolio Budget	14,962	100.0%	29,784	100.0%	16,853	100.0%	17,752	100.0%	18,379	100.0%

Table 5: Program Summaries

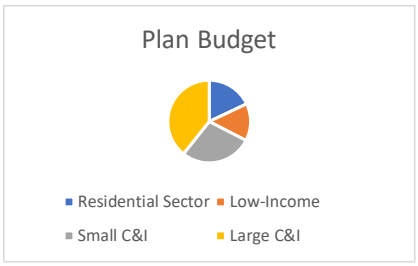
	Program Name	Program Market	Program Two Sentence Summary	Program Years Operated	Lifetime Savings MWh	Lifetime Savings MW	Portfolio Savings MWh %	Portfolio Savings MW %
Residential Portfolio Programs (REEP)								
	REEP Appliance Recycling	Market Rate Residential	Provides customer incentives to recycle listed inefficient appliances in order to remove them from the electric grid.	5	36,318	1.390	0.8%	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	228,249	6.774	5.1%	9.0%
	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	5,757	0.073	0.1%	0.1%
	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	29,608	1.257	0.7%	1.7%
	Residential Behavioral Energy Efficiency	Market Rate Residential	Educates participants on electricity consumption to change household behavior leading to less electricity use.	5	79,595	5.397	1.8%	7.1%
	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	123,029	4.286	2.8%	5.7%
	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	9,310	0.631	0.2%	0.8%
	Subtotal				511,866	19.810	11.5%	26.2%

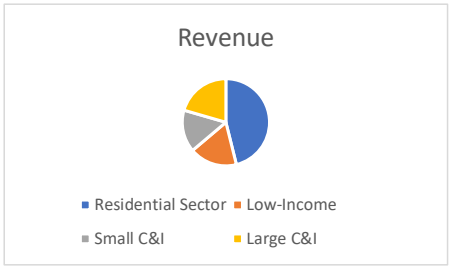
Table 5: Program Summaries *(continued)*

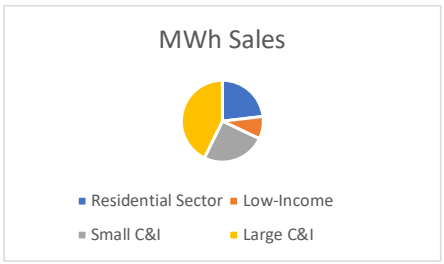
	Program Name	Program Market	Program Two Sentence Summary	Program Years Operated	Lifetime Savings MWh	Lifetime Savings MW	Portfolio Savings MWh %	Portfolio Savings MW %
Commercial/Industrial (C&I) Small Portfolio								
	Small C&I Direct-Install Program	C&I Customer <300 kW	Provides no cost energy efficient equipment to small business customers. Installation contractors implement program measures and measure installation services.	5	77,582	1.002	1.7%	1.3%
	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	617,936	7.529	13.9%	10.0%
	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	666,348	10.883	15.0%	14.4%
	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	24,975	0.613	0.6%	0.8%
	Subtotal				1,386,841	20.026	31.3%	26.5%
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	1,925,520	24.031	43.4%	31.8%
	Large 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	528,775	9.722	11.9%	12.9%
	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	80,787	1.982	1.8%	2.6%
	Subtotal				2,535,083	35.735	57.2%	47.3%
Plan Total					4,433,790	75.571	100.0%	100.0%

Table 6: Budget and Parity Analysis Sumary

Customer Sector	Phase IV EE&C Budget	% of Total EE&C Budget	% EDC Annual Revenue	% EDC MWh Sales
Residential Sector	17,215,754	18.0%	46.1%	23.2%
Low-Income Sector	13,979,633	14.6%	17.7%	8.9%
Residential Subtotal	31,195,387	32.6%	63.8%	32.1%
Commercial/Industrial Small Sector	26,958,384	28.1%	15.6%	25.2%
Commercial/Industrial Large Sector	37,621,370	39.3%	20.5%	42.7%
Nonresidential Subtotal	64,579,753	67.4%	36.2%	67.9%
All Classes	95,775,140	100.0%	100.0%	100.0%
Other Expenditures				
Experimental Equipment Pilot[1]	1,954,595			
EDC Total	97,729,735			







[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	Incentive $/Unit Range High
Advanced Power Strip (Tier 1)	Unit	N	APS w/master control	$18.40	5	$8.00	$25.00
Advanced Power Strip (Tier 2)	Unit	N	APS w/master control - occupancy sensing	$65.00	5	$35.00	$75.00
Air Purifier	Unit	N	ENERGY STAR CADR 151-200 FT^3/MIN. per TRM Section 2.4.12	$289.04	9	$25.00	$75.00
Air Sealing	Home	Y	Per TRM Section 2.6.1	$888.00	15	$710.40	$1,065.60
Air Sealing	Home	N	Per TRM Section 2.6.1	$888.00	15	$75.00	$400.00
Air Source Heat Pump	Unit	Y	SEER 17.5/SEER2 16.3 HSPF 9.7/HSPF2 8.2 or higher	$785.11	15	$300.00	$450.00
Air Source Heat Pump	Unit	N	SEER 18 / SEER2 16.7 HSPF 9.7 / HSPF2 8.2 or higher	$912.43	15	$300.00	$450.00
Air Source Heat Pump	Unit	N	SEER 19 / SEER2 17.5 HSPF 9.7 / HSPF2 8.2 or higher	$1,114.76	15	$300.00	$450.00
Air Source Heat Pump	Unit	N	SEER 20 / SEER2 18.3 HSPF 10.0 / HSPF2 8.5 or higher	$1,357.20	15	$340.00	$510.00
Air Source Heat Pump	Unit	N	SEER 21 / SEER2 19.1 HSPF 10.0 / HSPF2 8.5 or higher	$1,599.64	15	$340.00	$510.00
Air Source Heat Pump	Unit	N	SEER 22 / SEER2 19.9 HSPF 11.0 / HSPF2 9.3 or higher	$1,842.08	15	$340.00	$510.00
Central Air Conditioner	Unit	Y	SEER 17.5 / SEER2 16.3 or higher	$624.64	15	$160.00	$240.00
Central Air Conditioner	Unit	N	SEER 18 / SEER2 16.7 or higher	$774.89	15	$160.00	$240.00
Central Air Conditioner	Unit	N	SEER 19 / SEER2 17.5 or higher	$925.13	15	$160.00	$240.00
Central Air Conditioner	Unit	N	SEER 20 / SEER2 18.3 or higher	$1,075.38	15	$200.00	$300.00
Central Air Conditioner	Unit	N	SEER 21 / SEER2 19.1 or higher	$1,225.63	15	$200.00	$300.00
Central Air Conditioner	Unit	N	SEER 22 / SEER2 19.9 or higher	$1,375.88	15	$200.00	$300.00
Central Air Conditioner	Unit	N	SEER 23 / SEER2 20.7 or higher	$1,526.13	15	$200.00	$300.00
Connected Thermostat - Electric Heat (Down Stream)	Unit	N	Per TRM Section 2.2.11	$176.75	11	$50.00	$120.00
Connected Thermostat- Electric Heat (Direct Install)	Unit	N	Per TRM Section 2.2.11	$234.33	11	$187.46	$281.20
Dehumidifier Retirement	Unit	N	Operational Unit - Per TRM Section 2.4.10	$35.00	4	$28.00	$42.00
Ductless Mini-Split ENERGY STAR Cold Climate Rated	Unit	Y	SEER/2-16.1/15.2, HSPF/2 10.0/8.5 DI	$4,927.91	15	$3,500.00	$6,000.00
Ductless Mini-Split ENERGY STAR Cold Climate Rated	Unit	N	SEER/2-16.1/15.2, HSPF/2 10.0/8.5 MS	$529.62	15	$125.00	$200.00
Ductless Mini-Split Heat Pump DI	Unit	Y	SEER/2 16.0/15.1, HSPF/2 9.6/8.1 or higher	$529.62	15	$1,920.00	$2,880.00
Ductless Mini-Split Heat Pump MS	Unit	N	SEER/2 16.0/15.1, HSPF/2 9.6/8.1 or higher	$529.62	15	$125.00	$200.00
ENERGY STAR Dehumidifiers	Unit	N	ENERGY STAR	$10.70	12	$20.00	$30.00
ENERGY STAR Freezer	Freezer	N	ENERGY STAR - average 6-types	$43.19	11	$10.00	$25.00
ENERGY STAR Refrigerator Bottom mount freezer with door ice	Refrigerator	N	ENERGY STAR	$50.47	14	$20.00	$60.00
ENERGY STAR Refrigerator bottom mount freezer without door ice	Refrigerator	N	ENERGY STAR	$50.47	14	$20.00	$60.00
ENERGY STAR Refrigerator Manual Defrost	Refrigerator	N	ENERGY STAR	$67.69	14	$15.00	$42.00
ENERGY STAR Refrigerator Partial Automatic Defrost	Refrigerator	N	ENERGY STAR	$67.69	14	$15.00	$42.00
ENERGY STAR Refrigerator Side mount freezer with door ice	Refrigerator	N	ENERGY STAR	$165.46	14	$20.00	$60.00
ENERGY STAR Refrigerator Side mount freezer without door ice	Refrigerator	N	ENERGY STAR	$56.63	14	$20.00	$42.00
ENERGY STAR Refrigerator Top mount freezer without door ice	Refrigerator	N	ENERGY STAR	$41.56	14	$15.00	$42.00
Freezer Recycling - Replacement	Freezer	Y	Functioning Freezer	$686.29	5	$550.00	$825.00
Freezer Recycling - Retirement	Freezer	N	Functioning Freezer	$50.00	4	$125.00	$185.00
Furnace Circulation Fan - High Efficiency (ECM - Variable Speed)	Furnace	Y	Per TRM Section 2.2.3	$311.06	15	$125.00	$185.00
Heat Pump Water Heater, Integrated	Heater	Y	Per TRM Section 2.3.1 ≥ UEFee 3.30	$650.96	10	$240.00	$360.00
HVAC - Furnace Filters	Filter	N	Per TRM Section 2.2.12	$6.50	1	$2.00	$5.00
Insulation - Basement Wall - Electric Heat (800 sf - ASHP)	Home	Y	Per TRM Section 2.6.3	$1,632.00	15	$1,305.60	$1,958.40
Insulation - Basement Wall - Electric Heat	Home	N	Per TRM Section 2.6.3	$1,632.00	15	$75.00	$400.00
Insulation - Basement Wall Insulation - Electric Heat (800 sf - ASHP)	Home	N	Per TRM Section 2.6.4	$960.00	15	$75.00	$400.00
Insulation - Ceiling - Electric Heat (R19-R60 1000 st - Avg. Electric)	Home	N	Per TRM Section 2.6.3	$2,610.00	15	$75.00	$400.00
Insulation - Ceiling - Electric Heat (R19-R60 1000 st - Avg. Electric)	Home	N	Per TRM Section 2.6.3	$2,610.00	15	$75.00	$400.00
Insulation - Duct - (R0 to R8), 50 ft	Home	N	Per TRM Section 2.2.9	$160.50	15	$75.00	$400.00
Insulation - Exterior Wall - Electric Heat (1000 sf)	Home	Y	Per TRM Section 2.6.3 raise to R11	$2,590.00	15	$1,500.00	$2,600.00
Insulation - Floor - Electric Heat (1000 sf)	Home	Y	Per TRM Section 2.6.3 raise to R11	$1,180.00	15	$950.00	$1,400.00

Table 7A: Eligible Measures – Residential *(continued)*

Measure	Unit	Low-Income Y/N	Eligibility	Incremental Cost ($/unit)	Estimated Useful Life	Incentive $/Unit Range	
						Low	High
Kit - Air Sealing	Kit	N	Program Provided	$22.50	5	$15.00	$30.00
Kit - High School	Kit	N	Program Provided	$31.00	9	$25.00	$55.00
Kit - Middle School Kit	Kit	N	Program Provided	$52.24	0	$40.00	$65.00
Kit - Primary School Kit	Kit	N	Program Provided	$22.99	0	$18.00	$40.00
Kit - Electric Hot Water (SF or MF, Mail-Out)	Kit	Y	Program Provided	$47.75	15	$35.00	$60.00
Kit - Electric Hot Water (SF or MF, Verified Install)	Kit	Y	Program Provided	$47.75	0	$35.00	$60.00
Kit - Gas Hot Water (SF or MF, Mail-Out)	Kit	Y	Program Provided	$29.77	0	$23.81	$35.72
Kit - Gas Hot Water (SF or MF, Verified Install)	Kit	Y	Program Provided	$29.77	5	$22.00	$35.00
Kit - Smart Home	Kit	N	Program Provided	$87.50	5	$50.00	$125.00
LED A-Line 11W (MF common area, exterior)	Lamp	N	Direct Install	$2.89	15	$1.50	$2.25
LED A-Line 11W (MF interior, residential)	Lamp	Y	Direct Install	$2.89	15	$1.50	$2.25
LED Downlight Retrofit	Lamp	N	Efficacy ≥ 45 lumens/Watt	$5.00	15	$1.60	$2.40
LED Parking Garage and Canopy Fixtures 45W	Fixture	Y	Efficacy per DLC ≥ v5.0	$157.52	15	$125.00	$190.00
LED Reflector 11W	Lamp	N	Efficacy ≥ 45 lumens/Watt	$3.50	15	$1.60	$2.40
LED Replacement Lamps (Tubes)-2' (Type A)	Lamp	Y	Efficacy per DLC ≥ v5.0	$10.06	7	$7.00	$10.50
LED Replacement Lamps (Tubes)-4' (Type A)	Lamp	Y	Efficacy per DLC ≥ v5.0	$10.06	7	$7.00	$10.50
LED, A-Line 11W (MF Common Area, exterior)	Lamp	N	Program Provided	$2.30	15	$1.50	$2.25
Lighting - LED Nightlight	Lamp	Y	Direct Install	$4.00	8	$3.20	$4.80
Lighting - LED A-Line 11W (MF interior, residential)	Lamp	Y	Direct Install	$2.89	4	$1.50	$2.25
Lighting - LED A-Line 11W (SF interior, residential)	Lamp	Y	Direct Install	$2.89	4	$1.50	$2.25
Lighting - LED A-Line 15W (MF interior, residential)	Lamp	Y	Direct Install	$4.50	4	$1.50	$2.25
Lighting - LED A-Line 15W (SF interior, residential)	Lamp	Y	Direct Install	$4.50	4	$1.50	$2.25
Lighting - LED A-Line 9W (MF interior, residential)	Lamp	Y	Direct Install	$1.85	4	$1.50	$2.25
Lighting - LED A-Line 9W (SF interior, residential)	Lamp	Y	Direct Install	$1.85	4	$1.50	$2.25
Lighting - LED Decorative 4.5W	Lamp	Y	Direct Install	$1.85	4	$1.50	$2.25
Lighting - LED Exterior Custom	Lamp	Y	Direct Install	$253.50	8	$130.00	$195.00
Lighting - LED Globe/Specialty 5W	Lamp	Y	Direct Install	$5.00	4	$1.50	$2.25
Lighting - LED Interior Custom	Lamp	Y	Direct Install	$5.00	8	$7.00	$10.50
Lighting - LED Reflector 6.5W - 11W	Lamp	Y	Direct Install	$75.00	4	$1.50	$2.25
Low Flow Faucet Aerator	Aerator	Y	Per TRM Section 2.3.7 <1.5 GPM	$5.75	10	$3.45	$5.75
Low Flow Showerhead	Showerhead	Y	Program Provided	$15.00	9	$12.00	$18.00
New Homes-15% or higher better than code-Electric Heat	Home	N	Exceeds IECC 2018	$1,929.63	15	$640.00	$960.00
New Homes-15% or higher better than code-Gas Heat	Home	N	Exceeds IECC 2018	$1,929.63	15	$280.00	$420.00
Occupancy Sensor or Timer Controls	Sensor	N	Per TRM Section 2.1.2	$25.75	10	$8.00	$12.00
Reflector Lamps (average) - Globe Average 4.5W	Lamp	N	Efficacy ≥ 45 lumens/Watt	$5.48	15	$1.25	$2.40
Reflector Lamps (average) - Mini-Base 5.5W	Lamp	N	Efficacy ≥ 45 lumens/Watt	$5.48	15	$1.25	$2.40
Reflector Lamps (average) - Reflectors Average 11.3W	Lamp	N	Efficacy ≥ 45 lumens/Watt	$5.48	15	$1.25	$2.40
Refrigerator Recycling - Replacement	Refrigerator	N	Functioning Refrigerator	$50.00	6	$120.00	$185.00
Refrigerator Recycling - Replacement	Refrigerator	Y	Functioning Refrigerator	$949.78	6	$750.00	$1,140.00
Refrigerator Recycling - Retirement	Refrigerator	N	Functioning Refrigerator	$50.00	5	$40.00	$60.00
Room AC Recycling - Retirement	Rm A/C	N	Functioning Refrigerator	$50.00	3	$40.00	$60.00
Room AC Recycling w/Replacement	Rm A/C	Y	Functioning Room AC	$42.76	9	$35.00	$50.00
Thermostatic Showerhead	Showerhead	Y	Per TRM Section 2.3.9	$29.36	15	$18.00	$27.00
Water Heater - Timer/Controller	Controller	N	Program Provided	$60.00	5	$15.00	$30.00
Weatherstrip 10'	Roll	N	Program Provided	$5.99	15	$3.50	$5.00

Table 7B: Eligible Measures – Nonresidential

Measure Name	Unit	Low-Income Y/N	Eligibility	Incremental Cost ($/unit)	Estimated Useful Life	Incentive $/Unit * ~~Range~~ Low	Incentive $/Unit * ~~Range~~ High
Air Cooled Refrigeration Condenser	Ton	N	85 Btu/hr of heat rejection capacity per Watt	$254	15	$70	$115
Air-Cooled Chillers >50 Tons, < 150 tons	Ton	N	Min 10.1 EER 15 IPLV	$40	15	$22	$33
Air-Cooled Chillers >50 Tons, < 150 tons	Ton	N	Min 10.1 EER 16 IPLV	$85	15	$44	$66
Air-Cooled Chillers >50 Tons, < 150 tons	Ton	N	Min 10.1 EER 18 IPLV	$146	15	$79	$119
Air-Cooled Chillers Greater than 150 tons	Ton	N	Min 10.1 EER 15 IPLV	$36	15	$22	$33
Air-Cooled Chillers Greater than 150 tons	Ton	N	Min 10.1 EER 16 IPLV	$74	15	$44	$66
Air-Cooled Chillers Greater than 150 tons	Ton	N	Min 10.1 EER 18 IPLV	$131	15	$79	$119
Air-Cooled Chillers Less than 50 tons	Ton	N	Min 10.1 EER 15 IPLV	$55	15	$22	$33
Air-Cooled Chillers Less than 50 tons	Ton	N	Min 10.1 EER 16 IPLV	$146	15	$44	$66
Air-Cooled Chillers Less than 50 tons	Ton	N	Min 10.1 EER 18 IPLV	$207	15	$79	$119
Anti sweat heat controls	Controller	N	On/Off or Micro Pulse	$1,051	12	$110	$165
Auto Closer for Coolers	Door	N	Close within 1"	$260	8	$150	$250
Auto Closers	Closer	N	Close within 1"	$260	8	$40	$60
Combined Heat and Power	Avg Annual kWh	N	N/A	$798,367	15	$359,040	$538,560
Computer Room AC 5.4 ton - 20 tons	Ton	N	Must Exceed Minimum Federal Standard	$750	15	$320	$480
Computer Room AC <5.4 tons	Ton	N	Must Exceed Minimum Federal Standard	$750	15	$240	$360
Computer Room AC >20 tons	Ton	N	Must Exceed Minimum Federal Standard	$750	15	$400	$600
Controls: Anti-Sweat Heater Controls	Controller	N	On/Off or Micro Pulse	$1,051	12	$160	$240
Controls: Evaporator Coil Defrost Control	Controller	N	Frost Detection	$210	10	$60	$90
Controls: Evaporator Fan Controllers	HP Controlled	N	On/Off Control Tied to Refrigerant Flow	$563	15	$48	$72
Controls: Floating Head Pressure Controls	HP	N	SCT Saturated Condensing Temp ≤ 70° F	$275	15	$120	$180
Custom Cooling	Avg Annual kWh	N	N/A	~~$81,110~~ $434,141	15	$42,441	~~$63,661~~ $390,727
Custom Exterior Controls	Avg Annual kWh	N	N/A	~~$1,142~~ $6,117	15	$572	~~$859~~ $5,506
Custom Exterior New Construction	Avg Annual kWh	N	Must Exceed IECC 2018	~~$10,286~~ $55,055	15	$5,156	~~$7,734~~ $42,259
Custom Interior Controls	Avg Annual kWh	N	N/A	~~$12,711~~ $68,038	15	$7,626	~~$12,711~~ $68,038
Custom Interior New Construction	Avg Annual kWh	N	Must Exceed IECC 2018	~~$114,403~~ $612,338	15	$68,642	~~$114,403~~ $612,338
Custom Other	Avg Annual kWh	N	N/A	~~$93,830~~ $502,221	15	$28,434	~~$42,651~~ $87,451
Custom Process	Avg Annual kWh	N	N/A	~~$21,818~~ $116,779	15	$5,728	~~$8,593~~ $33,345
Custom Refrigeration	Avg Annual kWh	N	N/A	~~$25,688~~ $137,494	15	$7,638	~~$11,457~~ $44,886
Custom Ventilation	Avg Annual kWh	N	N/A	~~$9,446~~ $50,563	15	$5,667	~~$9,446~~ $50,563
Cycling Refrigerated Thermal Mass Dryer	CFM	N	N/A	$6	10	$1.00	$2
Decorative, Globe, Screw-based 1050-1300 lumens	Lamp	N	ENERGY STAR Listed	$5	15	$0.50	$1.25
Decorative, Globe, Screw-based 250-309 lumens	Lamp	N	ENERGY STAR Listed	$5	15	$0.50	$1.25
Decorative, Globe, Screw-based 310-349 lumens	Lamp	N	ENERGY STAR Listed	$5	15	$0.50	$1.25
Decorative, Globe, Screw-based 350-499 lumens	Lamp	N	ENERGY STAR Listed	$5	15	$0.50	$1.25
Decorative, Globe, Screw-based 500-574 lumens	Lamp	N	ENERGY STAR Listed	$6	15	$3	$6
Decorative, Globe, Screw-based 575-649 lumens	Lamp	N	ENERGY STAR Listed	$5	15	$0.50	$1.25
Decorative, Globe, Screw-based 650-749 lumens	Lamp	N	ENERGY STAR Listed	$5	15	$0.50	$1.25
Decorative, Globe, Screw-based 750-1049 lumens	Lamp	N	ENERGY STAR Listed	$5	15	$0.50	$1.25
Decorative, Non-Globe, Screw-based 150-299 lumens	Lamp	N	ENERGY STAR Listed	$2	15	$0.50	$1.25

*Additional incentives of up to $250 per kW of peak-period demand reduction may apply.

Table 7B: Eligible Measures – Nonresidential *(continued)*

Measure Name	Unit	Low-Income Y/N	Eligibility	Incremental Cost ($/unit)	Estimated Useful Life	Incentive $/Unit * ~~Range~~	
						Low	High
Decorative, Non-Globe, Screw-based 300-309 lumens	Lamp	N	ENERGY STAR Listed	$3	15	$2	$3
Decorative, Non-Globe, Screw-based 310-499 lumens	Lamp	N	ENERGY STAR Listed	$2	15	$0.50	$1.25
Decorative, Non-Globe, Screw-based 500-699 lumens	Lamp	N	ENERGY STAR Listed	$2	15	$0.50	$1.25
Decorative, Non-Globe, Screw-based 90-149 lumens	Lamp	N	ENERGY STAR Listed	$2	15	$0.50	$1.25
Door Gaskets for Walk-in and Reach-in Coolers and Freezers	Door	N	Must apply to entire perimeter	$90	4	$24	$36
Doors to Existing Refrigerated Display Cases	Door	N	No Sweat Doors	$104	12	$40	$60
Ductless Mini-Split Heat Pump - 16 SEER	Ton	N	Must Exceed Minimum Federal Standard	$270	15	$44	$66
Ductless Mini-Split Heat Pump - 19 SEER	Ton	N	Must Exceed Minimum Federal Standard	$419	15	$88	$132
Ductless Mini-Split Heat Pump - 22 SEER	Ton	N	Must Exceed Minimum Federal Standard	$748	8	$132	$198
ECM motor for walk in freezer or cooler	Motor	N	ECM Motor	$295	15	$116	$174
ECM motor of reach in cases	Motor	N	ECM Motor	$295	15	$116	$174
ECM Pump for DHW > 1/6 and < 3/4 hp	Pump	N	ECM Motor	$1,112	15	$176	$265
ECM Pump for DHW ≤ 1/6 hp	Pump	N	ECM Motor	$711	15	$97	$145
ECM Pump for DHW ≥ 3/4 and < 3 hp	Pump	N	ECM Motor	$1,646	15	$353	$530
ECM Pump for Heating > 1/6 and < 3/4 hp	Pump	N	ECM Motor	$385	15	$176	$265
ECM Pump for Heating ≤ 1/6 hp	Pump	N	ECM Motor	$292	15	$97	$145
ECM Pump for Heating ≥ 3/4 and < 3 hp	Pump	N	ECM Motor	$627	15	$353	$530
Efficient Combination Oven <15 pans	unit	N	ENERGY STAR of FSTC Qualified	$2,512	12	$1,507	$2,512
Efficient Commercial Convection Oven Full size < 5Pans	unit	N	ENERGY STAR of FSTC Qualified	$374	12	$216	$360
Efficient Commercial Convection Oven Full size ≥ 5Pans	unit	N	ENERGY STAR of FSTC Qualified	$374	12	$224	$374
Efficient Commercial Convection Oven Half size	unit	N	ENERGY STAR of FSTC Qualified	$559	12	$287	$431
Efficient commercial dishwasher Multi Tank Conveyor High Temp	unit	N	ENERGY STAR of FSTC Qualified	$1,159	10	$695	$1,159
Efficient commercial dishwasher Multi Tank Conveyor Low Temp	unit	N	ENERGY STAR of FSTC Qualified	$2,035	10	$1,221	$2,035
Efficient commercial dishwasher Pot, Pan, and Utensil High Temp	unit	N	ENERGY STAR of FSTC Qualified	$2,044	10	$198	$331
Efficient commercial dishwasher Single Tank Conveyor High Temp	unit	N	ENERGY STAR of FSTC Qualified	$2,450	10	$580	$967
Efficient commercial dishwasher Single Tank Conveyor Low Temp	unit	N	ENERGY STAR of FSTC Qualified	$2,035	10	$878	$1,464
Efficient commercial dishwasher Stationary 1-Tank Door High Temp	unit	N	ENERGY STAR of FSTC Qualified	$920	10	$552	$920
Efficient commercial dishwasher Stationary 1-Tank Door Low Temp	unit	N	ENERGY STAR of FSTC Qualified	$2,035	10	$497	$828
Efficient commercial dishwasher Under Counter High Temperature	unit	N	ENERGY STAR of FSTC Qualified	$243	10	$132	$221
Efficient commercial dishwasher Under Counter Low Temperature	unit	N	ENERGY STAR of FSTC Qualified	$220	10	$132	$220
Efficient Commercial Fryer Large Vat	unit	N	ENERGY STAR of FSTC Qualified	$299	12	$149	$248
Efficient Commercial Fryer Standard	unit	N	ENERGY STAR of FSTC Qualified	$1,777	12	$149	$248
Efficient Commercial Glass Door Freezers less than 15 cu. ft.	unit	N	ENERGY STAR of FSTC Qualified	$150	12	$66	$110
Efficient Commercial Glass Door Freezers 15 to 30 cu. ft.	unit	N	ENERGY STAR of FSTC Qualified	$400	12	$82	$138
Efficient Commercial Glass Door Freezers 31 to 50 cu. ft.	unit	N	ENERGY STAR of FSTC Qualified	$550	12	$132	$221
Efficient Commercial Glass Door Freezers more than 50 cu.ft.	unit	N	ENERGY STAR of FSTC Qualified	$700	12	$165	$276
Efficient Commercial Glass Door Refrigerators less than 15 cu. ft.	unit	N	ENERGY STAR of FSTC Qualified	$250	12	$66	$110
Efficient Commercial Glass Door Refrigerators 15 to 30 cu. ft.	unit	N	ENERGY STAR of FSTC Qualified	$500	12	$82	$138
Efficient Commercial Glass Door Refrigerators 31 to 50 cu. ft.	unit	N	ENERGY STAR of FSTC Qualified	$750	12	$116	$193
Efficient Commercial Glass Door Refrigerators more than 50 cu. ft	unit	N	ENERGY STAR of FSTC Qualified	$900	12	$149	$248

*Additional incentives of up to $250 per kW of peak-period demand reduction may apply.

Table 7B: Eligible Measures – Nonresidential *(continued)*

Measure Name	Unit	Low-Income Y/N	Eligibility	Incremental Cost ($/unit)	Estimated Useful Life	Incentive $/Unit * ~~Range~~	
						Low	High
Efficient Commercial Griddle	unit	N	ENERGY STAR of FSTC Qualified	$950	12	$232	$386
Efficient Commercial Hot Food Holding Cabinet Full Size	unit	N	ENERGY STAR of FSTC Qualified	$895	12	$447	$746
Efficient Commercial Solid Door Freezers (< 15 cu ft)	unit	N	ENERGY STAR of FSTC Qualified	$150	12	$66	$110
Efficient Commercial Solid Door Freezers (> 50 cu ft)	unit	N	ENERGY STAR of FSTC Qualified	$700	12	$149	$248
Efficient Commercial Solid Door Freezers (15 - 30 cu ft)	unit	N	ENERGY STAR of FSTC Qualified	$400	12	$82	$138
Efficient Commercial Solid Door Freezers (30 - 50 cu ft)	unit	N	ENERGY STAR of FSTC Qualified	$550	12	$116	$193
Efficient Commercial Solid Door Refrigerators (< 15 cu ft)	unit	N	ENERGY STAR of FSTC Qualified	$250	12	$66	$110
Efficient Commercial Solid Door Refrigerators (> 50 cu ft)	unit	N	ENERGY STAR of FSTC Qualified	$900	12	$149	$248
Efficient Commercial Solid Door Refrigerators (15 - 30 cu ft)	unit	N	ENERGY STAR of FSTC Qualified	$500	12	$82	$138
Efficient Commercial Solid Door Refrigerators (30 - 50 cu ft)	unit	N	ENERGY STAR of FSTC Qualified	$750	12	$116	$193
Efficient Electric Steam Cooker	Unit	N	ENERGY STAR of FSTC Qualified	$2,630	12	$1,326	$2,210
Efficient Ice Machines Batch Type - self contained	Unit	N	ENERGY STAR of FSTC Qualified	$186	8	$111	$186
Efficient Ice Machines Batch Type - Ice making head	Unit	N	ENERGY STAR of FSTC Qualified	$311	8	$186	$311
Efficient Ice Machines Batch Type - remote condensing	Unit	N	ENERGY STAR of FSTC Qualified	$476	8	$232	$386
Efficient Ice Machines Continuous Type - ice making head	Unit	N	ENERGY STAR of FSTC Qualified	$467	8	$232	$386
Efficient Ice Machines Continuous Type - remote condensing	Unit	N	ENERGY STAR of FSTC Qualified	$541	8	$232	$386
Efficient Ice Machines Continuous Type - self contained	Unit	N	ENERGY STAR of FSTC Qualified	$285	8	$171	$285
Exit Sign Retrofit	Sign	N	ENERGY STAR Qualified	$55	15	$33	$55
Heat Pump Water Heaters	Unit	N	ENERGY STAR Qualified	$650	10	$331	$552
High Efficiency Pumps 1 ≤ HP < 3, Constant Speed	HP	N	PEI <0.96	$119	13	$16	$27
High Efficiency Pumps 1 ≤ HP < 3, Variable Speed	HP	N	PEI <0.49	$31	13	$16	$27
High Efficiency Pumps 3 ≤ HP ≤ 50, Constant Speed	HP	N	PEI <0.96	$127	13	$16	$27
High Efficiency Pumps 3 ≤ HP ≤ 50, Variable Speed	HP	N	PEI <0.49	$8	13	$2	$4
High Efficiency Pumps 50 < HP ≤ 200, Constant Speed	HP	N	PEI <0.96	$29	13	$16	$27
High Efficiency Pumps 50 < HP ≤ 200, Variable Speed	HP	N	PEI <0.49	$8	13	$2	$4
High-Eff. Evaporator Fan Motor Walk/Reach-in Refrigerated Cases	Motor	N	ECM Motor	$342	15	$30	$50
High-Efficiency Refrigeration/Freezer Cases	Cubic Foot	N	ENERGY STAR Qualified	$32	12	$6	$10
Insulation on suction pipes	Linear Ft	N	Thickness of 3/4" for cooler, 1" for freezer	$8	11	$1	$2
LED 2' Linear Replacement Lamp	Lamp	N	Design Lights Consortium Listed	$13	15	$1	~~$2~~ $3.50
LED 3' Linear Replacement Lamp	Lamp	N	Design Lights Consortium Listed	$10	15	$1	$2
LED 4' Interior Linear Strip Fixture or Retrofit Kit	Fixture	N	Design Lights Consortium Listed	$122	15	$18	$30
LED 4' Linear Replacement Lamp	Lamp	N	Design Lights Consortium Listed	$13	15	$5	$9
LED 8' Interior Linear Strip Fixture or Retrofit Kit	Fixture	N	Design Lights Consortium Listed	$185	15	$21	~~$35~~ $40
LED 8' Linear Replacement Lamp	Lamp	N	Design Lights Consortium Listed	$15	15	$4	~~$7~~ $9.50
LED Display Case Lighting	Door	N	Design Lights Consortium Listed	$51	8	$9	$15
LED Exit Sign	Sign	N	ENERGY STAR Listed Product	$55	15	$12	~~$20~~ $28.00
LED Exterior Area Lighting 0-49 Watt LED Fixture	Fixture	N	Design Lights Consortium Listed	$340	15	$43	$72
LED Exterior Area Lighting 1,000 watt HID lamp	Fixture	N	Design Lights Consortium Listed	$432	15	$11	$19
LED Exterior Area Lighting 100 watt HID lamp	Fixture	N	Design Lights Consortium Listed	$193	15	$46	$77
LED Exterior Area Lighting 110-149 Watt LED Fixture	Fixture	N	Design Lights Consortium Listed	$497	15	$138	$230

*Additional incentives of up to $250 per kW of peak-period demand reduction may apply.

Table 7B: Eligible Measures – Nonresidential *(continued)*

Measure Name	Unit	Low-Income Y/N	Eligibility	Incremental Cost ($/unit)	Estimated Useful Life	Incentive $/Unit * ~~Range~~	
						Low	High
LED Exterior Area Lighting 150-191 Watt LED Fixture	Fixture	N	Design Lights Consortium Listed	$497	15	$48	~~$80~~ $95
LED Exterior Area Lighting 175 watt HID lamp	Fixture	N	Design Lights Consortium Listed	$380	15	$66	$110
LED Exterior Area Lighting 192-224 Watt LED Fixture	Fixture	N	Design Lights Consortium Listed	$497	15	$60	~~$100~~ $120
LED Exterior Area Lighting 225-264 Watt LED Fixture	Fixture	N	Design Lights Consortium Listed	$497	15	$75	~~$125~~ $150
LED Exterior Area Lighting 250 watt HID lamp	Fixture	N	Design Lights Consortium Listed	$380	15	$82	$138
LED Exterior Area Lighting 265-499 Watt LED Fixture	Fixture	N	Design Lights Consortium Listed	$497	15	$90	~~$150~~ $185
LED Exterior Area Lighting 400 watt HID lamp	Fixture	N	Design Lights Consortium Listed	$432	15	$99	$165
LED Exterior Area Lighting 50-69 Watt LED Fixture	Fixture	N	Design Lights Consortium Listed	$428	15	$72	$120
LED Exterior Area Lighting 70-109 Watt LED Fixture	Fixture	N	Design Lights Consortium Listed	$497	15	$39	~~$65~~ $80
LED Exterior Area Lighting 750 watt HID lamp	Fixture	N	Design Lights Consortium Listed	$432	15	$33	$55
LED Interior 1' X 2'	Fixture	N	Design Lights Consortium Listed	$140	15	$9	~~$15~~ $18
LED Interior 1' X 4'	Fixture	N	Design Lights Consortium Listed	$140	15	$10	~~$18~~ $22
LED Interior 2' X 2'	Fixture	N	Design Lights Consortium Listed	$140	15	$10	~~$16~~ $22.00
LED Interior 2' X 2' Kit, Less than 3500 Lumens	Fixture	N	Design Lights Consortium Listed	$108	15	$11	$19
LED Interior 2' X 2' Kit, More than 3500 Lumens	Fixture	N	Design Lights Consortium Listed	$125	15	$11	$19
LED Interior 2' X 2', Less than 3500 Lumens	Fixture	N	Design Lights Consortium Listed	$108	15	$11	$19
LED Interior 2' X 2', More than 3500 Lumens	Fixture	N	Design Lights Consortium Listed	$125	15	$11	$19
LED Interior 2' X 4'	Fixture	N	Design Lights Consortium Listed	$157	15	$13	~~$22~~ $25
LED Interior 2' X 4' Kit, Max 4261 lumens	Fixture	N	Design Lights Consortium Listed	$125	15	$13	$22
LED Interior 2' X 4' Kit, Max 6392 lumens	Fixture	N	Design Lights Consortium Listed	$139	15	$13	$22
LED Interior 2' X 4' Kit, Max 9140 lumens	Fixture	N	Design Lights Consortium Listed	$174	15	$13	$22
LED Interior 2' X 4', Max 2132 lumens	Fixture	N	Design Lights Consortium Listed	$108	15	$13	$22
LED Interior 2' X 4', Max 4261 lumens	Fixture	N	Design Lights Consortium Listed	$125	15	$13	$22
LED Interior 2' X 4', Max 6392 lumens	Fixture	N	Design Lights Consortium Listed	$139	15	$13	$22
LED Interior 2' X 4', Max 9140 lumens	Fixture	N	Design Lights Consortium Listed	$174	15	$13	$22
LED Interior High-Bay Fixture 1,000 watt HID lamp/ T8 HLO	Fixture	N	Design Lights Consortium Listed	$323	15	$165	$276
LED Interior High-Bay Fixture 131-159W	Fixture	N	Design Lights Consortium Listed	$363	15	$36	~~$60~~ $70
LED Interior High-Bay Fixture 150 watt HID lamp/ T8 HLO	Fixture	N	Design Lights Consortium Listed	$276	15	$39	$66
LED Interior High-Bay Fixture 160-186W	Fixture	N	Design Lights Consortium Listed	$363	15	$42	~~$70~~ $85
LED Interior High-Bay Fixture 175 watt HID lamp/ T8 HLO	Fixture	N	Design Lights Consortium Listed	$276	15	$46	$77
LED Interior High-Bay Fixture 187-219W	Fixture	N	Design Lights Consortium Listed	$367	15	$48	~~$80~~ $100
LED Interior High-Bay Fixture 200 watt HID lamp/ T8 HLO	Fixture	N	Design Lights Consortium Listed	$276	15	$53	$88
LED Interior High-Bay Fixture 220-261W	Fixture	N	Design Lights Consortium Listed	$367	15	$54	~~$90~~ $110
LED Interior High-Bay Fixture 250 watt HID lamp/ T8 HLO	Fixture	N	Design Lights Consortium Listed	$276	15	$59	$99
LED Interior High-Bay Fixture 262-279W	Fixture	N	Design Lights Consortium Listed	$367	15	$60	~~$100~~ $122
LED Interior High-Bay Fixture 280-319W	Fixture	N	Design Lights Consortium Listed	$367	15	$105	~~$175~~ $205
LED Interior High-Bay Fixture 320 watt HID lamp/ T8 HLO	Fixture	N	Design Lights Consortium Listed	$319	15	$66	$110
LED Interior High-Bay Fixture 320-499W	Fixture	N	Design Lights Consortium Listed	$367	15	$120	~~$200~~ $300
LED Interior High-Bay Fixture 400 watt HID lamp/ T8 HLO	Fixture	N	Design Lights Consortium Listed	$319	15	$116	$193
LED Interior High-Bay Fixture 40-130W	Fixture	N	Design Lights Consortium Listed	$309	15	$50	$83

*Additional incentives of up to $250 per kW of peak-period demand reduction may apply.

Table 7B: Eligible Measures – Nonresidential *(continued)*

Measure Name	Unit	Low-Income Y/N	Eligibility	Incremental Cost ($/unit)	Estimated Useful Life	Incentive $/Unit * ~~Range~~ Low	Incentive $/Unit * ~~Range~~ High
LED Interior High-Bay Fixture 500-750W	Fixture	N	Design Lights Consortium Listed	$367	15	$150	~~$250~~ $300
LED Interior High-Bay Fixture 750 watt HID lamp/ T8 HLO	Fixture	N	Design Lights Consortium Listed	$323	15	$132	$221
New Construction, Exterior >5% to 10% better than code	Avg Annual kWh	N	Exceeds IECC 2018	~~$77~~ $413	15	$46	~~$47~~ $410
New Construction, Exterior 11-20% better than code	Avg Annual kWh	N	Exceeds IECC 2018	~~$69~~ $372	15	$41	~~$69~~ $370
New Construction, Exterior 20% - 30% better than code	Avg Annual kWh	N	Exceeds IECC 2018	~~$96~~ $516	15	$57	~~$96~~ $510
New Construction, Interior >5% to 10% better than code	Avg Annual kWh	N	Exceeds IECC 2018	~~$1,999~~ $7,983	15	$1,199	~~$1,999~~ $7,950
New Construction, Interior 11-20% better than code	Avg Annual kWh	N	Exceeds IECC 2018	~~$1,799~~ $7,185	15	$1,079	~~$1,799~~ $7,150
New Construction, Interior 20% - 30% better than code	Avg Annual kWh	N	Exceeds IECC 2018	~~$2499~~ $9,978	15	$1,499	~~$2,499~~ $9,950
Night Covers for Display Cases	Linear Ft.	N	Perforated	$42	5	$5	$9
No-loss Condensate Drain	Drain	N	Operated by a solenoid and timer	$244	5	$48	$81
Omnidirectional, General Service Lamp, Screw-based 1050-1489 lm	Lamp	N	ENERGY STAR Listed Product	$3	15	$0.50	$1.25
Omnidirectional, General Service Lamp, Screw-based 1490-1999 lm	Lamp	N	ENERGY STAR Listed Product	$3	15	$0.50	$1.25
Omnidirectional, General Service Lamp, Screw-based 2000-2600 lm	Lamp	N	ENERGY STAR Listed Product	$3	15	$0.50	$1.25
Omnidirectional, General Service Lamp, Screw-based 250-309 lm	Lamp	N	ENERGY STAR Listed Product	$3	15	$0.50	$1.25
Omnidirectional, General Service Lamp, Screw-based 2601-3000 lm	Lamp	N	ENERGY STAR Listed Product	$3	15	$0.50	$1.25
Omnidirectional, General Service Lamp, Screw-based 3001-3300 lm	Lamp	N	ENERGY STAR Listed Product	$3	15	$0.50	$1.25
Omnidirectional, General Service Lamp, Screw-based 310-449 lm	Lamp	N	ENERGY STAR Listed Product	$3	15	$0.50	$1.25
Omnidirectional, General Service Lamp, Screw-based 3301-3999 lm	Lamp	N	ENERGY STAR Listed Product	$3	15	$0.50	$1.25
Omnidirectional, General Service Lamp, Screw-based 4000-6000 lm	Lamp	N	ENERGY STAR Listed Product	$3	15	$0.50	$1.25
Omnidirectional, General Service Lamp, Screw-based 450-749 lm	Lamp	N	ENERGY STAR Listed Product	$3	15	$0.50	$1.25
Omnidirectional, General Service Lamp, Screw-based 750-1049 lm	Lamp	N	ENERGY STAR Listed Product	$4	15	$2	$4
Packaged Terminal AC or PTHP 11.6 EER	Ton	N	Must Exceed Minimum Federal Standard	$520	15	$39	$66
Packaged Terminal AC or PTHP 12.0 EER	Ton	N	Must Exceed Minimum Federal Standard	$520	15	$43	$71
Packaged Terminal AC or PTHP 13.0 or higher EER	Ton	N	Must Exceed Minimum Federal Standard	$520	15	$49	$82
Pre-Rinse Sprayers	Sprayer	N	Less than 1.6 GPM	$124	8	$74	$124
Reflector Lamp; PAR, MR, MRX 1260-1399 lumens	Lamp	N	ENERGY STAR Listed Product	$5	15	$0.50	$1.25
Reflector Lamp; PAR, MR, MRX 400-472 lumens	Lamp	N	ENERGY STAR Listed Product	$5	15	$0.50	$1.25
Reflector Lamp; PAR, MR, MRX 473-524 lumens	Lamp	N	ENERGY STAR Listed Product	$5	15	$0.50	$1.25
Reflector Lamp; PAR, MR, MRX 525-714 lumens	Lamp	N	ENERGY STAR Listed Product	$5	15	$0.50	$1.25
Reflector Lamp; PAR, MR, MRX 715-937 lumens	Lamp	N	ENERGY STAR Listed Product	$5	15	$0.50	$1.25
Reflector Lamp; PAR, MR, MRX 938-1259 lumens	Lamp	N	ENERGY STAR Listed Product	$6	15	$3	$6
Refrigerated Case Light Occupancy Controls	Watts Controlled	N	Dim of Turn-off Lighting	$3	8	$0.50	$1.25
Refrigerated Display Cases with Doors Replacing Open Cases	Linear Ft.	N	No Sweat Doors	$321	12	$21	$35
Refrigeration Economizers	Compressor HP	N	Outside air required	$100	15	$30	$50
Replacement door w/ anti-sweat heater	Linear Ft.	N	Reflective Coating and Fiberglass frame	$122	12	$58	$96
Special Doors with Low or No Anti-Sweat Heat for Low Temp Case	Door	N	>57", either reflective coating or gas filled	$255	12	$27	$45
Storage Tanks for Load/No Load Screw Compressors <50 HP	Compressor	N	1 gal/cfm storage ratio or modulating with blowdo	$2,250	15	$450	$750
Storage Tanks for Load/No Load Screw Compressors >150 HP	Compressor	N	1 gal/cfm storage ratio or modulating with blowdo	$4,500	15	$900	$1,500
Storage Tanks for Load/No Load Screw Compressors 50-150 HP	Compressor	N	1 gal/cfm storage ratio or modulating with blowdo	$3,000	15	$600	$1,000
Strip Curtains for Walk-In Freezers and Coolers	Sq. Ft.	N	0.06 inches thick	$10	4	$1	$3

*Additional incentives of up to $250 per kW of peak-period demand reduction may apply.

Table 7B: Eligible Measures – Nonresidential *(continued)*

Measure Name	Unit	Low-Income Y/N	Eligibility	Incremental Cost ($/unit)	Estimated Useful Life	Incentive $/Unit * ~~Range~~	
						Low	High
Suction Pipe Insulation for Walk-In Coolers and Freezers	Linear Ft.	N	Thickness of 3/4" for cooler, 1" for freezer	$8	11	$1	$2
Unitary HVAC <65k Packaged	Ton	N	3-phase AC unit, Min 15 SEER/14.3 SEER2	$131	15	$19	$33
Unitary HVAC <65k Packaged	Ton	N	3-phase AC unit, Min 16 SEER/15.1 SEER2	$271	15	$39	$66
Unitary HVAC <65k Packaged	Ton	N	3-phase AC unit, Min 18 SEER/16.7 SEER2	$420	15	$66	$110
Unitary HVAC <65k Split System	Ton	N	3-phase AC unit, Min 15 SEER/14.3 SEER2	$131	15	$26	$44
Unitary HVAC <65k Split System	Ton	N	3-phase AC unit, Min 16 SEER/15.1 SEER2	$271	15	$53	$88
Unitary HVAC <65k Split System	Ton	N	3-phase AC unit, Min 18 SEER/16.7 SEER2	$420	15	$66	$110
Unitary HVAC ≥760k AC unit	Ton	N	Min 9.7 EER / 9.3 EER2 / 13 IEER	$40	15	$19	$33
Unitary HVAC ≥760k AC min 9.7 EER 14 IEER (cooling mode)	Ton	N	Min 9.7 EER / 9.3 EER2 / 14 IEER	$80	15	$39	$66
Unitary HVAC ≥760k AC, min 9.7 EER 16 IEER (cooling mode)	Ton	N	Min 9.7 EER / 9.3 EER2 / 16 IEER	$133	15	$66	$110
Unitary HVAC 135-240k AC, min 11.5 EER 13 IEER (cooling mode)	Ton	N	Min 11.5 EER / 11.0 EER2 / 13 IEER	$43	15	$19	$33
Unitary HVAC 135-240k AC, min 11.5 EER 14 IEER (cooling mode)	Ton	N	Min 11.5 EER / 11.0 EER2 / 14 IEER	$86	15	$39	$66
Unitary HVAC 135-240k AC, min 11.5 EER 16 IEER (cooling mode)	Ton	N	Min 11.5 EER / 11.0 EER2 / 16 IEER	$147	15	$66	$110
Unitary HVAC 240-760k AC, min 9.8 EER 12 IEER (cooling mode)	Ton	N	Min 9.8 EER / 9.4 EER2 / 12 IEER	$41	15	$19	$33
Unitary HVAC 240-760k AC, min 9.8 EER 13 IEER (cooling mode)	Ton	N	Min 9.8 EER / 9.4 EER2 / 13 IEER	$80	15	$39	$66
Unitary HVAC 240-760k AC, min 9.8 EER 14 IEER (cooling mode)	Ton	N	Min 9.8 EER / 9.4 EER2 / 14 IEER	$133	15	$66	$110
Unitary HVAC 65-135k AC min 11.5 EER 13.2 IEER (cooling mode)	Ton	N	Min 11.5 EER / 11.0 EER2 / 13.2 IEER	$46	15	$19	$33
Unitary HVAC 65-135k AC min 11.5 EER 14.0 IEER (cooling mode)	Ton	N	Min 11.5 EER / 11.0 EER2 / 14 IEER	$93	15	$39	$66
Unitary HVAC 65-135k AC min 11.5 EER 17.8 IEER (cooling mode)	Ton	N	Min 11.5 EER / 11.0 EER2 / 17.8 IEER	$160	15	$66	$110
Variable Speed Air Compressor <=50 HP	Compressor HP	N	>40 HP treated as a Custom Measure	$1,950	13	$390	$650
Variable Speed Air Compressor 101-150 HP HP	Compressor HP	N	oil-flooded, modulating blowdown or load/no-loa	$1,950	13	$390	$650
Variable Speed Air Compressor 51-100 HP	Compressor HP	N	oil-flooded, modulating blowdown or load/no-loa	$1,950	13	$390	$650
Variable Speed Refrigeration Compressor	HP	N	VSD replacing side valve	$100	15	$9	$15
VFD - Air Compressor	Compressor HP	N	<200 HP	$145	13	$45	$75
VFD - HVAC Fan Motor	HP	N	<200 HP	$140	15	$45	~~$75~~ $135
VFD - Kitchen Exhaust	HP	N	<200 HP	$3,311	15	$265	$442
Water Source and Geothermal Heat Pumps	Ton	N	14 EER / 13.4 EER2	$8,802	15	$19	$33
Water Source and Geothermal Heat Pumps 15 EER	Ton	N	15 EER / 14.3 EER2	$8,802	15	$39	$66
Water Source and Geothermal Heat Pumps 16 EER	Ton	N	16 EER / 15.3 EER2	$8,802	15	$66	$110
Water-Cooled Chiller (Centrifugal) ≥150 tons, < 300 tons	Ton	N	kW/ton <= 0.594 IPLV <= 0.5	$91	15	$33	$55
Water-Cooled Chiller (Centrifugal) ≥300 tons, < 400 tons	Ton	N	kW/ton <= 0.544 IPLV <= 0.47	$75	15	$33	$55
Water-Cooled Chiller (Centrifugal) ≥400 tons, < 600 tons	Ton	N	kW/ton <= 0.544 IPLV <= 0.45	$82	15	$29	$49
Water-Cooled Chiller (Centrifugal) Greater than 600 tons	Ton	N	kW/ton <= 0.544 IPLV <= 0.45	$94	15	$23	$38
Water-Cooled Chiller (Centrifugal) Less than 150 tons	Ton	N	kW/ton <= 0.594 IPLV <= 0.5	$163	15	$33	$55
Water-Cooled Chiller (Positive Displacement) >150 tons, <300 Tons	Ton	N	kW/ton <= 0.652 IPLV <= 0.49	$63	15	$33	$55
Water-Cooled Chiller (Positive Displacement) >300 tons, <600 Tons	Ton	N	kW/ton <= 0.602 IPLV <= 0.47	$50	15	$30	$50
Water-Cooled Chiller (Positive Displacement) >75 tons, <150 tons	Ton	N	kW/ton <= 0.712 IPLV <= 0.51	$94	15	$49	$82
Water-Cooled Chiller (Positive Displacement) Greater than 600 tons	Ton	N	kW/ton <= 0.552 IPLV <= 0.45	$48	15	$29	$48
Water-Cooled Chiller (Positive Displacement) Less than 75 tons	Ton	N	kW/ton <= 0.742 IPLV <= 0.55	$82	15	$19	$33

*Additional incentives of up to $250 per kW of peak-period demand reduction may apply.

Table 8A: Estimated Savings and Participants – Residential

Measure	Metric	PY13	PY14	PY15	PY16	PY17
Advanced Power Strips (Tier 1 & 2)	MWh Savings	537.211	535.500	614.302	648.539	673.249
	MW Reduction	0.061	0.056	0.088	0.092	0.094
	Participants	5,065.000	5,094.000	5,099.407	5,383.620	5,588.842
Air Purifier (CADR 151-200 FT3/MIN.)	MWh Savings	0.000	0.000	228.544	241.282	250.475
	MW Reduction	0.000	0.000	0.030	0.031	0.032
	Participants	0.000	0.000	376.422	397.402	412.551
Air Sealing	MWh Savings	8.530	0.000	23.103	24.391	25.320
	MW Reduction	0.000	0.000	0.000	0.000	0.000
	Participants	2.000	0.000	21.715	22.925	23.799
Air Source Heat Pump - SEER 16 / HSPF 9.0+	MWh Savings	0.000	3.349	0.000	0.000	0.000
	MW Reduction	0.000	0.001	0.000	0.000	0.000
	Participants	0.000	9.000	0.000	0.000	0.000
Air Source Heat Pump - SEER 17 / HSPF 9.0+	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	0.000	0.000	0.000	0.000	0.000
Air Source Heat Pump - SEER 17.5 / SEER2 16.3 HSPF 9.7 / HSPF2 8.2 +	MWh Savings	0.000	0.649	41.504	43.817	45.487
	MW Reduction	0.000	0.000	0.007	0.007	0.007
	Participants	0.000	1.000	72.571	76.616	79.536
Air Source Heat Pump - SEER 18 / SEER2 16.7 HSPF 9.7 / HSPF2 8.2 +	MWh Savings	0.000	4.442	21.021	22.192	23.038
	MW Reduction	0.000	0.000	0.004	0.004	0.004
	Participants	0.000	3.000	35.294	37.261	38.681
Air Source Heat Pump - SEER 19 / SEER2 17.5 HSPF 9.7 / HSPF2 8.2 +	MWh Savings	0.000	0.000	18.209	19.224	19.956
	MW Reduction	0.000	0.000	0.003	0.003	0.003
	Participants	0.000	0.000	23.529	24.840	25.787
Air Source Heat Pump - SEER 20 / SEER2 18.3 HSPF 10.0 / HSPF2 8.5 +	MWh Savings	0.000	0.000	43.909	46.356	48.123
	MW Reduction	0.000	0.000	0.008	0.008	0.008
	Participants	0.000	1.000	53.932	56.938	59.108
Air Source Heat Pump - SEER 21 / SEER2 19.1 HSPF 10.0 / HSPF2 8.5 +	MWh Savings	0.000	2.559	10.012	10.570	10.973
	MW Reduction	0.000	0.000	0.002	0.002	0.002
	Participants	0.000	1.000	11.765	12.420	12.894
Air Source Heat Pump - SEER 22 / SEER2 19.9 HSPF 11.0 / HSPF2 9.3+	MWh Savings	0.000	1.928	15.047	15.886	16.491
	MW Reduction	0.000	0.000	0.002	0.002	0.002
	Participants	0.000	1.000	11.765	12.420	12.894
Central Air Conditioner - SEER 16+	MWh Savings	0.001	8.862	0.000	0.000	0.000
	MW Reduction	0.000	0.006	0.000	0.000	0.000
	Participants	1.000	40.000	0.000	0.000	0.000
Central Air Conditioner SEER 17.5 / SEER2 16.3	MWh Savings	0.000	0.412	13.134	13.866	14.394
	MW Reduction	0.000	0.000	0.010	0.010	0.010
	Participants	0.000	4.000	56.417	59.561	61.832
Central Air Conditioner SEER 18 / SEER2 16.7	MWh Savings	0.000	0.461	3.607	3.808	3.953
	MW Reduction	0.000	0.000	0.003	0.003	0.003
	Participants	0.000	3.000	13.962	14.740	15.302
Central Air Conditioner SEER 19 / SEER2 17.5	MWh Savings	0.000	1.394	4.272	4.510	4.682
	MW Reduction	0.000	0.000	0.003	0.003	0.003
	Participants	0.000	2.000	13.962	14.740	15.302
Central Air Conditioner SEER 20 / SEER2 18.3	MWh Savings	0.000	5.537	5.583	5.894	6.119
	MW Reduction	0.000	0.003	0.004	0.004	0.004
	Participants	0.000	16.000	15.980	16.871	17.514
Central Air Conditioner SEER 21 / SEER2 19.1	MWh Savings	0.000	0.000	2.717	2.868	2.978
	MW Reduction	0.000	0.000	0.002	0.002	0.002
	Participants	0.000	0.000	6.981	7.370	7.651
Central Air Conditioner SEER 22 / SEER2 19.9	MWh Savings	0.000	0.000	1.486	1.569	1.629
	MW Reduction	0.000	0.000	0.001	0.001	0.001
	Participants	0.000	0.000	3.491	3.685	3.826
Central Air Conditioner SEER 23 / SEER2 20.7	MWh Savings	0.000	0.000	1.604	1.693	1.758
	MW Reduction	0.000	0.000	0.001	0.001	0.001
	Participants	0.000	0.000	3.491	3.685	3.826
Connected Thermostat	MWh Savings	13.956	94.208	198.327	209.381	217.358
	MW Reduction	0.002	0.007	0.000	0.000	0.000
	Participants	77.000	244.000	346.920	366.256	380.217

Table 8A: Estimated Savings and Participants – Residential *(continued)*

Measure	Metric	PY13	PY14	PY15	PY16	PY17
Custom Exterior Lighting	MWh Savings	0.000	51.798	0.000	0.000	0.000
	MW Reduction	0.000	0.002	0.000	0.000	0.000
	Participants	0.000	13.000	0.000	0.000	0.000
Custom Interior Lighting	MWh Savings	30.508	198.005	0.000	0.000	0.000
	MW Reduction	0.003	0.025	0.000	0.000	0.000
	Participants	1,193.540	4,757.090	0.000	0.000	0.000
Custom Ventilation	MWh Savings	0.000	283.642	0.000	0.000	0.000
	MW Reduction	0.000	0.131	0.000	0.000	0.000
	Participants	0.000	2.000	0.000	0.000	0.000
Dehumidifier Retirement	MWh Savings	15.064	104.106	139.252	147.013	152.615
	MW Reduction	0.004	0.024	0.037	0.038	0.039
	Participants	25.000	164.000	209.986	221.689	230.140
Duquesne Light Customer Kit	MWh Savings	0.000	598.606	0.000	0.000	0.000
	MW Reduction	0.000	0.046	0.000	0.000	0.000
	Participants	0.000	23,973.000	0.000	0.000	0.000
Duct Insulation - (R0 to R8), 50 ft	MWh Savings	0.000	0.000	3.987	4.209	4.369
	MW Reduction	0.000	0.000	0.000	0.000	0.000
	Participants	0.000	0.000	7.563	7.984	8.289
Pipe Insulation	MWh Savings	0.085	0.000	0.000	0.000	0.000
	MW Reduction	0.000	0.000	0.000	0.000	0.000
	Participants	1.000	0.000	0.000	0.000	0.000
Ductless Mini-Split ENERGY STAR Cold Climate rated	MWh Savings	0.000	0.000	128.100	135.239	140.392
	MW Reduction	0.000	0.000	0.009	0.010	0.010
	Participants	0.000	0.000	53.362	56.336	58.484
Ductless Mini-Split Heat Pump	MWh Savings	1.894	17.754	153.028	161.557	167.712
	MW Reduction	0.001	0.014	0.032	0.033	0.034
	Participants	1.000	30.000	77.299	81.607	84.718
ENERGY STAR Dehumidifier	MWh Savings	486.307	466.600	28.058	29.622	30.750
	MW Reduction	0.135	0.116	0.008	0.008	0.009
	Participants	3,172.000	4,165.000	276.872	292.303	303.445
ENERGY STAR Freezer (average 6-types)	MWh Savings	0.000	0.288	0.503	0.531	0.551
	MW Reduction	0.000	0.000	0.000	0.000	0.000
	Participants	0.000	7.000	18.151	19.163	19.893
ENERGY STAR Refrigerator Bottom mount freezer with door ice	MWh Savings	4.733	10.540	10.570	11.159	11.584
	MW Reduction	0.001	0.002	0.002	0.002	0.002
	Participants	66.000	170.000	174.858	184.604	191.641
ENERGY STAR Refrigerator bottom mount freezer without door ice	MWh Savings	0.526	1.460	7.181	7.581	7.870
	MW Reduction	0.000	0.000	0.001	0.001	0.001
	Participants	9.000	25.000	149.596	157.934	163.954
ENERGY STAR Refrigerator Manual Defrost	MWh Savings	0.056	0.211	2.642	2.789	2.896
	MW Reduction	0.000	0.000	0.000	0.001	0.001
	Participants	2.000	7.000	99.073	104.595	108.582
ENERGY STAR Refrigerator Partial Automatic Defrost	MWh Savings	0.177	0.077	0.823	0.869	0.902
	MW Reduction	0.000	0.000	0.000	0.000	0.000
	Participants	3.000	2.000	26.446	27.920	28.984
ENERGY STAR Refrigerator Side mount freezer with door ice	MWh Savings	0.270	0.449	1.627	1.717	1.783
	MW Reduction	0.000	0.000	0.000	0.000	0.000
	Participants	4.000	8.000	29.998	31.670	32.877
ENERGY STAR Refrigerator Side mount freezer without door ice	MWh Savings	0.000	0.260	0.227	0.240	0.249
	MW Reduction	0.000	0.000	0.000	0.000	0.000
	Participants	0.000	4.000	4.737	5.001	5.191
ENERGY STAR Refrigerator Top mount freezer without door ice	MWh Savings	1.595	3.111	2.404	2.538	2.635
	MW Reduction	0.000	0.001	0.000	0.000	0.000
	Participants	34.000	73.000	87.232	92.093	95.604
ENERGY STAR Compact Refrigerator	MWh Savings	0.000	4.108	0.000	0.000	0.000
	MW Reduction	0.000	0.001	0.000	0.000	0.000
	Participants	0.000	80.000	0.000	0.000	0.000
ENERGY STAR Room AC	MWh Savings	3.857	2.887	0.000	0.000	0.000
	MW Reduction	0.009	0.006	0.000	0.000	0.000
	Participants	54.000	55.000	0.000	0.000	0.000
ENERGY STAR Screw-in LED Bulb (Standard)	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	0.000	0.000	10,961.213	11,572.132	12,013.257

Table 8A: Estimated Savings and Participants – Residential *(continued)*

Measure	Metric	PY13	PY14	PY15	PY16	PY17
Freezer Recycling - Replacement	MWh Savings	0.000	0.000	29.984	31.655	32.861
	MW Reduction	0.000	0.000	0.004	0.004	0.004
	Participants	0.000	0.000	75.683	79.901	82.947
Freezer Recycling - Retirement	MWh Savings	69.580	229.952	169.693	179.150	185.976
	MW Reduction	0.011	0.037	0.031	0.033	0.033
	Participants	90.000	368.000	307.500	324.638	337.013
Furnace Circulation Fan - High Efficiency (ECM - Variable Speed)	MWh Savings	0.000	0.000	5.560	5.870	6.093
	MW Reduction	0.000	0.000	0.001	0.001	0.001
	Participants	0.000	0.000	29.739	31.397	32.593
H&S measures, Comprehensive	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	25.000	0.000	69.880	73.775	76.587
H&S measures, Walkthrough	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	2,492.000	1,804.000	117.397	123.940	128.664
Heat Pump Water Heater	MWh Savings	32.866	94.500	394.649	416.644	432.519
	MW Reduction	0.003	0.008	0.036	0.038	0.039
	Participants	13.000	45.000	222.051	234.427	243.363
HVAC - Furnace Filters	MWh Savings	0.000	0.000	0.505	0.533	0.554
	MW Reduction	0.000	0.000	0.000	0.000	0.000
	Participants	0.000	0.000	1.334	1.408	1.462
Insulation, Basement Wall	MWh Savings	0.000	0.000	34.167	36.072	37.446
	MW Reduction	0.000	0.000	0.001	0.001	0.001
	Participants	0.000	0.000	24.969	26.361	27.365
Insulation, Ceiling	MWh Savings	4.565	4.165	41.871	44.205	45.889
	MW Reduction	0.000	0.001	0.002	0.002	0.002
	Participants	3.000	9.000	42.504	44.872	46.583
Insulation, Exterior Wall	MWh Savings	0.000	0.000	30.092	31.769	32.979
	MW Reduction	0.000	0.000	0.001	0.001	0.001
	Participants	0.000	0.000	19.194	20.264	21.036
Insulation, Floor	MWh Savings	0.000	82.811	15.432	16.292	16.912
	MW Reduction	0.000	0.001	0.001	0.001	0.001
	Participants	0.000	3.000	9.843	10.392	10.788
Kit - Smart Home	MWh Savings	0.000	0.000	0.248	0.262	0.272
	MW Reduction	0.000	0.000	0.000	0.000	0.000
	Participants	0.000	0.000	0.621	0.655	0.680
Kit - Air Sealing	MWh Savings	0.000	0.000	0.083	0.087	0.091
	MW Reduction	0.000	0.000	0.000	0.000	0.000
	Participants	0.000	0.000	0.621	0.655	0.680
Kit - High School	MWh Savings	0.000	0.000	889.264	938.826	974.597
	MW Reduction	0.000	0.000	0.236	0.245	0.252
	Participants	0.000	0.000	4,033.553	4,258.361	4,420.688
Kit - Middle School	MWh Savings	183.180	151.427	1,651.078	1,743.099	1,809.514
	MW Reduction	0.051	0.040	0.503	0.523	0.537
	Participants	762.000	703.000	10,083.882	10,645.903	11,051.721
Kit - Primary School	MWh Savings	878.641	629.447	2,368.402	2,500.403	2,595.672
	MW Reduction	0.246	0.057	0.978	1.016	1.043
	Participants	3,655.000	4,038.000	10,083.882	10,645.903	11,051.721
Kit - Gas Hot Water Kit (SF or MF)	MWh Savings	0.000	0.000	105.813	111.710	115.966
	MW Reduction	0.000	0.000	0.011	0.011	0.011
	Participants	0.000	0.000	1,150.760	1,214.897	1,261.209
Kit - Electric Hot Water Kit (SF or MF)	MWh Savings	0.000	0.000	122.597	129.430	134.362
	MW Reduction	0.000	0.000	0.013	0.014	0.014
	Participants	0.000	0.000	758.105	800.358	830.867
LED A-Line 11W (MF common area, exterior)	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	0.000	0.000	0.000	0.000	0.000
LED Downlight Retrofit	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	0.000	0.000	56.331	59.470	54.880

Table 8A: Estimated Savings and Participants – Residential *(continued)*

Measure	Metric	PY13	PY14	PY15	PY16	PY17
LED Parking Garage and Canopy Fixtures and Retrofit Kits	MWh Savings	0.000	0.000	41.206	43.503	45.160
	MW Reduction	0.000	0.000	0.001	0.001	0.002
	Participants	0.000	0.000	75.658	79.874	82.919
LED Reflector 11W	MWh Savings	243.014	170.444	0.000	0.000	0.000
	MW Reduction	0.028	0.017	0.000	0.000	0.000
	Participants	14,406.890	12,807.250	168.993	178.411	185.212
LED Replacement Lamps (Tubes)-2' & 4'	MWh Savings	0.000	43.704	2,071.274	2,186.715	2,270.032
	MW Reduction	0.000	0.006	0.291	0.302	0.310
	Participants	0.000	247.000	25,950.556	27,396.899	28,441.258
Lighting - LED Nightlight	MWh Savings	505.388	480.614	434.232	458.434	475.901
	MW Reduction	0.000	0.000	0.000	0.000	0.000
	Participants	31,938.000	22,809.000	21,063.055	22,236.995	23,084.661
Lighting - LED A-Line 11W, interior	MWh Savings	0.000	0.000	4.880	5.152	5.348
	MW Reduction	0.000	0.000	0.005	0.005	0.005
	Participants	0.000	0.000	212.115	223.937	232.473
Lighting - LED A-Line 15W, interior	MWh Savings	69.025	29.488	14.640	15.456	16.044
	MW Reduction	0.007	0.003	0.014	0.015	0.015
	Participants	2,526.000	790.000	636.344	671.810	697.419
Lighting - LED A-Line 9W, interior	MWh Savings	411.088	413.222	291.906	308.175	319.917
	MW Reduction	0.043	0.043	0.282	0.293	0.301
	Participants	14,828.760	15,117.000	12,688.354	13,395.534	13,906.166
Lighting - LED Decorative 4.5W	MWh Savings	85.828	129.278	102.640	108.361	112.490
	MW Reduction	0.009	0.013	0.099	0.103	0.106
	Participants	3,509.970	4,873.310	2,970.505	3,136.065	3,255.611
Lighting - LED Exterior Custom	MWh Savings	0.000	0.000	280.075	295.684	306.950
	MW Reduction	0.000	0.000	0.199	0.207	0.213
	Participants	0.000	0.000	514.240	542.901	563.597
Lighting - LED Globe/Specialty 5W	MWh Savings	40.730	62.866	35.289	37.256	38.676
	MW Reduction	0.005	0.007	0.034	0.035	0.036
	Participants	1,587.580	4,721.780	1,021.303	1,078.225	1,119.326
Lighting - LED Interior Custom	MWh Savings	0.000	6.729	334.191	352.817	366.260
	MW Reduction	0.000	0.001	0.323	0.336	0.345
	Participants	0.000	35.000	3,830.237	4,043.714	4,197.859
Lighting - LED Reflector 6.5W - 11W	MWh Savings	488.167	373.750	81.063	85.581	88.842
	MW Reduction	0.054	0.038	0.078	0.081	0.084
	Participants	34,560.380	40,586.720	3,553.797	3,751.866	3,894.886
ENERGY STAR Lighting Fixture	MWh Savings	545.320	448.449	0.000	0.000	0.000
	MW Reduction	0.062	0.049	0.000	0.000	0.000
	Participants	39,466.490	34,780.500	0.000	0.000	0.000
Low Flow Faucet Aerator	MWh Savings	67.363	44.267	5.620	5.934	6.160
	MW Reduction	0.010	0.006	0.001	0.001	0.001
	Participants	665.000	234.000	451.272	476.423	494.584
Low Flow Showerhead	MWh Savings	39.195	20.872	10.475	11.058	11.480
	MW Reduction	0.003	0.002	0.001	0.001	0.001
	Participants	127.000	65.000	277.906	293.395	304.579
Low Flow Showerhead	MWh Savings	0.000	0.000	11.559	12.203	12.668
	MW Reduction	0.000	0.000	0.002	0.003	0.003
	Participants	0.000	0.000	6.050	6.388	6.631
New Homes-15% or higher better than code-Gas Heat	MWh Savings	0.000	0.000	3.787	3.998	4.150
	MW Reduction	0.000	0.000	0.000	0.000	0.000
	Participants	0.000	0.000	4.538	4.791	4.973
Occupancy Sensor or Timer Controls	MWh Savings	0.000	0.000	6.693	7.066	7.335
	MW Reduction	0.000	0.000	0.000	0.000	0.000
	Participants	0.000	0.000	260.681	275.210	285.701
Reflector Lamps (average) - Reflectors Average 11.3W	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	0.000	0.000	126,744.529	133,808.578	138,909.310
Refrigerator Recycling - Replacement	MWh Savings	625.830	305.560	438.670	463.118	480.764
	MW Reduction	0.107	0.049	0.081	0.084	0.086
	Participants	1,309.000	632.000	1,007.232	1,063.370	1,103.905
Refrigerator Recycling - Retirement	MWh Savings	349.033	1,355.098	917.420	968.552	1,005.455
	MW Reduction	0.058	0.219	0.169	0.176	0.181
	Participants	395.000	1,797.000	1,400.832	1,478.907	1,535.282

Table 8A: Estimated Savings and Participants – Residential *(continued)*

Measure	Metric	PY13	PY14	PY15	PY16	PY17
Refrigerator Replacement	MWh Savings	0.000	0.000	123.564	130.451	135.421
	MW Reduction	0.000	0.000	0.023	0.024	0.024
	Participants	0.000	0.000	283.716	299.529	310.947
Room AC Recycling - Retirement	MWh Savings	3.163	40.347	22.542	23.798	24.705
	MW Reduction	0.007	0.084	0.056	0.058	0.060
	Participants	34.000	430.000	196.116	207.047	214.940
Room AC Replacement	MWh Savings	0.346	0.000	1.013	1.069	1.110
	MW Reduction	0.000	0.000	0.003	0.003	0.003
	Participants	10.000	0.000	46.345	48.928	50.793
Thermostatic Showerhead	MWh Savings	0.000	0.000	3.086	3.258	3.382
	MW Reduction	0.000	0.000	0.000	0.000	0.000
	Participants	0.000	0.000	107.145	113.117	117.429
Water Heater - Tricklestar Controller	MWh Savings	0.000	0.000	0.169	0.178	0.185
	MW Reduction	0.000	0.000	0.000	0.000	0.000
	Participants	0.000	0.000	1.334	1.408	1.462
Weatherstrip 10'	MWh Savings	0.000	0.000	3.284	3.467	3.599
	MW Reduction	0.000	0.000	0.000	0.000	0.000
	Participants	0.000	0.000	39.562	41.767	43.359
Variable Speed Pool Pump	MWh Savings	0.000	382.360	0.000	0.000	0.000
	MW Reduction	0.000	0.124	0.000	0.000	0.000
	Participants	0.000	8.000	0.000	0.000	0.000
Home Energy Reports - Market Rate	MWh Savings	5,226.412	8,642.770	8,642.770	8,642.770	8,642.770
	MW Reduction	0.350	1.262	1.262	1.262	1.262
	Participants	4.000	4.000	4.000	4.000	4.000
Home Energy Reports - Income Qualified	MWh Savings	1,195.572	864.897	864.897	864.897	864.897
	MW Reduction	0.091	0.135	0.135	0.135	0.135
	Participants	2.000	2.000	2.000	2.000	2.000

Table 8B: Estimated Savings and Participants – Nonresidential

Measure	Metric	PY13	PY14	PY15	PY16	PY17
Air Cooled Refrigeration Condenser	MWh Savings	0.000	0.000	36.435	36.435	36.435
	MW Reduction	0.000	0.000	0.004	0.004	0.004
	Participants	0	0	40	40	40
Air-Cooled Chillers >50 Tons, < 150 tons, Min 10.1 EER 15 IPLV	MWh Savings	0.000	0.000	17.394	17.394	17.394
	MW Reduction	0.000	0.000	0.004	0.004	0.004
	Participants	0	0	361	361	361
Air-Cooled Chillers >50 Tons, < 150 tons, Min 10.1 EER 16 IPLV	MWh Savings	0.000	0.000	20.175	20.175	20.175
	MW Reduction	0.000	0.000	0.004	0.004	0.004
	Participants	0	0	273	273	273
Air-Cooled Chillers >50 Tons, < 150 tons, Min 10.1 EER 18 IPLV	MWh Savings	0.000	0.000	71.301	71.301	71.301
	MW Reduction	0.000	0.000	0.032	0.032	0.032
	Participants	0	0	566	566	566
Air-Cooled Chillers Greater than 150 tons, Min 10.1 EER 15 IPLV	MWh Savings	0.000	0.000	18.129	18.129	18.129
	MW Reduction	0.000	0.000	0.008	0.008	0.008
	Participants	0	0	493	493	493
Air-Cooled Chillers Greater than 150 tons, Min 10.1 EER 16 IPLV	MWh Savings	0.000	0.000	30.631	30.631	30.631
	MW Reduction	0.000	0.000	0.007	0.007	0.007
	Participants	0	0	372	372	372
Air-Cooled Chillers Greater than 150 tons, Min 10.1 EER 18 IPLV	MWh Savings	0.000	0.000	146.738	146.738	146.738
	MW Reduction	0.000	0.000	0.080	0.080	0.080
	Participants	0	0	1,202	1,202	1,202
Air-Cooled Chillers Less than 50 tons, Min 10.1 EER 15 IPLV	MWh Savings	0.000	0.000	0.982	0.982	0.982
	MW Reduction	0.000	0.000	0.000	0.000	0.000
	Participants	0	0	20	20	20
Air-Cooled Chillers Less than 50 tons, Min 10.1 EER 16 IPLV	MWh Savings	0.000	0.000	2.889	2.889	2.889
	MW Reduction	0.000	0.000	0.001	0.001	0.001
	Participants	0	0	39	39	39
Air-Cooled Chillers Less than 50 tons, Min 10.1 EER 18 IPLV	MWh Savings	0.000	0.000	4.078	4.078	4.078
	MW Reduction	0.000	0.000	0.002	0.002	0.002
	Participants	0	0	32	32	32
Auto Closers	MWh Savings	0.000	0.000	16.424	16.424	16.424
	MW Reduction	0.000	0.000	0.012	0.012	0.012
	Participants	0	0	32	32	32
Auto-Closer for Walk-In Cooler Doors	MWh Savings	0.000	2.948	12.339	12.339	12.339
	MW Reduction	0.000	0.002	0.009	0.009	0.009
	Participants	0	4	24	24	24
Combined Heat and Power	MWh Savings	0.000	0.000	2,411.844	2,411.844	2,411.844
	MW Reduction	0.000	0.000	0.490	0.490	0.490
	Participants	0	0	1	1	1
Computer Room AC 5.4 ton - 20 tons	MWh Savings	0.000	0.000	4.015	4.015	4.015
	MW Reduction	0.000	0.000	0.005	0.005	0.005
	Participants	0	0	10	10	10
Computer Room AC <5.4 tons	MWh Savings	0.000	0.000	0.442	0.442	0.442
	MW Reduction	0.000	0.000	0.001	0.001	0.001
	Participants	0	0	2	2	2
Computer Room AC >20 tons	MWh Savings	0.000	0.000	9.927	9.927	9.927
	MW Reduction	0.000	0.000	0.013	0.013	0.013
	Participants	0	0	29	29	29
Controls: Anti-Sweat Heater Controls	MWh Savings	54.895	0.000	4.898	4.898	4.898
	MW Reduction	0.002	0.000	0.001	0.001	0.001
	Participants	7	0	15	15	15
Controls: Custom Exterior Lighting	MWh Savings	0.000	0.000	49.395	49.395	49.395
	MW Reduction	0.000	0.000	0.002	0.002	0.002
	Participants	0	0	3	3	3
Controls: Evaporator Coil Defrost Control	MWh Savings	11.821	9.324	23.808	23.808	23.808
	MW Reduction	0.035	0.019	0.056	0.056	0.056
	Participants	14	20	40	40	40

Table 8B: Estimated Savings and Participants – Nonresidential *(continued)*

Measure	**Metric**	PY13	PY14	PY15	PY16	PY17
Controls: Evaporator Fan Controllers	MWh Savings	19.964	18.649	1.477	1.477	1.477
	MW Reduction	0.001	0.000	0.000	0.000	0.000
	Participants	14	20	8	8	8
Controls: Floating Head Pressure Controls	MWh Savings	0.000	0.000	31.164	31.164	31.164
	MW Reduction	0.000	0.000	0.000	0.000	0.000
	Participants	0	0	26	26	26
Custom Cooling	MWh Savings	0.000	0.000	4,576.432	4,576.432	4,576.432
	MW Reduction	0.000	0.000	1.696	1.696	1.696
	Participants	0	0	5	5	5
Custom Exterior New Construction	MWh Savings	0.000	0.000	444.558	444.558	444.558
	MW Reduction	0.000	0.000	0.017	0.017	0.017
	Participants	0	0	3	3	3
Custom Interior Controls	MWh Savings	0.000	0.000	954.976	954.976	954.976
	MW Reduction	0.000	0.000	0.151	0.151	0.151
	Participants	0	0	3	3	3
Custom Interior New Construction	MWh Savings	0.000	0.000	7,339.573	7,339.573	7,339.573
	MW Reduction	0.000	0.000	1.133	1.133	1.133
	Participants	0	0	2	2	2
Custom Other	MWh Savings	0.000	0.000	1,138.857	1,138.857	1,138.857
	MW Reduction	0.000	0.000	0.292	0.292	0.292
	Participants	0	0	3	3	3
Custom Process	MWh Savings	0.000	0.000	375.371	375.371	375.371
	MW Reduction	0.000	0.000	0.137	0.137	0.137
	Participants	0	0	3	3	3
Custom Refrigeration	MWh Savings	0.000	0.000	504.447	504.447	504.447
	MW Reduction	0.000	0.000	0.089	0.089	0.089
	Participants	0	0	3	3	3
Custom Ventilation	MWh Savings	0.000	0.000	1,172.123	1,172.123	1,172.123
	MW Reduction	0.000	0.000	0.412	0.412	0.412
	Participants	0	0	3	3	3
Custom, C&I, Cooling	MWh Savings	377.125	313.903	0.000	0.000	0.000
	MW Reduction	0.039	0.021	0.000	0.000	0.000
	Participants	2	100	0	0	0
Custom, C&I, Exterior Lighting	MWh Savings	267.688	8,785.614	0.000	0.000	0.000
	MW Reduction	0.010	0.788	0.000	0.000	0.000
	Participants	188	125	0	0	0
Custom, C&I, Exterior Lighting Controls	MWh Savings	13.249	32.008	0.000	0.000	0.000
	MW Reduction	0.002	0.001	0.000	0.000	0.000
	Participants	60	103	0	0	0
Custom, C&I, Interior Lighting	MWh Savings	3,525.822	1,444.933	0.000	0.000	0.000
	MW Reduction	0.679	0.334	0.000	0.000	0.000
	Participants	5,791	5,662	0	0	0
Custom, C&I, Interior Lighting Controls	MWh Savings	359.545	523.087	0.000	0.000	0.000
	MW Reduction	0.105	0.131	0.000	0.000	0.000
	Participants	3,798	6,554	0	0	0
Custom, C&I, Other	MWh Savings	0.000	8,495.449	0.000	0.000	0.000
	MW Reduction	0.000	0.074	0.000	0.000	0.000
	Participants	0	32	0	0	0
Custom, C&I, Refrigeration	MWh Savings	0.000	178.052	0.000	0.000	0.000
	MW Reduction	0.000	0.006	0.000	0.000	0.000
	Participants	0	3	0	0	0
Cycling Refrigerated Thermal Mass Dryer	MWh Savings	0.000	0.000	0.727	0.727	0.727
	MW Reduction	0.000	0.000	0.000	0.000	0.000
	Participants	0	0	47	47	47
Daylight Sensor for dimming	MWh Savings	1.816	0.000	0.000	0.000	0.000
	MW Reduction	0.001	0.000	0.000	0.000	0.000
	Participants	11	0	0	0	0

Table 8B: Estimated Savings and Participants – Nonresidential *(continued)*

Measure	Metric	PY13	PY14	PY15	PY16	PY17
Decorative, Globe, Screw-based 1050-1300 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	321	321	321
Decorative, Globe, Screw-based 250-309 lumens	MWh Savings	0.000	0.053	12.557	12.557	12.557
	MW Reduction	0.000	0.000	0.003	0.003	0.003
	Participants	0	6	321	321	321
Decorative, Globe, Screw-based 310-349 lumens	MWh Savings	1.916	0.018	0.000	0.000	0.000
	MW Reduction	0.000	0.000	0.000	0.000	0.000
	Participants	333	2	0	0	0
Decorative, Globe, Screw-based 350-499 lumens	MWh Savings	1.098	46.501	0.000	0.000	0.000
	MW Reduction	0.000	0.009	0.000	0.000	0.000
	Participants	47	1,317	168	168	168
Decorative, Globe, Screw-based 500-574 lumens	MWh Savings	1.672	0.408	0.000	0.000	0.000
	MW Reduction	0.000	0.000	0.000	0.000	0.000
	Participants	55	74	1,218	1,218	1,218
Decorative, Globe, Screw-based 575-649 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	321	321	321
Decorative, Globe, Screw-based 650-749 lumens	MWh Savings	0.111	3.985	0.000	0.000	0.000
	MW Reduction	0.000	0.001	0.000	0.000	0.000
	Participants	4	197	321	321	321
Decorative, Globe, Screw-based 750-1049 lumens	MWh Savings	0.000	0.026	0.000	0.000	0.000
	MW Reduction	0.000	0.000	0.000	0.000	0.000
	Participants	0	1	321	321	321
Decorative, Non-Globe, Screw-based 150-299 lumens	MWh Savings	0.000	68.146	13.152	13.152	13.152
	MW Reduction	0.000	0.013	0.003	0.003	0.003
	Participants	0	1,600	321	321	321
Decorative, Non-Globe, Screw-based 300-309 lumens	MWh Savings	16.408	9.944	16.529	16.529	16.529
	MW Reduction	0.002	0.002	0.004	0.004	0.004
	Participants	183	177	364	364	364
Decorative, Non-Globe, Screw-based 310-499 lumens	MWh Savings	2.561	12.929	0.000	0.000	0.000
	MW Reduction	0.001	0.003	0.000	0.000	0.000
	Participants	204	332	168	168	168
Decorative, Non-Globe, Screw-based 500-699 lumens	MWh Savings	1.437	1.351	0.000	0.000	0.000
	MW Reduction	0.000	0.000	0.000	0.000	0.000
	Participants	120	67	321	321	321
Decorative, Non-Globe, Screw-based 90-149 lumens	MWh Savings	0.000	0.000	8.034	8.034	8.034
	MW Reduction	0.000	0.000	0.002	0.002	0.002
	Participants	0	0	321	321	321
Door Gaskets for Walk-in and Reach-in Coolers and Freezers	MWh Savings	0.000	0.000	3.740	3.740	3.740
	MW Reduction	0.000	0.000	0.001	0.001	0.001
	Participants	0	0	16	16	16
Doors, Refrigerated Display Cases	MWh Savings	0.000	0.000	15.579	15.579	15.579
	MW Reduction	0.000	0.000	0.002	0.002	0.002
	Participants	0	0	40	40	40
Ductless Mini-Split Heat Pump - 16 SEER/15.1 SEER2, 9.0 HSPF/7.6 HSPF2	MWh Savings	0.000	0.000	1.483	1.483	1.483
	MW Reduction	0.000	0.000	0.002	0.002	0.002
	Participants	0	0	39	39	39
Ductless Mini-Split Heat Pump - 19 SEER/17.5 SEER2, 9.7 HSPF/8.2 HSPF2	MWh Savings	0.000	0.000	5.851	5.851	5.851
	MW Reduction	0.000	0.000	0.004	0.004	0.004
	Participants	0	0	40	40	40
Ductless Mini-Split Heat Pump - 22 SEER/19.9 SEER2, 11.0 HSPF/9.3 HSPF2	MWh Savings	0.000	0.000	13.018	13.018	13.018
	MW Reduction	0.000	0.000	0.006	0.006	0.006
	Participants	0	0	59	59	59

Table 8B: Estimated Savings and Participants – Nonresidential *(continued)*

Measure	**Metric**	PY13	PY14	PY15	PY16	PY17
ECM motor for walk in freezer or cooler	MWh Savings	77.223	57.570	46.716	46.716	46.716
	MW Reduction	0.013	0.007	0.006	0.006	0.006
	Participants	45	51	50	50	50
ECM motor of reach in cases	MWh Savings	0.000	6.303	151.321	151.321	151.321
	MW Reduction	0.000	0.001	0.020	0.020	0.020
	Participants	0	8	162	162	162
ECM Pump for DHW > 1/6 and < 3/4 hp	MWh Savings	0.000	0.000	45.151	45.151	45.151
	MW Reduction	0.000	0.000	0.006	0.006	0.006
	Participants	0	0	19	19	19
ECM Pump for DHW ≤ 1/6 hp	MWh Savings	0.000	0.000	8.528	8.528	8.528
	MW Reduction	0.000	0.000	0.001	0.001	0.001
	Participants	0	0	27	27	27
ECM Pump for DHW ≥ 3/4 and < 3 hp	MWh Savings	0.000	0.000	45.151	45.151	45.151
	MW Reduction	0.000	0.000	0.006	0.006	0.006
	Participants	0	0	5	5	5
ECM Pump for Heating > 1/6 and < 3/4 hp	MWh Savings	0.000	140.888	8.546	8.546	8.546
	MW Reduction	0.000	0.000	0.000	0.000	0.000
	Participants	0	6	11	11	11
ECM Pump for Heating ≤ 1/6 hp	MWh Savings	0.000	0.000	5.697	5.697	5.697
	MW Reduction	0.000	0.000	0.000	0.000	0.000
	Participants	0	0	55	55	55
ECM Pump for Heating ≥ 3/4 and < 3 hp	MWh Savings	0.000	0.000	15.081	15.081	15.081
	MW Reduction	0.000	0.000	0.000	0.000	0.000
	Participants	0	0	5	5	5
Efficient Combination Oven	MWh Savings	0.000	0.000	15.935	15.935	15.935
	MW Reduction	0.000	0.000	0.002	0.002	0.002
	Participants	0	0	2	2	2
Efficient Commercial Convection Oven Full size	MWh Savings	0.000	0.000	2.220	2.220	2.220
	MW Reduction	0.000	0.000	0.001	0.001	0.001
	Participants	0	0	2	2	2
Efficient Commercial Convection Oven Half size	MWh Savings	0.000	0.000	0.292	0.292	0.292
	MW Reduction	0.000	0.000	0.000	0.000	0.000
	Participants	0	0	2	2	2
Efficient commercial dishwasher Multi Tank Conveyor High Temperature	MWh Savings	0.000	0.000	21.530	21.530	21.530
	MW Reduction	0.000	0.000	0.001	0.001	0.001
	Participants	0	0	1	1	1
Efficient commercial dishwasher Multi Tank Conveyor Low Temperature	MWh Savings	0.000	0.000	17.580	17.580	17.580
	MW Reduction	0.000	0.000	0.001	0.001	0.001
	Participants	0	0	1	1	1
Efficient commercial dishwasher Pot, Pan, and Utensil High Temperature	MWh Savings	0.000	0.000	4.613	4.613	4.613
	MW Reduction	0.000	0.000	0.000	0.000	0.000
	Participants	0	0	2	2	2
Efficient commercial dishwasher Single Tank Conveyor High Temperature	MWh Savings	0.000	0.000	8.994	8.994	8.994
	MW Reduction	0.000	0.000	0.001	0.001	0.001
	Participants	0	0	1	1	1
Efficient commercial dishwasher Single Tank Conveyor Low Temperature	MWh Savings	0.000	0.000	18.917	18.917	18.917
	MW Reduction	0.000	0.000	0.001	0.001	0.001
	Participants	0	0	2	2	2
Efficient commercial dishwasher Stationary Single Tank Door High Temperature	MWh Savings	0.000	0.000	13.673	13.673	13.673
	MW Reduction	0.000	0.000	0.000	0.000	0.000
	Participants	0	0	2	2	2
Efficient commercial dishwasher Stationary Single Tank Door Low Temperature	MWh Savings	0.000	0.000	18.847	18.847	18.847
	MW Reduction	0.000	0.000	0.000	0.000	0.000
	Participants	0	0	2	2	2
Efficient commercial dishwasher Under Counter High Temperature	MWh Savings	0.000	0.000	4.671	4.671	4.671
	MW Reduction	0.000	0.000	0.001	0.001	0.001
	Participants	0	0	2	2	2

Table 8B: Estimated Savings and Participants – Nonresidential *(continued)*

Measure	Metric	PY13	PY14	PY15	PY16	PY17
Efficient commercial dishwasher Under Counter Low Temperature	MWh Savings	0.000	0.000	7.155	7.155	7.155
	MW Reduction	0.000	0.000	0.001	0.001	0.001
	Participants	0	0	3	3	3
Efficient Commercial Fryer Large Vat	MWh Savings	0.000	0.000	1.836	1.836	1.836
	MW Reduction	0.000	0.000	0.000	0.000	0.000
	Participants	0	0	1	1	1
Efficient Commercial Fryer Standard	MWh Savings	6.482	0.000	0.975	0.975	0.975
	MW Reduction	0.001	0.000	0.000	0.000	0.000
	Participants	2	0	1	1	1
Efficient Commercial Glass Door Freezers less than 15 cu. ft.	MWh Savings	0.000	0.000	0.175	0.175	0.175
	MW Reduction	0.000	0.000	0.000	0.000	0.000
	Participants	0	0	1	1	1
Efficient Commercial Glass Door Freezers 15 to 30 cu. ft.	MWh Savings	0.000	0.000	0.288	0.288	0.288
	MW Reduction	0.000	0.000	0.000	0.000	0.000
	Participants	0	0	1	1	1
Efficient Commercial Glass Door Freezers 31 to 50 cu. ft.	MWh Savings	0.000	0.000	0.436	0.436	0.436
	MW Reduction	0.000	0.000	0.000	0.000	0.000
	Participants	0	0	1	1	1
Efficient Commercial Glass Door Freezers more than 50 cu.ft.	MWh Savings	0.000	0.000	0.635	0.635	0.635
	MW Reduction	0.000	0.000	0.000	0.000	0.000
	Participants	0	0	1	1	1
Efficient Commercial Solid Door Freezers (< 15 cu ft)	MWh Savings	0.000	0.000	0.087	0.087	0.087
	MW Reduction	0.000	0.000	0.000	0.000	0.000
	Participants	0	0	1	1	1
Efficient Commercial Solid Door Freezers (> 50 cu ft)	MWh Savings	0.000	0.000	4.425	4.425	4.425
	MW Reduction	0.000	0.000	0.001	0.001	0.001
	Participants	0	0	9	9	9
Efficient Commercial Solid Door Freezers (15 - 30 cu ft)	MWh Savings	0.000	0.000	1.072	1.072	1.072
	MW Reduction	0.000	0.000	0.000	0.000	0.000
	Participants	0	0	3	3	3
Efficient Commercial Solid Door Freezers (30 - 50 cu ft)	MWh Savings	0.000	0.000	2.997	2.997	2.997
	MW Reduction	0.000	0.000	0.000	0.000	0.000
	Participants	0	0	8	8	8
Efficient Commercial Griddle	MWh Savings	0.000	0.000	1.973	1.973	1.973
	MW Reduction	0.000	0.000	0.000	0.000	0.000
	Participants	0	0	1	1	1
Efficient Commercial Hot Food Holding Cabinet Full Size	MWh Savings	0.000	0.000	3.193	3.193	3.193
	MW Reduction	0.000	0.000	0.001	0.001	0.001
	Participants	0	0	3	3	3
Efficient Commercial Glass Door Refrigerators less than 15 cu. ft.	MWh Savings	0.000	0.000	0.209	0.209	0.209
	MW Reduction	0.000	0.000	0.000	0.000	0.000
	Participants	0	0	2	2	2
Efficient Commercial Glass Door Refrigerators 15 to 30 cu. ft.	MWh Savings	0.000	0.000	0.733	0.733	0.733
	MW Reduction	0.000	0.000	0.000	0.000	0.000
	Participants	0	0	3	3	3
Efficient Commercial Glass Door Refrigerators 31 to 50 cu. ft.	MWh Savings	0.000	0.000	0.222	0.222	0.222
	MW Reduction	0.000	0.000	0.000	0.000	0.000
	Participants	0	0	1	1	1
Efficient Commercial Glass Door Refrigerators more than 50 cu. ft	MWh Savings	0.000	0.000	0.373	0.373	0.373
	MW Reduction	0.000	0.000	0.000	0.000	0.000
	Participants	0	0	1	1	1
Efficient Commercial Solid Door Refrigerators (< 15 cu ft)	MWh Savings	0.000	0.000	0.336	0.336	0.336
	MW Reduction	0.000	0.000	0.000	0.000	0.000
	Participants	0	0	2	2	2
Efficient Commercial Solid Door Refrigerators (> 50 cu ft)	MWh Savings	0.000	0.000	4.242	4.242	4.242
	MW Reduction	0.000	0.000	0.001	0.001	0.001
	Participants	0	0	15	15	15

Table 8B: Estimated Savings and Participants – Nonresidential *(continued)*

Measure	**Metric**	PY13	PY14	PY15	PY16	PY17
Efficient Commercial Solid Door Refrigerators (15 - 30 cu ft)	MWh Savings	0.000	0.000	1.634	1.634	1.634
	MW Reduction	0.000	0.000	0.000	0.000	0.000
	Participants	0	0	9	9	9
Efficient Commercial Solid Door Refrigerators (30 - 50 cu ft)	MWh Savings	0.000	0.000	1.605	1.605	1.605
	MW Reduction	0.000	0.000	0.000	0.000	0.000
	Participants	0	0	9	9	9
Efficient Electric Steam Cooker	MWh Savings	0.000	18.497	22.874	22.874	22.874
	MW Reduction	0.000	0.004	0.005	0.005	0.005
	Participants	0	1	2	2	2
Efficient Ice Machines Batch Type - self contained	MWh Savings	0.000	0.000	3.313	3.313	3.313
	MW Reduction	0.000	0.000	0.001	0.001	0.001
	Participants	0	0	1	1	1
Efficient Ice Machines Batch Type - Ice making head	MWh Savings	0.000	0.000	1.672	1.672	1.672
	MW Reduction	0.000	0.000	0.000	0.000	0.000
	Participants	0	0	1	1	1
Efficient Ice Machines Batch Type - remote condensing	MWh Savings	0.000	0.000	1.058	1.058	1.058
	MW Reduction	0.000	0.000	0.000	0.000	0.000
	Participants	0	0	1	1	1
Efficient Ice Machines Continuous Type - ice making head	MWh Savings	0.000	0.000	5.865	5.865	5.865
	MW Reduction	0.000	0.000	0.001	0.001	0.001
	Participants	0	0	3	3	3
Efficient Ice Machines Continuous Type - remote condensing	MWh Savings	0.000	0.000	0.739	0.739	0.739
	MW Reduction	0.000	0.000	0.000	0.000	0.000
	Participants	0	0	1	1	1
Efficient Ice Machines Continuous Type - self contained	MWh Savings	0.000	0.000	1.988	1.988	1.988
	MW Reduction	0.000	0.000	0.000	0.000	0.000
	Participants	0	0	1	1	1
ENERGY STAR Lighting Fixture	MWh Savings	0.000	78.001	0.000	0.000	0.000
	MW Reduction	0.000	0.022	0.000	0.000	0.000
	Participants	0	2,768	0	0	0
Heat Pump Water Heaters	MWh Savings	0.000	0.000	48.128	48.128	48.128
	MW Reduction	0.000	0.000	0.014	0.014	0.014
	Participants	0	0	67	67	67
High Efficiency Pumps 1 ≤ HP < 3, Constant Speed	MWh Savings	0.000	0.000	21.591	21.591	21.591
	MW Reduction	0.000	0.000	0.003	0.003	0.003
	Participants	0	0	152	152	152
High Efficiency Pumps 1 ≤ HP < 3, Variable Speed	MWh Savings	0.000	0.000	6.883	6.883	6.883
	MW Reduction	0.000	0.000	0.001	0.001	0.001
	Participants	0	0	52	52	52
High Efficiency Pumps 3 ≤ HP ≤ 50, Constant Speed	MWh Savings	0.000	3.817	4.325	4.325	4.325
	MW Reduction	0.000	0.000	0.001	0.001	0.001
	Participants	0	2	30	30	30
High Efficiency Pumps 3 ≤ HP ≤ 50, Variable Speed	MWh Savings	0.000	0.000	74.021	74.021	74.021
	MW Reduction	0.000	0.000	0.010	0.010	0.010
	Participants	0	0	495	495	495
High Efficiency Pumps 50 < HP ≤ 200, Constant Speed	MWh Savings	0.000	0.000	64.017	64.017	64.017
	MW Reduction	0.000	0.000	0.008	0.008	0.008
	Participants	0	0	515	515	515
High Efficiency Pumps 50 < HP ≤ 200, Variable Speed	MWh Savings	0.000	0.000	56.457	56.457	56.457
	MW Reduction	0.000	0.000	0.007	0.007	0.007
	Participants	0	0	495	495	495
High Output Linear LED T5/T8 Fixture, 4 ft, 1 lamp	MWh Savings	0.000	2.674	0.000	0.000	0.000
	MW Reduction	0.000	0.001	0.000	0.000	0.000
	Participants	0	34	0	0	0
High Output Linear LED T5/T8 Fixture, 4 ft, 2 lamp	MWh Savings	9.291	3.719	0.000	0.000	0.000
	MW Reduction	0.003	0.002	0.000	0.000	0.000
	Participants	48	24	0	0	0

Table 8B: Estimated Savings and Participants – Nonresidential *(continued)*

Measure	Metric	PY13	PY14	PY15	PY16	PY17
High Output Linear LED T5/T8 Fixture, 4 ft, 4 lamp	MWh Savings	5.420	108.756	0.000	0.000	0.000
	MW Reduction	0.002	0.027	0.000	0.000	0.000
	Participants	14	176	0	0	0
High Output Linear LED T5/T8 Fixture, 4 ft, 6 lamp	MWh Savings	4.038	34.337	0.000	0.000	0.000
	MW Reduction	0.002	0.009	0.000	0.000	0.000
	Participants	5	70	0	0	0
High-Efficiency Evaporator Fan Motors for Walk-Ins/Reach-In Refrigerated Cases	MWh Savings	0.000	0.000	75.201	75.201	75.201
	MW Reduction	0.000	0.000	0.010	0.010	0.010
	Participants	0	0	80	80	80
High-Efficiency Refrigeration/Freezer Cases	MWh Savings	0.000	0.000	29.892	29.892	29.892
	MW Reduction	0.000	0.000	0.004	0.004	0.004
	Participants	0	0	281	281	281
Insulation on suction pipes	MWh Savings	0.000	0.000	12.926	12.926	12.926
	MW Reduction	0.000	0.000	0.003	0.003	0.003
	Participants	0	0	751	751	751
LED 2' Linear Replacement Lamp	MWh Savings	127.614	91.470	108.104	108.104	108.104
	MW Reduction	0.029	0.020	0.024	0.024	0.024
	Participants	1,662	3,234	4,741	4,741	4,741
LED 3' Linear Replacement Lamp	MWh Savings	45.595	129.752	0.003	0.003	0.003
	MW Reduction	0.014	0.028	0.000	0.000	0.000
	Participants	561	3,290	0	0	0
LED 4' Interior Linear Strip Fixture or Retrofit Kit	MWh Savings	194.000	856.224	97.080	97.080	97.080
	MW Reduction	0.054	0.167	0.021	0.021	0.021
	Participants	1,091	5,954	738	738	738
LED 4' Linear Replacement Lamp	MWh Savings	6,140.424	3,453.874	8,972.670	8,972.670	8,972.670
	MW Reduction	1.674	0.837	2.065	2.065	2.065
	Participants	65,330	60,224	273,123	273,123	273,123
LED 8' Interior Linear Strip Fixture or Retrofit Kit	MWh Savings	215.040	1,394.704	290.554	290.554	290.554
	MW Reduction	0.069	0.296	0.062	0.062	0.062
	Participants	814	3,019	4,634	4,634	4,634
LED 8' Linear Replacement Lamp	MWh Savings	182.533	576.271	156.629	156.629	156.629
	MW Reduction	0.046	0.146	0.036	0.036	0.036
	Participants	937	4,685	2,878	2,878	2,878
LED Display Case Lighting	MWh Savings	0.000	0.000	2.083	2.083	2.083
	MW Reduction	0.000	0.000	0.000	0.000	0.000
	Participants	0	0	16	16	16
LED Exit Signs	MWh Savings	66.385	125.900	275.306	275.306	275.306
	MW Reduction	0.012	0.017	0.041	0.041	0.041
	Participants	324	1,048	1,373	1,373	1,373
LED Exterior Area Lighting 0-49 Watt LED Fixture	MWh Savings	234.806	289.279	125.212	125.212	125.212
	MW Reduction	0.011	0.017	0.033	0.033	0.033
	Participants	424	760	734	734	734
LED Exterior Area Lighting 1,000 watt HID lamp	MWh Savings	0.000	0.000	656.586	656.586	656.586
	MW Reduction	0.000	0.000	0.144	0.144	0.144
	Participants	0	0	416	416	416
LED Exterior Area Lighting 100 watt HID lamp	MWh Savings	0.000	0.000	54.373	54.373	54.373
	MW Reduction	0.000	0.000	0.012	0.012	0.012
	Participants	0	0	241	241	241
LED Exterior Area Lighting 110-149 Watt LED Fixture	MWh Savings	366.836	160.320	97.521	97.521	97.521
	MW Reduction	0.013	0.004	0.025	0.025	0.025
	Participants	212	118	546	546	546
LED Exterior Area Lighting 150-191 Watt LED Fixture	MWh Savings	153.751	462.511	48.420	48.420	48.420
	MW Reduction	0.005	0.012	0.013	0.013	0.013
	Participants	56	271	216	216	216
LED Exterior Area Lighting 175 watt HID lamp	MWh Savings	0.000	0.000	214.337	214.337	214.337
	MW Reduction	0.000	0.000	0.047	0.047	0.047
	Participants	0	0	608	608	608

Table 8B: Estimated Savings and Participants – Nonresidential *(continued)*

Measure	Metric	PY13	PY14	PY15	PY16	PY17
LED Exterior Area Lighting 192-224 Watt LED Fixture	MWh Savings	102.539	222.005	20.323	20.323	20.323
	MW Reduction	0.004	0.006	0.005	0.005	0.005
	Participants	59	99	68	68	68
LED Exterior Area Lighting 225-264 Watt LED Fixture	MWh Savings	35.129	63.656	108.363	108.363	108.363
	MW Reduction	0.000	0.002	0.028	0.028	0.028
	Participants	7	68	368	368	368
LED Exterior Area Lighting 250 watt HID lamp	MWh Savings	0.000	0.000	322.744	322.744	322.744
	MW Reduction	0.000	0.000	0.071	0.071	0.071
	Participants	0	0	680	680	680
LED Exterior Area Lighting 265-499 Watt LED Fixture	MWh Savings	212.677	101.649	361.873	361.873	361.873
	MW Reduction	0.006	0.008	0.094	0.094	0.094
	Participants	59	45	487	487	487
LED Exterior Area Lighting 400 watt HID lamp	MWh Savings	0.000	0.000	229.837	229.837	229.837
	MW Reduction	0.000	0.000	0.050	0.050	0.050
	Participants	0	0	326	326	326
LED Exterior Area Lighting 50-69 Watt LED Fixture	MWh Savings	794.411	434.754	150.608	150.608	150.608
	MW Reduction	0.126	0.034	0.039	0.039	0.039
	Participants	390	430	595	595	595
LED Exterior Area Lighting 70-109 Watt LED Fixture	MWh Savings	677.876	385.070	62.275	62.275	62.275
	MW Reduction	0.030	0.011	0.016	0.016	0.016
	Participants	484	307	282	282	282
LED Exterior Area Lighting 750 watt HID lamp	MWh Savings	0.000	0.000	551.983	551.983	551.983
	MW Reduction	0.000	0.000	0.121	0.121	0.121
	Participants	0	0	432	432	432
LED Exterior Area Lighting Fixture, 11,051 <= lumens < 24,701	MWh Savings	858.661	2,848.463	0.000	0.000	0.000
	MW Reduction	0.051	0.097	0.000	0.000	0.000
	Participants	848	2,325	0	0	0
LED Exterior Area Lighting Fixture, 24,701 <= lumens < 40,751	MWh Savings	245.444	855.830	0.000	0.000	0.000
	MW Reduction	0.022	0.029	0.000	0.000	0.000
	Participants	127	399	0	0	0
LED Exterior Area Lighting Fixture, 250 <= lumens < 4,651	MWh Savings	252.831	432.504	0.000	0.000	0.000
	MW Reduction	0.012	0.015	0.000	0.000	0.000
	Participants	552	1,092	0	0	0
LED Exterior Area Lighting Fixture, 4,651 <= lumens < 7,901	MWh Savings	1,719.699	1,737.492	0.000	0.000	0.000
	MW Reduction	0.120	0.059	0.000	0.000	0.000
	Participants	2,122	2,851	0	0	0
LED Exterior Area Lighting Fixture, 40,751 <= lumens < 54,651	MWh Savings	736.312	1,131.878	0.000	0.000	0.000
	MW Reduction	0.032	0.040	0.000	0.000	0.000
	Participants	290	415	0	0	0
LED Exterior Area Lighting Fixture, 7,901 <= lumens < 11,051	MWh Savings	632.782	557.005	0.000	0.000	0.000
	MW Reduction	0.034	0.020	0.000	0.000	0.000
	Participants	690	705	0	0	0
LED Exterior Area Lighting Replacement Lamp, 11,051 <= lumens < 24,701	MWh Savings	50.672	109.103	0.000	0.000	0.000
	MW Reduction	0.004	0.004	0.000	0.000	0.000
	Participants	64	87	0	0	0
LED Exterior Area Lighting Replacement Lamp, 4,651 <= lumens < 7,901	MWh Savings	171.001	72.008	0.000	0.000	0.000
	MW Reduction	0.007	0.006	0.000	0.000	0.000
	Participants	244	98	0	0	0
LED Exterior Area Lighting Replacement Lamp, 7,901 <= lumens < 11,051	MWh Savings	90.493	117.596	0.000	0.000	0.000
	MW Reduction	0.002	0.009	0.000	0.000	0.000
	Participants	64	151	0	0	0
LED Exterior Area Lighting Replacement Lamp, 4651 < lumens	MWh Savings	7.440	17.572	0.000	0.000	0.000
	MW Reduction	0.000	0.001	0.000	0.000	0.000
	Participants	28	44	0	0	0
LED Interior 1' X 2'	MWh Savings	0.000	0.379	0.948	0.948	0.948
	MW Reduction	0.000	0.000	0.000	0.000	0.000
	Participants	0	10	25	25	25

Table 8B: Estimated Savings and Participants – Nonresidential *(continued)*

Measure	Metric	PY13	PY14	PY15	PY16	PY17
LED Interior 1' X 4'	MWh Savings	153.946	39.188	0.988	0.988	0.988
	MW Reduction	0.035	0.009	0.000	0.000	0.000
	Participants	793	132	16	16	16
LED Interior 2' X 2'	MWh Savings	2,027.180	521.006	316.667	316.667	316.667
	MW Reduction	0.635	0.112	0.083	0.083	0.083
	Participants	13,013	7,643	5,332	5,332	5,332
LED Interior 2' X 4'	MWh Savings	0.000	3,638.787	1,245.935	1,245.935	1,245.935
	MW Reduction	0.000	0.872	0.325	0.325	0.325
	Participants	0	18,960	14,339	14,339	14,339
LED Interior High-Bay Fixture 1,000 watt HID lamp/ T8 HLO	MWh Savings	0.000	0.000	598.550	598.550	598.550
	MW Reduction	0.000	0.000	0.156	0.156	0.156
	Participants	0	0	383	383	383
LED Interior High-Bay Fixture 131-159W	MWh Savings	226.836	564.223	37.930	37.930	37.930
	MW Reduction	0.102	0.146	0.010	0.010	0.010
	Participants	238	720	208	208	208
LED Interior High-Bay Fixture 150 watt HID lamp/ T8 HLO	MWh Savings	0.000	0.000	68.377	68.377	68.377
	MW Reduction	0.000	0.000	0.018	0.018	0.018
	Participants	0	0	302	302	302
LED Interior High-Bay Fixture 160-186W	MWh Savings	95.747	39.047	42.127	42.127	42.127
	MW Reduction	0.045	0.008	0.011	0.011	0.011
	Participants	125	37	162	162	162
LED Interior High-Bay Fixture 175 watt HID lamp/ T8 HLO	MWh Savings	0.000	0.000	103.095	103.095	103.095
	MW Reduction	0.000	0.000	0.027	0.027	0.027
	Participants	0	0	372	372	372
LED Interior High-Bay Fixture 187-219W	MWh Savings	464.875	134.260	10.027	10.027	10.027
	MW Reduction	0.152	0.028	0.003	0.003	0.003
	Participants	271	119	29	29	29
LED Interior High-Bay Fixture 200 watt HID lamp/ T8 HLO	MWh Savings	0.000	0.000	117.532	117.532	117.532
	MW Reduction	0.000	0.000	0.031	0.031	0.031
	Participants	0	0	372	372	372
LED Interior High-Bay Fixture 220-261W	MWh Savings	813.180	2,208.749	6.952	6.952	6.952
	MW Reduction	0.130	0.268	0.002	0.002	0.002
	Participants	163	780	21	21	21
LED Interior High-Bay Fixture 250 watt HID lamp/ T8 HLO	MWh Savings	0.000	0.000	489.549	489.549	489.549
	MW Reduction	0.000	0.000	0.128	0.128	0.128
	Participants	0	0	1,274	1,274	1,274
LED Interior High-Bay Fixture 262-279W	MWh Savings	0.000	0.000	6.724	6.724	6.724
	MW Reduction	0.000	0.000	0.002	0.002	0.002
	Participants	0	0	16	16	16
LED Interior High-Bay Fixture 280-319W	MWh Savings	19.019	155.068	9.069	9.069	9.069
	MW Reduction	0.006	0.031	0.002	0.002	0.002
	Participants	32	77	20	20	20
LED Interior High-Bay Fixture 320-499W	MWh Savings	269.494	317.055	2,136.636	2,136.636	2,136.636
	MW Reduction	0.041	0.037	0.558	0.558	0.558
	Participants	72	55	3,721	3,721	3,721
LED Interior High-Bay Fixture 400 watt HID lamp/ T8 HLO	MWh Savings	0.000	0.000	1,287.666	1,287.666	1,287.666
	MW Reduction	0.000	0.000	0.336	0.336	0.336
	Participants	0	0	2,062	2,062	2,062
LED Interior High-Bay Fixture 40-130W	MWh Savings	122.765	521.414	422.223	422.223	422.223
	MW Reduction	0.048	0.103	0.110	0.110	0.110
	Participants	170	962	2,121	2,121	2,121
LED Interior High-Bay Fixture 500-750W	MWh Savings	0.000	0.000	102.035	102.035	102.035
	MW Reduction	0.000	0.000	0.027	0.027	0.027
	Participants	0	0	121	121	121
LED Interior High-Bay Fixture 750 watt HID lamp/ T8 HLO	MWh Savings	0.000	0.000	681.441	681.441	681.441
	MW Reduction	0.000	0.000	0.178	0.178	0.178
	Participants	0	0	594	594	594

Table 8B: Estimated Savings and Participants – Nonresidential *(continued)*

LED Interior High-Bay Fixture, 11,151 <= lumens < 12,201	MWh Savings	150.188	77.263	0.000	0.000	0.000
	MW Reduction	0.029	0.017	0.000	0.000	0.000
	Participants	301	185	0	0	0
LED Interior High-Bay Fixture, 12,201 <= lumens < 15,551	MWh Savings	613.178	1,346.727	0.000	0.000	0.000
	MW Reduction	0.129	0.317	0.000	0.000	0.000
	Participants	942	2,940	0	0	0
LED Interior High-Bay Fixture, 15,551 <= lumens < 20,101	MWh Savings	433.952	1,679.427	0.000	0.000	0.000
	MW Reduction	0.102	0.398	0.000	0.000	0.000
	Participants	694	2,545	0	0	0
LED Interior High-Bay Fixture, 20,101 <= lumens < 34,701	MWh Savings	7,131.933	18,555.828	0.000	0.000	0.000
	MW Reduction	1.486	4.401	0.000	0.000	0.000
	Participants	5,683	13,873	0	0	0
LED Interior High-Bay Fixture, 3,850 <= lumens < 6,551	MWh Savings	2,699.857	7,820.175	0.000	0.000	0.000
	MW Reduction	0.618	1.739	0.000	0.000	0.000
	Participants	4,755	31,107	0	0	0
LED Interior High-Bay Fixture, 34,701 <= lumens < 57,251	MWh Savings	1,082.055	10,385.322	0.000	0.000	0.000
	MW Reduction	0.235	2.480	0.000	0.000	0.000
	Participants	669	5,576	0	0	0
LED Interior High-Bay Fixture, 6,551 <= lumens < 9,301	MWh Savings	153.309	336.756	0.000	0.000	0.000
	MW Reduction	0.034	0.078	0.000	0.000	0.000
	Participants	452	1,234	0	0	0
LED Interior High-Bay Fixture, 9,301 <= lumens < 11,151	MWh Savings	200.277	431.642	0.000	0.000	0.000
	MW Reduction	0.047	0.104	0.000	0.000	0.000
	Participants	607	1,277	0	0	0
LED Interior High-Bay Replacement Lamp, 11,151 <= lumens < 12,201	MWh Savings	78.329	0.000	0.000	0.000	0.000
	MW Reduction	0.031	0.000	0.000	0.000	0.000
	Participants	115	0	0	0	0
LED Interior High-Bay Replacement Lamp, 12,201 <= lumens < 15,551	MWh Savings	16.349	58.881	0.000	0.000	0.000
	MW Reduction	0.004	0.018	0.000	0.000	0.000
	Participants	24	94	0	0	0
LED Interior High-Bay Replacement Lamp, 15,551 <= lumens < 20,101	MWh Savings	6.580	20.476	0.000	0.000	0.000
	MW Reduction	0.001	0.005	0.000	0.000	0.000
	Participants	7	32	0	0	0
LED Interior High-Bay Replacement Lamp, 20,101 <= lumens < 34,701	MWh Savings	135.719	598.573	0.000	0.000	0.000
	MW Reduction	0.016	0.142	0.000	0.000	0.000
	Participants	31	468	0	0	0
LED Interior High-Bay Replacement Lamp, 3,850 <= lumens < 6,551	MWh Savings	8.732	19.970	0.000	0.000	0.000
	MW Reduction	0.003	0.005	0.000	0.000	0.000
	Participants	38	84	0	0	0
LED Interior High-Bay Replacement Lamp, 34,701 <= lumens < 57,251	MWh Savings	0.849	18.999	0.000	0.000	0.000
	MW Reduction	0.000	0.005	0.000	0.000	0.000
	Participants	1	10	0	0	0
LED Interior High-Bay Replacement Lamp, 6,551 <= lumens < 9,301	MWh Savings	85.024	164.750	0.000	0.000	0.000
	MW Reduction	0.027	0.029	0.000	0.000	0.000
	Participants	242	247	0	0	0
LED Interior High-Bay Replacement Lamp, 9,301 <= lumens < 11,151	MWh Savings	11.822	17.126	0.000	0.000	0.000
	MW Reduction	0.003	0.004	0.000	0.000	0.000
	Participants	89	18	0	0	0
New Construction, Exterior >5% to 10% better than code	MWh Savings	0.000	0.000	6.175	6.175	6.175
	MW Reduction	0.000	0.000	0.002	0.002	0.002
	Participants	0	0	1	1	1
New Construction, Exterior 11-20% better than code	MWh Savings	0.000	0.000	3.705	3.705	3.705
	MW Reduction	0.000	0.000	0.001	0.001	0.001
	Participants	0	0	1	1	1
New Construction, Exterior 20% - 30% better than code	MWh Savings	0.000	0.000	3.087	3.087	3.087
	MW Reduction	0.000	0.000	0.001	0.001	0.001
	Participants	0	0	1	1	1

Table 8B: Estimated Savings and Participants – Nonresidential *(continued)*

Measure	Metric	PY13	PY14	PY15	PY16	PY17
New Construction, Interior >5% to 10% better than code	MWh Savings	0.000	0.000	122.440	122.440	122.440
	MW Reduction	0.000	0.000	0.042	0.042	0.042
	Participants	0	0	1	1	1
New Construction, Interior 11-20% better than code	MWh Savings	0.000	0.000	73.464	73.464	73.464
	MW Reduction	0.000	0.000	0.025	0.025	0.025
	Participants	0	0	1	1	1
New Construction, Interior 20% - 30% better than code	MWh Savings	0.000	0.000	61.220	61.220	61.220
	MW Reduction	0.000	0.000	0.021	0.021	0.021
	Participants	0	0	1	1	1
Night Covers for Display Cases	MWh Savings	0.000	0.000	0.327	0.327	0.327
	MW Reduction	0.000	0.000	0.000	0.000	0.000
	Participants	0	0	7	7	7
No-loss Condensate Drain	MWh Savings	0.000	0.000	3.119	3.119	3.119
	MW Reduction	0.000	0.000	0.000	0.000	0.000
	Participants	0	0	11	11	11
Occupancy sensor, ceiling or wall mounted	MWh Savings	54.920	132.646	0.000	0.000	0.000
	MW Reduction	0.018	0.031	0.000	0.000	0.000
	Participants	516	1,492	0	0	0
Occupancy sensor, high bay fixture-integrated	MWh Savings	37.725	44.019	0.000	0.000	0.000
	MW Reduction	0.012	0.012	0.000	0.000	0.000
	Participants	295	357	0	0	0
Omnidirectional, General Service Lamp, Screw-based 1050-1489 lumens	MWh Savings	20.817	15.930	0.000	0.000	0.000
	MW Reduction	0.004	0.003	0.000	0.000	0.000
	Participants	491	377	321	321	321
Omnidirectional, General Service Lamp, Screw-based 1490-1999 lumens	MWh Savings	139.961	49.616	0.000	0.000	0.000
	MW Reduction	0.029	0.009	0.000	0.000	0.000
	Participants	2,134	840	321	321	321
Omnidirectional, General Service Lamp, Screw-based 2000-2600 lumens	MWh Savings	0.007	6.001	0.000	0.000	0.000
	MW Reduction	0.000	0.001	0.000	0.000	0.000
	Participants	2	51	321	321	321
Omnidirectional, General Service Lamp, Screw-based 250-309 lumens	MWh Savings	0.000	0.000	12.795	12.795	12.795
	MW Reduction	0.000	0.000	0.004	0.004	0.004
	Participants	0	0	321	321	321
Omnidirectional, General Service Lamp, Screw-based 2601-3000 lumens	MWh Savings	6.941	40.503	0.000	0.000	0.000
	MW Reduction	0.001	0.013	0.000	0.000	0.000
	Participants	67	163	321	321	321
Omnidirectional, General Service Lamp, Screw-based 3001-3300 lumens	MWh Savings	4.992	2.769	0.000	0.000	0.000
	MW Reduction	0.001	0.001	0.000	0.000	0.000
	Participants	30	24	321	321	321
Omnidirectional, General Service Lamp, Screw-based 310-449 lumens	MWh Savings	0.000	0.839	0.000	0.000	0.000
	MW Reduction	0.000	0.000	0.000	0.000	0.000
	Participants	0	89	245	245	245
Omnidirectional, General Service Lamp, Screw-based 3301-3999 lumens	MWh Savings	15.054	0.000	100.101	100.101	100.101
	MW Reduction	0.001	0.000	0.029	0.029	0.029
	Participants	31	0	321	321	321
Omnidirectional, General Service Lamp, Screw-based 4000-6000 lumens	MWh Savings	1.300	5.174	158.304	158.304	158.304
	MW Reduction	0.000	0.001	0.046	0.046	0.046
	Participants	6	8	321	321	321
Omnidirectional, General Service Lamp, Screw-based 450-749 lumens	MWh Savings	11.875	6.687	0.000	0.000	0.000
	MW Reduction	0.002	0.001	0.000	0.000	0.000
	Participants	505	406	321	321	321
Omnidirectional, General Service Lamp, Screw-based 750-1049 lumens	MWh Savings	70.831	269.865	0.000	0.000	0.000
	MW Reduction	0.013	0.046	0.000	0.000	0.000
	Participants	2,319	8,680	2,196	2,196	2,196
Packaged Terminal AC or PTHP 11.0 EER/10.6 EER2 +	MWh Savings	0.000	57.606	0.000	0.000	0.000
	MW Reduction	0.000	0.032	0.000	0.000	0.000
	Participants	0	10	0	0	0

Table 8B: Estimated Savings and Participants – Nonresidential *(continued)*

Measure	**Metric**	PY13	PY14	PY15	PY16	PY17
Packaged Terminal AC or PTHP 11.6 EER/11.1 EER2 +	MWh Savings	0.000	0.000	23.456	23.456	23.456
	MW Reduction	0.000	0.000	0.006	0.006	0.006
	Participants	0	0	133	133	133
Packaged Terminal AC or PTHP 12.0 EER/11.5 EER2 +	MWh Savings	0.000	9.496	32.563	32.563	32.563
	MW Reduction	0.000	0.005	0.012	0.012	0.012
	Participants	0	88	133	133	133
Packaged Terminal AC or PTHP 13.0 EER/12.5 EER2 +	MWh Savings	0.000	0.000	82.827	82.827	82.827
	MW Reduction	0.000	0.000	0.035	0.035	0.035
	Participants	0	0	266	266	266
Pre-Rinse Sprayers	MWh Savings	0.000	0.000	17.685	17.685	17.685
	MW Reduction	0.000	0.000	0.004	0.004	0.004
	Participants	0	0	14	14	14
Reflector Lamp; PAR, MR, MRX 1260-1399 lumens	MWh Savings	3.346	18.800	0.000	0.000	0.000
	MW Reduction	0.001	0.004	0.000	0.000	0.000
	Participants	149	384	658	658	658
Reflector Lamp; PAR, MR, MRX 400-472 lumens	MWh Savings	1.841	1.057	0.000	0.000	0.000
	MW Reduction	0.000	0.000	0.000	0.000	0.000
	Participants	120	119	344	344	344
Reflector Lamp; PAR, MR, MRX 473-524 lumens	MWh Savings	15.360	4.744	0.000	0.000	0.000
	MW Reduction	0.002	0.001	0.000	0.000	0.000
	Participants	160	400	344	344	344
Reflector Lamp; PAR, MR, MRX 525-714 lumens	MWh Savings	6.464	33.909	0.000	0.000	0.000
	MW Reduction	0.001	0.009	0.000	0.000	0.000
	Participants	369	2,266	344	344	344
Reflector Lamp; PAR, MR, MRX 715-937 lumens	MWh Savings	18.371	125.582	0.000	0.000	0.000
	MW Reduction	0.003	0.013	0.000	0.000	0.000
	Participants	575	1,528	344	344	344
Reflector Lamp; PAR, MR, MRX 938-1259 lumens	MWh Savings	9.651	26.430	0.000	0.000	0.000
	MW Reduction	0.002	0.007	0.000	0.000	0.000
	Participants	367	944	2,553	2,553	2,553
Refrigerated Case Light Occupancy Controls	MWh Savings	0.000	0.000	0.858	0.858	0.858
	MW Reduction	0.000	0.000	0.000	0.000	0.000
	Participants	0	0	396	396	396
Refrigerated Display Cases with Doors Replacing Open Cases	MWh Savings	0.000	0.000	6.113	6.113	6.113
	MW Reduction	0.000	0.000	0.001	0.001	0.001
	Participants	0	0	22	22	22
Refrigeration Economizers	MWh Savings	0.000	0.000	19.661	19.661	19.661
	MW Reduction	0.000	0.000	0.000	0.000	0.000
	Participants	0	0	48	48	48
Replacement door w/ anti-sweat heater	MWh Savings	0.000	0.000	8.953	8.953	8.953
	MW Reduction	0.000	0.000	0.001	0.001	0.001
	Participants	0	0	20	20	20
Special Doors with Low or No Anti-Sweat Heat for Low Temp Case	MWh Savings	0.000	0.000	1.794	1.794	1.794
	MW Reduction	0.000	0.000	0.000	0.000	0.000
	Participants	0	0	4	4	4
Storage Tanks for Load/No Load Screw Compressors <50 HP	MWh Savings	0.000	0.000	19.952	19.952	19.952
	MW Reduction	0.000	0.000	0.003	0.003	0.003
	Participants	0	0	2	2	2
Storage Tanks for Load/No Load Screw Compressors >150 HP	MWh Savings	0.000	0.000	62.349	62.349	62.349
	MW Reduction	0.000	0.000	0.011	0.011	0.011
	Participants	0	0	1	1	1
Storage Tanks for Load/No Load Screw Compressors 50-150 HP	MWh Savings	0.000	0.000	24.940	24.940	24.940
	MW Reduction	0.000	0.000	0.004	0.004	0.004
	Participants	0	0	1	1	1
Strip Curtains for Walk-In Freezers and Coolers	MWh Savings	0.000	0.000	6.424	6.424	6.424
	MW Reduction	0.000	0.000	0.001	0.001	0.001
	Participants	0	0	75	75	75

Measure	**Metric**	PY13	PY14	PY15	PY16	PY17
Suction Pipe Insulation for Walk-In Coolers and Freezers	MWh Savings	0.000	0.000	5.453	5.453	5.453
	MW Reduction	0.000	0.000	0.001	0.001	0.001
	Participants	0	0	317	317	317
Time clock	MWh Savings	0.043	0.000	0.000	0.000	0.000
	MW Reduction	0.000	0.000	0.000	0.000	0.000
	Participants	1	0	0	0	0
Unitary HVAC <65k Packaged 3-phase AC unit, Min 15 SEER/14.3 SEER2	MWh Savings	0.000	0.000	4.506	4.506	4.506
	MW Reduction	0.000	0.000	0.008	0.008	0.008
	Participants	0	0	140	140	140
Unitary HVAC <65k Packaged 3-phase AC unit, Min 16 SEER/15.1 SEER2	MWh Savings	0.000	0.000	2.177	2.177	2.177
	MW Reduction	0.000	0.000	0.002	0.002	0.002
	Participants	0	0	31	31	31
Unitary HVAC <65k Packaged 3-phase AC unit, Min 18 SEER/16.7 SEER2	MWh Savings	0.000	0.000	0.279	0.279	0.279
	MW Reduction	0.000	0.000	0.000	0.000	0.000
	Participants	0	0	2	2	2
Unitary HVAC <65k Split 3-phase AC unit, Min 15 SEER/14.3 SEER2	MWh Savings	0.000	0.000	38.466	38.466	38.466
	MW Reduction	0.000	0.000	0.071	0.071	0.071
	Participants	0	0	1,090	1,090	1,090
Unitary HVAC <65k Split 3-phase AC unit, Min 16 SEER/15.1 SEER2	MWh Savings	0.000	0.000	31.912	31.912	31.912
	MW Reduction	0.000	0.000	0.030	0.030	0.030
	Participants	0	0	432	432	432
Unitary HVAC <65k Split 3-phase AC unit, Min 18 SEER/16.7 SEER2	MWh Savings	0.000	0.000	0.868	0.868	0.868
	MW Reduction	0.000	0.000	0.001	0.001	0.001
	Participants	0	0	8	8	8
Unitary HVAC ≥760k AC unit, min 9.7 EER/9.3 EER2, 13 IEER	MWh Savings	0.000	0.000	17.599	17.599	17.599
	MW Reduction	0.000	0.000	0.002	0.002	0.002
	Participants	0	0	213	213	213
Unitary HVAC ≥760k AC unit, min Min 9.7 EER/9.3 EER2, 14 IEER	MWh Savings	0.000	0.000	45.892	45.892	45.892
	MW Reduction	0.000	0.000	0.013	0.013	0.013
	Participants	0	0	346	346	346
Unitary HVAC ≥760k AC unit, min 9.7 EER/9.3 EER2, 16 IEER	MWh Savings	0.000	0.000	37.544	37.544	37.544
	MW Reduction	0.000	0.000	0.009	0.009	0.009
	Participants	0	0	221	221	221
Unitary HVAC 135-240k AC unit, Min 11.5 EER/11.0 EER2, 13 IEER	MWh Savings	3.448	0.000	30.170	30.170	30.170
	MW Reduction	0.003	0.000	0.032	0.032	0.032
	Participants	2	0	851	851	851
Unitary HVAC 135-240k AC unit, Min 11.5 EER/11.0 EER2, 14 IEER	MWh Savings	0.000	0.000	45.275	45.275	45.275
	MW Reduction	0.000	0.000	0.023	0.023	0.023
	Participants	0	0	569	569	569
Unitary HVAC 135-240k AC unit, min 11.5 EER /11.0 EER2, 16 IEER	MWh Savings	0.000	0.000	16.395	16.395	16.395
	MW Reduction	0.000	0.000	0.005	0.005	0.005
	Participants	0	0	99	99	99
Unitary HVAC 240-760k AC unit, min 9.8 EER/9.4 EER2, 12 IEER	MWh Savings	0.000	0.000	111.984	111.984	111.984
	MW Reduction	0.000	0.000	0.044	0.044	0.044
	Participants	0	0	2,129	2,129	2,129
Unitary HVAC 240-760k AC unit, min 9.8 EER/9.4 EER2, 13 IEER	MWh Savings	0.000	0.000	50.866	50.866	50.866
	MW Reduction	0.000	0.000	0.022	0.022	0.022
	Participants	0	0	525	525	525
Unitary HVAC 240-760k AC unit, min 9.8 EER/9.4 EER2, 14 IEER	MWh Savings	0.000	0.000	5.049	5.049	5.049
	MW Reduction	0.000	0.000	0.003	0.003	0.003
	Participants	0	0	36	36	36
Unitary HVAC 65-135k AC unit, Min 11.5 EER/11.0 EER2, 13.2 IEER	MWh Savings	5.938	0.000	24.498	24.498	24.498
	MW Reduction	0.006	0.000	0.041	0.041	0.041
	Participants	4	0	692	692	692
Unitary HVAC 65-135k AC unit, Min 11.5 EER/11.0 EER2, 14 IEER	MWh Savings	0.000	0.000	60.187	60.187	60.187
	MW Reduction	0.000	0.000	0.043	0.043	0.043
	Participants	0	0	1,030	1,030	1,030

Measure	Metric	PY13	PY14	PY15	PY16	PY17
Unitary HVAC 65-135k AC unit, Min 11.5 EER/11.0 EER2, 17.8 IEER	MWh Savings	0.000	0.000	23.089	23.089	23.089
	MW Reduction	0.000	0.000	0.008	0.008	0.008
	Participants	0	0	141	141	141
Upstream Residential Incentives, C&I Cross-Sector Sales	MWh Savings	184.898	17.624	0.000	0.000	0.000
	MW Reduction	0.058	0.005	0.000	0.000	0.000
	Participants	6,908	362	0	0	0
Variable Speed Air Compressor <=50 HP	MWh Savings	0.000	0.000	15.073	15.073	15.073
	MW Reduction	0.000	0.000	0.002	0.002	0.002
	Participants	0	0	66	66	66
Variable Speed Air Compressor 101-150 HP HP	MWh Savings	0.000	0.000	20.299	20.299	20.299
	MW Reduction	0.000	0.000	0.003	0.003	0.003
	Participants	0	0	89	89	89
Variable Speed Air Compressor 51-100 HP	MWh Savings	0.000	0.000	20.268	20.268	20.268
	MW Reduction	0.000	0.000	0.003	0.003	0.003
	Participants	0	0	89	89	89
Variable Speed Refrigeration Compressor	MWh Savings	0.000	0.000	6.103	6.103	6.103
	MW Reduction	0.000	0.000	0.001	0.001	0.001
	Participants	0	0	50	50	50
VFD - Air Compressor	MWh Savings	0.000	0.000	81.878	81.878	81.878
	MW Reduction	0.000	0.000	0.014	0.014	0.014
	Participants	0	0	141	141	141
VFD - HVAC Fan Motor	MWh Savings	114.655	254.276	2,774.315	2,774.315	2,774.315
	MW Reduction	0.012	0.020	0.217	0.217	0.217
	Participants	10	29	2,022	2,022	2,022
VFD - Kitchen Exhaust	MWh Savings	0.000	0.000	2.721	2.721	2.721
	MW Reduction	0.000	0.000	0.000	0.000	0.000
	Participants	0	0	1	1	1
Water Source and Geothermal Heat Pumps 14 EER / 13.4 EER2	MWh Savings	0.000	0.000	17.558	17.558	17.558
	MW Reduction	0.000	0.000	0.010	0.010	0.010
	Participants	0	0	266	266	266
Water Source and Geothermal Heat Pumps 15 EER / 14.3 EER2	MWh Savings	0.000	0.000	50.086	50.086	50.086
	MW Reduction	0.000	0.000	0.030	0.030	0.030
	Participants	0	0	531	531	531
Water Source and Geothermal Heat Pumps 16 EER / 15.3 EER2	MWh Savings	0.000	0.000	123.734	123.734	123.734
	MW Reduction	0.000	0.000	0.058	0.058	0.058
	Participants	0	0	531	531	531
Water-Cooled Chiller (Centrifugal) ≥150 tons, < 300 tons	MWh Savings	0.000	0.000	26.848	26.848	26.848
	MW Reduction	0.000	0.000	0.006	0.006	0.006
	Participants	0	0	268	268	268
Water-Cooled Chiller (Centrifugal) ≥300 tons, < 400 tons	MWh Savings	0.000	0.000	71.457	71.457	71.457
	MW Reduction	0.000	0.000	0.041	0.041	0.041
	Participants	0	0	866	866	866
Water-Cooled Chiller (Centrifugal) ≥400 tons, < 600 tons	MWh Savings	0.000	0.000	56.434	56.434	56.434
	MW Reduction	0.000	0.000	0.063	0.063	0.063
	Participants	0	0	797	797	797
Water-Cooled Chiller (Centrifugal) Greater than 600 tons	MWh Savings	0.000	0.000	183.755	183.755	183.755
	MW Reduction	0.000	0.000	0.288	0.288	0.288
	Participants	0	0	2,597	2,597	2,597
Water-Cooled Chiller (Centrifugal) Less than 150 tons	MWh Savings	0.000	0.000	6.839	6.839	6.839
	MW Reduction	0.000	0.000	0.002	0.002	0.002
	Participants	0	0	64	64	64
Water-Cooled Chiller (Positive Displacement) >150 tons, <300 Tons	MWh Savings	0.000	0.000	33.729	33.729	33.729
	MW Reduction	0.000	0.000	0.015	0.015	0.015
	Participants	0	0	281	281	281
Water-Cooled Chiller (Positive Displacement) >300 tons, <600 Tons	MWh Savings	0.000	0.000	17.769	17.769	17.769
	MW Reduction	0.000	0.000	0.010	0.010	0.010
	Participants	0	0	153	153	153

Measure	Metric	PY13	PY14	PY15	PY16	PY17
Water-Cooled Chiller (Positive Displacement) >75 tons, <150 tons	MWh Savings	0.000	0.000	8.446	8.446	8.446
	MW Reduction	0.000	0.000	0.004	0.004	0.004
	Participants	0	0	77	77	77
Water-Cooled Chiller (Positive Displacement) Greater than 600 tons	MWh Savings	0.000	0.000	7.628	7.628	7.628
	MW Reduction	0.000	0.000	0.002	0.002	0.002
	Participants	0	0	82	82	82
Water-Cooled Chiller (Positive Displacement) Less than 75 tons	MWh Savings	0.000	0.000	11.786	11.786	11.786
	MW Reduction	0.000	0.000	0.004	0.004	0.004
	Participants	0	0	95	95	95

Table 9: Program Budget

Table 9: Program Budget

Residential Energy Efficiency Program (REEP) Appliance Recycling

Cost Element Total Budget ($000)	Metric	PY13	PY14	PY15	PY16	PY17	Phase IV Total
Incentives	Rebates	$76	$383	$341	$402	$446	$1,648
	Upstream/Midstream Buydown						
	Kits						
	Direct-Install Materials and Labor						
	Incentive Total	$76	$383	$341	$402	$446	$1,648
Non-Incentives	Program Design	$2	$3	$3	$3	$3	$12
	Administrative	$26	$37	$39	$37	$37	$176
	EDC Delivery Costs	$14	$19	$20	$19	$19	$91
	CSP Delivery Fees	$22	$113	$100	$118	$131	$485
	Marketing	$7	$10	$11	$10	$10	$48
	EM&V	$3	$14	$12	$14	$16	$59
	Implementation Services	$10	$15	$15	$15	$15	$69
	Non-Incentive Total	$141	$198	$207	$198	$198	$941
Percent Incentives		44.0%	44.0%	44.0%	44.0%	44.0%	44.0%

$2,588.83

REEP Down Stream Incentives

Cost Element Total Budget ($000)	Metric	PY13	PY14	PY15	PY16	PY17	Phase IV Total
Incentives	Rebates	$203	$376	$1,182	$1,395	$1,548	$4,704
	Upstream/Midstream Buydown						
	Kits						
	Direct-Install Materials and Labor						
	Incentive Total	$894	$941	$941	$941	$988	$4,704
Non-Incentives	Program Design	$3	$5	$5	$5	$5	$22
	Administrative	$61	$64	$64	$64	$68	$322
	EDC Delivery Costs	$32	$33	$33	$33	$35	$166
	CSP Delivery Fees	$87	$161	$507	$598	$664	$2,017
	Marketing	$17	$18	$18	$18	$18	$88
	EM&V	$9	$17	$52	$62	$68	$208
	Implementation Services	$24	$25	$25	$25	$27	$126
	Non-Incentive Total	$561	$590	$590	$590	$620	$2,950
Percent Incentives		49.0%	49.0%	49.0%	49.0%	49.0%	49.0%

Table 9: Program Budget *(continued)*

REEP Midstream Incentives

Cost Element Total Budget ($000)	Metric	PY13	PY14	PY15	PY16	PY17	Phase IV Total
Incentives	Rebates						
	Upstream/Midstream Buydown	$0	$1	$41	$48	$54	$144
	Kits						
	Direct-Install Materials and Labor						
	Incentive Total	$0	$1	$41	$48	$54	$144
Non-Incentives	Program Design	$0	$0	$0	$0	$0	$1
	Administrative	$2	$2	$2	$2	$2	$8
	EDC Delivery Costs	$1	$1	$1	$1	$1	$4
	CSP Delivery Fees	$23	$0	$7	$9	$10	$48
	Marketing	$0	$0	$0	$0	$0	$2
	EM&V	$0	$0	$1	$1	$1	$3
	Implementation Services	$1	$1	$1	$1	$1	$3
	Non-Incentive Total	$13	$14	$14	$14	$15	$70
Percent Incentives		0.0%	7.3%	74.4%	77.4%	78.4%	67.2%

REEP Upstream Incentives

Cost Element Total Budget ($000)	Metric	PY13	PY14	PY15	PY16	PY17	Phase IV Total
Incentives	Rebates						
	Upstream/Midstream Buydown	$683	$695	$191	$225	$250	$2,042
	Kits						
	Direct-Install Materials and Labor						
	Incentive Total						
Non-Incentives	Program Design	$2	$3	$3	$3	$3	$14
	Administrative	$39	$41	$41	$41	$43	$205
	EDC Delivery Costs	$20	$21	$21	$21	$22	$106
	CSP Delivery Fees	$36	$38	$38	$38	$40	$191
	Marketing	$11	$11	$11	$11	$12	$56
	EM&V	$12	$12	$3	$4	$4	$36
	Implementation Services	$15	$16	$16	$16	$17	$81
	Non-Incentive Total	$131	$138	$138	$138	$145	$689
Percent Incentives		83.9%	83.4%	58.0%	62.0%	63.3%	74.8%

Table 9: Program Budget *(continued)*

Low Income Energy Efficiency Program

Cost Element Total Budget ($000)	Metric	PY13	PY14	PY15	PY16	PY17	Phase IV Total
Incentives	Rebates	PY13	PY14	PY15	PY16	PY17	Total
	Upstream/Midstream Buydown						
	Kits						
	Direct-Install Materials and Labor	$1,464	$1,384	$1,685	$1,987	$2,206	$8,727
	Incentive Total	$1,464	$1,384	$1,685	$1,987	$2,206	$8,727
Non-Incentives	Program Design	$7	$10	$10	$10	$10	$47
	Administrative	$130	$137	$137	$137	$144	$684
	EDC Delivery Costs	$67	$71	$71	$71	$74	$353
	CSP Delivery Fees	$680	$716	$716	$716	$752	$3,579
	Marketing	$35	$37	$37	$37	$39	$186
	EM&V	$23	$21	$26	$31	$34	$135
	Implementation Services	$51	$54	$54	$54	$56	$268
	Non-Incentive Total	$993	$1,045	$1,051	$1,055	$1,109	$5,253
Percent Incentives		63.4%	63.4%	63.4%	63.4%	63.4%	63.4%

Residential Behavioral Energy Efficiency

Cost Element Total Budget ($000)	Metric	PY13	PY14	PY15	PY16	PY17	Phase IV Total
Incentives	Rebates						
	Upstream/Midstream Buydown						
	Kits						
	Direct-Install Materials and Labor						
	Incentive Total	$0	$0	$0	$0	$0	$0
Non-Incentives	Program Design	$1	$1	$1	$1	$1	$4
	Administrative	$9	$13	$12	$13	$10	$58
	EDC Delivery Costs	$5	$7	$6	$7	$5	$30
	CSP Delivery Fees	$378	$626	$626	$626	$626	$2,881
	Marketing	$3	$4	$3	$4	$3	$16
	EM&V	$43	$70	$70	$70	$70	$324
	Implementation Services	$4	$5	$5	$5	$4	$23
	Non-Incentive Total	$544	$772	$698	$765	$557	$3,336
Percent Incentives		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

Table 9: Program Budget *(continued)*

Low Income Behavioral Energy Efficiency

Cost Element Total Budget ($000)	Metric	PY13	PY14	PY15	PY16	PY17	Phase IV Total
Incentives	Rebates						
	Upstream/Midstream Buydown						
	Kits						
	Direct-Install Materials and Labor						
	Incentive Total	$0	$0	$0	$0	$0	$0
Non-Incentives	Program Design	$1	$2	$2	$2	$2	$10
	Administrative	$21	$29	$32	$38	$21	$141
	EDC Delivery Costs	$11	$15	$16	$20	$11	$73
	CSP Delivery Fees	$87	$63	$63	$63	$63	$337
	Marketing	$6	$8	$9	$10	$6	$38
	EM&V	$10	$7	$7	$7	$7	$38
	Implementation Services	$8	$12	$12	$15	$8	$55
	Non-Incentive Total	$101	$145	$155	$189	$103	$692
Percent Incentives		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

Small Commercial/Industrial (C&I) Direct-Install Program

Cost Element Total Budget ($000)	Metric	PY13	PY14	PY15	PY16	PY17	Phase IV Total
Incentives	Rebates						
	Upstream/Midstream Buydown						
	Kits						
	Direct-Install Materials and Labor	$458	$1,545	$434	$434	$434	$3,304
	Incentive Total	$458	$1,545	$741	$714	$554	$3,304
Non-Incentives	Program Design	$4	$6	$6	$6	$6	$28
	Administrative	$71	$87	$90	$87	$68	$403
	EDC Delivery Costs	$37	$45	$47	$45	$35	$208
	CSP Delivery Fees	$87	$293	$82	$82	$82	$627
	Marketing	$19	$24	$25	$24	$18	$110
	EM&V	$6	$20	$6	$6	$6	$43
	Implementation Services	$28	$34	$35	$34	$26	$158
	Non-Incentive Total	$252	$510	$291	$284	$241	$1,577
Percent Incentives		58.4%	71.8%	71.6%	69.7%	67.7%	83.4%

Table 9: Program Budget *(continued)*

Small C&I Downstream Incentives

Cost Element Total Budget ($000)	Metric	PY13	PY14	PY15	PY16	PY17	Phase IV Total
Incentives	Rebates	$1,000	$878	$992	$992	$992	$4,854
	Upstream/Midstream Buydown						
	Kits						
	Direct-Install Materials and Labor						
	Incentive Total	$853	$1,050	$1,089	$1,049	$813	$4,854
Non-Incentives	Program Design	$9	$12	$13	$12	$12	$57
	Administrative	$145	$178	$185	$178	$138	$825
	EDC Delivery Costs	$75	$92	$95	$92	$71	$426
	CSP Delivery Fees	$487	$427	$483	$483	$483	$2,361
	Marketing	$39	$49	$50	$49	$38	$225
	EM&V	$70	$61	$69	$69	$69	$338
	Implementation Services	$57	$70	$72	$70	$54	$323
	Non-Incentive Total	$801	$986	$1,021	$984	$763	$4,555
Percent Incentives		60.2%	60.2%	60.2%	60.2%	60.2%	60.2%

Small C&I Midstream Incentives

Cost Element Total Budget ($000)	Metric	PY13	PY14	PY15	PY16	PY17	Phase IV Total
Incentives	Rebates						
	Upstream/Midstream Buydown	$1,084	$6,160	$154	$154	$154	$7,705
	Kits						
	Direct-Install Materials and Labor						
	Incentive Total	$1,084	$6,160	$154	$154	$154	$7,705
Non-Incentives	Program Design	$4	$5	$5	$5	$5	$23
	Administrative	$60	$73	$76	$73	$57	$339
	EDC Delivery Costs	$31	$38	$39	$38	$29	$175
	CSP Delivery Fees	$452	$2,565	$64	$64	$64	$3,209
	Marketing	$16	$20	$21	$20	$15	$92
	EM&V	$52	$293	$7	$7	$7	$366
	Implementation Services	$23	$29	$30	$29	$22	$133
	Non-Incentive Total	$762	$939	$973	$937	$727	$4,338
Percent Incentives		58.7%	86.8%	13.6%	14.1%	17.5%	64.0%

Table 9: Program Budget *(continued)*

Small C&I Virtual Commissioning Incentives

Cost Element Total Budget ($000)	Metric	PY13	PY14	PY15	PY16	PY17	Phase IV Total
Incentives	Rebates	$0	$286	$12	$12	$12	$323
	Upstream/Midstream Buydown						
	Kits						
	Direct-Install Materials and Labor						
	Incentive Total	$57	$70	$72	$70	$54	$323
Non-Incentives	Program Design	$1	$2	$2	$2	$2	$7
	Administrative	$18	$23	$23	$23	$18	$104
	EDC Delivery Costs	$8	$10	$13	$13	$10	$54
	CSP Delivery Fees	$0	$47	$2	$2	$2	$54
	Marketing	$4	$5	$7	$7	$5	$28
	EM&V	$0	$12	$1	$1	$1	$14
	Implementation Services	$6	$7	$10	$10	$8	$41
	Non-Incentive Total	$38	$106	$58	$56	$44	$302
Percent Incentives		60.2%	39.8%	55.4%	55.4%	54.9%	51.7%

Large Commercial Downstream Incentives

Cost Element Total Budget ($000)	Metric	PY13	PY14	PY15	PY16	PY17	Phase IV Total
Incentives	Rebates	$1,203	$600	$3,141	$3,141	$3,141	$11,227
	Upstream/Midstream Buydown						
	Kits						
	Direct-Install Materials and Labor						
	Incentive Total	$1,203	$600	$3,141	$3,141	$3,141	$11,227
Non-Incentives	Program Design	$9	$12	$13	$12	$12	$58
	Administrative	$149	$183	$189	$183	$142	$845
	EDC Delivery Costs	$77	$94	$98	$94	$73	$436
	CSP Delivery Fees	$594	$296	$1,551	$1,551	$1,551	$5,544
	Marketing	$40	$50	$52	$50	$39	$230
	EM&V	$85	$42	$222	$222	$222	$794
	Implementation Services	$58	$72	$74	$72	$55	$331
	Non-Incentive Total	$1,012	$750	$2,200	$2,184	$2,094	$8,239
Percent Incentives		57.7%	54.3%	44.4%	58.8%	59.0%	60.0%

Table 9: Program Budget *(continued)*

Large Commercial Midstream Incentives

Cost Element Total Budget ($000)	Metric	PY13	PY14	PY15	PY16	PY17	Phase IV Total
Incentives	Rebates	$1,005	$1,176	$589	$589	$589	$3,947
	Upstream/Midstream Buydown						
	Kits						
	Direct-Install Materials and Labor						
	Incentive Total	$1,005	$1,176	$589	$589	$589	$3,947
Non-Incentives	Program Design	$2	$3	$3	$3	$3	$12
	Administrative	$31	$39	$40	$39	$30	$179
	EDC Delivery Costs	$16	$20	$21	$20	$15	$92
	CSP Delivery Fees	$337	$395	$198	$198	$198	$1,325
	Marketing	$9	$11	$11	$11	$8	$49
	EM&V	$24	$29	$30	$29	$23	$135
	Implementation Services	$12	$15	$16	$15	$12	$70
	Non-Incentive Total	$327	$403	$418	$402	$312	$1,863
Percent Incentives		75.4%	74.5%	58.5%	59.4%	65.4%	67.9%

Large Commercial VCx

Cost Element Total Budget ($000)	Metric	PY13	PY14	PY15	PY16	PY17	Phase IV Total
Incentives	Rebates	$0	$670	$22	$22	$22	$735
	Upstream/Midstream Buydown						
	Kits						
	Direct-Install Materials and Labor						
	Incentive Total	$0	$670	$22	$22	$22	$735
Non-Incentives	Program Design	$0	$0	$0	$0	$0	$2
	Administrative	$4	$5	$5	$5	$4	$24
	EDC Delivery Costs	$2	$3	$3	$3	$2	$13
	CSP Delivery Fees	$0	$111	$4	$4	$4	$122
	Marketing	$1	$1	$1	$1	$1	$7
	EM&V	$0	$28	$1	$1	$1	$31
	Implementation Services	$2	$2	$2	$2	$2	$10
	Non-Incentive Total	$37	$45	$47	$45	$35	$208
Percent Incentives		0.0%	93.7%	31.8%	32.6%	38.4%	78.0%

Table 9: Program Budget *(continued)*

Large Industrial Downstream Incentives

Cost Element Total Budget ($000)	Metric	PY13	PY14	PY15	PY16	PY17	Phase IV Total
Incentives	Rebates	$202	$1,574	$487	$487	$487	$3,236
	Upstream/Midstream Buydown						
	Kits						
	Direct-Install Materials and Labor						
	Incentive Total	$202	$1,574	$487	$487	$487	$3,236
Non-Incentives	Program Design	$5	$6	$7	$6	$6	$31
	Administrative	$78	$96	$100	$96	$74	$444
	EDC Delivery Costs	$40	$50	$51	$50	$38	$229
	CSP Delivery Fees	$110	$857	$265	$265	$265	$1,762
	Marketing	$21	$26	$27	$26	$20	$121
	EM&V	$16	$123	$38	$38	$38	$252
	Implementation Services	$31	$38	$39	$38	$29	$174
	Non-Incentive Total	$530	$652	$676	$651	$505	$3,013
Percent Incentives		27.6%	70.7%	41.9%	42.8%	49.1%	51.8%

Large Industrial Midstream Incentives

Cost Element Total Budget ($000)	Metric	PY13	PY14	PY15	PY16	PY17	Phase IV Total
Incentives	Rebates						
	Upstream/Midstream Buydown	$807	$2,206	$98	$98	$98	$3,305
	Kits						
	Direct-Install Materials and Labor						
	Incentive Total	$807	$2,206	$98	$98	$98	$3,305
Non-Incentives	Program Design	$1	$1	$1	$1	$1	$3
	Administrative	$9	$11	$11	$11	$8	$50
	EDC Delivery Costs	$5	$6	$6	$6	$4	$26
	CSP Delivery Fees	$293	$800	$35	$35	$35	$1,198
	Marketing	$2	$3	$3	$3	$2	$14
	EM&V	$33	$91	$4	$4	$4	$137
	Implementation Services	$3	$4	$4	$4	$3	$20
	Non-Incentive Total	$254	$313	$325	$313	$243	$1,448
Percent Incentives		76.0%	87.6%	23.1%	23.8%	28.7%	69.5%

Table 9: Program Budget *(continued)*

Large Industrial Virtual Commissioning

Cost Element Total Budget ($000)	Metric	PY13	PY14	PY15	PY16	PY17	Phase IV Total
Incentives	Rebates	$0	$0	$103	$103	$103	$309
	Upstream/Midstream Buydown						
	Kits						
	Direct-Install Materials and Labor						
	Incentive Total	$0	$0	$103	$103	$103	$309
Non-Incentives	Program Design	$0	$0	$0	$0	$0	$1
	Administrative	$2	$3	$3	$3	$2	$12
	EDC Delivery Costs	$1	$1	$1	$1	$1	$6
	CSP Delivery Fees	$0	$0	$17	$17	$17	$51
	Marketing	$1	$1	$1	$1	$1	$3
	EM&V	$0	$0	$4	$4	$4	$13
	Implementation Services	$1	$1	$1	$1	$1	$5
	Non-Incentive Total	$16	$20	$20	$20	$15	$91
Percent Incentives		0.0%	0.0%	83.5%	84.0%	87.1%	77.3%

Pilot Program Experimental Equipment (per EE&C Plan Template Section 9.1.4)

Cost Element Total Budget ($000)	Metric	PY13	PY14	PY15	PY16	PY17	Phase IV Total
Incentives	Rebates	$344	$423	$438	$422	$328	$1,955
	Upstream/Midstream Buydown						
	Kits						
	Direct-Install Materials and Labor						
	Incentive Total	$344	$423	$438	$422	$328	$1,955
Non-Incentives	Program Design						
	Administrative						
	EDC Delivery Costs						
	CSP Delivery Fees						
	Marketing						
	EM&V						
	Implementation Services						
	Non-Incentive Total						
Percent Incentives		100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Table 9: Program Budget *(continued)*

All Programs

Cost Element Total Budget ($000)	Metric	PY13	PY14	PY15	PY16	PY17	Phase IV Total
Incentives	Rebates	$6,606	$15,426	$7,790	$8,090	$8,223	$46,135
	Upstream/Midstream Buydown	$0	$0	$0	$0	$0	$0
	Kits	$0	$0	$0	$0	$0	$0
	Direct-Install Materials and Labor	$1,922	$2,930	$2,118	$2,421	$2,640	$12,031
	Incentive Total	$8,529	$18,356	$9,908	$10,511	$10,862	$58,166
Non-Incentives	Program Design	$50	$70	$73	$70	$70	$333
	Administrative	$855	$1,022	$1,050	$1,030	$864	$4,821
	EDC Delivery Costs	$440	$526	$543	$533	$447	$2,489
	CSP Delivery Fees	$3,672	$7,508	$4,758	$4,868	$4,986	$25,792
	Marketing	$232	$277	$286	$281	$236	$1,312
	EM&V	$384	$842	$554	$570	$576	$2,926
	Implementation Services	$334	$399	$412	$404	$340	$1,889
	Non-Incentive Total	$6,511	$7,624	$8,880	$8,823	$7,726	$39,563
Percent Incentives		56.7%	70.7%	52.7%	54.4%	58.4%	59.5%

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

Residential Portfolio													
	Cost Elements ($)												
EE&C Program	Incentives	Program Design	Administrative	EDC Delivery Costs	CSP Delivery Fees	Marketing	EM&V	Other	Levlized Cost cost *(per TRC Order)*	Total Cost $	Acquisiton Cost ($/MWh)	Levelized Cost ($/MWh)	Acquisiton Cost ($/MW)
Residential - Appliance Recylcing	$1,647,960.56	$12,198.03	$176,375.15	$91,078.60	$485,475.74	$48,013.42	$58,602.65	$69,122.15	$1,510,502.52	$2,588,827	$359.95	$48.51	$1,861,817
Residential - Down Stream Incentives	$4,703,753.88	$22,290.67	$322,307.89	$166,437.01	$2,017,240.56	$87,739.70	$207,747.41	$126,313.79	$6,328,378.94	$7,653,831	$300.20	$38.40	$1,129,865
Residential - Midstream Incentives	$143,803.58	$574.95	$8,313.37	$4,292.95	$48,407.29	$2,263.09	$3,127.29	$3,258.04	$401,678.70	$214,044	$557.68	$105.73	$2,913,605
Residential - Upstream Incentives	$2,042,481.12	$14,206.87	$205,421.61	$106,077.94	$190,682.73	$55,920.54	$35,914.19	$80,505.58	$3,911,398.55	$2,731,211	$619.66	$174.84	$2,172,453
Residential - Low Income EE	$8,726,752.97	$47,307.33	$684,031.77	$353,228.09	$3,578,875.55	$186,209.35	$135,152.34	$268,074.87	$3,136,980.58	$13,979,632	$842.82	$32.68	$3,261,803
Residential - Behavioral Efficiency	$0.00	$3,998.03	$57,808.76	$29,851.94	$2,881,338.55	$15,736.89	$324,277.36	$22,655.49	$3,331.67	$3,335,667	$83.82	$0.09	$618,050
Low Income Behavioral Efficiency	$0.00	$9,754.67	$141,045.90	$72,834.88	$336,936.00	$38,395.97	$37,931.11	$55,276.47	$682.42	$692,175	$148.69	$0.15	$1,096,422
Nonresidential Portfolio													
Small C&I Direct-Install	$3,304,148.36	$27,882.24	$403,158.3	$208,187.4	$627,050.6	$109,749.1	$43,080.3	$157,999.4	$3,305,697.58	$4,881,256	$923.24	$63.16	$4,873,713
Small C&I Downstream	$4,854,445.12	$57,037.94	$824,729.7	$425,883.3	$2,361,022.5	$224,510.6	$338,102.8	$323,215.0	$17,230,022.80	$9,408,947	$226.75	$41.95	$1,249,715
Small C&I Midstream	$7,704,968.44	$23,450.39	$339,076.6	$175,096.2	$3,208,951.5	$92,304.5	$366,206.3	$132,885.5	$43,593,393.57	$12,042,940	$267.96	$97.99	$1,106,564
Small C&I VCX	$323,010.00	$7,225.96	$104,482.5	$53,953.8	$53,613.0	$28,442.6	$13,566.7	$40,947.1	$323,305.01	$625,242	$375.52	$19.62	$1,020,436
Large Commercial - Downstream	$11,226,821.38	$58,442.41	$845,037.4	$436,370.0	$5,544,151.0	$230,038.8	$793,916.6	$331,173.7	$19,475,997.94	$19,465,951	$199.78	$20.19	$1,074,098
Large Commercial - Midstream	$3,947,343.08	$12,363.89	$178,773.4	$92,317.0	$1,325,163.4	$48,666.3	$135,278.1	$70,062.0	$19,648,805.45	$5,809,967	$313.04	$106.95	$1,138,039
Large Commercial VCx	$735,383.00	$1,683.02	$24,335.3	$12,566.5	$122,058.4	$6,624.6	$30,886.8	$9,537.1	$735,589.01	$943,075	$248.79	$19.60	$676,062
Large Industrial - Downstream	$3,236,019.77	$30,697.06	$443,858.5	$229,204.7	$1,761,814.3	$120,828.6	$252,295.1	$173,950.0	$6,368,916.47	$6,248,668	$201.81	$20.78	$1,057,664
Large Industrial - Midstream	$3,305,330.11	$3,464.56	$50,095.2	$25,868.7	$1,198,353.1	$13,637.1	$136,756.4	$19,632.5	$17,768,302.53	$4,753,138	$283.20	$106.95	$1,029,553
Large Industrial - VCx	$309,460.75	$822.28	$11,889.6	$6,139.7	$51,364.1	$3,236.6	$12,997.6	$4,659.6	$309,551.04	$400,570	$251.12	$19.60	$682,381
Pilot Program	$1,954,595.00	$0.00								$1,954,595			
Portfolio Total	$58,166,277.11	$333,400.29	$4,820,741.00	$2,489,388.94	$25,792,498.45	$1,312,317.81	$2,925,839.11	$1,889,268.29	$144,052,534.78	$97,729,735	$270.6923	$48.68	$1,293,221

Table 11: Allocation of Common Costs to Applicable Customer Sector

Common Cost Element	Total Cost	Basis for Cost Allocation	Sector Cost Allocation ($)		
			Residential *(Inlcuding Low-Income)*	**Commercial/ Industrial Small**	**Commercial/ Industrial Large**
Common Utility Staff	$864,922	% Plan Savings	$236,019	$223,730	$405,172
Marketing	$1,177,260	% Plan Savings	$321,250	$304,523	$551,487
Implementation Services	$1,778,382	% Plan Savings	$485,283	$460,016	$833,082
Tracking System Upgrade and Maintenance	$2,500,000	% Plan Savings	$682,198	$646,678	$1,171,124
Total	$6,320,564		$1,724,751	$1,634,947	$2,960,866

Table 12: Summary of Portfolio EE&C Costs

Portfolio	Total Sector Portfoloio-specific Costs[1]	Total Common Costs[2]	Total of all Costs[2]
Residential (Inlcuding Low-Income)	$29,470,636	$1,724,751	$31,195,387
Commercial/Industrial Small	$25,323,437	$1,634,947	$26,958,384
Commercial/Industrial Large	$34,660,504	$2,960,866	$37,621,370
Pilot Program (Experimental Equip.)	$1,954,595		$1,954,595
Totals	$91,409,171	$6,320,564	$97,729,735

1-Cost fiures 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 will be 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			Incremental Measure Cost		Program	Total TRC	Capacity	Energy	Fossil Fuel / Water	O&M	Total TRC
Program	Year	NTGR	TRC	Paid by EDC	Paid by Participants	Admin Cost	Costs	Benefits	Benefits	Benefits	Benefits	Benefits
Residential Appliance Recycling	PY13	1	1.87	$89.61	$89.61	$51.1581	$51.16	$33.12	$62.67	$0.00	$0.00	$95.79
	PY14	1	1.87	$396.28	$396.28	$226.2484	$226.25	$146.49	$277.14	$0.00	$0.00	$423.63
	PY15	1	1.87	$333.01	$333.01	$190.1263	$190.13	$123.10	$232.89	$0.00	$0.00	$355.99
	PY16	1	1.87	$392.90	$392.90	$224.3197	$224.32	$145.24	$274.78	$0.00	$0.00	$420.02
	PY17	1	1.87	$436.13	$436.13	$248.9982	$249.00	$161.22	$305.01	$0.00	$0.00	$466.22
Program Total		1	1.87	$1,647.96	$1,647.96	$940.8667	$940.87	$609.18	$1,152.50	$0.00	$0.00	$1,761.68
Residential Downstream Incentives	PY13	1	3.60	$202.84	$272.77	$127.2162	$399.99	$207.36	$297.34	$469.10	$465.31	$1,439.10
	PY14	1	3.60	$376.34	$506.09	$236.0330	$742.13	$384.72	$551.67	$870.35	$863.33	$2,670.07
	PY15	1	3.60	$1,182.07	$1,589.61	$741.3637	$2,330.97	$1,208.39	$1,732.75	$2,733.70	$2,711.65	$8,386.50
	PY16	1	3.60	$1,394.54	$1,875.33	$874.6213	$2,749.95	$1,425.60	$2,044.21	$3,225.08	$3,199.06	$9,893.94
	PY17	1	3.60	$1,547.96	$2,081.65	$970.8427	$3,052.49	$1,582.43	$2,269.10	$3,579.88	$3,551.00	$10,982.43
Program Total		1	3.60	$4,703.75	$6,325.45	$2,950.0770	$9,275.53	$4,808.50	$6,895.07	$10,878.11	$10,790.35	$33,372.04
Residential Midstream Incentives	PY13	1	0.00	$0.00	$0.00	$0.0000	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
	PY14	1	0.56	$1.11	$3.10	$0.5420	$3.64	$0.68	$1.45	-$0.09	$0.00	$2.04
	PY15	1	0.56	$40.89	$114.20	$19.9723	$134.17	$25.12	$53.40	-$3.23	$0.00	$75.29
	PY16	1	0.56	$48.25	$134.74	$23.5643	$158.30	$29.63	$63.01	-$3.81	$0.00	$88.83
	PY17	1	0.56	$53.55	$149.56	$26.1567	$175.72	$32.89	$69.94	-$4.23	$0.00	$98.61
Program Total		1	0.56	$143.80	$401.61	$70.2370	$471.85	$88.33	$187.80	-$11.35	$0.00	$264.78
Residential Upstream Incentives	PY13	1	0.37	$682.83	$1,307.41	$230.2516	$1,537.66	$268.35	$322.94	-$27.98	$10.07	$573.38
	PY14	1	0.37	$694.55	$1,329.86	$234.2055	$1,564.06	$272.96	$328.48	-$28.46	$10.25	$583.23
	PY15	1	0.37	$190.60	$364.94	$64.2708	$429.21	$74.91	$90.14	-$7.81	$2.81	$160.05
	PY16	1	0.37	$224.88	$430.57	$75.8296	$506.40	$88.38	$106.35	-$9.21	$3.32	$188.83
	PY17	1	0.37	$249.62	$477.94	$84.1720	$562.12	$98.10	$118.05	-$10.23	$3.68	$209.61
Program Total		1	0.37	$2,042.48	$3,910.72	$688.7294	$4,599.45	$802.70	$965.97	-$83.69	$30.13	$1,715.11
Low Income Energy Efficiency	PY13	1	0.79	$1,464.22	$525.47	$881.3563	$1,406.82	$400.92	$656.05	$27.18	$27.18	$1,111.33
	PY14	1	0.79	$1,384.41	$496.82	$833.3163	$1,330.14	$379.07	$620.29	$25.70	$25.70	$1,050.75
	PY15	1	0.79	$1,684.52	$604.52	$1,013.9601	$1,618.48	$461.24	$754.75	$31.27	$31.27	$1,278.53
	PY16	1	0.79	$1,987.47	$713.25	$1,196.3168	$1,909.56	$544.19	$890.49	$36.90	$36.90	$1,508.47
	PY17	1	0.79	$2,206.13	$791.71	$1,327.9296	$2,119.64	$604.06	$988.46	$40.96	$40.96	$1,674.43
Program Total		1	0.79	$8,726.75	$3,131.78	$5,252.8793	$8,384.65	$2,389.47	$3,910.03	$162.01	$162.01	$6,623.52

Table 13A: TRC Benefits Table (Gross) - *continued*

Portfolio	NTGR & TRC			TRC Costs by Program Year ($000)				TRC Benefits By Program Per Year ($000)				
	Program			Incremental Measure Cost		Program	Total TRC	Capacity	Energy	Fossil Fuel / Water	O&M	Total TRC
Program	Year	NTGR	TRC	Paid by EDC	Paid by Participants	Admin Cost	Costs	Benefits	Benefits	Benefits	Benefits	Benefits
Residential Behavioral Efficiency	PY13	1	1.09	$0.00	$0.00	$438.0570	$438.06	$137.89	$338.95	$0.00	$0.00	$476.85
	PY14	1	1.09	$0.00	$0.00	$724.4025	$724.40	$228.03	$560.52	$0.00	$0.00	$788.55
	PY15	1	1.09	$0.00	$0.00	$724.4025	$724.40	$228.03	$560.52	$0.00	$0.00	$788.55
	PY16	1	1.09	$0.00	$0.00	$724.4025	$724.40	$228.03	$560.52	$0.00	$0.00	$788.55
	PY17	1	1.09	$0.00	$0.00	$724.4025	$724.40	$228.03	$560.52	$0.00	$0.00	$788.55
Program Total		1	1.09	$0.00	$0.00	$3,335.6670	$3,335.67	$1,050.00	$2,581.03	$0.00	$0.00	$3,631.03
Low Income Behavioral Efficiency	PY13	1	0.61	$0.00	$0.00	$177.7694	$177.77	$31.54	$77.54	$0.00	$0.00	$109.08
	PY14	1	0.61	$0.00	$0.00	$128.6014	$128.60	$22.82	$56.09	$0.00	$0.00	$78.91
	PY15	1	0.61	$0.00	$0.00	$128.6014	$128.60	$22.82	$56.09	$0.00	$0.00	$78.91
	PY16	1	0.61	$0.00	$0.00	$128.6014	$128.60	$22.82	$56.09	$0.00	$0.00	$78.91
	PY17	1	0.61	$0.00	$0.00	$128.6014	$128.60	$22.82	$56.09	$0.00	$0.00	$78.91
Program Total		1	0.61	$0.00	$0.00	$692.1750	$692.17	$122.82	$301.91	$0.00	$0.00	$424.73
Small C&I Direct-Install	PY13	1	0.79	$458.16	$458.16	$218.6864	$676.85	$161.85	$343.47	-$33.68	$63.49	$535.13
	PY14	1	0.79	$1,545.34	$1,545.34	$737.6075	$2,282.95	$545.90	$1,158.48	-$113.58	$214.13	$1,804.93
	PY15	1	0.79	$433.55	$433.55	$206.9378	$640.49	$153.15	$325.01	-$31.87	$60.08	$506.38
	PY16	1	0.79	$433.55	$433.55	$206.9378	$640.49	$153.15	$325.01	-$31.87	$60.08	$506.38
	PY17	1	0.79	$433.55	$433.55	$206.9378	$640.49	$153.15	$325.01	-$31.87	$60.08	$506.38
Program Total		1	0.79	$3,304.15	$3,304.15	$1,577.1073	$4,881.26	$1,167.21	$2,476.99	-$242.86	$457.85	$3,859.20
Small C&I Downstream Incentives	PY13	1	1.35	$1,000.44	$3,549.96	$938.6251	$4,488.59	$1,810.58	$3,989.42	-$254.08	$533.29	$6,079.21
	PY14	1	1.35	$877.54	$3,113.86	$823.3166	$3,937.17	$1,588.15	$3,499.33	-$222.86	$467.78	$5,332.39
	PY15	1	1.35	$992.16	$3,520.57	$930.8534	$4,451.42	$1,795.59	$3,956.39	-$251.97	$528.87	$6,028.88
	PY16	1	1.35	$992.16	$3,520.57	$930.8534	$4,451.42	$1,795.59	$3,956.39	-$251.97	$528.87	$6,028.88
	PY17	1	1.35	$992.16	$3,520.57	$930.8534	$4,451.42	$1,795.59	$3,956.39	-$251.97	$528.87	$6,028.88
Program Total		1	1.35	$4,854.45	$17,225.53	$4,554.5018	$21,780.03	$8,785.50	$19,357.91	-$1,232.86	$2,587.69	$29,498.24
Small C&I Midstream Incentives	PY13	1	0.68	$1,084.26	$6,133.96	$610.4501	$6,744.41	$1,830.71	$3,023.66	-$279.27	$0.00	$4,575.10
	PY14	1	0.68	$6,159.56	$34,846.26	$3,467.8886	$38,314.15	$10,400.03	$17,177.00	-$1,586.49	$0.00	$25,990.55
	PY15	1	0.68	$153.72	$869.62	$86.5441	$956.16	$259.54	$428.67	-$39.59	$0.00	$648.62
	PY16	1	0.68	$153.72	$869.62	$86.5441	$956.16	$259.54	$428.67	-$39.59	$0.00	$648.62
	PY17	1	0.68	$153.72	$869.62	$86.5441	$956.16	$259.54	$428.67	-$39.59	$0.00	$648.62
Program Total		1	0.68	$7,704.97	$43,589.08	$4,337.9711	$47,927.05	$13,009.36	$21,486.66	-$1,984.53	$0.00	$32,511.49

Table 13A: TRC Benefits Table (Gross) - *continued*

Portfolio	NTGR & TRC			TRC Costs by Program Year ($000)				TRC Benefits By Program Per Year ($000)				
	Program			Incremental Measure Cost		Program	Total TRC	Capacity	Energy	Fossil Fuel / Water	O&M	Total TRC
Program	Year	NTGR	TRC	Paid by EDC	Paid by Participants	Admin Cost	Costs	Benefits	Benefits	Benefits	Benefits	Benefits
Small C&I Virtual Commissioning (VCx)	PY13	1	0.00	$0.00	$0.00	$0.0000	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
	PY14	1	2.39	$286.14	$286.14	$267.7324	$553.87	$652.62	$671.60	$0.00	$0.00	$1,324.22
	PY15	1	2.39	$12.29	$12.29	$11.4997	$23.79	$28.03	$28.85	$0.00	$0.00	$56.88
	PY16	1	2.39	$12.29	$12.29	$11.4997	$23.79	$28.03	$28.85	$0.00	$0.00	$56.88
	PY17	1	2.39	$12.29	$12.29	$11.4997	$23.79	$28.03	$28.85	$0.00	$0.00	$56.88
Program Total		1	2.39	$323.01	$323.01	$302.2317	$625.24	$736.72	$758.15	$0.00	$0.00	$1,494.86
Large Commercial Downstream Incentives	PY13	1	2.47	$1,202.84	$2,085.78	$882.7412	$2,968.53	$2,325.62	$4,865.53	-$146.39	$274.56	$7,319.31
	PY14	1	2.47	$599.75	$1,039.99	$440.1442	$1,480.14	$1,159.58	$2,426.00	-$72.99	$136.90	$3,649.49
	PY15	1	2.47	$3,141.41	$5,447.35	$2,305.4149	$7,752.76	$6,073.70	$12,707.07	-$382.33	$717.06	$19,115.51
	PY16	1	2.47	$3,141.41	$5,447.35	$2,305.4149	$7,752.76	$6,073.70	$12,707.07	-$382.33	$717.06	$19,115.51
	PY17	1	2.47	$3,141.41	$5,447.35	$2,305.4149	$7,752.76	$6,073.70	$12,707.07	-$382.33	$717.06	$19,115.51
Program Total		1	2.47	$11,226.82	$19,467.82	$8,239.1300	$27,706.95	$21,706.30	$45,412.75	-$1,366.38	$2,562.65	$68,315.31
Large Commercial Midstream Incentives	PY13	1	0.66	$1,005.27	$5,003.47	$474.3525	$5,477.82	$1,561.59	$2,239.86	-$205.93	$0.00	$3,595.52
	PY14	1	0.66	$1,175.82	$5,852.35	$554.8303	$6,407.18	$1,826.52	$2,619.87	-$240.86	$0.00	$4,205.53
	PY15	1	0.66	$588.75	$2,930.38	$277.8138	$3,208.19	$914.57	$1,311.82	-$120.60	$0.00	$2,105.78
	PY16	1	0.66	$588.75	$2,930.38	$277.8138	$3,208.19	$914.57	$1,311.82	-$120.60	$0.00	$2,105.78
	PY17	1	0.66	$588.75	$2,930.38	$277.8138	$3,208.19	$914.57	$1,311.82	-$120.60	$0.00	$2,105.78
Program Total		1	0.66	$3,947.34	$19,646.96	$1,862.6242	$21,509.58	$6,131.83	$8,795.17	-$808.60	$0.00	$14,118.40
Large Commercial VCx	PY13	1	0.00	$0.00	$0.00	$0.0000	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
	PY14	1	3.61	$670.28	$670.28	$189.3052	$859.59	$1,528.76	$1,577.72	$0.00	$0.00	$3,106.48
	PY15	1	3.61	$21.70	$21.70	$6.1289	$27.83	$49.49	$51.08	$0.00	$0.00	$100.57
	PY16	1	3.61	$21.70	$21.70	$6.1289	$27.83	$49.49	$51.08	$0.00	$0.00	$100.57
	PY17	1	3.61	$21.70	$21.70	$6.1289	$27.83	$49.49	$51.08	$0.00	$0.00	$100.57
Program Total		1	3.61	$735.38	$735.38	$207.6918	$943.07	$1,677.25	$1,730.96	$0.00	$0.00	$3,408.21
Large Industrial Downstream Incentives	PY13	1	2.34	$201.97	$397.31	$188.0247	$585.33	$438.47	$909.38	-$30.58	$54.89	$1,372.16
	PY14	1	2.34	$1,573.76	$3,095.92	$1,465.1312	$4,561.06	$3,416.65	$7,086.10	-$238.27	$427.68	$10,692.16
	PY15	1	2.34	$486.76	$957.57	$453.1641	$1,410.73	$1,056.77	$2,191.73	-$73.70	$132.28	$3,307.08
	PY16	1	2.34	$486.76	$957.57	$453.1641	$1,410.73	$1,056.77	$2,191.73	-$73.70	$132.28	$3,307.08
	PY17	1	2.34	$486.76	$957.57	$453.1641	$1,410.73	$1,056.77	$2,191.73	-$73.70	$132.28	$3,307.08
Program Total		1	2.34	$3,236.02	$6,365.93	$3,012.6483	$9,378.58	$7,025.42	$14,570.66	-$489.93	$879.41	$21,985.56

Table 13A: TRC Benefits Table (Gross) - *continued*

Portfolio	NTGR & TRC			TRC Costs by Program Year ($000)				TRC Benefits By Program Per Year ($000)				
	Program			Incremental Measure Cost		Program	Total TRC	Capacity	Energy	Fossil Fuel / Water	O&M	Total TRC
Program	Year	NTGR	TRC	Paid by EDC	Paid by Participants	Admin Cost	Costs	Benefits	Benefits	Benefits	Benefits	Benefits
Large Industrial Midstream Incentives	PY13	1	0.66	$806.82	$4,336.83	$353.4053	$4,690.24	$1,353.53	$1,941.43	-$178.49	$0.00	$3,116.47
	PY14	1	0.66	$2,205.51	$11,855.10	$966.0631	$12,821.16	$3,699.99	$5,307.06	-$487.92	$0.00	$8,519.13
	PY15	1	0.66	$97.67	$524.97	$42.7797	$567.75	$163.84	$235.01	-$21.61	$0.00	$377.25
	PY16	1	0.66	$97.67	$524.97	$42.7797	$567.75	$163.84	$235.01	-$21.61	$0.00	$377.25
	PY17	1	0.66	$97.67	$524.97	$42.7797	$567.75	$163.84	$235.01	-$21.61	$0.00	$377.25
Program Total		1	0.66	$3,305.33	$17,766.86	$1,447.8075	$19,214.67	$5,545.05	$7,953.53	-$731.23	$0.00	$12,767.35
Large Industrial VCx	PY13	1	0.00	$0.00	$0.00	$0.0000	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
	PY14	1	0.00	$0.00	$0.00	$0.0000	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
	PY15	1	3.58	$103.15	$103.15	$30.3699	$133.52	$235.27	$242.80	$0.00	$0.00	$478.08
	PY16	1	3.58	$103.15	$103.15	$30.3699	$133.52	$235.27	$242.80	$0.00	$0.00	$478.08
	PY17	1	3.58	$103.15	$103.15	$30.3699	$133.52	$235.27	$242.80	$0.00	$0.00	$478.08
Program Total		1	3.58	$309.46	$309.46	$91.1096	$400.57	$705.81	$728.41	$0.00	$0.00	$1,434.23
Pilot/Experimental	PY13	1		$0.00								
	PY14	1		$0.00								
	PY15	1		$651.53								
	PY16	1		$651.53								
	PY17	1		$651.53								
Program Total				$1,954.60								
All Programs	PY13	1	1.03	$8,199.26	$24,160.74	$5,572.0940	$29,643.23	$10,561.53	$19,068.21	-$660.11	$1,428.79	$30,398.43
	PY14	1	0.92	$17,946.39	$65,037.40	$11,295.3684	$75,936.49	$26,252.97	$43,918.80	-$2,095.48	$2,145.77	$70,222.07
	PY15	1	1.77	$9,462.25	$17,827.43	$7,234.2034	$24,728.62	$12,873.57	$24,958.98	$1,832.27	$4,184.03	$43,848.85
	PY16	1	1.79	$10,079.20	$18,367.94	$7,599.1619	$25,574.20	$13,213.86	$25,473.87	$2,327.28	$4,677.57	$45,692.58
	PY17	1	1.80	$10,524.55	$18,758.14	$7,862.6094	$26,184.62	$13,459.52	$25,845.60	$2,684.72	$5,033.94	$47,023.77
Portfolio Total			1.30	$58,166.28	$144,151.69	$39,563.4548	$182,067.186	$76,361.46	$139,265.49	$4,088.68	$17,470.09	$237,185.724

Table 13B: TRC Benefits Table (Net)

Portfolio	NTGR & TRC			TRC Costs by Program Year ($000)				TRC Benefits By Program Per Year ($000)				
				Incremental Measure Cost		Program	Total TRC	Capacity	Energy	Fossil Fuel / Water	O&M	Total TRC
Program	Program Year	NTGR	TRC	Paid by EDC	Paid by Participants	Admin Cost	Costs	Benefits	Benefits	Benefits	Benefits	Benefits
Residential Appliance Recycling	PY13	0.467	0.87	$89.61	$41.85	$51.1581	$51.16	$15.47	$29.26	$0.00	$0.00	$44.73
	PY14	0.467	0.87	$396.28	$185.06	$226.2484	$226.25	$68.41	$129.42	$0.00	$0.00	$197.83
	PY15	0.467	0.87	$333.01	$155.52	$190.1263	$190.13	$57.49	$108.76	$0.00	$0.00	$166.25
	PY16	0.467	0.87	$392.90	$183.49	$224.3197	$224.32	$67.83	$128.32	$0.00	$0.00	$196.15
	PY17	0.467	0.87	$436.13	$203.67	$248.9982	$249.00	$75.29	$142.44	$0.00	$0.00	$217.73
Program Total		0.467	0.87	$1,647.96	$769.60	$940.8667	$940.87	$284.48	$538.22	$0.00	$0.00	$822.70
Residential Downstream Incentives	PY13	0.682	3.13	$202.84	$186.03	$127.2162	$313.25	$141.42	$202.78	$319.92	$317.34	$981.47
	PY14	0.682	3.13	$376.34	$345.16	$236.0330	$581.19	$262.38	$376.24	$593.58	$588.79	$1,820.99
	PY15	0.682	3.13	$1,182.07	$1,084.11	$741.3637	$1,825.48	$824.12	$1,181.74	$1,864.39	$1,849.34	$5,719.59
	PY16	0.682	3.13	$1,394.54	$1,278.98	$874.6213	$2,153.60	$972.26	$1,394.15	$2,199.50	$2,181.76	$6,747.67
	PY17	0.682	3.13	$1,547.96	$1,419.68	$970.8427	$2,390.53	$1,079.22	$1,547.53	$2,441.48	$2,421.78	$7,490.01
Program Total		0.682	3.13	$4,703.75	$4,313.96	$2,950.0770	$7,264.03	$3,279.40	$4,702.44	$7,418.87	$7,359.02	$22,759.73
Residential Midstream Incentives	PY13	1	0.00	$0.00	$0.00	$0.0000	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
	PY14	1	0.56	$1.11	$3.10	$0.5420	$3.64	$0.68	$1.45	-$0.09	$0.00	$2.04
	PY15	1	0.56	$40.89	$114.20	$19.9723	$134.17	$25.12	$53.40	-$3.23	$0.00	$75.29
	PY16	1	0.56	$48.25	$134.74	$23.5643	$158.30	$29.63	$63.01	-$3.81	$0.00	$88.83
	PY17	1	0.56	$53.55	$149.56	$26.1567	$175.72	$32.89	$69.94	-$4.23	$0.00	$98.61
Program Total		1	0.56	$143.80	$401.61	$70.2370	$471.85	$88.33	$187.80	-$11.35	$0.00	$264.78
Residential Upstream Incentives	PY13	0.653	0.35	$682.83	$853.74	$230.2516	$1,083.99	$175.23	$210.88	-$18.27	$10.07	$377.92
	PY14	0.653	0.35	$694.55	$868.40	$234.2055	$1,102.60	$178.24	$214.50	-$18.58	$10.25	$384.41
	PY15	0.653	0.35	$190.60	$238.31	$64.2708	$302.58	$48.91	$58.86	-$5.10	$2.81	$105.49
	PY16	0.653	0.35	$224.88	$281.16	$75.8296	$356.99	$57.71	$69.45	-$6.02	$3.32	$124.46
	PY17	0.653	0.35	$249.62	$312.10	$84.1720	$396.27	$64.06	$77.09	-$6.68	$3.68	$138.15
Program Total		0.653	0.35	$2,042.48	$2,553.70	$688.7294	$3,242.43	$524.16	$630.78	-$54.65	$30.13	$1,130.42
Low Income Energy Efficiency	PY13	1	0.79	$1,464.22	$525.47	$881.3563	$1,406.82	$400.92	$656.05	$27.18	$27.18	$1,111.33
	PY14	1	0.79	$1,384.41	$496.82	$833.3163	$1,330.14	$379.07	$620.29	$25.70	$25.70	$1,050.75
	PY15	1	0.79	$1,684.52	$604.52	$1,013.9601	$1,618.48	$461.24	$754.75	$31.27	$31.27	$1,278.53
	PY16	1	0.79	$1,987.47	$713.25	$1,196.3168	$1,909.56	$544.19	$890.49	$36.90	$36.90	$1,508.47
	PY17	1	0.79	$2,206.13	$791.71	$1,327.9296	$2,119.64	$604.06	$988.46	$40.96	$40.96	$1,674.43
Program Total		1	0.79	$8,726.75	$3,131.78	$5,252.8793	$8,384.65	$2,389.47	$3,910.03	$162.01	$162.01	$6,623.52

Table 13B: TRC Benefits Table (Net) -- *continued*

Portfolio	NTGR & TRC			TRC Costs by Program Year ($000)				TRC Benefits By Program Per Year ($000)				
	Program			Incremental Measure Cost		Program	Total TRC	Capacity	Energy	Fossil Fuel / Water	O&M	Total TRC
Program	Year	NTGR	TRC	Paid by EDC	Paid by Participants	Admin Cost	Costs	Benefits	Benefits	Benefits	Benefits	Benefits
Residential Behavioral Efficiency	PY13	1	1.09	$0.00	$0.00	$438.0570	$438.06	$137.89	$338.95	$0.00	$0.00	$476.85
	PY14	1	1.09	$0.00	$0.00	$724.4025	$724.40	$228.03	$560.52	$0.00	$0.00	$788.55
	PY15	1	1.09	$0.00	$0.00	$724.4025	$724.40	$228.03	$560.52	$0.00	$0.00	$788.55
	PY16	1	1.09	$0.00	$0.00	$724.4025	$724.40	$228.03	$560.52	$0.00	$0.00	$788.55
	PY17	1	1.09	$0.00	$0.00	$724.4025	$724.40	$228.03	$560.52	$0.00	$0.00	$788.55
Program Total		1	1.09	$0.00	$0.00	$3,335.6670	$3,335.67	$1,050.00	$2,581.03	$0.00	$0.00	$3,631.03
Low Income Behavioral Efficiency	PY13	1	0.61	$0.00	$0.00	$177.7694	$177.77	$31.54	$77.54	$0.00	$0.00	$109.08
	PY14	1	0.61	$0.00	$0.00	$128.6014	$128.60	$22.82	$56.09	$0.00	$0.00	$78.91
	PY15	1	0.61	$0.00	$0.00	$128.6014	$128.60	$22.82	$56.09	$0.00	$0.00	$78.91
	PY16	1	0.61	$0.00	$0.00	$128.6014	$128.60	$22.82	$56.09	$0.00	$0.00	$78.91
	PY17	1	0.61	$0.00	$0.00	$128.6014	$128.60	$22.82	$56.09	$0.00	$0.00	$78.91
Program Total		1	0.61	$0.00	$0.00	$692.1750	$692.17	$122.82	$301.91	$0.00	$0.00	$424.73
Small C&I Direct-Install	PY13	0.993	0.79	$458.16	$454.96	$218.6864	$673.64	$160.72	$341.06	-$33.44	$63.04	$531.38
	PY14	0.993	0.79	$1,545.34	$1,534.52	$737.6075	$2,272.13	$542.08	$1,150.37	-$112.79	$212.64	$1,792.30
	PY15	0.993	0.79	$433.55	$430.51	$206.9378	$637.45	$152.08	$322.74	-$31.64	$59.66	$502.83
	PY16	0.993	0.79	$433.55	$430.51	$206.9378	$637.45	$152.08	$322.74	-$31.64	$59.66	$502.83
	PY17	0.993	0.79	$433.55	$430.51	$206.9378	$637.45	$152.08	$322.74	-$31.64	$59.66	$502.83
Program Total		0.993	0.79	$3,304.15	$3,281.02	$1,577.1073	$4,858.13	$1,159.04	$2,459.65	-$241.16	$454.64	$3,832.18
Small C&I Downstream Incentives	PY13	0.788	1.28	$1,000.44	$2,797.37	$938.6251	$3,736.00	$1,426.74	$3,143.66	-$200.21	$420.23	$4,790.42
	PY14	0.788	1.28	$877.54	$2,453.72	$823.3166	$3,277.03	$1,251.47	$2,757.47	-$175.62	$368.61	$4,201.93
	PY15	0.788	1.28	$992.16	$2,774.21	$930.8534	$3,705.06	$1,414.92	$3,117.63	-$198.56	$416.75	$4,750.76
	PY16	0.788	1.28	$992.16	$2,774.21	$930.8534	$3,705.06	$1,414.92	$3,117.63	-$198.56	$416.75	$4,750.76
	PY17	0.788	1.28	$992.16	$2,774.21	$930.8534	$3,705.06	$1,414.92	$3,117.63	-$198.56	$416.75	$4,750.76
Program Total		0.788	1.28	$4,854.45	$13,573.71	$4,554.5018	$18,128.22	$6,922.98	$15,254.03	-$971.50	$2,039.10	$23,244.61
Small C&I Midstream Incentives	PY13	0.72	0.66	$1,084.26	$4,416.45	$610.4501	$5,026.90	$1,318.11	$2,177.03	-$201.07	$0.00	$3,294.07
	PY14	0.72	0.66	$6,159.56	$25,089.31	$3,467.8886	$28,557.20	$7,488.02	$12,367.44	-$1,142.27	$0.00	$18,713.19
	PY15	0.72	0.66	$153.72	$626.13	$86.5441	$712.67	$186.87	$308.64	-$28.51	$0.00	$467.00
	PY16	0.72	0.66	$153.72	$626.13	$86.5441	$712.67	$186.87	$308.64	-$28.51	$0.00	$467.00
	PY17	0.72	0.66	$153.72	$626.13	$86.5441	$712.67	$186.87	$308.64	-$28.51	$0.00	$467.00
Program Total		0.72	0.66	$7,704.97	$31,384.14	$4,337.9711	$35,722.11	$9,366.74	$15,470.40	-$1,428.86	$0.00	$23,408.27

Table 13B: TRC Benefits Table (Net) -- *continued*

Portfolio	NTGR & TRC			TRC Costs by Program Year ($000)				TRC Benefits By Program Per Year ($000)				
	Program			Incremental Measure Cost		Program	Total TRC	Capacity	Energy	Fossil Fuel / Water	O&M	Total TRC
Program	Year	NTGR	TRC	Paid by EDC	Paid by Participants	Admin Cost	Costs	Benefits	Benefits	Benefits	Benefits	Benefits
Small C&I Virtual Commissioning (VCx)	PY13	1	0.00	$0.00	$0.00	$0.0000	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
	PY14	1	2.39	$286.14	$286.14	$267.7324	$553.87	$652.62	$671.60	$0.00	$0.00	$1,324.22
	PY15	1	2.39	$12.29	$12.29	$11.4997	$23.79	$28.03	$28.85	$0.00	$0.00	$56.88
	PY16	1	2.39	$12.29	$12.29	$11.4997	$23.79	$28.03	$28.85	$0.00	$0.00	$56.88
	PY17	1	2.39	$12.29	$12.29	$11.4997	$23.79	$28.03	$28.85	$0.00	$0.00	$56.88
Program Total		1	2.39	$323.01	$323.01	$302.2317	$625.24	$736.72	$758.15	$0.00	$0.00	$1,494.86
Large Commercial Downstream Incentives	PY13	0.788	2.28	$1,202.84	$1,643.60	$882.7412	$2,526.34	$1,832.58	$3,834.03	-$115.36	$216.36	$5,767.62
	PY14	0.788	2.28	$599.75	$819.52	$440.1442	$1,259.66	$913.75	$1,911.69	-$57.52	$107.88	$2,875.80
	PY15	0.788	2.28	$3,141.41	$4,292.51	$2,305.4149	$6,597.92	$4,786.08	$10,013.17	-$301.28	$565.05	$15,063.02
	PY16	0.788	2.28	$3,141.41	$4,292.51	$2,305.4149	$6,597.92	$4,786.08	$10,013.17	-$301.28	$565.05	$15,063.02
	PY17	0.788	2.28	$3,141.41	$4,292.51	$2,305.4149	$6,597.92	$4,786.08	$10,013.17	-$301.28	$565.05	$15,063.02
Program Total		0.788	2.28	$11,226.82	$15,340.64	$8,239.1300	$23,579.77	$17,104.57	$35,785.24	-$1,076.71	$2,019.37	$53,832.47
Large Commercial Midstream Incentives	PY13	0.72	0.63	$1,005.27	$3,602.50	$474.3525	$4,076.85	$1,124.34	$1,612.70	-$148.27	$0.00	$2,588.77
	PY14	0.72	0.63	$1,175.82	$4,213.69	$554.8303	$4,768.52	$1,315.10	$1,886.30	-$173.42	$0.00	$3,027.98
	PY15	0.72	0.63	$588.75	$2,109.87	$277.8138	$2,387.69	$658.49	$944.51	-$86.84	$0.00	$1,516.16
	PY16	0.72	0.63	$588.75	$2,109.87	$277.8138	$2,387.69	$658.49	$944.51	-$86.84	$0.00	$1,516.16
	PY17	0.72	0.63	$588.75	$2,109.87	$277.8138	$2,387.69	$658.49	$944.51	-$86.84	$0.00	$1,516.16
Program Total		0.72	0.63	$3,947.34	$14,145.81	$1,862.6242	$16,008.43	$4,414.92	$6,332.52	-$582.20	$0.00	$10,165.24
Large Commercial VCx	PY13	1	0.00	$0.00	$0.00	$0.0000	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
	PY14	1	3.61	$670.28	$670.28	$189.3052	$859.59	$1,528.76	$1,577.72	$0.00	$0.00	$3,106.48
	PY15	1	3.61	$21.70	$21.70	$6.1289	$27.83	$49.49	$51.08	$0.00	$0.00	$100.57
	PY16	1	3.61	$21.70	$21.70	$6.1289	$27.83	$49.49	$51.08	$0.00	$0.00	$100.57
	PY17	1	3.61	$21.70	$21.70	$6.1289	$27.83	$49.49	$51.08	$0.00	$0.00	$100.57
Program Total		1	3.61	$735.38	$735.38	$207.6918	$943.07	$1,677.25	$1,730.96	$0.00	$0.00	$3,408.21
Large Industrial Downstream Incentives	PY13	0.608	1.94	$201.97	$241.56	$188.0247	$429.59	$266.59	$552.90	-$18.59	$33.37	$834.27
	PY14	0.608	1.94	$1,573.76	$1,882.32	$1,465.1312	$3,347.45	$2,077.32	$4,308.35	-$144.87	$260.03	$6,500.84
	PY15	0.608	1.94	$486.76	$582.20	$453.1641	$1,035.36	$642.51	$1,332.57	-$44.81	$80.43	$2,010.70
	PY16	0.608	1.94	$486.76	$582.20	$453.1641	$1,035.36	$642.51	$1,332.57	-$44.81	$80.43	$2,010.70
	PY17	0.608	1.94	$486.76	$582.20	$453.1641	$1,035.36	$642.51	$1,332.57	-$44.81	$80.43	$2,010.70
Program Total		0.608	1.94	$3,236.02	$3,870.49	$3,012.6483	$6,883.14	$4,271.46	$8,858.96	-$297.88	$534.68	$13,367.22

Table 13B: TRC Benefits Table (Net) -- *continued*

Portfolio	NTGR & TRC			TRC Costs by Program Year ($000)				TRC Benefits By Program Per Year ($000)				
	Program			Incremental Measure Cost		Program	Total TRC	Capacity	Energy	Fossil Fuel / Water	O&M	Total TRC
Program	Year	NTGR	TRC	Paid by EDC	Paid by Participants	Admin Cost	Costs	Benefits	Benefits	Benefits	Benefits	Benefits
Large Industrial Midstream Incentives	PY13	0.72	0.65	$806.82	$3,122.52	$353.4053	$3,475.93	$974.54	$1,397.83	-$128.51	$0.00	$2,243.86
	PY14	0.72	0.65	$2,205.51	$8,535.67	$966.0631	$9,501.74	$2,663.99	$3,821.09	-$351.30	$0.00	$6,133.78
	PY15	0.72	0.65	$97.67	$377.98	$42.7797	$420.76	$117.97	$169.21	-$15.56	$0.00	$271.62
	PY16	0.72	0.65	$97.67	$377.98	$42.7797	$420.76	$117.97	$169.21	-$15.56	$0.00	$271.62
	PY17	0.72	0.65	$97.67	$377.98	$42.7797	$420.76	$117.97	$169.21	-$15.56	$0.00	$271.62
Program Total		0.72	0.65	$3,305.33	$12,792.14	$1,447.8075	$14,239.95	$3,992.44	$5,726.54	-$526.48	$0.00	$9,192.49
Large Industrial VCx	PY13	1	0.00	$0.00	$0.00	$0.0000	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
	PY14	1	0.00	$0.00	$0.00	$0.0000	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
	PY15	1	3.58	$103.15	$103.15	$30.3699	$133.52	$235.27	$242.80	$0.00	$0.00	$478.08
	PY16	1	3.58	$103.15	$103.15	$30.3699	$133.52	$235.27	$242.80	$0.00	$0.00	$478.08
	PY17	1	3.58	$103.15	$103.15	$30.3699	$133.52	$235.27	$242.80	$0.00	$0.00	$478.08
Program Total		1	3.58	$309.46	$309.46	$91.1096	$400.57	$705.81	$728.41	$0.00	$0.00	$1,434.23
Pilot/Experimental	PY13	1		$0.00								
	PY14	1		$0.00								
	PY15	1		$651.53								
	PY16	1		$651.53								
	PY17	1		$651.53								
Program Total				$1,954.60								
All Programs	PY13	1	0.99	$8,199.26	$17,886.04	$5,572.0940	$23,416.29	$8,006.10	$14,574.69	-$516.62	$1,087.60	$23,151.76
	PY14	1	0.89	$17,946.39	$47,383.71	$11,295.3684	$58,494.01	$19,572.74	$32,410.54	-$1,557.18	$1,573.89	$51,999.99
	PY15	1	1.62	$9,462.25	$13,527.22	$7,234.2034	$20,605.90	$9,939.45	$19,305.33	$1,180.15	$3,005.31	$33,430.24
	PY16	1	1.63	$10,079.20	$13,922.17	$7,599.1619	$21,337.84	$10,194.19	$19,693.23	$1,519.39	$3,343.85	$34,750.67
	PY17	1	1.63	$10,524.55	$14,207.28	$7,862.6094	$21,866.22	$10,378.10	$19,973.26	$1,764.35	$3,588.30	$35,704.01
Portfolio Total			1.23	$58,166.28	$106,926.44	$39,563.4548	$145,720.297	$58,090.58	$105,957.07	$2,390.10	$12,598.95	$179,036.700

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

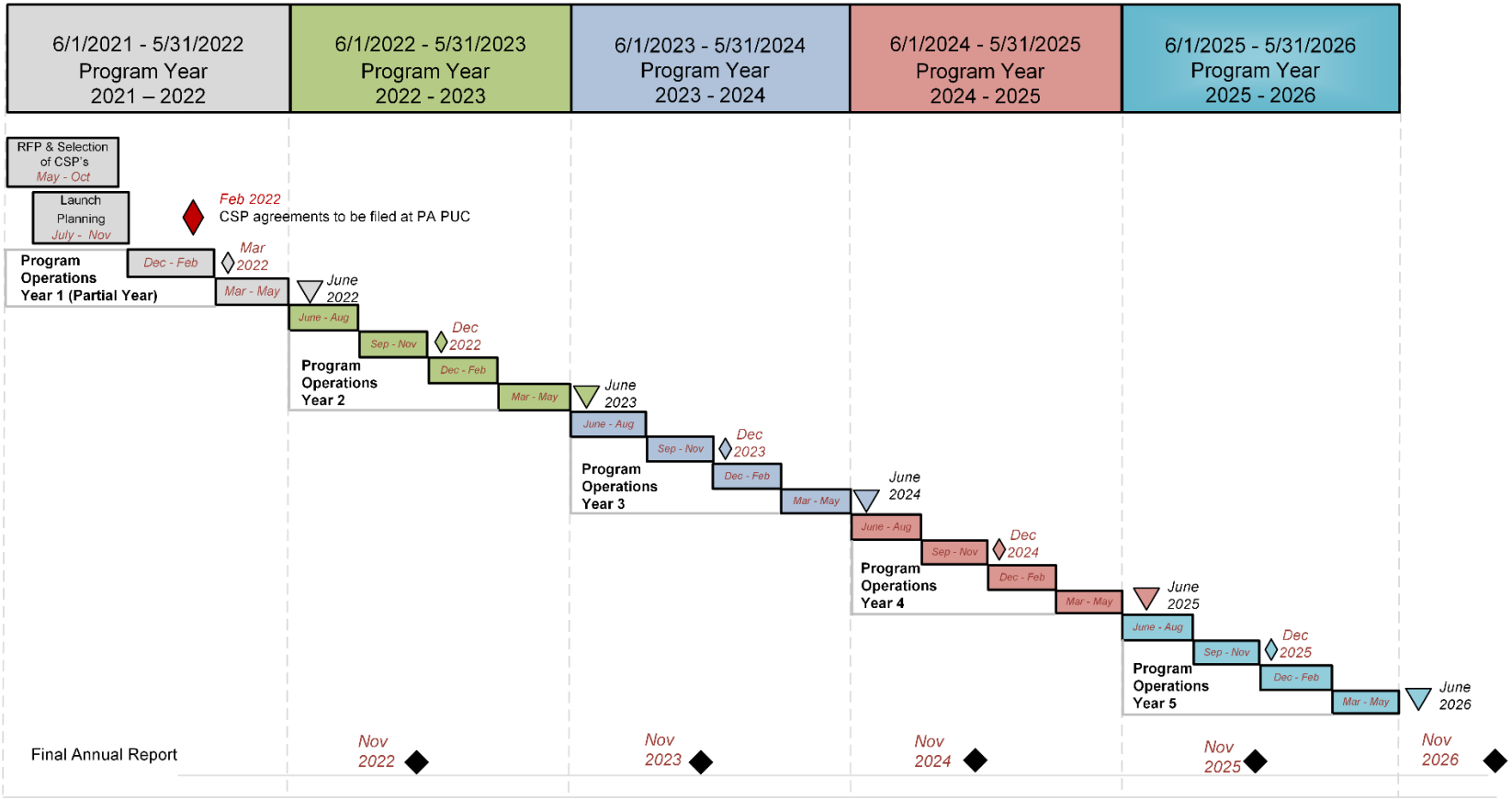
Provide a separate chart for each Portfolio that includes:

- 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

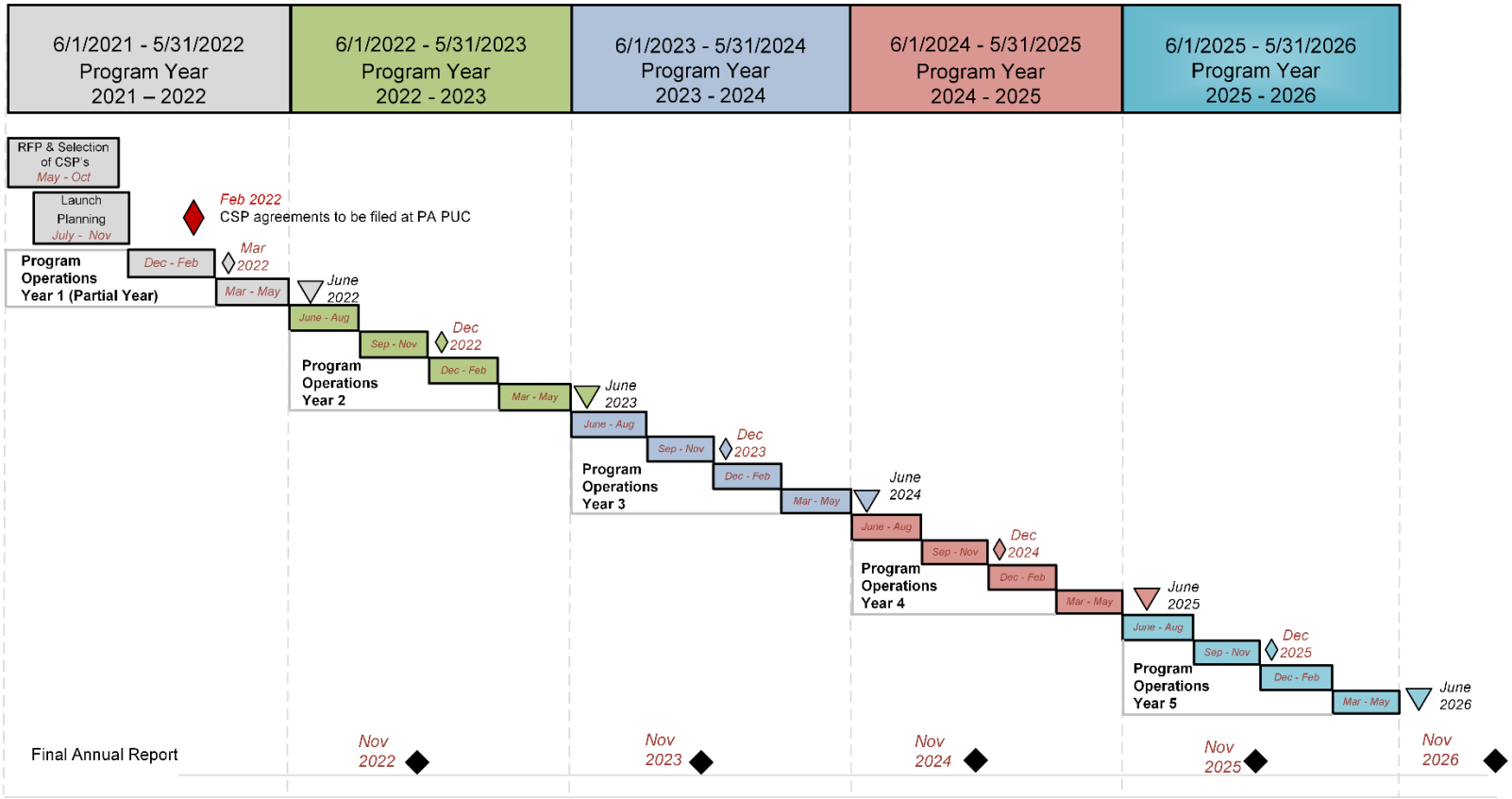


Assumptions:

Duquesne Light will file the Act 129 Phase IV EE&C Plan by November 30, 2020
PA PUC approval by March 2021

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



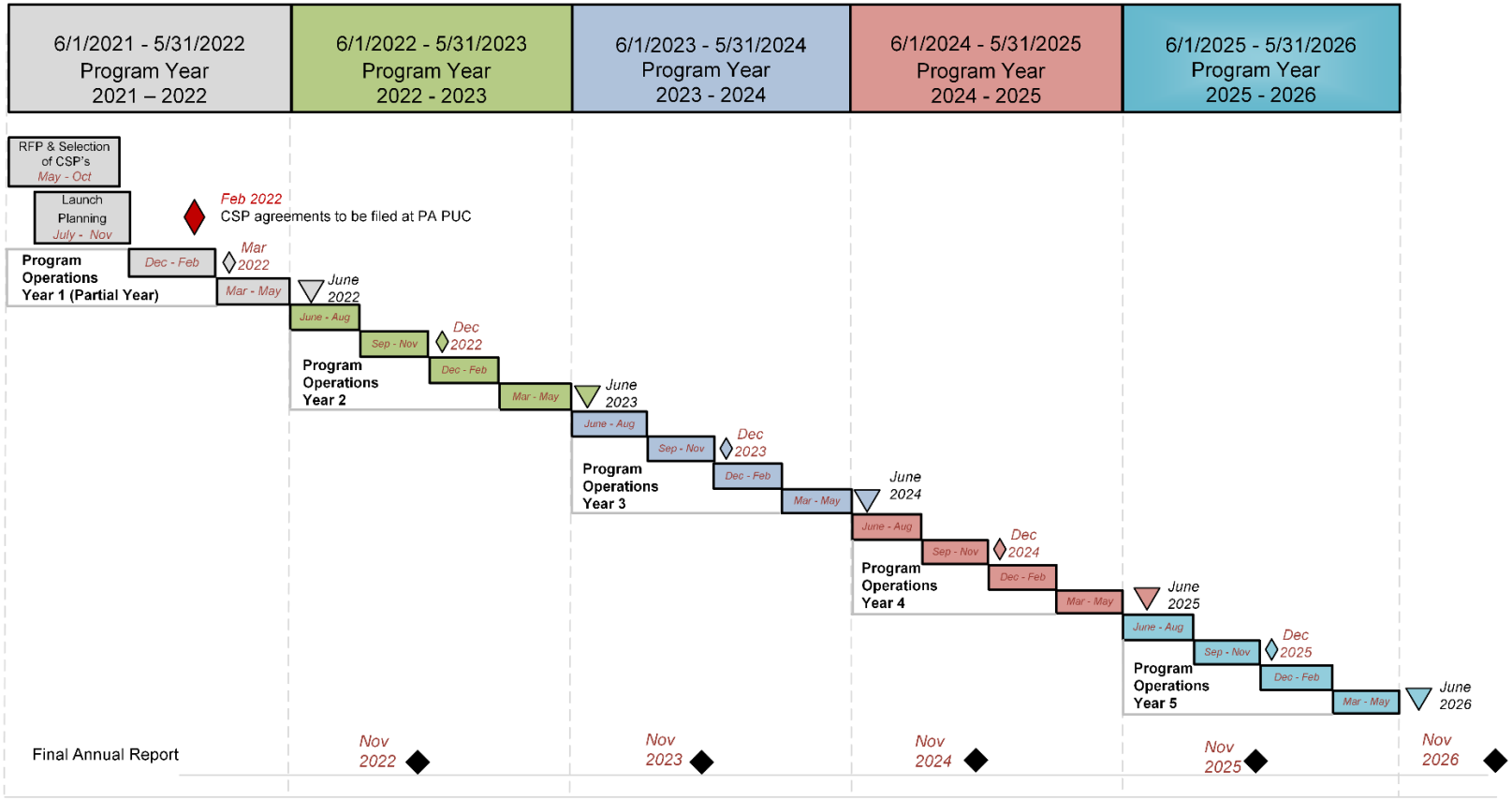
Assumptions:

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

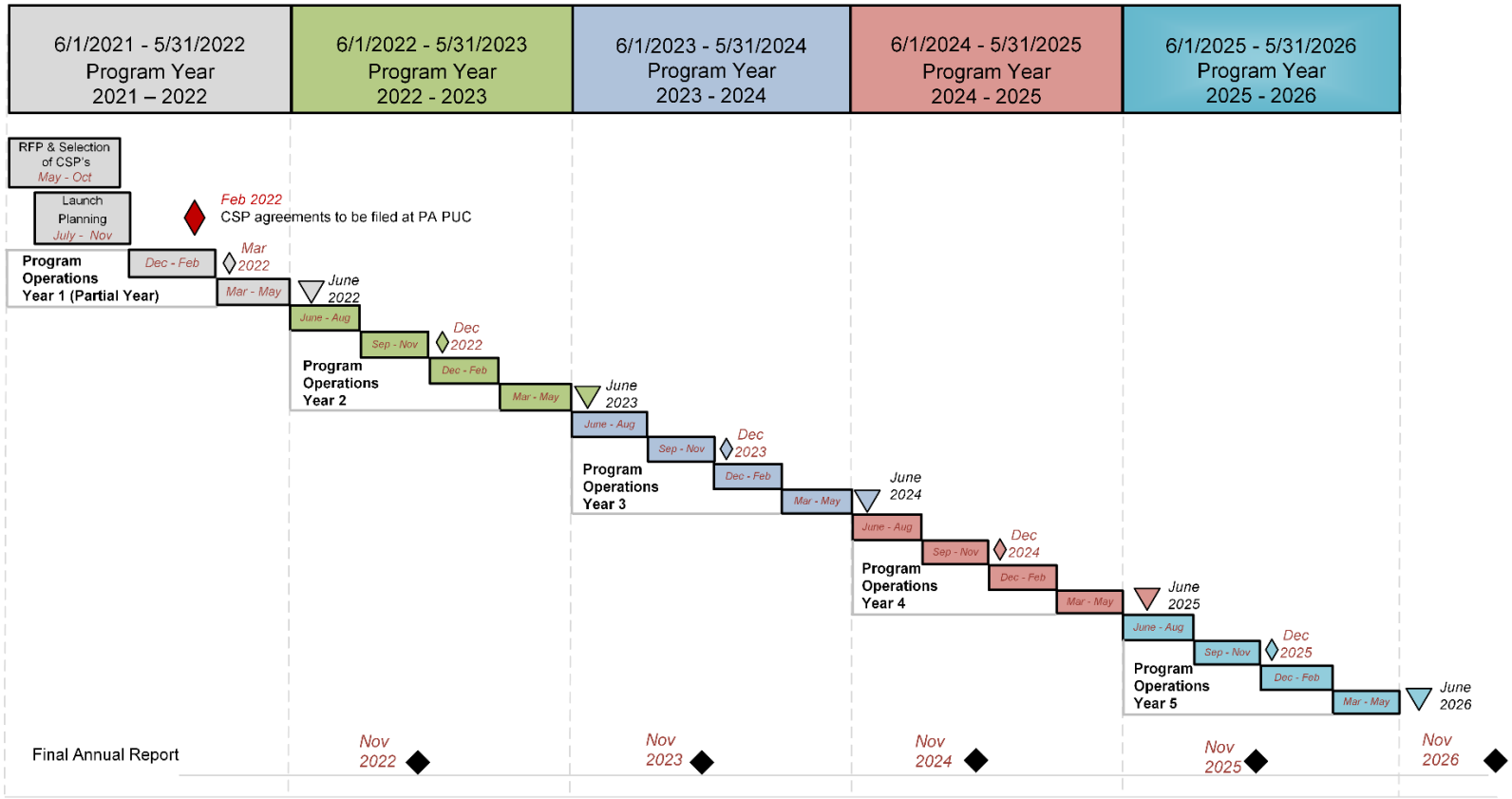


Assumptions:

Duquesne Light will file the Act 129 Phase IV EE&C Plan by November 30, 2020
PA PUC approval by March 2021

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



<u>*Assumptions:*</u>

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.

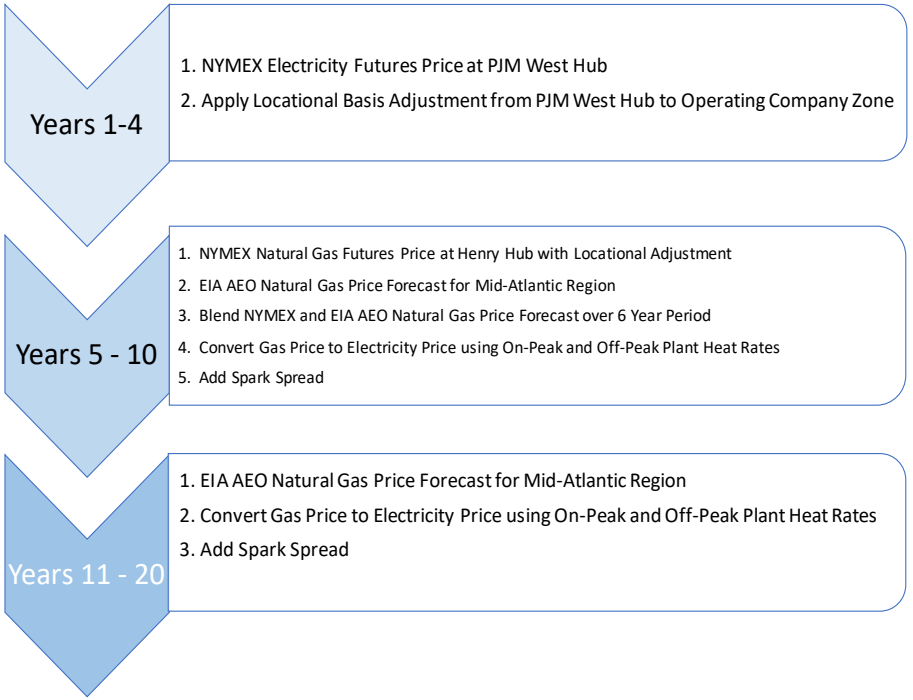
Legend	
	Inputs - where no value is available, utilize text "No Value" and not a zero or null value
	Calculation Cell - do not edit
	Results for Segment 1 - Years 1 through 4
	Results for Segment 2 - Years 5 through 10
	Results for Segment 3 - Years 11 through 20

Data Needed	TRC Order Sectio	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.

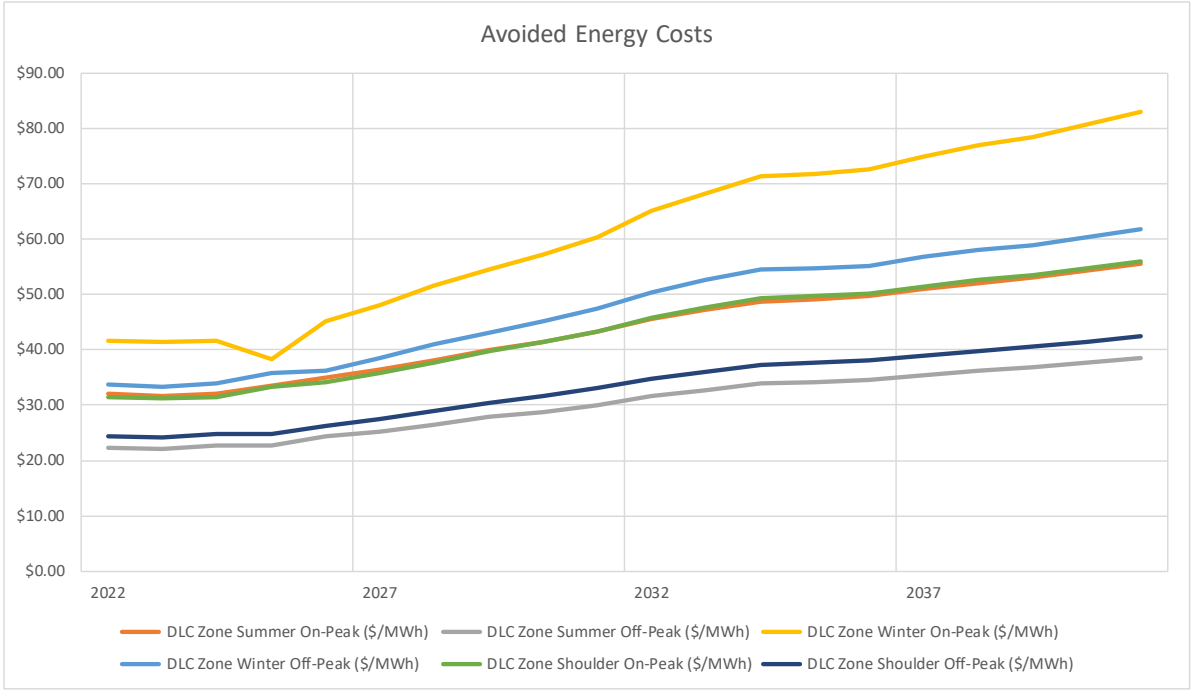
Summary of Avoided Energy Cost Methodology



General		
Company Name	DLC	
Start Year (Program)	13	2022
Discount Rate	5%	TRC Order A.4 page 8
Inflation Rate	2%	TRC Order A.4 page 8
AEPS Avoided Cost ($/MWh)	$0.83	TRC Order B.8 page 20
Plant Specifications		
	Heat Rate (Btu/kWh)	
Low Efficiency Plant	11,176	TRC Order B.2.b.v page 15
High Efficiency Plant	7,649	TRC Order B.2.b.v page 15
Electric Distribution Companies		**NYMEX NG Futures Source**
Duquesne Light Co	DLC	Tetco M-3
Metropolitan Edison Co	Met-Ed	Transco 6 (Non-NY)
PECO Energy Co	PECO	Transco 6 (Non-NY)
Pennsylvania Electric Co	Penelec	Tetco M-3
Pennsylvania Power Co	Penn Power	Tetco M-3
PPL Utilities	PPL	Transco 6 (Non-NY)
West Penn Power Co	West Penn	Tetco M-3
Seasonal Definitions		
Jan	Winter	
Feb	Winter	
Mar	Shoulder	
Apr	Shoulder	
May	Summer	
Jun	Summer	
Jul	Summer	
Aug	Summer	
Sep	Summer	
Oct	Shoulder	
Nov	Shoulder	
Dec	Winter	

Calendar				
Act 129 PY	**PY Start**	**PY End**	**Avoided Energy YR**	**AEPS Cost**
13	2021	2022	2022	$0.83
14	2022	2023	2023	$0.85
15	2023	2024	2024	$0.87
16	2024	2025	2025	$0.89
17	2025	2026	2026	$0.90
18	2026	2027	2027	$0.92
19	2027	2028	2028	$0.94
20	2028	2029	2029	$0.96
21	2029	2030	2030	$0.98
22	2030	2031	2031	$1.00
23	2031	2032	2032	$1.02
24	2032	2033	2033	$1.04
25	2033	2034	2034	$1.06
26	2034	2035	2035	$1.08
27	2035	2036	2036	$1.10
28	2036	2037	2037	$1.12
29	2037	2038	2038	$1.14
30	2038	2039	2039	$1.17
31	2039	2040	2040	$1.19
32	2040	2041	2041	$1.21
33	2041	2042	2042	$1.24
34	2042	2043	2043	$1.26
35	2043	2044	2044	$1.29
36	2044	2045	2045	$1.32
37	2045	2046	2046	$1.34
38	2046	2047	2047	$1.37
39	2047	2048	2048	$1.40
40	2048	2049	2049	$1.42
41	2049	2050	2050	$1.45
42	2050	2051	2051	$1.48

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	
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	



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 ($/kW-year)										Avoided Distrbution Capacity Forecast in Nominal Dollars ($/kW-year)						
Act 129 PY	DY/PY Start	DY/PY End	DLC	Met-Ed	PECO	Penelec	Penn Power	PPL	West Penn	DLC	Met-Ed	PECO	Penelec	Penn Power	PPL	West Penn
13	2021	2022	$31.27							$16.29						
14	2022	2023	$31.90	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$16.62	$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	$16.95	$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	$17.29	$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	$17.63	$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	$17.99	$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	$18.35	$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	$18.71	$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	$19.09	$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	$19.47	$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	$19.86	$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	$20.25	$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	$20.66	$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	$21.07	$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	$21.49	$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	$21.92	$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	$22.36	$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	$22.81	$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	$23.27	$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	$23.73	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00

Period	Tetco M-3
Jan-21	$2.24
Feb-21	$2.15
Mar-21	$0.41
Apr-21	-$0.22
May-21	-$0.33
Jun-21	-$0.35
Jul-21	-$0.27
Aug-21	-$0.28
Sep-21	-$0.60
Oct-21	-$0.53
Nov-21	-$0.05
Dec-21	$0.63
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

	Locational Adjustment	Load Shape	Spark Spread On-Peak ($/MWh)	Spark Spread Off-Peak ($/MWh)
Jan	$1.93	180.2%	-$7.56	$0.82
Feb	$1.84	175.4%	-$9.13	-$1.16
Mar	$0.12	104.9%	$2.57	$6.15
Apr	-$0.21	80.2%	$5.66	$6.28
May	-$0.32	74.5%	$7.35	$5.47
Jun	-$0.34	75.5%	$6.23	$5.27
Jul	-$0.30	78.3%	$11.11	$7.33
Aug	-$0.33	77.8%	$8.51	$5.58
Sep	-$0.55	69.0%	$10.03	$6.49
Oct	-$0.53	70.9%	$7.85	$6.79
Nov	-$0.06	91.3%	$2.07	$3.34
Dec	$0.58	122.0%	-$3.98	$0.58

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

Alternative Enery Credit Prices as of 06/20/19			
Tier	**Reporting Year**	**Marex Spectron (Bid price)**	**Marex Spectron (Offer price)**
Solar	2018	$32.50	$40.00
	2019	$38.00	$45.00
	2020	$47.50	$55.00
	2021	$50.00	$60.00
	2022	$50.00	$60.00
Tier I	2019	$5.55	$5.70
	2020	$5.90	$6.15
	2021	$6.10	$6.50
	2022	$6.40	$6.90
Tier II	2019	$0.45	$0.65
	2020	$0.45	$0.65
	2021	$0.45	$0.65
	2022	$0.40	$0.60