BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION

Petition of Duquesne Light Company for Approval of its Energy Efficiency and Conservation Plan, Phase IV

Docket Nos. P-2020-_____
M-2020-_____

Direct Testimony

Witness: David Defide

Subject: EE&C Phase IV Plan Development

DIRECT TESTIMONY OF DAVID DEFIDE

Q. Please state your full name and business address.

A. My name is David Defide. My business address is 411 Seventh Avenue, Pittsburgh Pennsylvania 15219.

Q. By whom are you employed and in what capacity?

A. I am employed by Duquesne Light Company ("Duquesne Light" or the "Company") as the Senior Manager of Customer Programs.

Q. What are your current responsibilities as the Manager of Customer Programs?

A. As the Senior Manager of Customer Programs, I am responsible for the development and implementation of Duquesne Light's Energy Efficiency and Conservation ("EE&C") programs for Act 129 Phase IV. I have been responsible for implementing the Company's EE&C Phase I, Phase II and Phase III Plans. I also assist with the implementation of related customer programs such as universal services, including through the Income Eligible Advisory Group ("IEAG"), to facilitate coordination among the participants.

Q. Please state your educational and professional qualifications.

A. I received a Bachelor of Arts degree in Administration and Management in 1994 from LaRoche College. In 1997, I received a Master of Business Administration degree from Robert Morris University. I have been working for Duquesne Light Company since August 2009 as the Manager of Customer Programs. In August 2019 I was promoted to Senior Manager of Customer Programs. In that position, I currently manage a staff of four

professionals. Prior to my work with Duquesne Light, I was the Chief Finance/Operating Officer for Conservation Consultants, Inc. for ten years. Prior to working for Conservation Consultants, I was the Finance Director and Special Assistant to the Executive Director for the Housing Authority City of Pittsburgh. Prior to this position, I worked for National City Bank as an Operations Supervisor.

Q. What is the purpose of your direct testimony?

A. The purpose of my testimony is two-fold. First, I will briefly explain Duquesne Light's energy efficiency plan requirements pursuant to Act 129 of 2008 ("Act 129") and the Public Utility Commission ("Commission") Implementation Order issued June 18, 2020 at Docket No. M-2020-3015228. Second, I will explain the methodology used to design, develop, analyze, and implement Duquesne Light's Energy Efficiency and Conservation Phase IV Plan ("EE&C Phase IV Plan").

Q. Are you sponsoring any exhibits as part of your direct testimony?

A. Yes. Duquesne Light's Energy Efficiency and Conservation Phase IV Plan is attached to the Company's Petition and has been marked as Exhibit 1.

Q. **Have you previously testified before the Pennsylvania Public Utility Commission?**

A. Yes. I provided direct testimony on behalf of Duquesne Light in *Petition of PECO Energy for an Evidentiary Hearing on the Energy Efficiency Benchmarks*, at Docket No. P-2012-2320334,; in support of Duquesne Light's Energy Efficiency and Conservation Petition for Approval of Modifications to its Demand Response Programs and at Docket No. M-2009-

2093217;, in support of Duquesne Light's Energy Efficiency and Conservation Phase II and Phase III Plans at Docket Nos. M-2012-2334399 and Phase III Plan at Docket No. M-2014-2424864; and on behalf of Duquesne Light in *Petition of Peoples Natural Gas Company, LLC for Approval of its Energy Efficiency and Conservation Plan,* Docket No. M-2017-2640306.

I. BACKGROUND

Q. Please explain the Company's energy efficiency conservation and demand response obligations under Act 129 of 2008 ("Act 129").

A. Pursuant to Act 129 of 2008 ("Act 129") Electric Distribution Companies ("EDCs") with at least 100,000 customers are required to achieve consumption reductions of at least one percent (1%) by May 31, 2011, and at least three percent (3%) by May 31, 2013. 66 Pa.C.S. § 2806.1(c)(1), (2). Additionally, pursuant to section § 2806.1(d), EDCs are required to achieve a four and one-half (4.5%) percent peak demand reduction of the one hundred (100) highest hours by May 31, 2013. These energy consumption and demand response targets applied to Phase I of the EEC&DR Program. Act 129 further required the Commission to evaluate the cost and benefits of the EE&C plans by November 30, 2013, and implement additional incremental consumption and peak demand reductions only if the benefits of the EE&C plans exceed the costs. 66 Pa.C.S. § 2806.1(c)(3). The energy consumption reduction target for the Phase II three-year energy efficiency consumption was 276,722 MWh. The Phase III five-year energy efficiency consumption target was 440,916 MWh and the demand reduction target was 42 MW. The Phase IV five-year energy efficiency consumption target is 348,126 MWh and 62 MW. In compliance with the

requirements of Act 129 and the Commission's Orders implementing Phase IV, Duquesne has used the energy consumption reductions established by the Commission to develop its energy efficiency and conservation plan, which is submitted herewith.

Q. Did the Commission order EDCs to develop and implement a plan to achieve additional energy efficiency conservation targets beyond those required by Act 129 for Phase III?

A. Yes. Having found the Phase I program to be cost effective, on August 3, 2012, the Commission entered its Energy Efficiency and Conservation Phase II Implementation Order ("*Phase II Implementation Order*"). The Commission's EE&C Phase II Order provided that Duquesne Light was required to achieve a 2.0% energy consumption target, or 276,722 MWhs, over a three year period spanning June 1, 2013 through May 31, 2016 ("Phase II"). *Phase II Implementation Order* at p. 24. The Statewide Evaluator (SWE) was directed by the Commission to provide a Demand Response (DR) Potential Study to analyze the cost effectiveness of the legislative peak demand reduction requirements and of potential improvements to the peak demand reduction program. In addition, SWE was tasked with performing an Energy Efficiency (EE) Potential Study to determine the cost effective consumption reduction potential in the Commonwealth. After issuing a Tentative Order and receiving Comments and Reply Comments from a number of interested parties, the Commission issued its Energy Efficiency and Conservation Phase III Implementation Order ("*Phase III Implementation Order*") on June 11, 2015. The Commission subsequently issued a Clarification Order on August 20, 2015, to clarify certain aspects of the *Phase III Implementation Order*. After issuing a Tentative Order and receiving

Comments and Reply Comments from a number of interested parties, the Commission issued its Energy Efficiency and Conservation Phase IV Implementation Order ("*Phase IV Implementation Order*") on June 18, 2020.

Q. **Please summarize the Phase IV consumption reduction and demand reductions that the Commission adopted for Duquesne Light.**

A. The Commission has adopted for Duquesne Light a consumption reduction for the five year Phase IV period of 348,126 MWh and demand reduction target of 62 MW.

Q. Does Duquesne Light's Phase IV EE&C Plan meet these targets?

A. The Company's Phase IV EE&C Plan is designed to exceed these levels, and includes a consumption reduction target of 383,733 MWh and a demand reduction target of 68.7 MW.

Q. Provide your rationale for developing savings targets above the mandatory amounts.

A. The Phase IV EE&C Plan exceeds kWh and kW savings mandate by 10% to provide a minimum buffer. There are several reasons for this design. At the writing of this testimony, it is anticipated that there will be no Phase III carry-over savings into Phase IV as there has been in the previous two phases. Moreover, Phase IV represents the first phase in which residential lighting savings potentials will fully reflect the effects of federal Energy Independence and Security Act of 2007 ("EISA"). Historically, residential upstream lighting contributed between 40 and 60 percent of annual savings in the previous 11 years. Due to changes to the TRM based upon those changes in federal law, the Company will have considerably less opportunity to realize comparable savings from lighting projects in

Phase IV. Given impacts of the 2021 TRM baseline requirements, no residential upstream lighting is planned. Total Residential (lighting and all other measures) Phase IV impacts are projected at 17 percent of the portfolio. This contrasts sharply from the previous three Act 129 phases.

Making the savings and demand reductions forecast in the EEPDR Phase IV Forecast will be difficult, given the removal of Residential Upstream Lighting savings. As stated in Duquesne's comments in the Tentative Implementation Order, the absence of residential lighting will make it more difficult to achieve the mandated reductions. Planning to exceed the mandate by ten percent accounts for increased uncertainty associated with untested program options.

Q. How will Duquesne Light's EE&C Phase IV Plan achieve demand reduction targets?

A. In the Phase IV Implementation Order, the Commission chose to exclude dispatchable demand response ("DDR") from Phase IV goal-setting. Duquesne Light's Phase IV EE&C Plan therefore does not include a demand response program. The Company will instead achieve its demand reduction targets through its energy efficiency programs described in the Plan.

Q. Does Act 129 provide guidance on EDCs' allowable spending levels for their EE&C Plans?

A. Yes. Act 129 provides that "[t]he total cost of any plan required under this section shall not exceed 2% of the electric distribution company's total annual revenue as of December 31, 2006." An EDC's total annual revenue is defined as "[a]mounts paid to the electric

distribution company for generation, transmission, distribution and surcharges by retail customers." The Commission has interpreted this to include amounts paid to the EDC for generation service, including generation revenues collected by an EDC for an electric generation supplier that uses consolidated billing.

Q. Has the Commission provided further guidance on the definition of "EDC total annual revenue?"

A. Yes. On January 16, 2009, the Commission issued its EEC&DR Phase I Implementation Order at Docket No. M-2008-2069887 ("*Phase I Order*"). On pages 34-35 of the *Phase I Order*, the Commission stated:

> "…[T]he 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**. This result will bring Duquesne's program budget closer to a level of parity with the other EDCs, and ensure that it has a more meaningful opportunity to comply with the EE&C provisions of Act 129."

The Commission retained its interpretation of EDC total annual revenues provided in Phase I, Phase II, Phase III and now Phase IV.

Q. **What is Duquesne Light's budget for its Phase IV EE&C Plan?**

A. Duquesne Light's total 2006 annual revenues were $723,299,451. EGS total generation and transmission revenues in Duquesne Light's service territory in December 2006 were $253,998,128. Combined, Duquesne Light and EGS 2006 annual revenues totaled $977,297,579. Applying simple arithmetic, 2% of $977,297,579 equals $19,545,951.58.

Therefore, Duquesne Light's annual budget is $19,545,951.58, and the total five year program spending cap is $97,739,968.

II. EE&C PHASE IV PLAN DEVELOPMENT

Q. How will Duquesne Light measure energy savings for the programs it proposes to implement?

A. Under Act 129, the Commission was required to implement an energy efficiency program that includes a process to monitor and verify data collection and plan results. In the Phase I Order, the Commission adopted the *Energy Efficiency and DSM Rules for Pennsylvania's Alternative Energy Portfolio Standard, Technical Reference Manual* ("TRM") as a component of the EE&C Program evaluation process. The Commission continued its use of the TRM for the Phase II, Phase III and will do the same for Phase IV programs. The TRM in Phase I and Phase II was updated annually and used to measure and verify applicable energy efficiency measures used by EDCs to meet the Act 129 consumption reduction targets. For Phase III, the Commission applied the 2016 TRM, as periodically amended, for the entirety of Phase III. The Commission is following a similar approach in Phase IV. For Phase IV, the Implementation Order at page 98 states that the 2021 TRM be applicable for the entirely of Phase IV unless a mid-phase TRM update is deemed necessary. In addition, in its Final Order issued August 8, 2019 at Docket No. M-2019-3006867 ("TRM Final Order"), the Commission adopted a new process for incorporating updates to codes, standards and Energy Star specifications occurring during Phase IV without undertaking a new TRM update. Based on the extent of code updates, the SWE will recommend whether to open the TRM for a code refresh for the following program

year. Code updates that are not finalized before July 1 of a program year will not be considered for inclusion in the TRM for that update cycle. The expected savings discussed later in this testimony are based on the 2021 TRM.

Q. Duquesne Light's EE&C Phase IV Plan must be cost effective. How did Duquesne Light determine if its EE&C Phase IV plan is cost effective?

A. Under Act 129, the Commission is required to use a Total Resource Cost ("TRC") test to analyze the costs and benefits of EDC energy efficiency and conservation plans. Act 129 defines the TRC as "a standard test that is met if, over the effective life of each plan not to exceed 15 years, the net present value of the avoided monetary cost of supplying electricity is greater than the net present value of the monetary cost of energy efficiency conservation measures." Under Act 129, EDCs must demonstrate that its Phase IV EE&C Plan is cost effective using the TRC test. Use of the TRC test was specified in a series of five (5) Commission TRC Orders, issued sequentially, each partially modifying its predecessor.

1. *TRC Test Order*, June 18, 2009 Docket No. M-2009-2108601
2. *TRC Test Order*, July 28, 2011, Docket No. M-2009-2108601
3. *TRC Test Order*, August 20, 2012, Docket No. M-2012-2300653, M2009-2108601
4. *TRC Test Order,* June 11, 2015, Docket M-2015-2468992
5. *TRC Test Order,* December 19, 2019, Docket M-2019-3006868

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

is beneficial to the utility and its ratepayers on a total resource cost basis. Duquesne Light's proposed EE&C Phase IV Plan overall TRC score is 1.31. Accordingly, the Plan is cost effective as a whole.

Q. Please describe the process used to develop Duquesne Light's EE&C Phase IV Plan.

A. The Company's EE&C Phase IV Plan was developed in partnership with prospective implementation providers to leverage industry expertise and streamline the transition from Phase III. The EE&C Plan forecast measure detail is directly linked to prospective 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[1]). Measure deemed savings were updated consistent with the 2021 TRM. Measure costs were documented using the SWE incremental costs database, contractor values, EDC research and specific measure cost web research. Incentive amounts were established starting with baseline assumptions applied in the 2021 Statewide EE Potential Study. These were adjusted based upon historic incentives provided by Duquesne Light, the other six Pennsylvania EDCs, escalated for the Phase IV performance period and adjusted as required to achieve budgetary requirements. Avoided cost assumptions were updated consistent with the Total Resource Cost Test (TRC) Order and applied to render measure, program, portfolio and Plan level cost-effectiveness as

[1] *Pennsylvania Act 129 - Phase IV Energy Efficiency and Peak Demand Reduction Market Potential Study Report,* submitted by Optimal Energy, Inc., *et. al.*, February 28, 2020.

expressed by the TRC ratio. Programs were defined based upon delivery channels within each customer sector.

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

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. Goal allocation for the remaining customer segments was based on segment energy use, as well as requirements to achieve mandated reductions at authorized budgets.

Q. What carve-outs for the low income customer segment did the Commission establish for Duquesne Light?

A. The Phase IV Implementation Order provides that Duquesne Light's Phase IV Plan must obtain at least 18,566 MWh in energy savings from the low-income customer segment. Phase IV Implementation Order p. 35. This constitutes approximately 5.3% of the energy savings from the residential customer class. Additionally, the Company's Phase IV Plan must provide a "proportionate number of measures equivalent to the low-income sector's

share of usage," or 8.40 measures. Phase IV Implementation Order pp. 27, 35. As discussed further below, the Company's Phase IV Plan exceeds both these required carve-outs.

Q. You mentioned that the Company considered stakeholder input. Please describe the process used to gather stakeholder input on the Company's EE&C Phase IV Plan.

A. 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.

Q. Did the stakeholder meetings influence the Company's EE&C Phase IV Plan development?

A. Yes. Based on stakeholder input, Duquesne's Phase IV Plan proposes continuing with the Income Eligible Advisory Group meetings throughout the Phase. Members of this group include community based organizations, NGDCs, OCA, CAUSE-PA, and various non-profit social service agencies. At these meetings marketing material and outreach opportunities will be discussed. 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.

Moreover, during Phase IV, the Company plans to continue to work with NGDCs in conjunction with the IEAG to encourage participation beyond the current Smart Comfort low income program. Duquesne Light and its non-residential CSP(s) also plan to hold additional 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.

III. EE&C PHASE IV PLAN PROGRAMS

Q. What programs are proposed in the Company's EE&C Phase IV Plan?

A. Generally, Duquesne Light's proposed EE&C Phase IV Plan is designed to educate customers about energy efficiency and conservation and lower customer energy consumption. The Phase IV Plan is largely composed of home energy audits, building retrofits, lighting programs, appliance recycling and rebates program that have been customized to meet the needs of specific customer segments within Duquesne Light's service territory. The programs are organized to facilitate participation by three broad customer sectors: residential, commercial, and industrial customers. Additionally, each of the three customer sectors are offered additional programs tailored to meet the specific needs of certain customer segments, such as income eligible customers, small to medium commercial and industrial customers, and large commercial and industrial customers. In addition, Behavioral Energy Efficiency Program reports will be sent to residential and income eligible residential customers.

Q. Please describe the Residential Energy Efficiency program ("REEP").

A. The REEP includes these programs: 1) REEP Rebate Program with Downstream, Midstream and Upstream delivery channels; 2) Residential Appliance Recycling Program ("RARP"); 3) Residential and Low Income Behavioral Energy Efficiency Programs ("R-BEEP" and "LI-BEEP"); and 4) the Residential Low Income Energy Efficiency Program ("LIEEP"). These programs are explained in detail in Section 3 of the Company's Phase IV EE&C Plan, but I will provide a brief summary:

REEP Rebate Program

The REEP rebate program encourages customers to make an energy efficient choice when purchasing and installing household appliances and equipment by offering educational materials on energy efficiency options and rebate incentives. This rebate program is offered via three channels, upstream, midstream and downstream. Program educational materials and rebates are provided in conjunction with the Duquesne Light on-line home energy audit and other programs offered to residential customers.

Residential Appliance Recycling Program ("RARP")

The Residential Appliance Recycling Program encourages residential customers in Duquesne Light's service territory to turn in their older refrigerators, dehumidifiers, air conditioners, and freezers to be recycled. To encourage participation in this program, this program provides no-cost pickup and disposal as well as a small rebate for each appliance recycled.

Residential Behavioral Energy Efficiency Programs ("R-BEEP" and "LI-BEEP")

The R-BEEP and LI-BEEP programs send, via direct mail, home energy use reports that compare recipient customer's energy use to the use of customers with similar home type and size. The programs provide for comparison the last two months of energy consumption by 1) the most efficient of the peer group, 2) the BEEP recipient, and 3) the entire peer group. The reports generate verifiable savings ranging from 1.5%-3.5% of total home energy use.

Residential Low Income Energy Efficiency Program ("LIEEP")

LIEEP is an income-qualified program providing services designed to assist low-income households to conserve energy and reduce electricity costs. LIEEP relies on several, low income segment-specific, contributing programs to achieve

projected savings impacts and program cost-effectiveness. The Company intends to achieve the mandated 5.3% of its energy consumption reduction savings from this program and LI-BEEP.

Q. What are the projected energy consumption savings and demand reductions for the residential programs?

A. The Company expects to achieve 37,900,182 kWhs in energy savings and 4,148 kW in demand reductions from the REEP rebate program; 8,447,770 kWhs in energy savings and 1,210 kW in demand reductions from the Residential Appliance Recycling program; 57,200,000 kWhs in energy savings and 7,757 kW in demand reductions from the Residential and Low Income Behavioral Efficiency programs; and 21,386,149 kWhs in energy savings and 2,494 kW in demand reductions from LIEEP.

Q. Are the residential energy efficiency programs described herein cost effective?

A. Yes. The residential programs offered are collectively cost-effective. Except for LI-BEEP, each program achieved a TRC score at or above 1. Specifically, the REEP rebate program TRC scores for upstream, midstream, and downstream incentives are 1.00, 1.22, and 2.09, respectively; the Residential Appliance Recycling Program TRC score is 1.06; the Residential Behavioral Efficiency Program TRC score is 1.09; and the Low Income Behavioral Efficiency Program TRC score is 0.61. The LIEEP TRC score is 1.02. The overall residential energy efficiency TRC score in aggregate is 1.27.

Q. Are any of the residential customer programs currently in operation as part of Duquesne Light's Phase III programs?

A. Yes. Programs currently in place as part of Duquesne Light's Phase III program include: REEP Rebate Program; Residential Behavioral Energy Efficiency and Low Income Behavioral Energy Efficiency; Residential Appliance Recycling Program; and the Residential LIEEP.

Q. Are there any REEP downstream measures that you would like to describe in more detail?

A. Yes. The student energy efficiency education component is designed to challenge students to think about energy, learning where it comes from, why we need it, and how we can use it more efficiently. The program seeks to help advance a positive energy efficiency lifestyle. Key features of the student energy efficiency education component 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.

Q. Do LIEEP and LI-BEEP satisfy the low-income carve-outs established in the Phase IV Implementation Order?

A. Yes. The Plan will obtain approximately 28,886 MWh of energy savings from the low-income customer segment, as compared to the Phase IV Implementation Order's corresponding target of 18,566 MWh. The Plan will also meet the "proportionate number of measures" carve-out of 8.40 measures. Of the 329 measures provided under the Plan, 30 of them – or about 9.1% percent – will be available to low-income customers.

Q. Please describe the energy consumption reduction programs available for Small/ Medium Commercial and Industrial customers.

A. Customers served under this sector are small/medium commercial and industrial customers with demands less than 300 kW. They will have the opportunity to participate in four (4) programs: Small Business Direct Install Program; Small Business Solutions Program; Small Midstream Program, and Small Virtual Commissioning Program. These programs are explained in detail in Section 3 of the Company's Phase IV EE&C Plan, but I will provide a brief summary:

Small Business Direct Install Program ("SBDI")

The SBDI Program is a direct install program that offers Duquesne Light's small business customers the opportunity to retrofit existing equipment with more energy-efficient technologies. The program's incentives are designed to encourage early equipment replacement and target discretionary retrofit opportunities. Energy-efficient lighting remains the focus of the program, along with refrigeration and electric water heater measures. The program is turnkey that offers customers a single source of information, technical assistance, and financial incentives. Turnkey programs incorporate an end-to-end approach, from initial marketing and the resulting audit process through to final equipment installation conducted by a third-party implementation contractor.

Small Business Solutions Program ("SBS")

The SBS Program helps Duquesne Light's small and medium C&I customers and/or their trade allies select the most efficient electric technologies when they consider purchasing new equipment or retrofitting existing inefficient technologies. The SBS Program offers two core participation tracks: prescriptive and custom. Program components include energy use auditing, provision of targeted financing and incentives, project management and retrofit measure installation, training, and technical assistance. Energy audit results provide business customers a readily available, reliable source of information about their energy use and outline ways to save energy.

Small Midstream Program

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.

Small Virtual Commissioning Program ("SVCx")

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. Under this program, customers 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.

Q. What are the projected energy consumption savings and demand reductions expected from the small/medium commercial and industrial programs?

A. The SBDI Program is projected to achieve 23,133,399 kWhs of energy savings and 4,475 kW in demand reductions. The SBS Program is projected to achieve 50,212,478 kWhs of energy savings and 8,590 kW in demand reductions. The Small Midstream Program is expected to achieve 27,491,056 kWhs of energy savings and 6,756 kW in demand reductions. The SVCx Program is expected to achieve 6,053,739 kWhs of energy savings and 2,228 kW in demand reductions.

Q. **Are the energy efficiency programs available under the small/medium commercial and industrial sector cost effective?**

A. Yes. All of the programs proposed except the Small Midstream Program score above 1 on the Commission's TRC test. The SBDI Program TRC score is 1.09; the SBS Program TRC score is 1.48; the Small Midstream Program TRC score is 0.68; and the SVCx Program TRC score is 3.41. In total the programs for this sector have a TRC score of 1.10.

Q. Are any of the commercial programs currently in operation as part of Duquesne Light's Phase III programs?

A. Yes. The Small Business Direct-Install Program and Small Midstream Program were introduced and successfully operated in Phase III.

Q. Please describe the energy consumption reduction programs available to large commercial and industrial customers.

A. Customers served under this sector are commercial and industrial customers with demands equal to or greater than 300 kW. They will have the opportunity to participate in three (3) programs: Large Business Solutions Program; Large Midstream Program; and Large Virtual Commissioning Program. These programs are explained in detail in Section 3 of the Company's Phase IV EE&C Plan, but I will provide a brief summary:

Large Business Solutions Program ("LBS")

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

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. Solutions can include retrocommissioning and combined heat and power.

Large Midstream Program

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.

Large Virtual Commissioning Program ("LVCx")

The LVCx Program leverages 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 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. Under this program 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.

Q. What are the projected energy consumption reductions and demand reductions expected from the large commercial and industrial efficiency program?

A. The LBS Program is projected to achieve 83,696,145 kWhs and 38,846,312 kWhs of energy savings for Large Commercial and Large Industrial customers, respectively. The LBS Program is projected to achieve 815,377 kW and 7,137 kW in demand reductions for Large Commercial and Large Industrial customers, respectively. The Large Midstream Program is projected to achieve 17,300,344 kWhs and 8,029,695 kWhs of energy savings for Large Commercial and Large Industrial customers, respectively. The Large Midstream Program is projected to achieve 4,783 kW and 2,220 kW in demand reductions for Large Commercial and Large Industrial customers, respectively. The LVCx Program is projected to achieve 2,756,458 kWhs and 1,279,369 kWhs of energy savings for Large Commercial and Large Industrial customers, respectively. The LVCx Program is projected to achieve 1,014 kW and 471 kW in demand reductions for Large Commercial and Large Industrial customers, respectively.

Q. Are the energy efficiency programs proposed under the large commercial and industrial sectors cost effective?

A. Yes. The large business sector programs offered are collectively cost-effective. Except for Large Midstream Program, each program achieved a TRC score at or above 1. The LBS Program TRC score is 2.16; the Large Midstream Program TRC score is 0.63; and the LVCx Program TRC score is 2.85. In total, the programs for this sector have a TRC score of 1.52.

Q. Are any of the large commercial and industrial programs currently in operation part of Duquesne Light's Phase III programs?

A. Yes. The Large Business Solutions and Midstream are an evolution of Phase III express efficiency programs serving the office buildings sectors, retail stores segment, primary metals, chemical products and other mixed industrial segments.

IV. PHASE IV PJM BASE RESIDUAL AUCTION PARTICIPATION

Q. Is Duquesne Light proposing to participate in the PJM Base Residual Auction in its Phase IV EE&C Plan?

A. Yes. 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. 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.

V. PROGRAM COST

Q. **What is the Company's Phase IV spending cap?**

A. As I discussed previously, Duquesne Light's Phase IV annual budget is $19,545,951.58, and the total five year program spending cap is $97,739,968.

Q. What is the cumulative cost of the Company's proposed EE&C Phase IV Plan and what is the implementation strategy to acquire at least 15% of the consumption reduction target in each program year as directed by the Commission?

A. The Company's EE&C Phase IV Plan has a budget cap of $97,729,760. This Plan includes programs that are being continued as previously implemented, modified based on previous years' experiences, plus newly added programs. The forecast ramp-rates by projected saving impacts across the five–year period are found in the proposed plan in Figure 1,

which provides for acquiring at least 15% of the consumption target in each of the Phase IV program years.

Q. Please provide an overview of the EE&C Phase IV Plan cost by customer sector.

A. As provided in the table on Section 3.1.1 of the EE&C Phase IV Plan, residential energy efficiency programs comprise 32.5% of the plan cost, or $31,751,650. Small/Medium Commercial energy efficiency programs comprise 28.3% of the plan cost, or $27,669,963. Large Commercial energy efficiency programs comprise 27.3% of the plan cost, or $26,707,373. Finally, Large Industrial energy efficiency programs comprise 11.9% of the plan cost, or $11,600,775. In his direct testimony, Duquesne St. No. 2, Mr. Ogden describes how the Company will ensure that the programs are funded by the customer sector that benefits from the programs and measures offered in the Plan.

Q. Does this conclude your testimony?

A. Yes.