INDEX TO EXHIBITS

Docket Nos. M-2020-3020820, M-2020-3020821, M-2020-3020822, M-2020-3020823

Hearing Date: February 5, 2021

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3	(Direct Testimony of Anthony J. Woytko, with AJW-1 through AJW-5)
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Met-Ed/Penelec/Penn Power/West Penn Statement No. 1

BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION

METROPOLITAN EDISON COMPANY
Docket No. M-2020-3020820

PENNSYLVANIA ELECTRIC COMPANY
Docket No. M-2020-3020821

PENNSYLVANIA POWER COMPANY
Docket No. M-2020-3020822

WEST PENN POWER COMPANY
Docket No. M-2020-3020823

PHASE IV ENERGY EFFICIENCY AND CONSERVATION PLAN

Prepared
Direct
Testimony
of
Kurt E. Turosky

LIST OF TOPICS ADDRESSED

Overview of the Companies

The EE&C Plan and the Energy Efficiency Team

The Companies' Stakeholder Process

The Use of Conservation Service Providers

The Companies' Competitive Bidding/Contracting Process

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FirstEnergy
Statement
1

I. INTRODUCTION AND BACKGROUND

Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

A. My name is Kurt E. Turosky, and my business address is 76 South Main Street, Akron, Ohio 44308.

Q. MR. TUROSKY, BY WHOM ARE YOU EMPLOYED AND IN WHAT CAPACITY?

A. I am employed by FirstEnergy Service Company as Director, Energy Efficiency Compliance and Reporting. I report to the Vice President, Distribution Support within the FirstEnergy Utilities organization. I am responsible for compliance and reporting activities related to energy efficiency and conservation ("EE&C") and peak demand reduction ("PDR") programs for the FirstEnergy utilities in Ohio, Maryland, New Jersey, Pennsylvania, and West Virginia. I oversee the development, evaluation, and reporting of EE&C and/or PDR programs in compliance with each state's regulatory requirements.

Q. WHAT IS YOUR EDUCATIONAL AND PROFESSIONAL BACKGROUND?

A. I hold a Master of Business Administration degree from Case Western Reserve University and a Bachelor of Science degree in Finance from The Pennsylvania State University. Since 1982, I have been employed by FirstEnergy Corp. ("FirstEnergy") and its predecessor companies. Throughout my career, I have held various management positions in Rates & Regulatory Affairs, Investor Relations, and Energy Efficiency.

Q. PLEASE DESCRIBE YOUR PROFESSIONAL EXPERIENCE RELEVANT TO THE TESTIMONY YOU ARE NOW GIVING.

A. I have over 38 years of electric utility experience, approximately the last 25 years of which have been in managerial positions. I have been in a leadership role in FirstEnergy's Energy Efficiency Department since its formation back in 2008, and I assumed my current title and responsibilities following FirstEnergy's merger with Allegheny Energy Inc. in 2011. In addition to helping direct the development, evaluation, and reporting of EE&C/PDR programs and filings for FirstEnergy utilities in Ohio, Maryland West Virginia, and New Jersey, I also oversee development, evaluation, and reporting of the Pennsylvania utilities' EE&C/PDR programs and filings. Since 2009, I have led the development of the Metropolitan Edison Company's ("Met-Ed"), Pennsylvania Electric Company's ("Penelec"), and Pennsylvania Power Company's ("Penn Power") Phase I, II, and III EE&C Plans, and since 2011, I have led the development of West Penn Power Company's ("West Penn") Phase II and III EE&C Plans. These EE&C Plans all were approved by the Pennsylvania Public Utility Commission ("Commission").[1] I have the same responsibilities related to the EE&C Plan being proposed in this proceeding ("Phase IV Plan").

Q. ON WHOSE BEHALF ARE YOU TESTIFYING?

[1] The Phase I EE&C Plans referenced here were approved at Docket Nos. M-2009-2092222 (Met-Ed), M-2009-2112952 (Penelec), and M-2009-2112956 (Penn Power). The Companies' Phase II EE&C Plans were approved at Docket Nos. M-2012-2334387 (Met-Ed), M-2012-2334392 (Penelec), M-2012-2334395 (Penn Power), and M-2012-2334398 (West Penn). The Companies' Phase III EE&C Plans were approved at Docket Nos. M-2015-2514767 (Met-Ed), M-2015-2514768 (Penelec), M-2015-2514769 (Penn Power), and M-2015-2514772 (West Penn).

A. I am testifying on behalf of Met-Ed, Penelec, Penn Power and West Penn (collectively, the "Companies"). Unless otherwise stated, my testimony equally applies to all four Companies. Further, rather than reiterating what is included in the Companies' proposed Plan in my testimony, any references to sections of the Plan are incorporated as if fully rewritten herein.

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?

A. The purpose of my testimony is to provide a general overview of: (i) the Companies; (ii) the Companies' Phase IV Plan; (iii) the energy efficiency team that I supervise; (iv) the Companies' stakeholder process; (v) the administration and implementation of the Phase IV Plan; and (vi) the Companies' competitive bidding/contracting process.

Q. PLEASE IDENTIFY THE OTHER WITNESSES WHO WILL BE PROVIDING TESTIMONY IN THIS PROCEEDING.

A. Mr. Edward C. Miller, Manager of FirstEnergy's Compliance and Development team (Met-Ed/Penelec/Penn Power/West Penn Statement No. 2), will discuss the details of the Companies' Phase IV Plan, explaining how the Plan was developed, how the Plan complies with the requirements set forth in Act 129 of 2008[2] and the Commission's Phase IV Implementation Order,[3] and why this Commission should approve the proposed Plan.

[2] Act 129 of 2008 ("Act 129") was signed into law on October 15, 2008 and became effective on November 14, 2008. Among other things, the Act created an EE&C Program, codified in the Pennsylvania Public Utility Code at Sections 2806.1 and 2806.2, 66 Pa.C.S. §§ 2806.1 and 2806.2.

[3] *Energy Efficiency and Conservation Program*, Docket No. M-2020-3015228 (Implementation Order entered June 18, 2020) ("Phase IV Implementation Order").

Mr. Anthony J. Woytko, an Analyst within the FirstEnergy Pennsylvania Rates and Regulatory Affairs Department (Met-Ed/Penelec/Penn Power/West Penn Statement No. 3), will discuss the Companies' proposal to recover the costs associated with developing and implementing the Phase IV EE&C Plan through new tariff riders for each of the Companies. He will also explain how the Companies will collect final Phase III EE&C costs after completion of Phase III.

II. THE COMPANIES

Q. PLEASE GENERALLY DESCRIBE THE FIRSTENERGY CORPORATE STRUCTURE.

A. FirstEnergy is a public utility holding company headquartered in Akron, Ohio. Among its subsidiaries are 10 electric utility subsidiaries – Met-Ed, Penelec, Penn Power, and West Penn in Pennsylvania, three electric distribution utilities in Ohio (Ohio Edison Company, The Cleveland Electric Illuminating Company, and The Toledo Edison Company), Jersey Central Power and Light Company in New Jersey, Monongahela Power Company in West Virginia, and The Potomac Edison Company in both West Virginia and Maryland. These 10 electric utility operating companies compose one of the nation's largest investor-owned electric systems, serving approximately six million customers within a nearly 65,000 square-mile area of Ohio, Pennsylvania, New Jersey, West Virginia, and Maryland. FirstEnergy's goal is to develop cost-effective EE&C solutions responsive to state requirements that can, when appropriate, be consistently applied not only in Pennsylvania, but also in the other states within the FirstEnergy footprint. This approach enables

FirstEnergy customers to benefit from economies of scale and broader program experiences.

Q. PLEASE GENERALLY DESCRIBE THE COMPANIES.

A. Met-Ed is a wholly owned subsidiary of FirstEnergy that provides service to approximately 575,000 electric utility customers in southeast Pennsylvania. Penelec is a wholly owned subsidiary of FirstEnergy that provides service to approximately 585,000 electric utility customers in central and western Pennsylvania. Penn Power is a wholly owned subsidiary of Ohio Edison Company, which, in turn, is a wholly owned subsidiary of FirstEnergy. Penn Power provides service to approximately 170,000 electric utility customers in western Pennsylvania. West Penn is a wholly owned subsidiary of FirstEnergy that provides service to approximately 730,000 electric utility customers in western and central Pennsylvania.

III. THE PHASE IV PLAN

Q. PLEASE BRIEFLY DESCRIBE THE HISTORY OF THE COMPANIES' EE&C PLANS.

A. On October 15, 2008, then Governor Rendell signed Act 129 into law. Act 129 required the Commission to establish an energy efficiency and conservation program ("EE&C Program").[4] The EE&C Program contemplated multiple phases. Phase I was completed on May 31, 2013. The Companies met all EE&C and PDR requirements at the end of

[4] 66 Pa.C.S. §§ 2806.1 and 2806.2.

Phase I. Phase II was completed on May 31, 2016, and the Companies met all EE&C requirements. The Companies' Phase III EE&C Plans, which are currently in effect through May 31, 2020 ("Phase III Plans"), are on track to meet all EE&C and PDR requirements. In its Phase IV Implementation Order, the Commission established Phase IV of its EE&C Program, which runs from June 1, 2021, through May 31, 2026 ("Phase IV Period"). The Phase IV Implementation Order sets forth the energy efficiency and peak demand reduction targets for all of the Companies. The energy efficiency and peak demand reduction targets must be met by May 31, 2026, and at least 5.8% of the energy consumption reduction targets must be achieved through the low-income sector. Companies' Witness Miller discusses each of the Companies' targets and related budgets in his direct testimony, along with a description of how the Companies' intend to achieve each of the Phase IV requirements. (See Met-Ed/Penelec/Penn Power/West Penn Statement No. 2.)

Q. HOW IS THE PHASE IV PLAN ORGANIZED?

A. The Companies' Phase IV Plan, which is included as an Attachment A to the Joint Petition, is organized consistent with the filing format and template outlined by the Commission in its September 9, 2020 Secretarial Letter issued in Docket No. Docket No. M-2020-3015228. The organization of the Phase IV Plan is set forth in the Table of Contents and addresses all issues identified in the Commission's template.

Q. WHAT WERE THE COMPANIES' OVERALL OBJECTIVES WHEN DEVELOPING THE PROPOSED PLAN?

A. When developing the Phase IV Plan, the Companies strove to design a Plan that: (i) achieves all of the EE&C and PDR targets, including those for the low-income sector carve out; (ii) includes at least one program for each of the major customer segments; (iii) includes at least one comprehensive program for the residential sector and at least one comprehensive program for the non-residential sector; and (iv) balances costs with results. I believe the Phase IV Plan accomplishes each of these objectives.

Q. PLEASE GENERALLY DESCRIBE THE COMPANIES' PROPOSED PLAN BEING FILED IN THIS PROCEEDING.

A. The Companies' Phase IV Plan is, in essence, an extension of the successful programs and measures included in the Companies' Phase III EE&C Plans, with the addition of new program measures and a revision of some existing programs and measures that Companies' Witness Miller discusses. However, there is one significant change between the Phase III and Phase IV Plans, which is the need to achieve the peak demand targets through the coincident peak savings from energy efficiency measures in Phase IV in lieu of dispatchable demand response measures in Phase III.

Q. IS IT POSSIBLE THAT THE PROGRAMS INCLUDED IN THE COMPANIES' PROPOSED PLAN MIGHT BE ADJUSTED DURING THE PLAN PERIOD?

A. Yes, adjustments to programs may be necessary during the Phase IV Period. Given that many of these programs have been in place throughout at least Phase III, if not also throughout Phases I and II, I believe we have anticipated many of the potential contingencies surrounding the programs and have factored these contingencies into the

Phase IV Plan designs. Due to the five-year term of the Phase IV period, there may be uncertainties in the economy such as the duration of COVID-19, in the regulatory environment and in technology that may require adjustments during Phase IV. Adjustments may also be necessary as results evolve and as the Companies receive feedback from customers, trade allies, consultants, conservation service providers ("CSPs"), evaluators, interested stakeholders and program managers. If such adjustments are necessary, the Companies will seek the necessary approvals either through an amendment to the Phase IV Plan or through the Commission's expedited review process established for Phase II,[5] Phase III[6] and extended for Phase IV.[7]

IV. THE EE&C TEAM AND THE STAKEHOLDER PROCESS

Q. PLEASE DESCRIBE THE GENERAL PROCESS UTILIZED BY THE COMPANIES WHEN DEVELOPING THE PHASE IV PLAN.

A. The Phase IV Plan was created using the process that is described in more detail by Companies' Witness Miller. The primary contributors to the process were (i) FirstEnergy's Energy Efficiency Group; (ii) the Companies' energy efficiency consultant and Phase III Plan program evaluator; and (iii) interested parties who participated in the Companies' stakeholder process.

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[5] *Energy Efficiency and Conservation Program*, Docket No. M-2008-2069887, at 114-18 (Implementation Order entered June 10, 2011) ("Phase II Implementation Order").
[6] *Energy Efficiency and Conservation Program*, Docket No. M-2014-2424864, at 118 (Implementation Order entered June 19, 2015) ("Phase III Implementation Order").
[7] Phase IV Implementation Order at 94-96.

Q. PLEASE DESCRIBE FIRSTENERGY'S ENERGY EFFICIENCY GROUP AND ITS ROLE IN THE DEVELOPMENT OF THE PLAN.

A. The FirstEnergy Energy Efficiency Group is made up of approximately 50 employees with a broad spectrum of skills. This group is responsible for ensuring compliance with all state EE&C and PDR requirements and the successful implementation of EE&C and PDR programs offered throughout the FirstEnergy footprint. They also are responsible for the evaluation, measurement, and verification ("EM&V") of program results as well as the tracking and reporting of the same to management and as required by the various state regulatory agencies. A more detailed description of this group, as well as a management team organization chart, is included in Section 4.2 of the Phase IV Plan.

The Program Development Team is a subgroup within the Energy Efficiency Group. It consists of internal FirstEnergy employees and is primarily responsible for the development of not only the Phase IV Plan, but also other EE&C and PDR plans offered by the Companies' sister utilities in other states. When practical, this team designs programs consistently throughout the FirstEnergy footprint in order to avoid market confusion and to create economies of scale in both program administration and EM&V activities. When designing EE&C and PDR programs, this group relies not only on its expertise and experience, but also on the experience and expertise brought by evaluators, the program implementation team, program implementers, and interested stakeholders.

Q. PLEASE DESCRIBE THE PROCESS USED BY THE COMPANIES DURING THE DEVELOPMENT OF THE PROPOSED PLAN TO INCORPORATE IDEAS FROM INTERESTED PARTIES.

A. Throughout the development of the Phase IV Plan, the Companies solicited input and insight into potential programs through stakeholder meetings and informal discussions. In addition to regular meetings with Phase III program implementers, the Companies held stakeholder meetings on different aspects of the Plan design in December 2019, May 2020, and October 2020. The Companies also participated in numerous meetings with interested parties, including current and potential CSPs and vendors. As part of the Phase III implementation, the Companies further involved stakeholders through outreach with both program allies and other interested parties – a practice that the Companies intend to continue during Phase IV. Input from this very broad group of interested parties has been factored into the various programs' design.

Q. WILL THE COMPANIES CONTINUE TO UTILIZE THE STAKEHOLDER PROCESS IN PHASE IV?

A. Yes. During the Phase IV Period, the Companies intend to conduct a minimum of two stakeholder meetings per year where the Companies will review the performance, progress, and operation of the programs and will highlight any significant issues encountered. Additional ad hoc meetings will be held as deemed necessary or as requested by stakeholders.

V. <u>CSPs AND THE COMPETITIVE BIDDING PROCESS</u>

Q. PLEASE EXPLAIN HOW THE PHASE IV PLAN WILL BE ADMINISTERED AND IMPLEMENTED.

A. The Companies will continue overall administration and oversight of the Phase IV Plan and utilize third party CSPs to perform various program implementation and support duties. Specific activities that the Companies will oversee include: (i) the Phase IV Plan implementation and performance; (ii) the execution of marketing campaigns; (iii) quality assurance/quality control activities; (iv) tracking and reporting activities; and (v) management of CSPs. The Companies will utilize CSPs to provide many program-related services, including assistance with program implementation, marketing, and EM&V. A more detailed discussion of the responsibilities of both the Energy Efficiency Group and the CSPs is set forth in Sections 4.2 and 4.3 of the Phase IV Plan, respectively.

Q. PLEASE EXPLAIN HOW THE CSPs WILL BE SELECTED.

A. The Companies will use a competitive bidding process to select all of their CSPs that provide consultation, design, administration and management, or advisory services to the Companies. The Companies will adhere to the vendor selection requirements set forth in the Commission's Phase IV Implementation Order and the Companies' Request for Proposal ("RFP") process, which the Commission approved on July 16, 2020, by Secretarial Letter. Every CSP contract will be contingent upon Commission approval of both the contract and the applicable programs that are the subject of the contract. RFPs have been, or will be in the near future, distributed to all qualified CSPs registered on the Commission's website, and the Companies are making and will continue to make an effort to acquire bids from minority or other special category businesses.

Q. HAVE THE COMPANIES SELECTED THE CSPs AND OTHER VENDORS THAT WILL BE ASSISTING WITH THE IMPLEMENTATION OF THE PHASE IV PLAN?

A. Thus far, the Companies have selected ADM Associates, Inc. as their EM&V CSP. The RFP for that contract was issued on August 18, 2020, and the Companies selected ADM Associates, Inc. as the winning bidder in October 2020. The EM&V CSP contract has been filed with the Commission and is currently pending approval by Commission staff. No other CSPs have been selected. As of the submission of this testimony, the only RFP pending is for the Tracking/Reporting system, which was issued on October 23, 2020. However, now that the programs included in the Plan have been finalized, the Companies expect to complete the CSP selection process in early 2021 (conditioned on Commission approval of the CSP contracts and related programs), so as to enable a timely transition and implementation of the programs and measures once Phase IV begins.

VI. <u>CONCLUSION</u>

Q. IN YOUR OPINION, IS THE PHASE IV PLAN CONSISTENT WITH ACT 129 AND THE COMMISSION'S PHASE IV IMPLEMENTATION ORDER?

A. In my opinion, yes, they are. As Companies' Witness Miller explains, the Phase IV Plan:

- Is designed to maximize the Companies' opportunity to achieve their respective additional consumption targets, including the carve out for the low-income sector, within the established budgets.

- Includes specific energy efficiency measures for households at or below 150% of the federal poverty income guidelines, in proportion to that sector's share of the total energy usage in each of Companies' service territories.
- Is designed to achieve at least 15% of the additional consumption reduction target amount in each program year.
- Includes coincident peak demand reductions designed to meet the targets, guidance, and objectives of the Phase IV Implementation Order.
- Is cost-effective, in accordance with the 2021 Total Resource Cost Test, and will provide a diverse cross-section of alternatives and reasonable mix of programs and measures that will benefit consumers of all rate classes as required by 66 Pa.C.S. § 2806.1(b)(1)(i)(I).
- Is designed and will be measured based on the 2021 Technical Reference Manual and other metric resources to measure the effect of various EE&C and PDR measures.
- Includes a variety of EE&C measures and will provide the measures equitably to all customer classes pursuant to 66 Pa.C.S. § 2806.1(a)(5).

Further, as Companies' Witness Woytko explains, the Phase IV Plan includes Section 1307 cost recovery mechanisms, which reflect program acquisition costs (i.e., for program administration, management, and incentives) that are being reasonably allocated to and recovered from the customer classes receiving the direct benefit of measures supported by the programs.

Q. DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?

A. Yes, it does. However, I reserve the right to supplement my testimony.

BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION

METROPOLITAN EDISON COMPANY
Docket No. M-2020-3020820

PENNSYLVANIA ELECTRIC COMPANY
Docket No. M-2020-3020821

PENNSYLVANIA POWER COMPANY
Docket No. M-2020-3020822

WEST PENN POWER COMPANY
Docket No. M-2020-3020823

PHASE IV ENERGY EFFICIENCY AND CONSERVATION PLAN

Prepared
Direct
Testimony
of
Edward C. Miller

LIST OF TOPICS ADDRESSED

Phase IV EE&C Targets and Spending Limitations

Development of the Proposed Plan

Summary of the Companies' Phase IV EE&C Plan and Programs

Implementation of Programs

Compliance with Statutory and Regulatory Requirements

FirstEnergy
Statement
2

I. INTRODUCTION AND BACKGROUND

Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

A. My name is Edward C. Miller, and my business address is 800 Cabin Hill Drive, Greensburg, PA 15601.

Q. MR. MILLER, BY WHOM ARE YOU EMPLOYED AND IN WHAT CAPACITY?

A. I am employed by FirstEnergy Service Company, which is a direct subsidiary of FirstEnergy Corp. ("FirstEnergy"), as Manager, Compliance and Development in the Energy Efficiency Department. I report to the Director, Energy Efficiency Compliance and Reporting. I am responsible for compliance and development activities related to energy efficiency and conservation ("EE&C") programs for the FirstEnergy utilities in Ohio, Maryland, New Jersey, Pennsylvania, and West Virginia. This primarily involves the development of programs and filings to meet the FirstEnergy utilities' EE&C and/or peak demand reduction ("PDR") requirements and obligations.

Q. WHAT IS YOUR EDUCATIONAL AND PROFESSIONAL BACKGROUND?

A. I hold a Bachelor of Science degree in Electrical Engineering from the University of Pittsburgh. For over seventeen years, I was employed by Allegheny Energy Service Corporation, the service company for Allegheny Energy Inc. ("Allegheny"), which merged in 2011 with FirstEnergy. While with Allegheny, I held various engineering, customer service, and management positions in Customer Services, Sales & Marketing, Customer Management, and Energy Efficiency. After FirstEnergy and Allegheny merged in 2011, I was assigned my current position as Manager, Compliance and Development in FirstEnergy's Energy Efficiency Department.

Q. PLEASE DESCRIBE YOUR PROFESSIONAL EXPERIENCE RELEVANT TO THE TESTIMONY YOU ARE NOW GIVING.

A. Between 2009 and the FirstEnergy-Allegheny merger in 2011, I was involved in the development of EE&C/PDR programs and filings for the utilities formerly owned by Allegheny in Pennsylvania, Maryland, and West Virginia. Since completion of the merger, I have been involved in the same activities for the FirstEnergy utilities in West Virginia, Maryland, New Jersey, Ohio, and Pennsylvania. I was significantly involved in the development of the Phase II and Phase III EE&C Plans of Metropolitan Edison Company ("Met-Ed"), Pennsylvania Electric Company ("Penelec"), Pennsylvania Power Company ("Penn Power"), and West Penn Power Company ("West Penn") (collectively, the "Companies") that were approved by the Pennsylvania Public Utility Commission ("Commission").[1] I have the same responsibilities related to the EE&C Plan being proposed in this proceeding ("Phase IV Plan" or "Proposed Plan"). In fulfilling my responsibilities, I collaborate with energy efficiency consultants and vendors who assist the Companies with program design, implementation and the evaluation, measurement, and verification ("EM&V") of programs.

Q. ON WHOSE BEHALF ARE YOU TESTIFYING?

[1] Please see footnote 1 in Companies' Witness Turosky's direct testimony (Met-Ed/Penelec/Penn Power/West Penn Statement No. 1) for a list of the docket numbers associated with those Phase II and Phase III EE&C Plans.

A. I am testifying on behalf of the Companies. Unless otherwise stated, my testimony equally applies to all four Companies. Further, rather than reiterating what is included in the Companies' Proposed Plan in my testimony, any references to sections of the Plan are incorporated as if fully rewritten herein.

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?

A. The purpose of my testimony is to: (i) summarize the additional EE&C and PDR targets set for the Companies by the Commission's Phase IV Implementation Order[2] and the spending limitations for each Company under Act 129[3]; (ii) summarize and sponsor the Proposed Plan; (iii) describe the development of the Proposed Plan; (iv) describe how the Companies plan to implement the programs included in the Proposed Plan; and (v) analyze whether the Proposed Plan complies with all statutory and regulatory requirements, including the Commission's Phase IV Implementation Order and its 2021 Total Resource Cost ("TRC") Test Order.[4]

Q. WHAT WAS YOUR ROLE IN THE DEVELOPMENT OF THE PHASE IV PLAN?

A. My role in the development of the Proposed Plan was to manage the creation of the Phase IV EE&C programs and budgets; evaluate the cost-effectiveness of the Proposed Plan

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[2] *Energy Efficiency and Conservation Program*, Docket No. M-2020-3015228 (Implementation Order entered June 18, 2020) ("Phase IV Implementation Order").

[3] Act 129 of 2008 was signed into law on October 15, 2008 and became effective on November 14, 2008. Among other things, the Act created an EE&C Program, codified in the Pennsylvania Public Utility Code at Sections 2806.1 and 2806.2, 66 Pa.C.S. §§ 2806.1 and 2806.2.

[4] *2021 PA Total Resource Cost (TRC) Test*, Docket No. M-2019-3006868 (Order entered December 19, 2019) ("2021 TRC Test Order").

consistent with the Commission's requirements; and optimize the Plan's components to achieve the goals of Act 129 given the regulatory requirements, spending limits, and targeted reductions.

Q. WAS THE PROPOSED PLAN DEVELOPED UNDER YOUR DIRECTION AND CONTROL?

A. Yes. The Proposed Plan was developed under my direction. To guide the development of the Plan, I primarily reviewed the requirements of the Commission's Phase IV Implementation Order, the Commission's Order regarding the 2021 Technical Reference Manual ("TRM"),[5] and the 2021 TRC Test Order.

II. <u>PHASE IV EE&C TARGETS AND SPENDING LIMITATIONS</u>

Q. DID THE COMMISSION ADOPT ADDITIONAL INCREMENTAL EE&C AND PDR TARGETS FOR THE COMPANIES?

A. Yes. The Commission adopted new energy savings targets for each of the Companies. The Commission also established coincident peak demand reduction targets for each of the Companies. The targets are set forth in the Commission's Phase IV Implementation Order for the period June 1, 2021 through May 31, 2026 ("Phase IV Period").

[5] *See Implementation of the Alternative Energy Portfolio Standards Act of 2004: Standards for the Participation of Demand Side Management Resources – Technical Reference Manual 2021 Update*, Docket No. M-2019-3006867 (Order entered August 8, 2019); *Errata to the 2021 Technical Reference Manual (TRM),* Docket No. M-2019-3006867 (Secretarial Letter issued September 24, 2020); *see also Implementation of the Alternative Energy Portfolio Standards Act of 2004: Standards for the Participation of Demand Side Management Resources – Technical Reference Manual 2021 Update,* Docket No. M-2019-3006867 (Amendment Tentative Order entered Oct. 29, 2020) (proposing certain amendments to the 2021 TRM, which remain pending before the Commission as of the submission of this testimony).

Q. WHAT ARE THE OVERALL MEGAWATT-HOUR ("MWH") TARGETS THAT THE COMPANIES MUST ACHIEVE PURSUANT TO ACT 129 AND THE COMMISSION'S PHASE IV IMPLEMENTATION ORDER?

A. The following table shows the MWh targets, which represent the total incremental savings required by each of the Companies for the Phase IV Period.[6]

EDC Name	**Phase IV Target MWh**
Met-Ed	463,215
Penelec	437,676
Penn Power	128,909
West Penn Power	504,951
Total	***1,534,751***

Q. WHAT ARE THE MEGAWATT ("MW") REDUCTION TARGETS FOR THE COMPANIES AS ESTABLISHED BY THE COMMISSION IN THE PHASE IV IMPLEMENTATION ORDER?

A. The following table shows the MW targets, which represents the required level of coincident peak MW reductions that are to be met with energy efficiency measures by each of the Companies for the Phase IV Period.[7]

EDC Name	**Phase IV Target MW**
Met-Ed	76
Penelec	80
Penn Power	20

[6] Phase IV Implementation Order at 8.
[7] *Id.*

West Penn Power	86
Total	***262***

Q. WHAT ARE THE ANNUALIZED SPENDING LIMITS FOR THE DEVELOPMENT AND IMPLEMENTATION OF THE PHASE IV PLAN?

A. Act 129 specifies 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."[8] Per Act 129, the 5-year spending limit as established by the Commission[9] for each of the Companies based on this requirement is as follows:

EDC Name	**Phase IV Budget Limit**
Met-Ed	$124,334,470
Penelec	$114,873,710
Penn Power	$33,298,945
West Penn Power	$117,813,010
Total	***$390,320,135***

Q. HOW MUCH HAS BEEN BUDGETED FOR THE COMPANIES' PROGRAMS?

A. The proposed budgets for each program included in the Companies' Phase IV Plan can be found in Appendix B, PUC Table 9. Total portfolio budgets for each Company are also summarized in Appendix B, PUC Tables 4 and 12, and Appendix C, Table C-1 of the Phase IV Plan.

[8] 66 Pa.C.S. § 2806.1(m).
[9] Phase IV Implementation Order at 120.

III. DEVELOPMENT OF THE PROPOSED PLAN

Q. PLEASE DESCRIBE GENERALLY HOW THE COMPANIES' PHASE IV PLAN WAS DEVELOPED.

A. Sections 1.2 and 3.1 of the Phase IV Plan describe how the FirstEnergy Plan development team ("EE&C Team") designed the Companies' Phase IV Plan. Generally, the EE&C Team reviewed the existing programs and measures in the Companies' Phase III Plans to assess implementation and performance to date. Programs and measures offered by other FirstEnergy affiliate utilities and non-FirstEnergy utilities were reviewed to establish a universe of programs and measures for consideration. The EE&C Team also reviewed the Pennsylvania Market Potential Study ("MPS"),[10] the 2021 TRM, and other industry sources and consulted with its implementation team, implementation vendors, and the Companies' energy efficiency consultant and independent EM&V contractor, all in an effort to identify additional opportunities. The EE&C Team considered the program and measure opportunities and completed initial modeling, taking into account: (i) implementation experience and actual results through existing programs; (ii) program benefit and cost assumptions; (iii) input from stakeholders, consultants and vendors; (iv) the 2021 TRM; (v) the MPS; and (vi) other industry sources. Based on this analysis and evaluation, the EE&C Team selected the measures to be included in the Phase IV Plan, estimated participation levels and corresponding program and measure savings results, and

[10] Pennsylvania Act 129 – Phase IV Energy Efficiency and Peak Demand Reduction Market Potential Study Report (Feb. 28, 2020), released via Secretarial Letter, Docket No. M-2020-3015229, (March 2, 2020) ("EE Potential Study").

developed program budgets within the budget constraints established under Act 129's statutory 2% spending cap.

Q. DID THE COMPANIES DISCUSS DEVELOPMENT OF THE PHASE IV PLAN WITH INTERESTED STAKEHOLDERS?

A. Yes. During the development of the Phase IV Plan, the Companies sought and obtained feedback on the proposed EE&C programs from stakeholders through a variety of methods. Stakeholder meetings discussing the Plan's development and program design were held in December 2019, May 2020, and October 2020. At the December 2019 stakeholder meeting, the Companies communicated that they had started to develop their Phase IV Plan, stated that they were beginning to research program and measure opportunities, and solicited input from stakeholders. At the May 2020 stakeholder meeting, the Companies provided an update on the development of the Phase IV Plan, presented a concept plan for Phase IV including a program and subprogram portfolio, and discussed opportunities that were under consideration. At the October 2020 stakeholder meeting, the Companies provided an update on the development of the Phase IV Plan, presented a near final plan including the program and subprogram portfolio, and discussed the key changes to each subprogram. The Companies also participated in numerous meetings with interested parties, including their current and potential Conservation Service Providers ("CSPs") and vendors. The Companies further involved stakeholders and considered stakeholder input on an on-going basis through outreach to both program allies and other interested parties to inform program design and implementation – a practice the Companies intend to continue during the Phase IV Period.

IV. SUMMARY OF THE COMPANIES' PHASE IV EE&C PLAN AND PROGRAMS

Q. PLEASE PROVIDE A BRIEF OVERVIEW OF THE PHASE IV PLAN.

A. The Companies' Phase IV Plan includes a portfolio of energy efficiency programs, subprograms, and measures that are designed to achieve the specific consumption and peak demand reduction targets during the Phase IV Period as established by the Commission in its Phase IV Implementation Order. Like the Companies' prior EE&C Plans, the proposed Phase IV Plan includes a portfolio of EE&C programs targeted to a variety of customer segments, including: (i) residential (with programs specific to the low-income sector); (ii) small commercial and industrial ("C&I"), including government, non-profit, and institutional ("GNI") customers; and (iii) large C&I, also including GNI customers. The Phase IV Plan is generally an extension and evolution of the programs and measures included in the Companies' Phase III Plans, with modifications to the programs, the elimination of subprograms and measures, and the addition of new subprograms and measures. Also, like the Phase III Plans, the Phase IV Plan continues the use of incentive level ranges. Under this approach, the Companies have the ability to adjust rebate levels within the range as market conditions warrant, provided that: (i) these adjustments do not increase program costs beyond approved budgets; and (ii) the Companies discuss potential changes with stakeholders. Based on these ranges, the Companies can adjust incentives for measures either to avoid overpaying for measures, or, if it is determined that an incentive is not sufficient, to increase incentives within the approved range to enhance market response without missing potential opportunities while waiting for resolution through the regulatory process. This allows the Companies to quickly react to changing market conditions, thus optimizing their efforts to achieve their goals.

Q. WHY DO THE COMPANIES BELIEVE THAT A STRATEGY TO CONTINUE A NUMBER OF THE PHASE III PROGRAMS INTO PHASE IV WILL BE SUCCESSFUL IN MEETING THE EE&C REDUCTION TARGETS?

A. The Phase III Plans are a comprehensive portfolio of proven and successful EE&C programs that created a solid foundation on which to build the Phase IV Plan. Continuing the Phase III programs not only allows the Companies to build upon the momentum gained during the Phase III Period through program implementation, customer education, and marketing efforts, but it also allows them to leverage the experience as well as the implementation practices, procedures, and systems that were put in place to support the operation of the programs. Leveraging the Phase III programs also avoids the potential for market confusion and disruption that could result from unnecessarily changing program portfolios between phases.

Q. YOU INDICATED THAT THERE WERE SLIGHT MODIFICATIONS TO THE PHASE III PROGRAMS AND CERTAIN MEASURES WERE EITHER ELIMINATED FROM OR ADDED TO THE PHASE IV PLAN. WOULD YOU PLEASE SUMMARIZE THE DIFFERENCES BETWEEN THE PHASE III AND PHASE IV PLANS?

A. From a practical perspective, the significant changes between the Phase III and Phase IV Plans are the removal of dispatchable demand response programs, the removal of the residential lighting subprogram and measures, and the expansion of the Phase IV program offerings. A comparison between the Phase III and Phase IV programs is included in Tables 1, 7, 9 and 11 of the Phase IV Plan. The program measures that have been retained or added for each program for each customer segment can be found in Tables 8, 10 and 12 of the Phase IV Plan.

Q. WHY WERE CERTAIN PHASE III MEASURES REMOVED FROM THE PHASE IV PLAN?

A. The dispatchable demand response measures were removed from the Phase IV Plan due to the change to coincident peak demand reduction targets in Phase IV that are required to be met from energy efficiency measures. The residential lighting subprograms and measures were removed due to the TRM adopting federal standards that significantly reduce the savings opportunity and the projections for the measures were not sufficient to justify the expense of continuing the subprograms in Phase IV.

Q. HOW MANY MEASURES ARE INCLUDED IN THE PHASE IV PLAN?

A. There are approximately 185 measures included in Phase IV Plan. Appendix B, PUC Table 7 provides the eligible measures for each of the Phase IV programs.

Q. WHAT RESIDENTIAL PROGRAMS ARE THE COMPANIES PROPOSING FOR PHASE IV?

A. The Companies are proposing the following programs for residential customers: (i) Energy Efficient Products Program; and (ii) Energy Efficient Homes Program. These residential programs are summarized in Tables 7 and 8 and are fully described in Section 3.2 of the Phase IV Plan. The residential programs are designed to address both educational and initial cost barriers and to tap a variety of delivery channels and vendors to support customer engagement, education, and participation. The residential programs include direct or targeted programs that engage customers and serve as a portal for other program offerings because they serve a dual purpose of providing customers with energy efficiency education as well as information regarding other program services and opportunities upon which they can act. The residential programs incorporate strategies to change behaviors, and they include incentives to address the initial cost barrier to promote the participation of all residential customers. The programs provide opportunities for prescriptive equipment and direct install, so that customers who are unable or unwilling to undertake whole home/comprehensive solutions are still able to increase efficiency. The programs also provide opportunities for customers interested in whole home/comprehensive solutions, which encourage customers to consider a holistic approach to energy efficiency.

Q. DOES THE PHASE IV PLAN INCLUDE PROGRAMS THAT ARE DESIGNED FOR RESIDENTIAL LOW-INCOME CUSTOMERS?

A. Yes. The Companies are proposing a Low-Income Energy Efficiency Program under which basic, enhanced, and comprehensive services and education will be offered to give low-income households more control over their energy spending. The Low-Income Energy Efficiency Program is also designed with a progression from general to specific in an effort to make EE&C programs and services available to all low-income customers. The Companies will provide home energy efficiency kits, school education, and customized home energy reports providing low-income customers with basic energy savings measures and/or energy efficiency education, recommendations, and information regarding other services upon which they can act. Additional low-income customer program offerings (e.g., appliance rebate and turn in, multifamily) will also be targeted to help identify new low-income customers, achieve additional energy savings opportunities, or promote energy efficiency in multifamily or other low-income homes. The Companies also plan to achieve additional new and incremental electric energy savings through the Weatherization subprogram as part of the delivery of the Companies' existing comprehensive Low-Income Usage Reduction Program ("LIURP"). This aspect of the Phase IV Plan enhances and accelerates the deployment of services to LIURP-eligible households by providing additional measures and services to achieve deeper savings in each visit or through serving additional homes. The Low-Income Energy Efficiency Program also includes a New Homes subprogram, where the Companies will promote the construction of new energy efficient housing for income-qualified customers. Details surrounding the proposed Low-Income Energy Efficiency Program and each of the low-income subprograms can be found in Section 3.2 of the Phase IV Plan.

Q. ARE THE LOW-INCOME PROGRAMS SPECIFICALLY TARGETED TO LOW-INCOME CUSTOMERS?

A. Yes. In accordance with the Commission's Phase IV Implementation Order,[11] savings counted towards the low-income target may only come from specific low-income programs

[11] *See* Phase IV Implementation Order at 28.

or low-income verified participants in multi-family housing programs. The Companies have designed the Low-Income Energy Efficiency Program and each of the low-income subprograms to meet this requirement. The Energy Efficiency Kits and Behavioral subprograms will continue to be specifically targeted to known low-income customers as they were under the Phase III Plans. The School Education subprogram will specifically target schools that have a higher percentage of low-income families as identified through the assisted lunch program in an effort to reach low-income families and make them more aware of potential energy savings opportunities. Under the Appliances subprogram, the Companies will provide enhanced incentives in addition to targeting low-income customers through specific marketing and outreach activities. Similar to the Phase III Plans, the Weatherization subprogram leverages the considerable expertise and existing infrastructure of LIURP contractors consisting of both Community Based Organizations ("CBOs") and private contractors, who specifically target low-income customers for participation. The Multifamily subprogram was new for Phase III and continues for Phase IV. It specifically targets multifamily buildings and is closely coordinated with the Weatherization subprogram to avoid duplicating efforts or services targeted to qualified low-income customers. And under the Low-Income New Homes subprogram, the Company will work with Pennsylvania Housing Finance Authority ("PHFA") and other entities to provide incentives for the construction of new energy efficient housing for qualified low-income customers.

Q. DOES THE COMPANIES' PHASE IV PLAN INCLUDE SPECIFIC ENERGY EFFICIENCY MEASURES FOR HOUSEHOLDS AT OR BELOW 150% OF THE FEDERAL POVERTY INCOME GUIDELINES?

A. Yes. Act 129 requires that each EE&C Plan include specific energy efficiency measures for households at or below 150% of the federal poverty income guidelines in proportion to that sector's share of the total energy usage in the EDC's service territory.[12] The Companies meet this requirement through the measures provided by the Low-Income Energy Efficiency Program. As explained in more detail in Section 9.1.3 of the Phase IV Plan, the Companies' Plan exceeds this requirement.

Q. HOW WILL THE COMPANIES TRACK THE RESULTS FROM THE LOW-INCOME SPECIFIC PROGRAMS?

A. The Companies have processes and procedures in place that successfully tracked the results from the low-income specific programs for the prior EE&C Plans. The Companies will continue these processes and procedures and will specifically track the participation in the Low-Income Energy Efficiency Program consistent with how they track participation in the other non-low-income programs. Section 5 of the Phase IV Plan describes the Companies' tracking and reporting system in more detail.

[12] 66 Pa.C.S. § 2806.1(b)(1)(i)(G).

Q. SOME OF THE SUBPROGRAMS BEING OFFERED TO THE RESIDENTIAL CUSTOMERS ARE ALSO BEING OFFERED TO THE LOW-INCOME CUSTOMERS. ARE THERE ANY DISTINCTIONS BETWEEN THE TWO?

A. Yes. The Companies will develop marketing materials and complete outreach activities that are specifically designed to target low-income customers with education and awareness and to encourage these customers' participation in the low-income program offerings. The Companies also plan to provide an enhanced rebate to qualified low-income customers for certain measures, which would offset a greater portion of the incremental cost for participation.

Q. WOULD YOU PLEASE DESCRIBE THE OUTREACH ACTIVITIES THAT WILL BE IMPLEMENTED TO TARGET THE LOW-INCOME SECTOR?

A. The Companies have developed extensive outreach activities during prior phases of the EE&C Program and plan to continue these activities for Phase IV. These outreach activities may include radio ads, television ads, websites, Twitter, Facebook, bill inserts, bus signs, letters, calling campaigns, post-cards, newspaper ads/articles, posters, food pantry events, and the Commission's "Be Utility Wise" events within the Companies' service territories. And as discussed earlier, other outreach activities that targets the low-income sector will be completed by the CBOs and private contractors who provide the Weatherization subprogram services, specifically targeting multifamily buildings with low-income customers, and working with PHFA and other entities to target the construction of new energy efficient housing for low-income customers. The Companies have routinely discussed these outreach activities as well as their marketing materials in stakeholder meetings throughout Phase III and plan to continue this practice in Phase IV. Further, the Companies will continue to look for new outreach activities to assist with identifying and targeting qualified low-income customers for the low-income subprograms and will seek feedback from stakeholders on these activities, as well as the Companies marketing materials, as necessary.

Q. WHAT PROGRAMS ARE THE COMPANIES PROPOSING FOR SMALL AND LARGE COMMERCIAL & INDUSTRIAL CUSTOMERS IN THE PHASE IV PLAN?

A. The Companies are proposing the following programs for the small and large C&I customers: (i) C&I Energy Solutions for Business Program – Small; and (ii) C&I Energy Solutions for Business Program – Large. The C&I Energy Solutions for Business Program – Small is summarized in Tables 9 and 10 and fully described in Section 3.3 of the Phase IV Plan. The C&I Energy Solutions for Business Program – Large is summarized in Tables 11 and 12 and is fully described in Section 3.4 of the Phase IV Plan. The Commercial and Industrial Programs are designed to provide customer engagement and education, incorporate energy controls and strategies to change behaviors, include incentives to address the initial cost barrier, and tap a variety of delivery channels and vendors that promote the participation of all customers. Commercial businesses and industrial customers are also addressed through programs that provide a variety of opportunities, including prescriptive rebates, custom measures, building tune-up, and whole building/comprehensive solutions. The programs include specific opportunities that ensure access for small customers and provide opportunities for single or multiple prescriptive and/or custom measures, so that customers who are unable or unwilling to undertake whole building/comprehensive solutions are still able to increase efficiency. And, the programs include opportunities that encourage customers to consider a holistic approach to Energy Efficiency for customers interested and able to participate in whole building/comprehensive solutions.

Q. HOW DO THE COMPANIES' PHASE IV PROGRAMS SERVE GOVERNMENT, NON-PROFIT, AND INSTITUTIONAL CUSTOMERS?

A. The Phase IV Plan will target and provide program services for GNI customers through the C&I Energy Solutions for Business Programs, Small and Large. The C&I Energy Solutions for Business, Small and Large programs include subprograms and measures aimed at serving GNI customers, including direct install, single and multiple prescriptive measures, custom projects, and Energy Management services. As in Phase III, special efforts will be made to target the GNI customers for participation in these programs. Marketing and outreach will specifically target GNI entities within the Companies' service territories depending upon the subprogram offering. These efforts will include the leveraging of existing Companies' relationships with GNI customers and employing experienced vendors who have expertise in working with GNI accounts.

V. IMPLEMENTATION OF PROGRAMS

Q. PLEASE DESCRIBE THE COMPANIES' APPROACH TO IMPLEMENTING THE PHASE IV PLAN.

A. The Companies' implementation strategy will rely on CSPs, program allies, and other entities engaged in energy-efficiency to promote, deliver, and support effective implementation of the EE&C programs. Some CSPs will operate as turnkey program delivery contractors, while others will provide specific functions across multiple programs. The Companies' implementation strategy is more fully discussed in Sections 1.4, 1.7 and 4 of the Phase IV Plan. Further details on the Companies' selection of CSPs and their RFP process are set forth in Companies' Witness Turosky's direct testimony (Met-Ed/Penelec/Penn Power/West Penn Statement No. 1).

VI. COMPLIANCE WITH STATUTORY AND REGULATORY REQUIREMENTS

Q. ARE ANY OF THE COMPANIES CARRYING OVER ANY EXCESS SAVINGS FROM THE PHASE III JUNE 1, 2016 THROUGH MAY 31, 2021 PERIOD ("PHASE III PERIOD")?

A. Yes. The Companies will be carrying over excess MWh savings that are projected to be achieved during the Phase III Period into Phase IV. The carryover savings into Phase IV will be reported with the Companies' Final Annual Reports for Program Year ("PY") 12.

Q. IS THE COMPANIES' PHASE IV PLAN DESIGNED TO MEET THE ENERGY AND PEAK DEMAND REDUCTION TARGETS IDENTIFIED IN THE COMMISSION'S PHASE IV IMPLEMENTATION ORDER?

A. Yes, the Proposed Plan is designed to meet the energy and peak demand reduction targets, including the low-income carve out, as established in the Commission's Phase IV Implementation Order. Appendix B, PUC Tables 2 and 3 of the Phase IV Plan shows the projected MWh and MW savings respectively for each of the Companies. Further, as explained in Section 9.1.3 of the Phase IV Plan, the Plan also includes specific energy efficiency measures for households at or below 150% of the federal poverty income guidelines in proportion to that sector's share of the total energy usage in the respective Company's service territory, as required by 66 Pa.C.S. § 2806.1(b)(1)(i)(G).

Q. IS THE COMPANIES' PHASE IV PLAN DESIGNED TO ACHIEVE AT LEAST 15% OF THE CONSUMPTION REDUCTION TARGETS IN EACH PROGRAM YEAR?

A. Yes. The aforementioned Appendix B, Tables 2 and 3 also provide the projected energy and peak demand savings for each program year, as a percentage of each Company's targets, and illustrate that the Phase IV Plan is designed to meet at least 15% of the energy and peak demand reduction targets each year.

Q. DOES THE COMPANIES' PROPOSED PLAN ACHIEVE THE OVERALL TRC COST-BENEFIT THRESHOLD?

A. Yes. Appendix B, PUC Table 1 of the Phase IV Plan shows the projected TRC results on a portfolio basis. The successful implementation of the Companies' Phase IV Plan is projected to be cost-effective at the portfolio level under the PA TRC test, with each Company having benefit-cost ratios greater than 1.0. Specifically, Met-Ed has a TRC ratio of 1.5, Penelec has a TRC ratio of 1.5, Penn Power has a TRC ratio of 1.3, and West Penn has a TRC ratio of 1.3. Additional details are provided in Appendix B, PUC Tables 1 and 13 for each Company.

Q. HOW WERE THE TRC RESULTS CALCULATED?

A. Each of the TRC values was calculated consistent with the methodology prescribed by the Commission in the 2021 TRC Test Order. Section 8.0 of the Proposed Plan provides more detail on the cost effectiveness evaluation and methodology.

Q. DOES THE COMPANIES' PHASE IV PLAN INCLUDE BOTH RESIDENTIAL AND NON-RESIDENTIAL COMPREHENSIVE PROGRAMS?

A. Yes. As more fully discussed in Section 3.1.4 of the Phase IV Plan, the Companies' Plan includes comprehensive programs and measures for both residential and non-residential customers. In general, the Phase IV Plan incorporates both near-term and longer-term energy saving opportunities for customers, including single and prescriptive measures, multiple prescriptive and custom measures, direct install, and comprehensive whole home/whole building solutions. More specifically, the Companies offer comprehensive measures to residential customers including whole house treatments through the Energy Efficient Homes Program and the Low-Income Energy Efficiency Program. The Energy Efficient Homes Program includes home audits with additional incentives for comprehensive home retrofits as well as for efficient new home construction. The Low-Income Energy Efficiency Program includes both a Weatherization subprogram and a New Construction subprogram, which also targets comprehensive home retrofits as well as efficient new home construction. Similarly, the Companies offer comprehensive measures to the non-residential sector through the Custom and Energy Management subprograms in the C&I Energy Solutions for Business, Small and Large Programs. The Custom subprogram provides incentives for custom building improvements, process improvements, and efficient new construction. The Energy Management subprogram provides a holistic approach to improving the overall operation and energy performance of buildings and building systems by retrofitting, maintaining, adjusting, and optimizing the systems within the building and the implementation of complementary energy savings measures. Collectively, the proposed programs and subprograms across all sectors promote and support comprehensive whole home/whole building/comprehensive solutions, targeting deeper savings and comprehensive retrofits.

Q. DOES THE COMPANIES' PHASE IV PLAN INCLUDE A VARIETY OF MEASURES THAT ARE PROVIDED EQUITABLY TO ALL CUSTOMER CLASSES?

A. Yes. Based on the programs and measures selected and included in the Companies' Phase IV Plan, as listed in Tables 8, 10, and 12, there is at least one energy efficiency program and a broad portfolio of subprograms and measures that will be provided to every customer class.

Q. DOES THE PROPOSED PLAN COMPLY WITH ALL STATUTORY AND REGULATORY REQUIREMENTS?

A. Yes. The Phase IV Plan: (i) is designed, based upon the Commission's acquisition cost assumptions, to achieve the Phase IV energy and peak demand reduction targets as established in Act 129 and the Commission's Phase IV Implementation Order; (ii) is designed to achieve the low-income carve out as established in the Commission's Phase

IV Implementation Order; (iii) is designed to achieve at least 15% of the energy and peak demand reduction targets during each year of the Phase IV Period; (iv) includes at least one program for each customer class; (v) includes both residential and non-residential comprehensive programs; (vi) passes the TRC test on an overall portfolio basis for each Company; and (vii) includes a budget no greater than the 2% statutory spending cap.

Q. DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?

A. Yes, it does. However, I reserve the right to supplement my testimony.

Met-Ed/Penelec/Penn Power/West Penn Statement No. 3

BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION

METROPOLITAN EDISON COMPANY
Docket No. M-2020-3020820

PENNSYLVANIA ELECTRIC COMPANY
Docket No. M-2020-3020821

PENNSYLVANIA POWER COMPANY
Docket No. M-2020-3020822

WEST PENN POWER COMPANY
Docket No. M-2020-3020823

PHASE IV ENERGY EFFICIENCY AND CONSERVATION PLAN

Prepared
Direct
Testimony
of
Anthony J. Woytko

<u>LIST OF TOPICS ADDRESSED</u>

Phase III Final Cost Collection

Phase IV Cost Recovery Mechanism and Initial Rates

Program Cost Reconciliation Process

FirstEnergy
Statement
3

I. INTRODUCTION AND BACKGROUND

Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

A. My name is Anthony J Woytko. My business address is 2800 Pottsville Pike, Reading, Pennsylvania, 19605.

Q. BY WHOM ARE YOU EMPLOYED AND IN WHAT CAPACITY?

A. I am employed by FirstEnergy Service Company as an Analyst in Rates and Regulatory Affairs - Pennsylvania.

Q. WHAT ARE YOUR RESPONSIBILITIES AS AN ANALYST IN PENNSYLVANIA RATES AND REGULATORY AFFAIRS?

A. Generally, the Pennsylvania Rates and Regulatory Affairs Department provides regulatory support for each of FirstEnergy Corp.'s ("FirstEnergy") wholly-owned Pennsylvania operating companies, which are Metropolitan Edison Company ("Met-Ed"), Pennsylvania Electric Company ("Penelec"), Pennsylvania Power Company ("Penn Power"), and West Penn Power Company ("West Penn") (collectively, the "Companies"). I support the development, preparation, and presentation of the Companies' retail electric rates and related rules and regulations, ensuring uniform administration and interpretation in all their rate-related matters.

Q. WHAT IS YOUR EDUCATIONAL BACKGROUND?

A. I obtained a bachelor's degree in Business Administration from Albright College. My work experience is more fully described in Appendix A attached to this testimony.

Q. ON WHOSE BEHALF ARE YOU TESTIFYING IN THIS PROCEEDING?

A. I am testifying on behalf of the Companies. My testimony applies to all of the Companies, unless otherwise stated. Further, rather than reiterating what is included in the Companies' Phase IV Energy Efficiency and Conservation Plan ("Phase IV Plan") in my testimony, any references to sections of the Plan are incorporated as if fully rewritten herein.

Q. WHAT IS THE PURPOSE OF YOUR DIRECT TESTIMONY?

A. The purpose of my testimony is to explain the Companies' proposed cost recovery mechanisms that will be used to recover the costs incurred by the Companies during the planning and implementation of their Phase IV Plan, which is required by Act 129[1] and the Pennsylvania Public Utility Commission's ("Commission") Phase IV Implementation Order.[2] I will also explain how the proposed rates estimated for the first year of the Phase IV Plan were determined and how the Companies will recover final costs incurred under their Energy Efficiency and Conservation ("EE&C") Plans that are currently in effect during the Phase III Period[3] of the Commission's EE&C Program ("Phase III Plans").[4]

Q. HAVE YOU PREPARED EXHIBITS TO ACCOMPANY YOUR TESTIMONY?

A. Yes. I have prepared the following Met-Ed/Penelec/Penn Power/West Penn Exhibits, which I will explain in detail later in my testimony:

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[1] Act 129 of 2008, 66 Pa.C.S. §§ 2806.1-2806.2 ("Act 129").
[2] *Energy Efficiency and Conservation Program*, Docket No. M-2020-3015228 (Implementation Order entered June 18, 2020) ("Phase IV Implementation Order").
[3] Phase III of the Commission's EE&C Program is in effect for the five-year period starting on June 1, 2016 and ending on May 31, 2021 ("Phase III Period").
[4] Phase III EE&C Plans were required by Act 129 and the Commission's Implementation Order issued at Docket No. M-2014-2424864.

AJW-1: Met-Ed Phase IV EE&C-C Rider;

AJW-2: Penelec Phase IV EE&C-C Rider;

AJW-3: Penn Power Phase IV EE&C-C Rider;

AJW-4: West Penn Phase IV EE&C-C Rider;

AJW-5: West Penn Tariff 38 Phase IV EE&C-C Rider; and

AJW-6: Spreadsheet demonstrating how the rates included in each of the riders were determined.

II. <u>FINAL RECONCILIATION OF PHASE III RIDER COSTS</u>

Q. HOW ARE THE COMPANIES RECOVERING COSTS INCURRED UNDER THEIR RESPECTIVE PHASE III PLANS?

A. The costs associated with the development and implementation of the Phase III Plans are currently being recovered through each Company's Phase III Energy Efficiency and Conservation Charge Rider ("EE&C-C Rider"). These recovery mechanisms were approved by the Commission in the Companies' Phase III Plan proceedings at Docket Nos. M-2015-2514767 (Met-Ed), M-2015-2514768 (Penelec), M-2015-2514769 (Penn Power), and M-2015-2514772 (West Penn).

Q. DO THE COMPANIES PLAN TO MAINTAIN THE EXISTING PHASE III EE&C-C RIDERS BEYOND THE END OF THE PHASE III PERIOD?

A. No, the Companies plan to terminate the Phase III EE&C-C Riders at the end of the Phase III Period, which ends on May 31, 2021. Notwithstanding, a process must be put in place to allow for the full recovery of Phase III costs. Certain Phase III costs will either not be known by May 31, 2021 or will continue to accrue after Phase III comes to an end; therefore, the Companies are proposing that an additional adjustment be included in their Phase IV recovery mechanisms to account for these remaining Phase III costs. I discuss this adjustment for Phase III costs in more detail later in my testimony.

Q. PLEASE PROVIDE EXAMPLES OF THE TYPES OF PHASE III COSTS THAT WILL CONTINUE TO ACCRUE POST PHASE III.

A. The Companies will incur a variety of Phase III related costs after May 31, 2021, including costs for evaluation, measurement and verification ("EM&V") of program results, consulting costs related to EM&V analysis, and the development of final reports to the Commission.

III. <u>PHASE IV COST RECOVERY MECHANISMS</u>

Q. PLEASE DESCRIBE THE COST RECOVERY MECHANISMS THAT THE COMPANIES ARE PROPOSING BE USED TO RECOVER THEIR PHASE IV EE&C PROGRAM COSTS.

A. As permitted by Act 129 and 66 Pa.C.S. § 1307, the Companies are proposing to implement EE&C-C Riders to recover Phase IV related costs ("Phase IV EE&C-C Riders"). The Phase IV EE&C-C Riders are, with the minor exceptions I note later in my testimony, virtually identical to the Phase III EE&C-C Riders that are currently in effect to recover costs incurred under the Phase III Plans. Copies of the proposed *pro forma* tariff supplements for the Phase IV EE&C-C Riders for Met-Ed, Penelec, Penn Power, West Penn, and West Penn – The Pennsylvania State University ("PSU") are attached to my testimony as Met-Ed/Penelec/Penn Power/West Penn Exhibits AJW-1 through AJW-5, respectively. Met-Ed/Penelec/Penn Power/West Penn Exhibit AJW-6, which is also attached, sets forth the specific calculation of the rates included in each Phase IV EE&C-C Rider.

Q. HOW DO THE PROPOSED PHASE IV EE&C-C RIDERS DIFFER FROM THE PHASE III EE&C-C RIDERS?

A. There are three differences between the Phase III and Phase IV EE&C-C Rider designs. In the Phase III EE&C-C Riders, the Companies had a separate class for non-profit customers. These customers will now be shifted to the Commercial Customer Class, as there is no longer a requirement for a specific government/non-profit/institutional ("GNI") savings target in the Phase IV Plan. Additionally, in the Penn Power Phase III EE&C-C Rider, Rate Schedule GS-Large was included in the Commercial Customer Class. To be consistent with the other Companies' rider class classifications, Penn Power GS-Large will be moved into the Industrial Customer Class for Phase IV. Lastly, in the Companies' Phase IV EE&C-C Riders, the definition of EEC_{Exp1} has been modified.

Q. WHY IS THE NON-PROFIT CUSTOMER CLASS BEING REMOVED?

A. The Companies are removing the Non-profit Customer Class in accordance with the Phase IV Implementation Order, where the Commission did not require a specific savings carve out for GNI customers for the Phase IV Plan.[5]

[5] Phase IV Implementation Order at 37-43.

Q. WHY IS PENN POWER RATE SCHEDULE GS-LARGE BEING MOVED FROM THE COMMERCIAL CLASS TO THE INDUSTRIAL CUSTOMER CLASS?

A. In the Phase III Plans, the budgeted EE&C costs for Penn Power included rate schedule GS-Large as part of the Commercial Customer Class, whereas the other Companies included this rate schedule in the Industrial Customer Class. To be consistent with Met-Ed, Penelec, and West Penn, Penn Power is proposing to move the GS-Large rate schedule from the Commercial Customer Class to the Industrial Customer Class for recovery of costs in the Phase IV EE&C-C Rider.

Q. PLEASE EXPLAIN THE CHANGE MADE TO THE DEFINITION OF EEC_{EXP1}.

A. In the definition of EEC_{Exp1}, the Companies have added a credit for any PJM Interconnection LLC ("PJM") capacity market revenues, net of the costs associated with auction participation and including replacing capacity charges, capacity deficiency charges, and any unavoidable PJM charges. This credit is being added to the calculation because the Phase IV Implementation Order specifically found that PJM capacity market "proceeds should be returned to the customer class from which the demand reductions originated."[6]

Q. PLEASE DESCRIBE THE PHASE IV EE&C-C RIDERS.

A. In the Phase IV EE&C-C Riders, the Phase IV EE&C-C rates are expressed as a price per kilowatt hour ("kWh") for the Residential, Commercial, and Street Lighting Customer Classes. The Industrial Customer Class will be billed based upon the individual customer's

[6] Phase IV Implementation Order at 69.

Peak Load Contribution ("PLC") kilowatt ("kW"). The Phase IV EE&C-C rates will be calculated separately for the Residential, Commercial, Street Lighting, and Industrial Customer Classes. As previously indicated, Met-Ed/Penelec/Penn Power/West Penn Exhibits AJW-1 through AJW-5 are copies of the proposed *pro forma* tariff supplements for the Phase IV EE&C-C Riders for Met-Ed, Penelec, Penn Power, West Penn, and West Penn – PSU, respectively. The first page of each rider sets forth the Phase IV EE&C-C rates, as well as the rate schedules that comprise the Residential, Commercial, Street Lighting, and Industrial Customer Classes. The remaining pages of each rider set forth: (i) the rate formula that is used to calculate the rates; (ii) a description of how the Phase IV EE&C-C rates are developed; and (iii) a description of how revenues billed under the Phase IV EE&C-C Riders will be reconciled to actual costs as they are incurred.

Q. PLEASE LIST THE RATE SCHEDULES THAT ARE INCLUDED IN EACH CUSTOMER CLASS.

A. The Residential Customer Class rate schedules for each of the Companies are as follows:

Met-Ed, Penelec, Penn Power – Rate RS.

West Penn – Rate Schedule 10.

The rate schedules for the Commercial Customer Class for each of the Companies are as follows:

Met-Ed – Rate GS-Small, Rate GS-Medium, Rate GS-Volunteer Fire Company and Non-Profit Ambulance Service, Rescue Squad, and Senior Center Service Rate, Rate MS, and Outdoor Area Lighting Service.

Penelec – Rate GS-Small, Rate GS-Medium, Rate GS - Volunteer Fire Company and Non-Profit Ambulance Service, Rescue Squad, and Senior Center Service Rate, Rate H, and Outdoor Area Lighting Service.

Penn Power – Rate GS, GS Special Rule GSDS, Rate GM, Rate PLS, GS Special Provision for Volunteer Fire Companies, Non-Profit Senior Citizen Centers, Non-Profit Rescue Squads, and Non-Profit Ambulance Services; and Rate PNP.

West Penn – Rate Schedule 20, Rate GS 20 - Volunteer Fire Company, and Non-Profit Ambulance Service, Rescue Squad, and Senior Center Service Rate, and Rate Schedule 30.

The rate schedules for the Industrial Customer Class for each of the Companies are as follows:

Met-Ed – Rate GS-Large, Rate GP, and Rate TP.

Penelec – Rate GS-Large, Rate GP, and Rate LP.

Penn Power – Rate GS-Large, Rate GP, and Rate GT.

West Penn – Rate Schedules 35, 40, 44, 46 in Tariff No. 40 and Tariff No. 38 (PSU).

The rate schedules for the Street Lighting Customer Class for each of the Companies are as follows:

Met-Ed – Street Lighting Service, Ornamental Street Lighting Service, and LED Street Lighting Service.

Penelec – High Pressure Sodium Vapor Street Lighting Service, Municipal Street Lighting Service, and LED Street Lighting Service.

Penn Power – Rate SV, Rate SVD, and Rate LED.

West Penn – Rate Schedules 51 through 58, 71, 72.

Q. ARE THERE ANY CUSTOMERS WHO WILL NOT PAY THE PHASE IV EE&C-C RIDER RATES?

A. Yes, customers taking service under Met-Ed's or Penelec's Borderline Service rate schedule will not pay the Phase IV EE&C-C Rider charge. These rate schedules are only available to public utility companies for resale in adjacent service territories under reciprocal agreements between the other public utilities and either Met-Ed or Penelec. These public utilities are not eligible for any of the energy efficiency or peak demand reduction programs being proposed in the Phase IV Plan. Therefore, no Phase IV EE&C-C Rider charge will be applied to Borderline Service customers.

Q. WHAT WAS THE BASIS FOR DETERMINING THE RATE SCHEDULES THAT WOULD BE INCLUDED WITHIN EACH OF THE COMPANIES' CUSTOMER CLASSES?

A. With the exception of the Non-Profit class being moved to the Commercial Customer Class and the Penn Power Rate GS – Large rate schedule moving to the Industrial Customer Class, the Phase IV EE&C-C rate schedule groupings by Residential, Commercial, Street Lighting, and Industrial Customer Classes are the same as the customer class groupings that are currently in place in the Companies' Phase III EE&C-C Riders in their respective Commission-approved tariffs. Additionally, the customer classes in the Phase IV EE&C-C Riders are aligned with the specific costs within the Phase IV plan budgets.

Q. FOR WHAT PERIOD OF TIME WOULD THE PHASE IV EE&C-C RIDERS FOR EACH COMPANY BE EFFECTIVE?

A. The Companies are proposing that their respective Phase IV EE&C-C Riders become effective for service rendered on or after June 1, 2021, and continue through May 31, 2026.

Q. HOW DO THE COMPANIES INTEND TO COLLECT PHASE IV RELATED COSTS THAT WILL NOT BE COLLECTED BY MAY 31, 2026?

A. Assuming future phases of the Commission's EE&C Program, the Companies would propose true-up of Phase IV costs as a component of cost recovery. Should there be no additional phases of the Commission's EE&C Program, the Companies reserve the right herein to request, through a separate filing, approval from the Commission to extend the Phase IV EE&C-C Riders beyond the end of Phase IV in order to collect any remaining Phase IV costs and/or to recover any remaining costs through another surcharge mechanism.

Q. WILL THE PHASE IV EE&C-C RIDERS AND THE ASSOCIATED PHASE IV EE&C-C RATES BE BYPASSABLE FOR CUSTOMERS WHO OBTAIN GENERATION SERVICE FROM A SUPPLIER RATHER THAN FROM THE COMPANIES' DEFAULT SERVICE?

A. No. Except for the Met-Ed and Penelec Borderline Service customers that I previously discussed, all customers will pay the Phase IV EE&C-C Rider rates, regardless of the source of the customer's generation service. The Phase IV EE&C-C Riders and applicable

EE&C-C rates will be applied to each kWh (or PLC kW for the Industrial Customer Class) delivered during a billing month to customers served under the rate schedules identified as part of either the Residential, Commercial, Street lighting, or Industrial Customer Classes.

Q. HOW ARE THE PHASE IV EE&C-C RIDER RATES STRUCTURED?

A. Section 7 of the Companies' Phase IV Plan describes the structure and mechanics of the Phase IV EE&C-C Riders. Generally, the Phase IV EE&C-C Rider rates to be billed to the Residential, Commercial, Street Lighting, and Industrial Customer Classes consist of three principal components. The first is the EECc, or "current cost," component. The second is the reconciliation component, or "E" factor, for Phase IV costs. The third is a second "E" Factor (E2) for collection of Phase III related costs not collected through the Phase III EE&C-C Rider.

Q. PLEASE DESCRIBE THE EECc COMPONENT.

A. The EECc component represents the recovery of estimated costs to be incurred during the Annual Computation Period or "Computational Period" in which the Phase IV EE&C-C rates will be in effect for each customer class. As shown on the second and third pages of Met-Ed/Penelec/Penn Power/West Penn Exhibits AJW-1 through AJW-5, the EECc component is customer class specific. The costs included in each customer class's EECc rate are identified as EEC_{Exp1}, EEC_{Exp2}, and EEC_{Exp3}.

EEC_{Expl} represents customer class specific costs that will be associated with the customer class's specific EE&C programs as approved by the Commission. These costs will also include an allocated portion of any indirect costs, such as EE&C Plan marketing costs, that will be incurred by the Companies. These costs will be offset by a credit for any PJM capacity market revenues (net of the costs associated with auction participation and including replacing capacity charges), capacity deficiency charges, and any unavoidable PJM charges.

EEC_{Exp2} represents an allocated portion of administrative start-up costs incurred by the Companies in connection with the development of the Phase IV Plan and related programs in response to the Commission's orders and guidance in its Phase IV Implementation Order. These costs are incurred to design, create, and obtain Commission approval of the Companies' Phase IV Plan and include, but are not limited to, consultant costs, outside legal fees, and other direct and indirect costs associated with the development and implementation of the Companies' Phase IV Plan in compliance with the Commission directives.

EEC_{Exp3} represents the costs allocated to the Companies for the funding of the Commission's statewide evaluator contract. These costs are not subject to the 2% spending cap imposed by Act 129.

Q. PLEASE DESCRIBE THE E-FACTOR COMPONENT OF THE PHASE IV EE&C-C RATES.

A. The E-factor component of each Company's Residential, Commercial, Street Lighting, and Industrial Customer Class specific Phase IV EE&C-C rates represents a reconciliation of actual Phase IV EE&C program costs incurred by customer class to actual Phase IV EE&C revenues billed by customer class on a monthly basis. For each of the Companies, this monthly reconciliation by specific customer class will result in either an over-collection of costs by customer class (revenues billed, excluding Pennsylvania Gross Receipts Tax ("GRT"), greater than actual costs) or an under-collection by customer class (revenues billed, excluding GRT, less than actual costs). The E-factor component will be applied on a customer class-specific basis.

Q. WILL THE INITIAL PHASE IV EE&C-C RATES BY CUSTOMER CLASS INCLUDE A RECONCILIATION OR E-FACTOR COMPONENT?

A. No. Because these are new riders, the initial Phase IV EE&C-C rates will not include an initial Phase IV E-factor component. The first time the Phase IV E-factor component will be included as part of the determination of the Phase IV EE&C-C Rider rates will be in the Companies' annual filing that will be submitted to the Commission by May 1, 2022, for rates to be effective June 1, 2022. The Phase IV E-factor component then will be included in each subsequent Phase IV EE&C-C Rider filing.

Q. PLEASE DESCRIBE THE SECOND E-FACTOR (E2).

A. The second E-factor component (E2) is a reconciliation adjustment for the collection of Phase III-related costs that were not collected through the Phase III EE&C-C Rider. Because of timing, this adjustment will be made for purposes of determining both the Phase IV EE&C-C Rider rates that are being proposed as part of the Phase IV Plan to be effective on June 1, 2021, and the subsequent Program Year rider rates that will be effective on June 1, 2022.

Q. PLEASE DESCRIBE HOW THE RECONCILIATION OF FINAL PHASE III COSTS WILL BE PERFORMED.

A. Because the rider filings are generally filed with the Commission on May 1st of each year to be in effect on June 1st of that same year, the Phase III costs will be reconciled in two distinct steps. The first step will reconcile the total actual recoverable Phase III Plan expenditures incurred through March 31, 2021, to the actual Phase III Plan revenues collected through March 31, 2021. Because the Phase III EE&C-C Riders will end on May 31, 2021, the result of the Phase III reconciliation through March 31, 2021 will appear as a separate component of the Phase IV EE&C-C Rider, which will go into effect on June 1, 2021. The second step will account for all actual Phase III revenues and expenses that are realized during the period April 1, 2021, through March 31, 2022 in a final reconciliation. The final over/under collection that results from this reconciliation will also be included as a separate component of the Phase IV EE&C-C Rider rate calculation that will be effective on June 1, 2022.

Q. HOW WILL THE COMPANIES INCLUDE ACTUAL COSTS INCURRED THROUGH MARCH 31, 2021, IN THE PROPOSED RATES INCLUDED IN THIS PROCEEDING?

A. The Companies do not have the actual data available through March 31, 2021 at the time of this filing. Therefore, an update to the reconciliation will be made when the Companies file their compliance filings by May 1, 2021 for rates to be effective on June 1, 2021.

Q. HOW OFTEN WILL THE PHASE IV EE&C-C RIDER RATES BY CUSTOMER CLASS BE CHANGED?

A. The Companies anticipate that the Phase IV EE&C-C Rider rates will be changed annually on June 1st of each year. However, each of the riders includes a provision that allows the Companies to seek interim revisions to the Phase IV EE&C-C Rider rates, should the Companies determine that the rates, if left unchanged, would result in material over- or under-collection of all recoverable costs incurred or expected to be incurred by customer class.

Q. WHAT INFORMATION WILL THE COMPANIES PROVIDE WHEN SEEKING TO CHANGE THE PHASE IV EE&C-C RATES?

A. In these annual submissions to the Commission, the Companies will provide the following information in the derivation of the calculated Phase IV EE&C-C Rider rates:

1. A reconciliation between actual Phase IV EE&C-C revenues and actual Phase IV EE&C-C costs for the Phase IV EE&C-C Reconciliation Period, as adjusted for removal of GRT. Because these are new riders, this information is not being provided in support of the Phase IV EE&C-C Rider rates being proposed for the period June 1, 2021, through May 31, 2022. Such reconciliations will be provided starting in Program Year 2 for rates to be effective June 1, 2022.
2. Any adjustment to the forecasted Phase IV EE&C-C Rider revenues anticipated to be billed during April and May of the applicable program year, as adjusted for the removal of GRT. Because these are new riders, this information is not being provided in support of the Phase IV EE&C-C Rider rates being proposed for the

period June 1, 2021 through May 31, 2022. Such adjustments will be provided starting in Program Year 2.

3. The Phase IV EE&C budget estimate for the forthcoming Phase IV EE&C-C Computational Period by rate class.

4. A reconciliation adjustment for any remaining Phase III EE&C costs that were not collected by the end of the Phase III Period. This adjustment will only be included in the initial EE&C-C rates that will become effective on June 1, 2021, and the subsequent EE&C-C rates that will be in effect for the period June 1, 2022 through May 31, 2023.

Q. WILL THE COMPANIES FILE ANY REPORTS RELATED TO THE PHASE IV EE&C-C RIDERS WITH THE COMMISSION?

A. Yes. As stated in each of the Companies' Phase IV EE&C-C Riders, an annual report that is consistent with 66 Pa.C.S. § 1307(e) and sets forth the actual revenues and costs incurred will be filed with the Commission by April 30th of each year. These reports will be provided by customer class and will be subject to annual review and audit by the Commission.

IV. <u>INITIAL PHASE IV EE&C-C RIDER RATES</u>

Q. ARE THE COMPANIES PROPOSING SPECIFIC EE&C-C RIDER RATES IN THIS PROCEEDING?

A. Yes. The first page of Met-Ed/Penelec/Penn Power/West Penn Exhibits AJW-1 through AJW-5 have the applicable Residential, Commercial, Street Lighting, and Industrial Phase

IV EE&C-C rates that would become effective June 1, 2021. These estimated rates are based on the budgeted costs by customer class for the period June 1, 2021, through May 31, 2022 - costs that are subject to review and approval in this proceeding. The specific calculation of the estimated Phase IV EE&C-C rates for each of the Companies is set forth in Met-Ed/Penelec/Penn Power/West Penn Exhibit AJW-6.

Q. ARE ANY OF THE PROJECTED COSTS INCLUDED IN THE INITIAL EE&C-C RATES BEING RECOVERED THROUGH BASE RATES?

A. No.

V. <u>CONCLUSION</u>

Q. ARE YOU FAMILIAR WITH THE REQUIREMENTS FOR RECONCILABLE ADJUSTMENT CLAUSES AS SET FORTH IN 66 PA.C.S. § 1307?

A. Yes, I am.

Q. IN YOUR OPINION, DO THE COMPANIES' PHASE IV EE&C-C RIDERS, AS DESCRIBED IN YOUR TESTIMONY, MEET THE REQUIREMENTS FOR A RECONCILABLE ADJUSTMENT CLAUSE TARIFF MECHANISM AS SET FORTH IN 66 PA.C.S. § 1307?

A. Yes, they do meet the requirements of 66 Pa.C.S. § 1307, as well as the provisions included in the Commission's Phase IV Implementation Order and Act 129.

Q. DOES THIS COMPLETE YOUR DIRECT TESTIMONY?

A. Yes, it does. However, I reserve the right to supplement my testimony.

RIDER F
PHASE IV ENERGY EFFICIENCY AND CONSERVATION CHARGE RIDER

An Energy Efficiency and Conservation ("EEC") Charge ("Phase IV EE&C-C") shall be applied to each Billing Unit during a billing month to Customers served under this Tariff, with the exception of those served under Borderline Service rates. Billing Units are defined as follows:

Residential, Commercial, and Street Lighting Customer Classes:	Per kWh
Industrial Customer Class:	Per kW PLC

Residential, Commercial, and Street Lighting Customer Class rates will be calculated to the nearest one-thousandth of a cent per kWh. Industrial Customer Class rates will be calculated to the nearest one-hundredth of a dollar per kW PLC. The Phase IV EE&C-C rates shall be calculated separately for each customer class according to the provisions of this rider.

For service rendered June 1, 2021 through May 31, 2022 the Phase IV EE&C-C rates billed by Customer Class are as follows:

Residential Customer Class (Rate RS):

0.118 cents per kWh.

Commercial Customer Class (Rate GS-Small, Rate GS-Medium, Rate GS – Volunteer Fire Company and Non-Profit Ambulance Service, Rescue Squad and Senior Center Service Rate, Rate MS and Outdoor Area Lighting Service):

0.136 cents per kWh.

Street Lighting Customer Class (Street Lighting Service, Ornamental Street Lighting Service, and LED Street Lighting Service):

(0.104) cents per kWh.

Industrial Customer Class (Rate GS-Large, Rate GP, and Rate TP):

$ 0.49 per kW PLC.

RIDERS

Rider F (continued)

The Phase IV EE&C-C rates by Customer Class shall be calculated in accordance with the formula set forth below:

$$EE\&C\text{-}C = [(EEC_C - E - E^2) / S] \text{ X } [\ 1 / (1 - T)]$$

$$EEC_C = EEC_{Exp1} + EEC_{Exp2} + EEC_{Exp3}$$ Where:

EE&C-C = The charge in cents or dollar per Billing Unit by Customer Class as defined by this rider applied to each Billing Unit for the Rate Schedules identified in this rider.

EEC_C = The Energy Efficiency and Conservation Costs by Customer Class incurred and projected to be incurred by the Company for the EE&C-C Computational Period calculated in accordance with the formula shown above.

EEC_{Exp1} = Costs incurred and projected to be incurred associated with the Customer Class specific Phase IV EE&C Programs as approved by the Commission for the Phase IV EE&C-C Computational Period by Customer Class. These costs also include an allocated portion of any indirect costs incurred associated with all the Company's Phase IV EE&C Programs for the Phase IV EE&C-C Computational Period. EEC_{Exp1} costs will be offset by a credit for any PJM capacity market revenues (net of the costs associated with auction participation and including replacing capacity charges), capacity deficiency charges and any unavoidable PJM charges. Such costs shall be allocated to each customer class based on the ratio of class-specific approved budgeted program costs to total approved budgeted program costs.

EEC_{Exp2} = An allocated portion of incremental administrative start-up costs incurred by the Company through May 31, 2021 in connection with the development of the Company's Phase IV EE&C Programs in response to the Commission's order and guidance at Docket No. M-2020-3015228. These costs to design, create, and obtain Commission approval for the Company's Phase IV EE&C Programs include, but are not limited to, consultant costs, legal fees, and other direct and indirect costs associated with the development and implementation of the Company's Phase IV EE&C Programs in compliance with Commission directives. Such costs shall be allocated to each customer class based on the ratio of class-specific approved budgeted program costs to total approved budgeted program costs.

Rider F (continued)

EEC_{Exp3} = An allocated portion of the costs the Company incurs and projects to incur to fund the Commission's statewide evaluator contract which shall be excluded in the final determination of the Act 129 limitation on the Company's Phase IV EE&C Program costs. Such costs shall be allocated to each customer class based on the ratio of class-specific approved budgeted program costs to total approved budgeted program costs.

E = The cumulative over or under-collection of Phase IV EE&C costs by Customer Class that results from the billing of the Phase IV EE&C-C rates (an over- collection is denoted by a positive E and an under-collection by a negative E).

E^2 = Phase III EE&C final reconciliation over or under-collection of EEC costs by Customer Class that results from the billing of the Phase III EE&C-C rates through March 31, 2021 (an over- collection is denoted by a positive E and an under-collection by a negative E), and any expenses to finalize any measures installed and commercially operable on or before May 31, 2021; expenses to finalize any contracts; other Phase III administrative obligations; and any remaining Phase III EE&C revenues after March 31, 2021.

S = The Company's projected Billing Units (kWh sales delivered to all Customers in the specific customer class or kW PLC demand for the Industrial Customer Class).

T = The Pennsylvania gross receipts tax rate in effect during the billing month expressed in decimal form as reflected in the Company's base rates.

All capitalized terms not otherwise defined in this rider shall have the definitions specified in the Definitions of Terms section of this Tariff. For the purpose of this rider, the following additional definitions shall apply:

RIDERS

Rider F (continued)

1. Phase IV EE&C-C Computational Period – The 12-month period from June 1 through May 31.

2. Phase IV EE&C-C Initial Reconciliation Period – June 1, 2021 through March 31, 2022 for the initial period of the rider.

3. Phase IV EE&C-C Reconciliation Period – The 12-month period ending March 31 each year thereafter, except for the Initial Reconciliation Period, for the duration of this rider.

4. Peak Load Contribution ("PLC") – A Customer's contribution to the Company's transmission zone normalized summer peak load, as estimated by the Company in accordance with PJM rules and requirements.

5. Phase III EE&C – The energy efficiency plan that terminates on May 31, 2021. Revenues and EE&C Costs will continue to accrue past the termination date. A final reconciliation of the remaining balance will be included in the June 1, 2022 Phase IV EE&C-C rate calculation as a separate line item.

The Company will submit to the Commission by May 1 of each year starting May 1, 2022: (1) a reconciliation between actual Phase IV EE&C-C revenues and actual Phase IV EE&C-C costs for the Phase IV EE&C-C Reconciliation Period, except for the Phase IV EE&C-C Initial Reconciliation Period, as adjusted for removal of gross receipts tax; (2) any adjustment to the forecasted Phase IV EE&C-C revenues anticipated to be billed during April through May of that year, as adjusted for removal of gross receipts tax; (3) the Phase IV EE&C program cost estimate for the forthcoming Phase IV EE&C-C Computational Period by Customer Class; and (4) Phase III EE&C final reconciliation over or under-collection of EEC costs by Customer Class that results from the billing of the Phase III EE&C-C rates and remaining Phase III EEC costs. There shall also be a final reconciliation of amounts to be collected or refunded after May 31, 2026.

Upon determination that the Phase IV EE&C-C rates, if left unchanged, would result in material over or under-collection of all recoverable costs incurred or expected to be incurred by customer class, the Company may request that the Commission approve one or more interim revisions to the Phase IV EE&C-C rates to become effective thirty (30) days from the date of filing, unless otherwise ordered by the Commission.

The Company shall file an annual report of collections under this rider by April 30th of each year starting April 30, 2022 until the conclusion of this rider.

At the conclusion of the duration of this rider, the Company is authorized to recover or refund any remaining amounts not reconciled at that time under such mechanism as approved by the Commission.

Application of the Phase IV EE&C-C rates shall be subject to annual review and audit by the Commission.

RIDER F
PHASE IV ENERGY EFFICIENCY AND CONSERVATION CHARGE RIDER

An Energy Efficiency and Conservation ("EEC") Charge ("Phase IV EE&C-C") shall be applied to each Billing Unit during a billing month to Customers served under this Tariff, with the exception of those served under Borderline Service rates. Billing Units are defined as follows:

Residential, Commercial, and Street Lighting Customer Classes:	Per kWh
Industrial Customer Class:	Per kW PLC

Residential, Commercial, and Street Lighting Customer Class rates will be calculated to the nearest one-thousandth of a cent per kWh. Industrial Customer Class rates will be calculated to the nearest one-hundredth of a dollar per kW PLC. The Phase IV EE&C-C rates shall be calculated separately for each customer class according to the provisions of this rider.

For service rendered June 1, 2021 through May 31, 2022 the Phase IV EE&C-C rates billed by Customer Class are as follows:

Residential Customer Class (Rate RS):

0.111 cents per kWh.

Commercial Customer Class (Rate GS-Small, Rate GS-Medium, Rate GS – Volunteer Fire Company and Non-Profit Ambulance Service, Rescue Squad and Senior Center Service Rate, Rate H and Outdoor Area Lighting Service):

0.149 cents per kWh.

Street Lighting Customer Class (High Pressure Sodium Vapor Street Lighting Service, Municipal Street Lighting Service, and LED Street Lighting Service):

(0.145) cents per kWh.

Industrial Customer Class (Rate GS-Large, Rate GP, and Rate LP):

$ 0.38 per kW PLC.

RIDERS

Rider F (continued)

The Phase IV EE&C-C rates by Customer Class shall be calculated in accordance with the formula set forth below:

$$EE\&C\text{-}C = [(EEC_C - E - E^2) / S] \times [1 / (1 - T)]$$

$$EEC_C = EEC_{Exp1} + EEC_{Exp2} + EEC_{Exp3}$$

Where:

EE&C-C = The charge in cents or dollar per Billing Unit by Customer Class as defined by this rider applied to each Billing Unit for the Rate Schedules identified in this rider.

EEC_C = The Energy Efficiency and Conservation Costs by Customer Class incurred and projected to be incurred by the Company for the EE&C-C Computational Period calculated in accordance with the formula shown above.

EEC_{Exp1} = Costs incurred and projected to be incurred associated with the Customer Class specific Phase IV EE&C Programs as approved by the Commission for the Phase IV EE&C-C Computational Period by Customer Class. These costs also include an allocated portion of any indirect costs incurred associated with all the Company's Phase IV EE&C Programs for the Phase IV EE&C-C Computational Period. EEC_{Exp1} costs will be offset by a credit for any PJM capacity market revenues (net of the costs associated with auction participation and including replacing capacity charges), capacity deficiency charges and any unavoidable PJM charges. Such costs shall be allocated to each customer class based on the ratio of class-specific approved budgeted program costs to total approved budgeted program costs.

EEC_{Exp2} = An allocated portion of incremental administrative start-up costs incurred by the Company through May 31, 2021 in connection with the development of the Company's Phase IV EE&C Programs in response to the Commission's order and guidance at Docket No. M-2020-3015228. These costs to design, create, and obtain Commission approval for the Company's Phase IV EE&C Programs include, but are not limited to, consultant costs, legal fees, and other direct and indirect costs associated with the development and implementation of the Company's Phase IV EE&C Programs in compliance with Commission directives. Such costs shall be allocated to each customer class based on the ratio of class-specific approved budgeted program costs to total approved budgeted program costs.

RIDERS

Rider F (continued)

EEC_{Exp3} = An allocated portion of the costs the Company incurs and projects to incur to fund the Commission's statewide evaluator contract which shall be excluded in the final determination of the Act 129 limitation on the Company's Phase IV EE&C Programs costs. Such costs shall be allocated to each customer class based on the ratio of class-specific approved budgeted program costs to total approved budgeted program costs.

E = The cumulative over or under-collection of Phase IV EE&C costs by Customer Class that results from the billing of the Phase IV EE&C-C rates (an over- collection is denoted by a positive E and an under-collection by a negative E).

E^2 = Phase III EE&C final reconciliation over or under-collection of EEC costs by Customer Class that results from the billing of the Phase III EE&C-C rates through March 31, 2021 (an over- collection is denoted by a positive E and an under-collection by a negative E), and any expenses to finalize any measures installed and commercially operable on or before May 31, 2021; expenses to finalize any contracts; other Phase III administrative obligations; and any remaining Phase III EE&C revenues after March 31, 2021.

S = The Company's projected Billing Units (kWh sales delivered to all Customers in the specific customer class or kW PLC demand for the Industrial Customer Class).

T = The Pennsylvania gross receipts tax rate in effect during the billing month expressed in decimal form as reflected in the Company's base rates.

All capitalized terms not otherwise defined in this rider shall have the definitions specified in the Definitions of Terms section of this Tariff. For the purpose of this rider, the following additional definitions shall apply:

RIDERS

Rider F (continued)

1. Phase IV EE&C-C Computational Period – The 12-month period from June 1 through May 31.

2. Phase IV EE&C-C Initial Reconciliation Period – June 1, 2021 through March 31, 2022 for the initial period of the rider.

3. Phase IV EE&C-C Reconciliation Period – The 12-month period ending March 31 each year thereafter, except for the Initial Reconciliation Period, for the duration of this rider.

4. Peak Load Contribution ("PLC") – A Customer's contribution to the Company's transmission zone normalized summer peak load, as estimated by the Company in accordance with PJM rules and requirements.

5. Phase III EE&C – The energy efficiency plan that terminates on May 31, 2021. Revenues and EE&C Costs will continue to accrue past the termination date. A final reconciliation of the remaining balance will be included in the June 1, 2022 Phase IV EE&C-C rate calculation as a separate line item.

The Company will submit to the Commission by May 1 of each year starting May 1, 2022: (1) a reconciliation between actual Phase IV EE&C-C revenues and actual Phase IV EE&C-C costs for the Phase IV EE&C-C Reconciliation Period, except for the Phase IV EE&C-C Initial Reconciliation Period, as adjusted for removal of gross receipts tax; (2) any adjustment to the forecasted Phase IV EE&C-C revenues anticipated to be billed during April through May of that year, as adjusted for removal of gross receipts tax; (3) the Phase IV EE&C program cost estimate for the forthcoming Phase IV EE&C-C Computational Period by Customer Class; and (4) Phase III EE&C final reconciliation over or under-collection of EEC costs by Customer Class that results from the billing of the Phase III EE&C-C rates and remaining Phase III EEC costs. There shall also be a final reconciliation of amounts to be collected or refunded after May 31, 2026.

Upon determination that the Phase IV EE&C-C rates, if left unchanged, would result in material over or under-collection of all recoverable costs incurred or expected to be incurred by customer class, the Company may request that the Commission approve one or more interim revisions to the Phase IV EE&C-C rates to become effective thirty (30) days from the date of filing, unless otherwise ordered by the Commission.

The Company shall file an annual report of collections under this rider by April 30th of each year starting April 30, 2022 until the conclusion of this rider.

At the conclusion of the duration of this rider, the Company is authorized to recover or refund any remaining amounts not reconciled at that time under such mechanism as approved by the Commission.

Application of the Phase IV EE&C-C rates shall be subject to annual review and audit by the Commission.

RIDER F

PHASE IV ENERGY EFFICIENCY AND CONSERVATION CHARGE RIDER

An Energy Efficiency and Conservation ("EEC") Charge ("Phase IV EE&C-C") shall be applied to each Billing Unit during a billing month to Customers served under this Tariff. Billing Units are defined as follows:

Residential, Commercial, and Street Lighting Customer Classes:	Per kWh
Industrial Customer Class:	Per kW PLC

Residential, Commercial, and Street Lighting Customer Class rates will be calculated to the nearest one-thousandth of a cent per kWh. Industrial Customer Class rates will be calculated to the nearest one-hundredth of a dollar per kW PLC. The Phase IV EE&C-C rates shall be calculated separately for each customer class according to the provisions of this rider.

For service rendered June 1, 2021 through May 31, 2022 the Phase IV EE&C-C rates billed by Customer Class are as follows:

Residential Customer Class (Rate Schedule RS):

0.142 cents per kWh.

Commercial Customer Class (Rate GS; GS Special Rule GSDS, Rate GM; Rate PLS; GS Special Provision for Volunteer Fire Companies, Non-Profit Senior Citizen Centers, Non-Profit Rescue Squads and Non-Profit Ambulance Services; and Rate PNP):

0.171 cents per kWh.

Street Lighting Customer Class (Rate SV; Rate SVD; and Rate LED):

(0.694) cents per kWh.

Industrial Customer Class (Rate GS-Large, Rate GP, and Rate GT):

$ 0.31 per kW PLC.

Rider F (continued)

The Phase IV EE&C-C rates by Customer Class shall be calculated in accordance with the formula set forth below:

$$EE\&C\text{-}C = [(EEC_C - E - E^2) / S] \times [1 / (1 - T)]$$

$$EEC_C = EEC_{Exp1} + EEC_{Exp2} + EEC_{Exp3}$$

Where:

EE&C-C = The charge in cents or dollar per Billing Unit by Customer Class as defined by this rider applied to each Billing Unit for the Rate Schedules identified in this rider.

EEC_C = The Energy Efficiency and Conservation Costs by Customer Class incurred and projected to be incurred by the Company for the Phase IV EE&C-C Computational Period calculated in accordance with the formula shown above.

EEC_{Exp1} = Costs incurred and projected to be incurred associated with the Customer Class specific Phase IV EE&C Programs as approved by the Commission for the Phase IV EE&C-C Computational Period by Customer Class. These costs also include an allocated portion of any indirect costs incurred associated with all the Company's Phase IV EE&C Programs for the Phase IV EE&C-C Computational Period. EEC_{Exp1} costs will be offset by a credit for any PJM capacity market revenues (net of the costs associated with auction participation and including replacing capacity charges), capacity deficiency charges and any unavoidable PJM charges. Such costs shall be allocated to each customer class based on the ratio of class-specific approved budgeted program costs to total approved budgeted program costs.

EEC_{Exp2} = An allocated portion of incremental administrative start-up costs incurred by the Company through May 31, 2021 in connection with the development of the Company's Phase IV EE&C Programs in response to the Commission's order and guidance at Docket No. M-2020-3015228. These costs to design, create, and obtain Commission approval for the Company's Phase IV EE&C Programs include, but are not limited to, consultant costs, legal fees, and other direct and indirect costs associated with the development and implementation of the Company's Phase IV EE&C Programs in compliance with Commission directives. Such costs shall be allocated to each customer class based on the ratio of class-specific approved budgeted program costs to total approved budgeted program costs.

Rider F (continued)

EEC_{Exp3} =	An allocated portion of the costs the Company incurs and projects to incur to fund the Commission's statewide evaluator contract which shall be excluded in the final determination of the Act 129 limitation on the Company's Phase IV EE&C Programs costs. Such costs shall be allocated to each customer class based on the ratio of class-specific approved budgeted program costs to total approved budgeted program costs.
E =	The cumulative over or under-collection of Phase IV EE&C costs by Customer Class that results from the billing of the Phase IV EE&C-C rates (an over-collection is denoted by a positive E and an under-collection by a negative E).
E^2 =	Phase III EE&C final reconciliation over or under-collection of EEC costs by Customer Class that results from the billing of the Phase III EE&C-C rates through March 31, 2021 (an over- collection is denoted by a positive E and an under-collection by a negative E), and any expenses to finalize any measures installed and commercially operable on or before May 31, 2021; expenses to finalize any contracts; other Phase III administrative obligations; and any remaining Phase III EE&C revenues after March 31, 2021.
S =	The Company's projected Billing Units (kWh sales delivered to all Customers in the specific customer class or kW PLC demand for the Industrial Customer Class).
T =	The Pennsylvania gross receipts tax rate in effect during the billing month expressed in decimal form as reflected in the Company's base rates.

All capitalized terms not otherwise defined in this rider shall have the definitions specified in the Definitions of Terms section of this Tariff. For the purpose of this rider, the following additional definitions shall apply:

RIDERS

Rider F (continued)

1. Phase IV EE&C-C Computational Period – The 12-month period from June 1 through May 31.

2. Phase IV EE&C-C Initial Reconciliation Period – June 1, 2021 through March 31, 2022 for the initial period of the rider.

3. Phase IV EE&C-C Reconciliation Period – The 12-month period ending March 31 each year thereafter, except for the Initial Reconciliation Period, for the duration of this rider.

4. Peak Load Contribution (“PLC”) – A Customer’s contribution to the Company’s transmission zone normalized summer peak load, as estimated by the Company in accordance with PJM rules and requirements.

5. Phase III EE&C – The energy efficiency plan that terminates on May 31, 2021. Revenues and EE&C Costs will continue to accrue past the termination date. A final reconciliation of the remaining balance will be included in the June 1, 2022 Phase IV EE&C-C rate calculation as a separate line item.

The Company will submit to the Commission by May 1 of each year starting May 1, 2022: (1) a reconciliation between actual Phase IV EE&C-C revenues and actual Phase IV EE&C-C costs for the Phase IV EE&C-C Reconciliation Period, except for the Phase III EE&C-C Initial Reconciliation Period, as adjusted for removal of gross receipts tax; (2) any adjustment to the forecasted Phase IV EE&C-C revenues anticipated to be billed during April through May of that year, as adjusted for removal of gross receipts tax; (3) the Phase IV EE&C program cost estimate for the forthcoming Phase IV EE&C-C Computational Period by Customer Class; and (4) Phase III EE&C final reconciliation over or under-collection of EEC costs by Customer Class that results from the billing of the Phase III EE&C-C rates and remaining Phase III EEC costs incurred after March 31, 2021. There shall also be a final reconciliation of amounts to be collected or refunded after May 31, 2026.

Upon determination that the Phase IV EE&C-C rates, if left unchanged, would result in material over or under-collection of all recoverable costs incurred or expected to be incurred by customer class, the Company may request that the Commission approve one or more interim revisions to the Phase IV EE&C-C rates to become effective thirty (30) days from the date of filing, unless otherwise ordered by the Commission.

The Company shall file an annual report of collections under this rider by April 30th of each year starting April 30, 2022 until the conclusion of this rider.

At the conclusion of the duration of this rider, the Company is authorized to recover or refund any remaining amounts not reconciled at that time under such mechanism as approved by the Commission.

Application of the Phase IV EE&C-C rates shall be subject to annual review and audit by the Commission.

RIDER F
PHASE IV ENERGY EFFICIENCY AND CONSERVATION CHARGE RIDER

An Energy Efficiency and Conservation ("EEC") Charge ("Phase IV EE&C-C") shall be applied to each Billing Unit during a billing month to Customers served under this Tariff. Billing Units are defined as follows:

Residential, Commercial, and Street Lighting Customer Classes:	Per kWh
Industrial Customer Class:	Per kW PLC

Residential, Commercial, and Street Lighting Customer Class rates will be calculated to the nearest one-thousandth of a cent per kWh. Industrial Customer Class rates will be calculated to the nearest one-hundredth of a dollar per kW PLC. The Phase IV EE&C-C rates shall be calculated separately for each customer class according to the provisions of this rider.

For service rendered June 1, 2021 through May 31, 2022 the Phase IV EE&C-C rates billed by Customer Class are as follows:

Residential Customer Class (Rate 10):

0.139 cents per kWh.

Commercial Customer Class (Rate GS 20, Rate GS 20 - Volunteer Fire Company, and Non-Profit Ambulance Service, Rescue Squad and Senior Center Service Rate and Rate GS 30):

0.117 cents per kWh.

Street Lighting Customer Class (Rate Schedules 51 through 58, 71, 72):

(0.864) cents per kWh.

Industrial Customer Class (Rate GS 35, 40, 44, 46 and Tariff No. 38):

$ 0.27 per kW PLC.

Rider F (continued)

The Phase IV EE&C-C rates by Customer Class shall be calculated in accordance with the formula set forth below:

$$EE\&C\text{-}C = [(EEC_C - E - E^2) / S] \times [1 / (1 - T)]$$

$$EEC_C = EEC_{Exp1} + EEC_{Exp2} + EEC_{Exp3}$$

Where:

EE&C-C = The charge in cents or dollar per Billing Unit by Customer Class as defined by this rider applied to each Billing Unit for the Rate Schedules and Tariffs identified in this rider.

EEC_C = The Energy Efficiency and Conservation Costs by Customer Class incurred and projected to be incurred by the Company for the Phase IV EE&C-C Computational Period calculated in accordance with the formula shown above.

EEC_{Exp1} = Costs incurred and projected to be incurred associated with the Customer Class specific Phase IV EE&C Programs as approved by the Commission for the Phase IV EE&C-C Computational Period by Customer Class. These costs also include an allocated portion of any indirect costs incurred associated with all the Company's Phase IV EE&C Programs for the Phase IV EE&C-C Computational Period. EEC_{Exp1} costs will be offset by a credit for any PJM capacity market revenues (net of the costs associated with auction participation and including replacing capacity charges), capacity deficiency charges and any unavoidable PJM charges. Such costs shall be allocated to each customer class based on the ratio of class-specific approved budgeted program costs to total approved budgeted program costs.

EEC_{Exp2} = An allocated portion of incremental administrative start-up costs incurred by the Company through May 31, 2021 in connection with the development of the Company's Phase IV EE&C Programs in response to the Commission's order and guidance at Docket No. M-2020-3015228. These costs to design, create, and obtain Commission approval for the Company's Phase IV EE&C Programs include, but are not limited to, consultant costs, legal fees, and other direct and indirect costs associated with the development and implementation of the Company's Phase IV EE&C Programs in compliance with Commission directives. Such costs shall be allocated to each customer class based on the ratio of class-specific approved budgeted program costs to total approved budgeted program costs.

Rider F (continued)

EEC_{Exp3} = An allocated portion of the costs the Company incurs and projects to incur to fund the Commission's statewide evaluator contract which shall be excluded in the final determination of the Act 129 limitation on the Company's Phase IV EE&C Programs costs. Such costs shall be allocated to each customer class based on the ratio of class-specific approved budgeted program costs to total approved budgeted program costs.

E = The cumulative over or under-collection of Phase IV EE&C costs by Customer Class that results from the billing of the Phase IV EE&C-C rates (an over-collection is denoted by a positive E and an under-collection by a negative E).

E^2 = Phase III EE&C final reconciliation over or under-collection of EEC costs by Customer Class that results from the billing of the Phase III EE&C-C rates through March 31, 2021 (an over- collection is denoted by a positive E and an under-collection by a negative E), and any expenses to finalize any measures installed and commercially operable on or before May 31, 2021; expenses to finalize any contracts; other Phase III administrative obligations; and any remaining Phase III EE&C revenues after March 31, 2021.

S = The Company's projected Billing Units (kWh sales delivered to all Customers in the specific customer class or kW PLC demand for the Industrial Customer Class).

T = The Pennsylvania gross receipts tax rate in effect during the billing month expressed in decimal form as reflected in the Company's base rates.

All capitalized terms not otherwise defined in this rider shall have the definitions specified in the Definitions of Terms section of this Tariff. For the purpose of this rider, the following additional definitions shall apply:

Rider F (continued)

1. Phase IV EE&C-C Computational Period – The 12-month period from June 1 through May 31.

2. Phase IV EE&C-C Initial Reconciliation Period – June 1, 2021 through March 31, 2022 for the initial period of the rider.

3. Phase IV EE&C-C Reconciliation Period – The 12-month period ending March 31 each year thereafter, except for the Initial Reconciliation Period, for the duration of this rider.

4. Peak Load Contribution (“PLC”) – A Customer’s contribution to the Company’s transmission zone normalized summer peak load, as estimated by the Company in accordance with PJM rules and requirements.

5. Phase III EE&C – The energy efficiency plan that terminates on May 31, 2021. Revenues and EE&C Costs will continue to accrue past the termination date. A final reconciliation of the remaining balance will be included in the June 1, 2022 Phase IV EE&C-C rate calculation as a separate line item.

The Company will submit to the Commission by May 1 of each year starting May 1, 2022: (1) a reconciliation between actual Phase IV EE&C-C revenues and actual Phase IV EE&C-C costs for the Phase IV EE&C-C Reconciliation Period, except for the Phase IV EE&C-C Initial Reconciliation Period, as adjusted for removal of gross receipts tax; (2) any adjustment to the forecasted Phase IV EE&C-C revenues anticipated to be billed during April through May of that year, as adjusted for removal of gross receipts tax; (3) the Phase IV EE&C program cost estimate for the forthcoming Phase IV EE&C-C Computational Period by Customer Class; and (4) Phase III EE&C final reconciliation over or under-collection of EEC costs by Customer Class that results from the billing of the Phase III EE&C-C rates and remaining Phase III EEC costs. There shall also be a final reconciliation of amounts to be collected or refunded after May 31, 2026.

Upon determination that the Phase IV EE&C-C rates, if left unchanged, would result in material over or under-collection of all recoverable costs incurred or expected to be incurred by customer class, the Company may request that the Commission approve one or more interim revisions to the Phase IV EE&C-C rates to become effective thirty (30) days from the date of filing, unless otherwise ordered by the Commission.

The Company shall file an annual report of collections under this rider by April 30th of each year starting April 30, 2022 until the conclusion of this rider.

At the conclusion of the duration of this rider, the Company is authorized to recover or refund any remaining amounts not reconciled at that time under such mechanism as approved by the Commission.

Application of the Phase IV EE&C-C rates shall be subject to annual review and audit by the Commission.

RIDER F

TARIFF No. 38 – PENNSYLVANIA STATE UNIVERSITY
PHASE IV ENERGY EFFICIENCY AND CONSERVATION CHARGE RIDER

An Energy Efficiency and Conservation ("EEC") Charge ("Phase IV EE&C-C") shall be applied to each Billing Unit during a billing month to Customers served under this Tariff. Billing Units are defined as follows:

Industrial Customer Class rates will be calculated to the nearest one-hundredth of a dollar per kW PLC. The Phase IV EE&C-C rates shall be calculated separately for each customer class according to the provisions of this rider.

For service rendered June 1, 2021 through May 31, 2022 the Phase IV EE&C-C rates billed by Customer Class are as follows:

Industrial Customer Class (Tariff No. 40 Rate Schedule 35, 40, 44 and 46 and Tariff No. 38):

$ 0.27 per kW PLC.

Rider F (Continued)

The Phase IV EE&C-C rates by Customer Class shall be calculated in accordance with the formula set forth below:

$$EE\&C\text{-}C = [(EEC_C - E - E^2) / S] \times [1 / (1 - T)]$$

$$EEC_C = EEC_{Exp1} + EEC_{Exp2} + EEC_{Exp3}$$

Where:

EE&C-C = The charge in cents or dollar per Billing Unit by Customer Class as defined by this rider applied to each Billing Unit for the Rate Schedules identified in this rider.

EEC_C = The Energy Efficiency and Conservation Costs by Customer Class incurred and projected to be incurred by the Company for the Phase IV EE&C-C Computational Period calculated in accordance with the formula shown above.

EEC_{Exp1} = Costs incurred and projected to be incurred associated with the Customer Class specific Phase IV EE&C Programs as approved by the Commission for the Phase IV EE&C-C Computational Period by Customer Class. These costs also include an allocated portion of any indirect costs incurred associated with all the Company's Phase IV EE&C Programs for the Phase IV EE&C-C Computational Period. EEC_{Exp1} costs will be offset by a credit for any PJM capacity market revenues (net of the costs associated with auction participation and including replacing capacity charges), capacity deficiency charges and any unavoidable PJM charges. Such costs shall be allocated to each customer class based on the ratio of class-specific approved budgeted program costs to total approved budgeted program costs.

EEC_{Exp2} = An allocated portion of incremental administrative start-up costs incurred by the Company through May 31, 2021 in connection with the development of the Company's Phase IV EE&C Programs in response to the Commission's order and guidance at Docket No. M-2020-3015228. These costs to design, create, and obtain Commission approval for the Company's Phase IV EE&C Programs include, but are not limited to, consultant costs, legal fees, and other direct and indirect costs associated with the development and implementation of the Company's Phase IV EE&C Programs in compliance with Commission directives. Such costs shall be allocated to each customer class based on the ratio of class-specific approved budgeted program costs to total approved budgeted program costs.

Rider F (Continued)

EEC_{Exp3} = An allocated portion of the costs the Company incurs and projects to incur to fund the Commission's statewide evaluator contract which shall be excluded in the final determination of the Act 129 limitation on the Company's Phase IV EE&C Programs costs. Such costs shall be allocated to each customer class based on the ratio of class-specific approved budgeted program costs to total approved budgeted program cost.

E = The cumulative over or under-collection of Phase IV EE&C costs by Customer Class that results from the billing of the Phase IV EE&C-C rates (an over- collection is denoted by a positive E and an under-collection by a negative E).

E^2 = Phase III EE&C final reconciliation over or under-collection of EEC costs by Customer Class that results from the billing of the Phase III EE&C-C rates through March 31, 2021 (an over- collection is denoted by a positive E and an under-collection by a negative E), and any expenses to finalize any measures installed and commercially operable on or before May 31, 2021; expenses to finalize any contracts; other Phase III administrative obligations; and any remaining Phase III EE&C revenues after March 31, 2021.

S = The Company's projected Billing Units (kWh sales delivered to all Customers in the specific customer class or kW PLC demand for the Industrial Customer Class).

T = The Pennsylvania gross receipts tax rate in effect during the billing month expressed in decimal form as reflected in the Company's base rates.

All capitalized terms not otherwise defined in this rider shall have the definitions specified in the Definitions of Terms section of this Tariff. For the purpose of this rider, the following additional definitions shall apply:

Rider F (continued)

1. Phase IV EE&C-C Computational Period – The 12-month period from June 1 through May 31.

2. Phase IV EE&C-C Initial Reconciliation Period – June 1, 2021 through March 31, 2022 for the initial period of the rider.

3. Phase IV EE&C-C Reconciliation Period – The 12-month period ending March 31 each year thereafter, except for the Initial Reconciliation Period, for the duration of this rider.

4. Peak Load Contribution ("PLC") – A Customer's contribution to the Company's transmission zone normalized summer peak load, as estimated by the Company in accordance with PJM rules and requirements.

5. Phase III EE&C – The energy efficiency plan that terminates on May 31, 2021. Revenues and EE&C Costs will continue to accrue past the termination date. A final reconciliation of the remaining balance will be included in the June 1, 2022 Phase IV EE&C-C rate calculation as a separate line item.

The Company will submit to the Commission by May 1 of each year starting May 1, 2022: (1) a reconciliation between actual Phase IV EE&C-C revenues and actual Phase IV EE&C-C costs for the Phase IV EE&C-C Reconciliation Period, except for the Phase IV EE&C-C Initial Reconciliation Period, as adjusted for removal of gross receipts tax; (2) any adjustment to the forecasted Phase IV EE&C-C revenues anticipated to be billed during April through May of that year, as adjusted for removal of gross receipts tax; (3) the Phase IV EE&C program cost estimate for the forthcoming Phase IV EE&C-C Computational Period by Customer Class; and (4) Phase III EE&C final reconciliation over or under-collection of EEC costs by Customer Class that results from the billing of the Phase III EE&C-C rates and remaining Phase III EEC costs. There shall also be a final reconciliation of amounts to be collected or refunded after May 31, 2026.

Upon determination that the Phase IV EE&C-C rates, if left unchanged, would result in material over or under-collection of all recoverable costs incurred or expected to be incurred by customer class, the Company may request that the Commission approve one or more interim revisions to the Phase IV EE&C-C rates to become effective thirty (30) days from the date of filing, unless otherwise ordered by the Commission.

The Company shall file an annual report of collections under this rider by April 30th of each year starting April 30, 2022 until the conclusion of this rider.

At the conclusion of the duration of this rider, the Company is authorized to recover or refund any remaining amounts not reconciled at that time under such mechanism as approved by the Commission.

Application of the Phase IV EE&C-C rates shall be subject to annual review and audit by the Commission.

Projected Metropolitan Edison Company's Phase IV Energy Efficiency and Conservation ("EE&C-C") Charge ("EE&C-C") Rates
For the Rate Period June 1, 2021 through May 31, 2022

Line No.	Description	Met-Ed Residential Customer Class (1)		Met-Ed Commercial Customer Class (2)		Met-Ed Street Lighting Customer Class (3)		Met-Ed Industrial Customer Class (4)		Met-Ed Total (5)
1	Total Met-Ed Projected Program Costs for the period June 1, 2021 through May 31, 2022 subject to 2% cap	$ 10,340,564		$ 5,997,305		$ 18,961		$ 7,469,633		$ 23,826,463
2	Met-Ed's Share of Statewide Evaluator Costs (June 1, 2021 through May 31, 2022)	111,103		64,437		204		80,256		256,000
3	Total Met-Ed Projected Program Costs including Statewide Evaluator Cost for the period June 1, 2021 through May 31, 2022 (Line 1 + Line 2)	$ 10,451,666		$ 6,061,742		$ 19,165		$ 7,549,889		$ 24,082,463
4	Phase III over/(under) collection through October 31, 2020	4,327,962		2,599,612	(D)	45,220		1,298,074		$ 8,270,868
5	Total to be collected June 1, 2021 to May 31, 2022 (Line 3 - Line 4)	$ 6,123,704		$ 3,462,130		$ (26,055)		$ 6,251,815		$ 15,811,595
6	Customer Class Projected Kilowatt-Hours ("kWh") Delivered or Peak Load Contribution Kilowatt ("kW") for June 1, 2021 - May 31, 2022	5,504,140,393	kWhs	2,698,375,721	kWhs	26,522,400	kWhs	13,633,043	kWs	
7	Phase IV - EE&C-C Rates Before Pa Gross Receipts Tax Gross-Up Factor (Line 5 / Line 6)	$ 0.00111	per kWh	$ 0.00128	per kWh	$ (0.00098)	per kWh	$ 0.45858	per kW	
8	Pa Gross Receipts Tax Gross-Up Factor [1 / (1-T) with T = 5.90% Pa Gross Receipts Tax in Base Rates]	1.062699		1.062699		1.062699		1.062699		
9	**Proposed Phase IV EE&C-C Rates Effective June 1, 2021 (Line 7 x Line 8)**	**$ 0.00118**	**per kWh**	**$ 0.00136**	**per kWh**	**$ (0.00104)**	**per kWh**	**$ 0.49**	**per kW**	

(A) Pennsylvania's Act 129 of 2008 states that the maximum annual cost recovery for Energy Efficiency and Conservation Programs cannot exceed 2% of the electric distribution company's total annual revenue as of December 31, 2006.
(B) For purposes of the Industrial class rate calculation, the billing unit is equal to the Peak Load Share in kWs.
(C) All costs and revenue estimates are current budgets, and subject to modification at a future date. The Statewide Evaluator Cost utilized is the estimate based on the expense to be incurred for Phase IV.
(D) Non-Profit Customer Class Phase III deferral balance has been consolidated with the Commercial Customer Class for Phase IV.

10	Percentage of Projected Program costs to allocate SWE cost	43.40%	25.17%	0.08%	31.35%	100.00%

Projected Pennsylvania Electric Company's Phase IV Energy Efficiency and Conservation ("EE&C-C") Charge ("EE&C-C") Rates
For the Rate Period June 1, 2021 through May 31, 2022

Line No.	Description	Penelec Residential Customer Class (1)		Penelec Commercial Customer Class (2)		Penelec Street Lighting Customer Class (3)		Penelec Industrial Customer Class (4)		Penelec Total (5)
1	Total Penelec Projected Program Costs for the period June 1, 2021 through May 31, 2022 subject to 2% cap	$ 9,460,722		$ 6,705,760		$ 18,623		$ 5,817,671		$ 22,002,777
2	Penelec's Share of Statewide Evaluator Costs (June 1, 2021 through May 31, 2022)	99,755		70,706		196		61,342		232,000
3	Total Penelec Projected Program Costs including Statewide Evaluator Cost for the period June 1, 2021 through May 31, 2022 (Line 1 + Line 2)	$ 9,560,477		$ 6,776,467		$ 18,820		$ 5,879,014		$ 22,234,777
4	Phase III over/(under) collection through October 31, 2021	5,157,594		2,284,043	(D)	61,225		1,270,711		$ 8,773,573
5	Total to be collected June 1, 2021 to May 31, 2022 (Line 3 - Line 4)	$ 4,402,883		$ 4,492,424		$ (42,405)		$ 4,608,303		$ 13,461,204
6	Customer Class Projected Kilowatt-Hours ("kWh") Delivered or Peak Load Contribution Kilowatt ("kW") for June 1, 2021 - May 31, 2022	4,200,366,638	kWhs	3,206,827,721	kWhs	31,052,698	kWhs	12,754,331	kWs	
7	Phase IV - EE&C-C Rates Before Pa Gross Receipts Tax (Line 5/ Line 6)	$ 0.00105	per kWh	$ 0.00140	per kWh	$ (0.00137)	per kWh	$ 0.36131	per kW	
8	Pa Gross Receipts Tax Gross-Up Factor [1 / (1-T) with T = 5.90% Pa Gross Receipts Tax in Base Rates]	1.062699		1.062699		1.062699		1.062699		
9	**Proposed Phase IV EE&C-C Rates Effective June 1, 2021 (Line 7 X Line 8)**	**$ 0.00111**	**per kWh**	**$ 0.00149**	**per kWh**	**$ (0.00145)**	**per kWh**	**$ 0.38**	**per kW**	

(A) Pennsylvania's Act 129 of 2008 states that the maximum annual cost recovery for Energy Efficiency and Conservation Programs cannot exceed 2% of the electric distribution company's total annual revenue as of December 31, 2006.
(B) For purposes of the Industrial class rate calculation, the billing unit is equal to the Peak Load Share in kWs.
(C) All costs and revenue estimates are current budgets, and subject to modification at a future date. The Statewide Evaluator Cost utilized is the estimate based on the expense to be incurred for Phase IV.
(D) Non-Profit Customer Class Phase III deferral balance has been consolidated with the Commercial Customer Class for Phase IV.

10	Percentage of Projected Program costs to allocate SWE cost	43.00%	30.48%	0.08%	26.44%	100.00%

Projected Pennsylvania Power Company's Phase IV Energy Efficiency and Conservation ("EE&C-C") Charge ("EE&C-C") Rates
For the Rate Period June 1, 2021 through May 31, 2022

Line No.	Description	Penn Power Residential Customer Class (1)		Penn Power Commercial Customer Class (2)		Penn Power Street Lighting Customer Class (3)		Penn Power Industrial Customer Class (4)		Penn Power Total (5)
1	Total Penn Power Projected Program Costs for the period June 1, 2021 through May 31, 2022 subject to 2% cap	$ 3,199,678		$ 1,757,349		$ 6,304		$ 1,498,778		$ 6,462,110
2	Penn Power's Share of Statewide Evaluator Costs (June 1, 2021 through May 31, 2022)	35,650		19,580		70		16,699		72,000
3	Total Penn Power Projected Program Costs including Statewide Evaluator Cost for the period June 1, 2021 through May 31, 2022 (Line 1 + Line 2)	$ 3,235,329		$ 1,776,929		$ 6,374		$ 1,515,478		$ 6,534,110
4	Phase III over/(under) collection through October 31, 202(	1,063,181		71,436	(D)	31,464		451,790		1,617,871
5	Total to be collected June 1, 2021 to May 31, 2022 (Line 3 - Line 4)	$ 2,172,148		$ 1,705,493		$ (25,090)		$ 1,063,688		$ 4,916,239
6	Customer Class Projected Kilowatt-Hours ("kWh") Delivered or Peak Load Contribution Kilowatt ("kW") for June 1, 2021 - May 31, 2022	1,628,061,813	kWhs	1,062,182,960	kWhs	3,842,558	kWhs	3,661,381	kWs	
7	Phase IV EE&C-C Rates Before Pa Gross Receipts Tax Gross-Up Factor (Line 5 / Line 6)	$ 0.00133	per kWh	$ 0.00161	per kWh	$ (0.00653)	per kWh	$ 0.29	per kW	
8	Pa Gross Receipts Tax Gross-Up Factor [1 / (1-T) with T = 5.90% Pa Gross Receipts Tax in Base Rates]	1.062699		1.062699		1.062699		1.062699		
9	**Proposed Phase IV EE&C-C Rates Effective June 1, 2021 (Line 7 X Line 8)**	**$ 0.00142**	**per kWh**	**$ 0.00171**	**per kWh**	**$ (0.00694)**	**per kWh**	**$ 0.31**	**per kW**	

(A) Pennsylvania's Act 129 of 2008 states that the maximum annual cost recovery for Energy Efficiency and Conservation Programs cannot exceed 2% of the electric distribution company's total annual revenue as of December 31, 2006.
(B) For purposes of the Industrial class rate calculation, the billing unit is equal to the Peak Load Share in kWs
(C) All costs and revenue estimates are current budgets, and subject to modification at a future date. The Statewide Evaluator Cost utilized is the estimate based on the expense to be incurred for Phase IV.
(D) Non-Profit Customer Class Phase III deferral balance has been consolidated with the Commercial Customer Class for Phase IV.

Line No.	Description	(1)	(2)	(3)	(4)	(5)
10	Percentage of Projected Program costs to allocate SWE cost	49.51%	27.19%	0.10%	23.19%	100.00%

Projected West Penn Power Company's Phase IV Energy Efficiency and Conservation ("EE&C-C") Charge ("EE&C-C") Rates
For the Rate Period June 1, 2021 through May 31 , 2022

Line No.	Description	West Penn Power Residential Customer Class (1)		West Penn Power Commercial Customer Class (2)		West Penn Power Street Lighting Customer Class (3)		West Penn Power Industrial Customer Class (4)		West Penn Power Total (5)
1	Total West Penn Power Projected Program Costs for the period June 1, 2021 through May 31, 2022 subject to 2% cap	$ 11,016,757		$ 6,187,866		$ 19,287		$ 5,913,021		$ 23,136,931
2	West Penn Power's Share of Statewide Evaluator Costs (June 1, 2021 through May 31, 2022)	114,277		64,187		200		61,336		240,000
3	Total West Penn Projected Program Costs including Statewide Evaluator Cost for the period June 1, 2021 through May 31, 2022 (Line 1 + Line 2)	$ 11,131,034		$ 6,252,052		$ 19,487		$ 5,974,357		$ 23,376,931
4	Phase III over/(under) collection through October 31, 2020	2,188,281		1,535,768	(D)	261,151		1,829,077		5,814,277
5	Total to be collected June 1, 2021 to May 31, 2022 (Line 3 - Line 4)	$ 8,942,753		$ 4,716,284		$ (241,664)		$ 4,145,280		$ 17,562,654
6	Customer Class Projected Kilowatt-Hours ("kWh") Delivered or Peak Load Contribution Kilowatt ("kW") for June 1, 2021 - May 31, 2022	6,845,942,384	kWhs	4,266,025,444	kWhs	29,727,217	kWhs	16,409,642	kWs	
7	Phase IV EE&C-C Rates Before Pa Gross Receipts Tax (Line 5 / Line 6)	$ 0.00131	per kWh	$ 0.00111	per kWh	$ (0.00813)	per kWh	$ 0.25	per kW	
8	Pa Gross Receipts Tax Gross-Up Factor [1 / (1-T) with T = 5.90% Pa Gross Receipts Tax in Base Rates]	1.062699		1.062699		1.062699		1.062699		
9	**Proposed Phase IV EE&C-C Rates Effective June 1, 2021 (Line 7 X Line 8)**	**$ 0.00139**	**per kWh**	**0.00117**	**per kWh**	**$ (0.00864)**	**per kWh**	**$ 0.27**	**per kW**	

(A) Pennsylvania's Act 129 of 2008 states that the maximum annual cost recovery for Energy Efficiency and Conservation Programs cannot exceed 2% of the electric distribution company's total annual revenue as of December 31, 2006.
(B) For purposes of the Industrial class rate calculation, the billing unit is equal to the Peak Load Share in kWs.
(C) All costs and revenue estimates are current budgets, and subject to modification at a future date. The Statewide Evaluator Cost utilized is the estimate based on the expense to be incurred for Phase IV.
(D) Non-Profit Customer Class Phase III deferral balance has been consolidated with the Commercial Customer Class for Phase IV.

Line No.	Description	(1)	(2)	(3)	(4)	(5)
10	Percentage of Projected Program costs to allocate SWE cost	47.62%	26.74%	0.08%	25.56%	100.00%

Met-Ed/Penelec/Penn Power/West Penn Statement No. 2-R

BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION

METROPOLITAN EDISON COMPANY
Docket No. M-2020-3020820

PENNSYLVANIA ELECTRIC COMPANY
Docket No. M-2020-3020821

PENNSYLVANIA POWER COMPANY
Docket No. M-2020-3020822

WEST PENN POWER COMPANY
Docket No. M-2020-3020823

PHASE IV ENERGY EFFICIENCY AND CONSERVATION PLAN

Prepared
Rebuttal
Testimony
of
Edward C. Miller

LIST OF TOPICS ADDRESSED

Other Parties' Issues and Recommendations for the Phase IV Plan

FirstEnergy
Statement
2-R

21428140v1

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I. INTRODUCTION AND BACKGROUND

Q. Please state your name and business address.

A. My name is Edward C. Miller, and my business address is 800 Cabin Hill Drive, Greensburg, PA 15601.

Q. Mr. Miller, by whom are you employed and in what capacity?

A. I am employed by FirstEnergy Service Company, which is a direct subsidiary of FirstEnergy Corp. ("FirstEnergy"), as Manager, Compliance and Development in the Energy Efficiency Department. I report to the Director, Energy Efficiency Compliance and Reporting. I am responsible for compliance and development activities related to energy efficiency and conservation ("EE&C") programs for the FirstEnergy utilities in Ohio, Maryland, New Jersey, Pennsylvania, and West Virginia. This primarily involves the development of programs and filings to meet the FirstEnergy utilities' EE&C and/or peak demand reduction ("PDR") requirements and obligations.

Q. Did you previously submit testimony in this proceeding?

A. Yes, I submitted direct testimony (Met-Ed/Penelec/Penn Power/West Penn Statement No. 2) in support of the Phase IV EE&C Plan proposed in this proceeding ("Phase IV Plan," "Proposed Plan," or "Plan") by Metropolitan Edison Company ("Met-Ed"), Pennsylvania Electric Company ("Penelec"), Pennsylvania Power Company ("Penn Power"), and West Penn Power Company ("West Penn") (collectively, the "Companies").

Q. Please briefly describe the subject matter of your rebuttal testimony in this proceeding.

A. I will respond to certain issues raised in the direct testimony submitted by the other parties' witnesses, specifically: (1) the direct testimony of Geoffrey C. Crandall (OCA Statement No. 1) submitted on behalf of the Office of Consumer Advocate ("OCA"); (2) the direct testimony of Jim Grevatt (CAUSE-PA Statement No. 1) submitted on behalf of the Coalition for Affordable Utility Services and Energy Efficiency in Pennsylvania ("CAUSE-PA"); and (3) the direct testimony of James L. Crist (PSU Statement No. 1) submitted on behalf of The Pennsylvania State University ("PSU").

Q. Are there any exhibits that you are sponsoring with your rebuttal testimony?

A. Yes. Attached to my rebuttal testimony as Met-Ed/Penelec/Penn Power/West Penn Exhibit ECM-1R is a copy of CAUSE-PA's answer to FE to CAUSE-PA-I-3.

Q. Do you have any general comments about the other parties' issues and recommendations raised in their direct testimony?

A. Yes, I observe that no party has disputed that the Companies' proposed Phase IV Plan will meet their required electric consumption and peak demand reduction targets. In fact, OCA witness Crandall agrees that the Companies' plans comply with the Pennsylvania Public Utility Commission's ("Commission") requirements regarding cost-effectiveness, low-income requirements, budgets, and incentives. (OCA St. No. 1, p. 18-19.) The other parties, instead, critique various portions of the Companies' proposed Phase IV Plan, recommending that the Companies add new measures, eliminate certain measures, and substantially change other measures.

The critical flaw with most of these recommendations is that they are not supported by any in-depth study, evaluation, or analysis on the impact that these recommendations will have on the Plan or individual programs' savings, costs, or cost-effectiveness calculations. Because the Companies' Phase IV Plan is subject to the budget cap established under Act 129, the Companies cannot simply incorporate all of these proposed changes to the Companies' EE&C programs and measures in the Phase IV Plan without a thorough analysis of their impact. If the Companies did, they could end up with a Phase IV Plan that may not achieve the Companies' required savings targets and other requirements, may exceed the budget cap under Act 129, or both. The Phase IV Plan is a carefully-balanced portfolio that offers a broad variety of EE&C programs and measures to meet all of the Companies' Phase IV requirements within the prescribed 2% cost cap. And once one of the Companies' programs is modified to add, eliminate, or substantially change measures, then the entire portfolio is disrupted.

Another important consideration is that the Companies bear significant compliance risk if they fail to meet the required energy savings, coincident peak demand reduction, and low-income savings targets. None of the other parties in this proceeding are subject to millions of dollars of civil penalties if the Companies fail to achieve those targets. Therefore, the Companies must have substantial discretion to design their EE&C programs as necessary to achieve their Phase IV requirements.

II. CAUSE-PA STATEMENT NO. 1

A. COMPREHENSIVE MEASURES

Q. CAUSE-PA witness Grevatt alleges that the Companies' proposed Low-Income Energy Efficiency Program "fail[s] to meet the level of comprehensiveness provided for in the Commission's directives" and that too little emphasis is placed on comprehensive measures as compared to behavioral, school education, and other low-impact measures that comprise the majority of the projected low-income savings. (CAUSE-PA St. No. 1, pp. 4, 6, 21, 30-32.) Would you please respond?

A. I disagree. The Companies' programs were designed to address both educational and initial cost barriers and to tap a variety of delivery channels and vendors to support customer engagement, education, and participation. The EE&C Plan incorporates both near-term and longer-term energy saving opportunities for customers, includes direct or targeted programs that engage customers (such as low-income customers), and serves as a portal for other program offerings because they provide customers with energy efficiency education as well as information regarding other program services and opportunities upon which they can act.

Contrary to Mr. Grevatt's belief, the Companies placed an emphasis on comprehensive measures in their Phase IV Plan. Indeed, the Phase IV Plan provides several opportunities for customers interested in whole home/comprehensive solutions that encourage customers to consider a holistic approach to energy efficiency. More specifically, the Companies promote and provide comprehensive measures to low-income customers, including appliances, whole house and whole building treatments through the low-income Appliances, Weatherization and Multifamily subprograms as well as incentives for efficient new home construction through the low-income New Homes subprogram. In fact, over 40% of the projected low-income savings comes from these subprograms, while only 6% of the low-income budget is allocated to the low-income Behavioral and School Education subprograms in total across the Companies.

However, the Companies must deliver a broad portfolio of EE&C programs and measures to customers and cannot solely rely on comprehensive measures to achieve their savings targets within budgets. Therefore, the Companies' programs incorporate strategies to change behaviors and include incentives to address the initial cost barrier to promote the participation of all customers. The programs also provide opportunities for prescriptive equipment and direct install, so that customers who are unable or unwilling to undertake whole home/comprehensive solutions are still able to increase efficiency.

As a result, the Companies' Phase IV Plan is a carefully-balanced portfolio designed to meet all of the Companies' Phase IV requirements, including offering comprehensive programs and measures. The Plan includes a broad portfolio of programs for the residential and the commercial and industrial customer sectors. The Plan also provides both a well-reasoned and balanced set of measures to each customer class and a reasonable mix of programs for all customers. In doing so, the Companies' Phase IV Plan not only complies with all Commission directives, including providing comprehensive measures, but also recognizes the value of providing customers with energy efficiency education and information regarding other program services and opportunities upon which they can act, as well as engaging customers through different channels and vendors to support broader levels of customer engagement, education, and participation among the collective program offerings, something that Mr. Grevatt fails to recognize in his testimony.

Q. Mr. Grevatt also contends that the Low-Income Energy Efficiency Program is "inconsistent with the Statewide Evaluator's ("SWE") cost analysis that suggested reduced annual savings as a trade-off for more comprehensive, longer-lived savings." (CAUSE-PA St. No. 1, p. 30.) Do you agree?

A. No. The Companies developed the Phase IV Plan in consideration of many factors including, but not limited to, the Pennsylvania Act 129 - Phase IV Energy Efficiency and Peak Demand Reduction Market Potential Study Report ("PA MPS") prepared for the Commission by the Pennsylvania Statewide Evaluation Team and the Commission's Phase IV Implementation Order. The PA MPS included "Special Considerations for Lighting" and "Special Considerations for Home Energy Reports," which significantly reduced the savings potential in the residential sector from lighting and Home Energy Reports for Phase IV (see pages 16-18 of the PA MPS). Both of these factors were explicitly factored into the Companies' Phase IV Plans, including the Low-Income Energy Efficiency Program, which caused a shift to more comprehensive measures or measures with longer lives. As such, the Low-Income Energy Efficiency Program is entirely consistent with the SWE's cost analysis as factored into the PA MPS.

Q. Mr. Grevatt also recommends that the Commission direct the Companies "to target replacement of electric resistance heating and water heating with heat pumps and heat pump water heaters in qualifying households, such that LI-appliance savings,

including these measures, is equivalent to 10% of the Companies' low-income savings." (CAUSE-PA St. No. 1, pp. 7, 33.) Do you agree with these recommendations?

A. No. Mr. Grevatt admitted in discovery that he did not perform any study or evaluation about the impact of any of these recommendations on the Phase IV Plan as a whole or any individual programs' costs, savings, or cost-effectiveness. (Met-Ed/Penelec/Penn Power/West Penn Exhibit ECM-1R [FE to CAUSE-PA-I-3].) As such, I have serious concerns related to the market potential and costs associated with this recommendation, as well as the ability of the Companies to meet their Phase IV requirements within their budgets if Mr. Grevatt's recommendation were adopted.

In addition, Mr. Grevatt mischaracterizes the design of the Companies' program by stating that the program does not provide a provision for replacing appliances with more efficient ones. In fact, the Low-Income Energy Efficiency Program does provide for the replacement of refrigerators and freezers as specifically listed in Table 14 of the Companies' Plan. Mr. Grevatt also does not recognize that many customers maintain older inefficient second appliances, which the appliance recycling subprogram targets to remove from use.

Regarding Mr. Grevatt's specific measure recommendations, the replacement of electric resistance baseboard heat with heat pumps requires the installation of a heat exchanger/air handling system as well as ductwork, which can be intrusive in a customer's home and require a significant investment. The home may also require additional insulation and air sealing to support the efficiency of the installation and meet customer satisfaction, which is a concern based on the change in the type of heat, i.e., forced-air system. Additionally, the Companies already target the installation of heat pump water heaters through the Low-Income Energy Efficiency Program, as shown in Table 14 of the Companies' Plan. In addition to the sizeable cost, the installation of heat pump water heaters requires homes to have acceptable space and space conditioning, something that is determined on a case-by-case basis.

Furthermore, many of the appliance measures, as well as these two measures, have lower demand contributions than other measures. As such, adding an arbitrary requirement to target a set amount of savings and the adoption of these two measure recommendations from appliances, in addition to adding significant costs to the program, would require offsetting reductions elsewhere in the Plan and could undermine the ability of the Companies to achieve their Phase IV energy and coincident peak demand savings requirements within budgets, thus increasing their risk of non-compliance.

B. WEATHERIZATION

Q. CAUSE-PA witness Grevatt recommends that the Companies increase their planned investments in the WARM Extra Measures program sub-component and the Weatherization (WARM PLUS) Program sub-component "by a large margin, equivalent to a doubling of the sub-component budgets" proposed by the Companies. (CAUSE-PA St. No. 1, p. 23.) Do you agree with this recommendation?

A. No. Again, Mr. Grevatt stated in discovery that he did not perform any study or evaluation of the impact of this recommendation on the Phase IV Plan as a whole or any of the individual programs' costs, savings, or cost-effectiveness. (Met-Ed/Penelec/Penn Power/West Penn Exhibit ECM-1R [FE to CAUSE-PA-I-3].) Therefore, I have serious concerns related to both the ability to achieve and costs associated with this recommendation, which I believe will hinder the Companies' opportunity to achieve their Phase IV requirements within budgets. Both of these components of the Companies' Weatherization subprogram are planned to be coordinated with the delivery of the Companies' existing Low-Income Usage Reduction Program ("LIURP") by tapping the considerable expertise and existing infrastructure of LIURP contractors, which consist of both community based organizations ("CBOs") and private contractors. In designing the Weatherization subprogram, the Companies carefully considered this coordination as well as their experience in delivering this offering and the infrastructure necessary to support it in developing their participation projections. Simply doubling the projections would most definitely strain and/or exceed the capacity of the infrastructure, create coordination issues, and result in unreasonable and unattainable projections.

In addition, the Weatherization subprogram to the Low-Income Energy Efficiency Program is among the costliest subprograms in the Companies' Plan, on both a dollars per megawatt-hour ($/MWh) and dollars per megawatt ($/MW) basis. As such, increasing participation projections by even a small magnitude will be very costly, which would require offsetting budget reductions elsewhere in the Plan and could undermine the ability of the Companies to achieve their Phase IV requirements within budgets while increasing their risk of non-compliance.

C. BEHAVIOR AND SCHOOL EDUCATION MEASURES

Q. CAUSE-PA witness Grevatt believes that the Companies' proposed Behavior and School Education – LI measures do not provide "meaningful" or "significant" savings to low-income households. (CAUSE-PA St. No. 1, pp. 24-26.) Do you agree?

A. No. As I discussed earlier, the Companies' programs are designed to address both educational and initial cost barriers and to tap a variety of delivery channels and vendors to support broader levels of customer engagement, education, and participation. The EE&C Plan includes direct or targeted programs that engage customers, including low-income customers, and that serve as a portal for other program offerings because they provide customers with energy efficiency education as well as information regarding other program services and opportunities upon which they can act. The Companies' Behavioral and School Education subprogram offerings for low-income customers are key elements of the Companies' Low-Income Energy Efficiency Program in these regards.

Additionally, Mr. Grevatt states in his testimony that the Companies have more low-income customers than are reported and would like to see the comprehensive programs increased to target greater participation. As discussed earlier, the Plan's design recognizes the value of providing customers with energy efficiency education and information regarding other program services and opportunities upon which they can act. Program offerings that engage customers, such as the Behavioral and School Education subprogram offerings, are key components of the Phase IV Plan's design to engage customers through different channels and vendors to support broader levels of customer engagement, education, and participation among the collective program offerings. In fact, customer engagement, awareness, and education (such as what is provided under the Behavioral and

School Education subprograms) helps to identify new or additional low-income customers to serve under other program offerings. As such, the low-income Behavioral and School Education subprogram offerings should not be measured based solely on their individual projections as Mr. Grevatt advances in his testimony. They should also be recognized for their immense value in engaging customers with education and for promoting and achieving larger amounts of participation and energy savings in other low-income program offerings, including the comprehensive programs as Mr. Grevatt advocates.

Q. CAUSE-PA witness Grevatt recommends that the Commission prohibit the Companies from counting savings from School Education – LI toward the low-income savings target and replace School Education – LI's planned participation levels with Weatherization (WARM PLUS) and WARM Extra Measures. (CAUSE-PA St. No. 1, pp. 6, 33.) Do you agree?

A. No. Mr. Grevatt's recommendation is founded upon his criticisms of the low-income School Education subprogram, which, as explained previously, are short sighted and should be disregarded. Moreover, Mr. Grevatt contends that the low-income School Education subprogram "contradict[s] the spirit and letter of the Commission's Phase III Order in which it rejected the Phase II practice of allocating savings from non-specific LI programs toward meeting its low-income requirements based on assumptions of low-income participation." (CAUSE-PA St. No. 1, p. 25.) As explained in the Phase IV Plan, the low-income School Education subprogram will be targeted to schools in areas that have a higher population of low-income customers. (Phase IV Plan, p. 58.) The subprogram is a specific low-income program offering and is not merely counting savings from non-specific low-income programs. The Company's low-income School Education subprogram is both specifically targeted to and customized (both the quantity and contents) for low-income customers. The Companies target the low-income School Education subprogram to schools that receive Title 1 funds (these are schools that receive federal funds to support the academic achievement of schools with large concentrations of low-income students). The Companies also use a wealth score that is determined based on census data (this equates to schools that have a large concentration of low-income families with a median household income of $45,000 or less) to target the participation of additional schools and low-income customers.

In addition, these schools and low-income customers truly value this subprogram. The Companies' experience during Phase III is that these schools are quick to sign up for this program offering, as the schools typically cannot afford assemblies and/or special instructors to teach additional lessons. In response, this subprogram provides low-income students with energy efficiency education and awareness. Specifically, it provides customized energy efficiency kits to be used at home to further engage low-income families, promote adoption of energy efficiency and conservation mindsets and measures, and give low-income families information on other energy efficiency programs that are available to them, including the LIURP and Companies' other comprehensive program offerings.

Thus, the Companies' low-income School Education subprogram is a specific low-income offering and is one of the key elements of the Companies' Low-Income Energy Efficiency Program that helps to identify, engage, and promote the participation of low-income customers in the collective program offerings.

D. EFFICIENCY LEVELS FOR ELIGIBLE EQUIPMENT

Q. Mr. Grevatt also criticizes the Companies for allegedly failing to maximize savings for low-income customers by focusing on lower efficiency clothes washers and refrigerators instead of ones with higher efficiency levels. (CAUSE-PA St. No. 1, pp. 26-27.) Based on those criticisms, he recommends that the Companies be directed "to prioritize the highest levels of equipment efficiency when varying levels are available (such as with clothes washers and refrigerators) in order to provide low-income participants with the greatest level of savings." (CAUSE-PA St. No. 1, pp. 6, 33.) Would you please respond?

A. Mr. Grevatt misunderstands the Companies' Plan design, which is to promote efficient appliances, including both EnergyStar rated appliances as well as efficiency tiers above EnergyStar where applicable. The Companies' participation projections were not intended to imply that the Companies' do not or will not promote the higher efficient tiers; however, EnergyStar rated appliances are the most easily recognized and widely available energy efficient appliances in the market and have lower incremental costs than higher efficiency tiers. So, while the Companies do promote the higher efficiency tiers, the Companies' participation projections are based on their experience with actual participation that takes these factors into account.

E. ALLEGATION THAT CERTAIN MEASURES ARE "IMPLAUSIBLE" FOR LOW-INCOME CUSTOMERS

Q. CAUSE-PA witness Grevatt also contends that it is "implausible to believe" that some of the proposed low-income measures, such as Pool Pump Variable Speed and EV

Charging Cord – Level 2 – RES, would be implemented in a low-income household, unless the Companies cover the entire cost of those measures. (CAUSE-PA St. No. 1, pp. 5, 28-29.) He then recommends that the Companies be directed "to eliminate all requirements for contributions to measure costs from low-income households and to re-calculate their planned LI savings to include only measures that can plausibly be expected to be installed by low-income households." (CAUSE-PA St. No. 1, pp. 7, 33.) Do you agree?

A. I disagree. Mr. Grevatt again misunderstands the Companies' Plan design, which in this case is to provide the opportunity to all income qualified customers to participate in the low-income appliance rebate subprogram, to access measures that are available to all residential customers, and to receive an enhanced incentive to better support their participation. The Companies' participation projections for these measures fully align with Mr. Grevatt's position that some of the measures are not likely to have much participation. Again, the Companies' Plan design in this regard is to provide the opportunity for participation by low-income customers in a wide variety of measures.

Furthermore, the Companies do cover the entire cost of certain measures through the Weatherization and/or Multifamily subprograms of the Low-Income Energy Efficiency Program, in addition to the Companies' LIURP with which they coordinate (Phase IV Plan, Table 14). The Appliances subprogram is designed to provide additional opportunity to all income qualified customers for measures that are available to all residential customers, albeit with greater incentives to help overcome the first cost barriers to participation. In addition, as discussed earlier in my testimony, many of the appliance measures have lower demand contributions than other measures in the Plan. As such, increasing the enhanced incentives to cover the full cost under the Appliances subprogram could create competition or coordination issues with the other low-income subprogram offerings. It also would add costs to the program, which would require offsetting reductions elsewhere in the Plan and could undermine the ability of the Companies to achieve their Phase IV energy and coincident peak demand savings requirements within budgets, thus increasing their risk of non-compliance.

Q. Did the Companies include these measures to "artificially inflate the breadth and range of measures that are nominally available to low-income households" or "reduce[] transparency about what the Companies actually plan to implement for their low-income customers"? (CAUSE-PA St. No. 1, pp. 27-28.)

A. No. As I discussed above, the Companies included these measures so that income qualified customers have the opportunity to access measures that are available to all residential customers and to receive an enhanced incentive to better support their participation. Mr. Grevatt's contention that the Companies included these measures to "artificially inflate the breadth and range of measures that are nominally available to low-income households" is completely unsupported. Over 38% of the measures in the Companies' Phase IV Plans are provided directly or targeted to low-income customers (Phase IV Plan, pp. 134-36). This percentage significantly exceeds the target percentages in the Commission's Phase IV Implementation Order, which are all less than 11% (Phase IV Implementation Order, p. 35), thereby making these few additional measures meaningless in this regard. Thus, Mr. Grevatt's claim is meritless.

Q. Mr. Grevatt argues that the Companies "should not be allowed to count the savings from" the measures that likely will not be used by low-income customers "toward [their] low-income savings goal, unless the programs are adjusted so that a substantial number of low-income customers are able to participate." (CAUSE-PA St. No. 1, p. 29.) Do you agree?

A. Absolutely not. Mr. Grevatt's recommendation to not include savings from low-income participation in some appliance rebate measures based on the level of participation makes no sense, as this would decrease the savings opportunities for customers. Doing so would indicate that Mr. Grevatt also does not agree with the design of comprehensive programs, such as LIURP, as well as many other programs that include measures that have limited levels of participation. As stated above, the Companies' Plan is designed to provide income qualified customers the opportunity to access measures that are available to all residential customers and to receive enhanced rebates for these measures. The Companies' participation projections for these measures fully align with Mr. Grevatt's position that some of the measures are not likely to have much participation. As such, the design of the low-income appliance rebate offering is akin to the design of the low-income weatherization subprogram in that there are varying degrees of participation in the measures offered, all of which contribute in varying degrees toward the achieved energy savings.

The Companies must be allowed to count the savings attributable to low-income measures that are implemented by low-income customers under the Low-Income Energy Efficiency Program, regardless of Mr. Grevatt's belief that the majority of low-income customers will not install these measures. The ability to count savings from a measure depending on whether a designated number of customers within a given sector adopt the measure would preclude the opportunity for many energy efficiency measures that might have limited participation for many reasons and restrict the ability of the EDCs to achieve their energy savings targets. One customer may have energy efficient appliances but be a prime candidate for behavioral measures. On the other hand, a customer well-educated about energy efficiency may need newer, more energy efficient appliances. Likewise, there may be low-income customers who can benefit from the measures criticized by Mr. Grevatt. The bottom line is that the Companies proposed a broad portfolio of measures, recognizing that customers often have individual and sometimes very different needs. Thus, Mr. Grevatt's approach of denying the Companies' ability to count savings from implemented measures simply because the measures were not popular with other customers is completely unreasonable.

F. MULTIFAMILY

Q. CAUSE-PA witness Grevatt argues that the Companies need to place a greater focus on affordable multifamily housing and recommends that the Companies be directed "to increase savings from multifamily low-income housing, including both master-metered and split-metered properties." (CAUSE-PA St. No. 1, pp. 7, 29, 33.) Do you agree?

A. No. The Companies' Phase IV Plan design already places a greater focus on multifamily housing than the Phase III Plan, as evidenced by it including a multifamily subprogram and additional measures in each sector of the Phase IV Plan. More specifically, the Phase IV Plan includes a multifamily subprogram in the Residential Energy Efficient Homes

Program (Phase IV Plan, p. 38), in the Low-Income Energy Efficiency Program (Phase IV Plan, p. 39), and in the Energy Solutions for Business Program (Phase IV Plan, p 69). Additionally, the Companies' Phase IV Plan also places a greater emphasis on affordable multifamily housing, as evidenced by it including specific low-income multifamily measures in the multifamily subprograms included in the Low-Income Energy Efficiency Program and the Energy Solutions for Business Program. Furthermore, the Companies' designed the multifamily subprograms consistently across the sectors for the full range of multifamily buildings, including whether the units are individually metered or commercially metered, with a focus on serving the entire building consistently regardless of metering. Moreover, the multifamily subprogram design includes direct install measures and incentives for additional prescriptive measures or retrofit projects in both common areas and tenant spaces, also regardless of metering, and with in-unit measures provided at no-incremental cost for income-qualified tenants in multifamily housing.

The Companies developed the projections for the multifamily subprograms based on many factors, including, but not limited to, their experience in Phase III, input from their current conservation service providers ("CSPs"), stakeholders, and budgets. The multifamily subprograms are some of the more costly subprograms in the Companies' Plan, on both a $/MWh and $/MW basis. As such, increasing participation projections will be very costly, which would require offsetting reductions elsewhere in the Plan that may increase the Companies' risk of non-compliance by potentially undermining the Companies' ability to achieve their Phase IV requirements within budgets.

Q. Mr. Grevatt believes that the fraction of savings coming from commercially metered low-income housing units is small and "virtually non-existent for tenants." (CAUSE-PA St. No. 1, p. 29.) Would you please respond?

A. I disagree. As discussed earlier, the Companies developed the projections for the multifamily subprograms, including the commercially metered low-income housing, based on many factors. Some of the Companies' experience indicates that the majority of multifamily units are individually metered and not commercially metered. As such, the projections for commercially metered low-income housing units are smaller than those for the individually metered housing units, resulting in the commercially metered multifamily subprogram savings being more limited, due to the limited opportunities remaining in the common areas.

In addition, I would also like to highlight that the Companies have made special efforts during Phase III to identify and target the participation of both multifamily buildings and affordable multifamily buildings, including commercially metered affordable multifamily housing, and that the Companies plan to continue these efforts in Phase IV. The multifamily subprograms will strive to coordinate with national and state housing programs and include outreach to property owners, managers, associations, tenant groups, municipalities, and CBOs about the availability and benefits of the subprograms and how to participate.

Q. Mr. Grevatt also alleges that "[m]aster-metered low-income multifamily properties and those that have split metering, in which the living units are on individually metered residential accounts and the common areas are on commercial meters, need

unique treatment by programs to ensure that they receive savings opportunities." (CAUSE-PA St. No. 1, p. 30.) Please respond.

A. As discussed earlier, the Companies' multifamily subprograms were designed for the full range of multifamily buildings, including whether the units are individually metered or commercially metered, with a focus on serving the entire building consistently regardless of metering. The multifamily subprograms' design includes direct install measures and incentives for additional prescriptive measures or retrofit projects in both common areas and tenant spaces, regardless of metering. Additionally, in-unit measures, such as water heating measures, efficient lighting, advanced power strips, and replacement of refrigerators and freezers, are provided at no-incremental cost for income-qualified tenants in multifamily housing. And as discussed above, the Companies have made special efforts during Phase III to identify and target both multifamily buildings and affordable multifamily buildings regardless of metering, and the Companies plan to continue these efforts in Phase IV. As such, the multifamily subprograms' design is both scalable and adaptable to the full range of multifamily buildings regardless of metering, building type, building space, and income classification and recognizes the diversity of this customer segment by providing unique treatment to capture savings opportunities.

III. OCA STATEMENT NO. 1

A. BEHAVIORAL MEASURES

Q. OCA witness Crandall alleges that the Phase IV Plan is inconsistent with the PUC's Phase IV Implementation Order because the Plan relies on behavioral modification subprograms. (OCA St. No. 1, p. 3.) Do you agree?

A. No. The Behavioral subprograms included in the Companies' Phase IV Plan educate customers regarding their home energy usage and provide recommendations to implement and adopt energy efficiency and conservation measures to reduce their energy usage. These subprograms provide customized home energy reports about each customer's energy usage, as well as analysis regarding their usage over time, with specific tips and recommendations that promote energy efficiency and conservation opportunities and additional program offerings available to them. The reports help customers: (1) understand how their energy consumption compares to similarly sized and equipped homes; (2) understand how their energy use changes over time and across seasons; and (3) develop goals and strategies to reduce their energy use. This subprogram also offers an online audit tool that similarly provides recommendations for home energy efficiency and conservation opportunities and information regarding other programs that may benefit the customer. The online audit tool converts the customers' input of their energy usage characteristics into information the customers can understand and act upon, such as the cost of heating and cooling their homes, a usage comparison graph, and tips on how to save energy.

As I discussed earlier, the Companies developed the Phase IV Plan in consideration of many factors, including, but not limited to, the PA MPS and the Commission's Phase IV Implementation Order, which was based on the PA MPS. The PA MPS included "Special Considerations for Home Energy Reports," which was explicitly factored into the Companies' Phase IV Plan. The Companies' programs are designed to address both educational and initial cost barriers and to tap a variety of delivery channels and vendors to support broader levels of customer engagement, education, and participation. The Phase IV Plan includes direct or targeted programs that engage customers (such as low-income customers) and that serve as a portal for other program offerings because they provide customers with energy efficiency education as well as information regarding other program services and opportunities upon which they can act. The Companies' Behavioral subprograms are one of the key elements of the Companies' Phase IV Plan in these regards.

As a result, the Companies' Phase IV Plan is a carefully-balanced portfolio that meets all of the Companies' Phase IV requirements, including offering a well-reasoned and balanced set of measures to each customer class and a reasonable mix of programs for all customers, including the Behavioral subprograms. The Phase IV Plan recognizes the value of providing customers with energy efficiency education and information regarding other program services and opportunities upon which they can act, as well as engaging customers through different channels and vendors to support broader levels of customer engagement, education, and participation among the collective program offerings, such as through the Behavioral subprograms, which Mr. Crandall fails to recognize in his testimony. Furthermore, the Phase IV Plan does not overly rely on savings from the Behavioral subprograms. These subprograms account for less than 6% of the total energy savings at less than 4% of the total budgets for the Companies.

Q. As alleged support for his position, Mr. Crandall states that the Phase IV Implementation Order directed the EDCs to "develop plans to achieve the most lifetime energy savings per expenditure." (CAUSE-PA St. No. 1, pp. 6, 8-9.) Do you agree with his interpretation of the Order?

A. No. In full, the passage reads, "we <u>believe</u> that EDCs <u>should</u> develop plans to achieve the most lifetime energy savings per expenditure." Phase IV Implementation Order, p. 91

(emphasis added). Moreover, Mr. Crandall fails to read the Commission's statement in context and omits any reference to the next sentence in the Commission's Phase IV Implementation Order, which states, "The Commission finds that EDCs must offer a well-reasoned and balanced set of measures that are tailored to usage and to the potential for savings and reductions for each customer class." *Id.*, pp. 91-92.

As discussed earlier in my testimony, the Companies' Phase IV Plan is a carefully balanced portfolio that meets all of the Companies' Phase IV requirements and the Commission's directives. The Phase IV Plan in no way overly relies on the Behavioral subprograms and recognizes the value of providing customers with energy efficiency education and information regarding other program services and opportunities upon which they can act, as well as engaging customers through different channels and vendors to support broader levels of customer engagement, education, and participation among the collective program offerings.

Q. Mr. Crandall recommends that the Companies scale back their behavior modification programs and allocate those funds to the Weatherization subprogram within the Low-Income Energy Efficiency Program or the Energy Efficient Products Program. (OCA St. No. 1, pp. 8-9, 19-20.) Do you agree with this recommendation?

A. No. As discussed above, the Companies' Phase IV Plan is a carefully-balanced portfolio that is designed to meet all of the Companies' Phase IV requirements and to provide all customers with a variety of energy savings opportunities through different channels and vendors to support broader levels of customer engagement, education, and participation among the collective program offerings, such as through the Behavioral subprograms. As the Companies' Behavioral subprograms only represent approximately 6% of the Companies' total projected energy savings, the Companies' Phase IV Plan in no way overly relies on behavioral savings. Mr. Crandall's recommendation to scale them back is unsupported and ignores the value of customer engagement and education provided under the Behavioral subprograms.

B. ALLOCATION OF COMMON COSTS

Q. OCA witness Crandall recommends that the Companies allocate common costs to each customer class based on the ratio of class-specific approved budged programs costs to total approved budgeted program costs. (OCA St. No. 1, pp. 13-14.) Do you agree?

A. No. Program specific costs budgeted in the Companies' Phase IV Plan include Incentives, CSP Delivery, Marketing (CSP), and Evaluation, Measurement, and Verification ("EM&V") as identified in Appendix B, Tables 10-1 to 10-3. Common costs budgeted in the Companies' Plan include Program Design, Administrative (e.g., utility labor and expenses, etc.), Marketing, and Other (e.g., External Legal). Appendix D, Table 1 of the Plan provides more detail on these cost categories.

With over 70% of the common costs in the Plan being "Administrative" costs as shown in Appendix B, Table 11, it is the Companies' experience that the program specific administrative (e.g., non-incentive) costs to implement programs are the best indicator of the Companies' level of effort and activity associated with their administrative activities for each program. In other words, the Companies' level of effort and activity follows the CSPs' level of effort with each program.

In addition, program incentives can vary among programs for many reasons and, if included in the allocation methodology, would skew the allocations towards programs with higher incentives. As an example, residential lighting programs that involve point of sale incentives can have very large incentive budgets due to the sheer volume of participation in these types of offerings. Commercial & Industrial custom programs can also involve very large incentive budgets due to the sheer amount of energy savings (and calculated incentives) that some custom projects generate. Neither of these programs necessarily involves more "administrative" activity by the Companies as a result of having greater incentive budgets.

For these reasons, I believe the common costs should continue to be allocated based on their program specific administrative (e.g., non-incentive) costs, which is consistent with the Companies' allocations in Phase III, instead of being allocated based on the total program specific costs including incentives, which would skew the allocations towards programs with larger incentive budgets.

C. BIDDING DEMAND RESPONSE INTO PJM INTERCONNECTION LLC'S ("PJM") FORWARD CAPACITY MARKET ("FCM")

Q. OCA witness Crandall contends that: (1) the Companies did not adopt conservative bidding strategy to limit deficiency charges and to avoid nominated resources not clearing in the PJM FCM; and (2) the nomination processes lack transparency and context. (OCA St. No. 1, pp. 16-17.) Would you please respond?

A. I disagree with Mr. Crandall's assertion that the Companies' bidding strategy is not conservative. Section 1.6 of the Companies' Phase IV Plan states, "The Companies will base their actual offer values on their experience evaluating programs for PJM capacity market participation, taking into account capacity ownership rights, EM&V results and cost, changing PJM market rules, and other variables to balance the risk and cost of capacity market participation with the anticipated revenue." More specifically, the Companies have recognized that: (1) actual program participation results can vary from what was projected in the Companies' Phase IV plan for many reasons (e.g., uncertainty with program ramp up, measure mix, customer adoption, market and economic conditions, other factors beyond the control of the individual utilities, etc.); (2) not all of each year's expected megawatt ("MW") reductions resulting from the energy efficiency program(s) will be eligible for PJM; (3) the Companies may not have ownership rights to the savings; and (4) not all of the expected MW reductions resulting from the energy efficiency programs will be of a sufficient scale to warrant the costs to offer the resource or justify the cost of the incremental measurement and verification of the resource's savings.

Furthermore, Appendix C, Table C-3 of the Phase IV Plan provides a "potential range" for each delivery year and includes a footnote stating the following:

> The MW values provided in Appendix C, Table C-3 are an estimated range of the EE&C Plan Potential PJM EE MW values for each installation period and do not represent the actual EE values to be offered into PJM's capacity market. These estimates are based on projections used in the development of the EE&C Plan, with adjustment for the addition of line losses, eliminating non-PJM eligible measures, and Company experience with PJM EE evaluations. These estimates are presented for information purposes only and are subject to change for reasons, including but not limited to, changes in program participation, baselines, measurement and verification protocols or costs and PJM rules. The Company will determine the actual EE Resource offers applicable to each PJM auction starting with the 2023/24 BRA scheduled to occur December 2021.

As such, the Companies' Phase IV Plan has recognized the uncertainty with participation in the PJM capacity market, and the Companies plan to factor this uncertainty into the development of their offers at the time of each auction to limit the potential for deficiency charges and nominated resources not clearing in the PJM FCM. Additionally, the Companies plan to offer incremental energy efficiency resources not offered in the base residual auctions ("BRA") into incremental auctions as appropriate, including to true up positions and limit deficiency charges.

The Companies also disagree that the nomination process lacks transparency. As discussed above and included in Section 1.6 of the Companies' Phase IV Plan, the Companies described in detail their plan to develop their nominations. Section 1.6 of the Companies' Phase IV Plan also provides that all energy efficiency sell offer values and buy bids shall remain confidential because they are considered market sensitive information; however, they can be provided to Commission staff via confidential submission and after the applicable auction results are available. The Companies are available to discuss such results with the Commission as requested.

Q. Mr. Crandall recommends that the Commission direct the Companies "to develop a more transparent way to evaluate the amount of its Phase IV demand reduction that could be nominated into the PJM FCM and to evaluate the risk-reward relationship for their nomination strategies." (OCA St. No. 1, pp. 17, 20.) Do you agree with this recommendation?

A. No. The recommendation goes well beyond the requirements in the Commission's Phase IV Implementation Order and should be rejected. As discussed above and included in Section 1.6 of the Companies' Phase IV Plan, the Companies described in detail their plan to develop their nominations. In determining which energy efficiency resources to offer into PJM, the Companies will adhere to PJM measure eligibility requirements pursuant to

PJM Manual 18B and rely on their experience with PJM energy efficiency evaluations. As also included in Section 1.6, The costs of PJM measurement and verification are another factor for consideration for energy efficiency resources being offered into PJM. A list of the ineligible measures that were excluded from the Companies' "potential" MW projections are also provided in Section 1.6 of the EE&C Plan. (Phase IV Plan, p. 26.) Before each BRA, the Companies will reevaluate the EE&C Plan projections and develop offer values while considering many factors such as program performance, implementation, rebate level changes, etc., as outlined in Section 1.6 of the Plan.

Q. Mr. Crandall also recommends a series of steps "to provide more context and connection between the EE&C Plan peak reductions and the amounts the Companies expect to nominate into the PJM capacity markets." (OCA St. No. 1, pp. 17-18.) Please respond.

A. Mr. Crandall's recommendations go well beyond the requirements set forth in the Commission's Phase IV Implementation Order and are overly burdensome. Based on my understanding of the Commission's Phase IV Implementation Order, the EDC's sole responsibility is to offer a reasonable portion of the EE&C Plan resources into PJM's FCM and that the Phase IV SWE and Staff will not expand upon those requirements. As such, Mr. Crandall's recommendations should be rejected.

Q. Mr. Crandall further recommends close monitoring and reporting on the results of the Companies' nomination and pricing strategies with the intent of modifying those strategies to optimize the probable net PJM revenues to reduce ratepayer cost for the

Phase IV EE&C programs. (OCA St. No. 1, p. 18.) He also provides a list of information that should be included in the monitoring and reporting. (OCA St. No. 1, p. 18.) Would you please respond?

A. The Commission's SWE for Phase IV, in consultation with appropriate Commission staff and the EDCs, will determine the reporting requirements for energy efficiency resources nominated to PJM's FCM, as this is considered confidential market sensitive data. The Companies will adhere to the Commission's final reporting requirements and envision using internal reporting and monitoring processes that are used in other jurisdictions for energy efficiency resource offers and are similar to those set forth by Mr. Crandall.

IV. PSU STATEMENT NO. 1

Q. PSU witness Crist raises issues concerning its participation in West Penn's Phase III EE&C Plan, including that the switch from Sodexo to CLEAResult as the CSP created administrative lag, that PSU is waiting on rebates for several projects, and that seven projects were tabled because of reapplication constraints. (PSU St. No. 1, p. 8.) Would you please comment on these issues?

A. The Companies have addressed the issues raised by Mr. Crist and believe these issues have been resolved. To support PSU's participation in the Companies' EE&C Plan, representatives from the Companies and the CSP currently meet regularly with PSU and assist PSU with its applications as needed. The Companies plan to continue this process into Phase IV.

Q. Mr. Crist asserts that the Companies should develop a system to collect customer info regularly from CSPs to account for possible CSP switch, thereby reducing administrative waste. (PSU St. No. 1, p. 9.) Would you please comment on this?

A. The Companies have processes and systems in place to collect all necessary customer information to support implementation, tracking and reporting, and evaluation of their programs. The Companies contract with CSP(s) who have contractual obligation to collect and store all necessary information and to provide appropriate information to the Companies. The CSP(s) provide certain information on a regular or ad hoc basis, such as to account for a possible CSP switch, and representatives of the Companies are also able to access the CSP's system to obtain additional information as needed.

Q. Mr. Crist also recommends that the Companies (1) streamline applications; and (2) improve communications by having fewer points of contact. (PSU St. No. 1, pp. 9-10.) Would you please comment on this?

A. The Companies plan to issue requests for proposal for CSP(s) to administer, promote, and provide the program to customers, including staffing, promotional strategies, and processes ensuring quality and other controls supporting successful program implementation. The CSP(s) will be responsible for administration, marketing, outreach, fulfilling program services, application processing, and documentation regarding purchased products and completed projects, and processing incentives and rebates, where applicable.

As discussed above, representatives from the Companies and CSP meet regularly with PSU and are available to assist PSU with its applications as needed. The Companies will review its application processes for opportunities to streamline them as well as establish points of contact to support PSU's efficient participation in the Companies' EE&C programs with its Phase IV CSP(s).

Q. Mr. Crist further recommends improvements to the measurement and verification ("M&V") process. (PSU St. No. 1, pp. 11-13.) Do you agree with this recommendation?

A. No. The recommended improvements identified by Mr. Crist are not necessary for all projects. The Companies' Independent Program Evaluator adheres to standard M&V protocols and requirements, and these requirements are established on a project by project basis and are based on the equipment's size, complexity, and expected level of savings. Depending on project type, if projects are part of a homogenous population, they may not be included in the sample selected by the Independent Program Evaluator to complete M&V requirements for statistical precision. The Companies intend to utilize both their implementation and Independent Program Evaluator CSPs that have technical experts on their staff to assist with project review. The Companies also believe the issues with the M&V process raised by Mr. Crist have been resolved.

Q. Does this conclude your rebuttal testimony?

A. Yes, it does. However, I reserve the right to supplement my testimony.

Met-Ed/Penelec/Penn Power/West Penn
Exhibit ECM-1R

FE to CAUSE-I-3

Re: CAUSE-PA Statement No. 1. For each recommendation made in CAUSE-PA Statement No. 1:

(a) Please explain whether Mr. Grevatt has studied or evaluated his recommendation’s impact on:

(1) The individual programs’ cost-effectiveness;

(2) The overall portfolio’s cost-effectiveness;

(3) The savings for all customer sectors and programs; and

(4) The costs for all sectors and programs.

(5) If so, please provide those studies or evaluations, including all documents, reports, and workpapers that Mr. Grevatt relied upon in performing those studies or evaluations, in their native format (e.g., Microsoft Excel).

(b) Please identify where the dollars in the budget for the Phase IV EE&C Plan will come from to implement this recommendation.

(c) If the recommendation is the addition of a new measure, program, or pilot program, please provide its projected budget, participation level, and savings for each Program Year of Phase IV.

(d) If the recommendation is the addition of a new measure, program, or pilot program, please provide its TRC benefit-cost ratio.

(e) Please provide all documents, reports, and workpapers relied upon by Mr. Grevatt in providing the information requested in subparts (c) and (d) above.

Response:

(a) Mr. Grevatt has not, at this time, conducted the requested analysis.

(b) Mr. Grevatt has not, at this time, conducted an analysis of how the Company could re-prioritize its proposed budgets to achieve the balance of comprehensive measures required by the Commission's Implementation Order, which specifically bases the savings targets on more comprehensive measures. See CAUSE-PA St. 1 at 32.

(c) Mr. Grevatt has not, at this time, conducted the requested analysis

(d) Mr. Grevatt has not, at this time, conducted the requested analysis.

(e) N/A.

Respondent: Jim Grevatt

Date: 1/21/2021

Met-Ed/Penelec/Penn Power/West Penn Statement No. 3-R

BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION

METROPOLITAN EDISON COMPANY
Docket No. M-2020-3020820

PENNSYLVANIA ELECTRIC COMPANY
Docket No. M-2020-3020821

PENNSYLVANIA POWER COMPANY
Docket No. M-2020-3020822

WEST PENN POWER COMPANY
Docket No. M-2020-3020823

PHASE IV ENERGY EFFICIENCY AND CONSERVATION PLAN

Prepared
Rebuttal
Testimony
of
Anthony J. Woytko

LIST OF TOPICS ADDRESSED

Phase IV Cost Recovery Mechanism and Reconciliation

Allocation of Administrative Costs

FirstEnergy
Statement
3-R

I. INTRODUCTION AND BACKGROUND

Q. Please state your name and business address.

A. My name is Anthony J Woytko. My business address is 2800 Pottsville Pike, Reading, Pennsylvania, 19605.

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

A. I am employed by FirstEnergy Service Company as an Analyst in Rates and Regulatory Affairs - Pennsylvania.

Q. Did you previously submit testimony in this proceeding?

A. Yes, I submitted direct testimony (Met-Ed/Penelec/Penn Power/West Penn Statement No. 3) in support of the Phase IV EE&C Plan proposed in this proceeding ("Phase IV Plan" or "Proposed Plan") by Metropolitan Edison Company ("Met-Ed"), Pennsylvania Electric Company ("Penelec"), Pennsylvania Power Company ("Penn Power"), and West Penn Power Company ("West Penn") (collectively, the "Companies").

Q. Please briefly describe the subject matter of your rebuttal testimony in this proceeding.

A. I will respond to certain issues raised in the direct testimony of Geoffrey C. Crandall (OCA Statement No. 1) submitted on behalf of the Office of Consumer Advocate ("OCA"), specifically his issues regarding the Companies' proposed Phase IV EE&C-C Riders (Rider F), how revenues and costs from the Companies' offering of peak demand reductions into PJM Interconnection LLC's ("PJM") Forward Capacity Market ("FCM") are credited under the Phase IV EE&C-C Riders, and how the Companies' allocation of costs are reflected in the Phase IV EE&C-C Riders.

Q. Are you sponsoring any exhibits with your rebuttal testimony?

A. Yes, attached to my testimony as Met-Ed/Penelec/Penn Power/West Penn Exhibits AJW-1R through 5R are revised pro forma tariff supplements setting forth the Companies' proposed Phase IV EE&C-C Riders (Rider F).

II. <u>OCA STATEMENT NO. 1</u>

Q. OCA witness Crandall argues that the Companies' method of addressing PJM net revenues does not comply with the Phase IV Implementation Order. (OCA St. No. 1, pp. 11-12.) Could you please clarify how the Companies intend to reflect the PJM net revenues in its Phase IV EE&C-C Riders?

A. Yes. The Companies never intended to allocate the PJM net revenues among the customer classes, as Mr. Crandall states in his testimony. The Companies planned to follow the Phase IV Implementation Order and use those net revenues as an offset to the E-Factor in the Phase IV EE&C-C Riders. However, I recognize that as originally written, the Companies' proposed pro forma tariff supplements did not make that point clear and could give the impression that PJM net revenues would be allocated among the customer classes based on the ratio of class-specific approved budgeted program costs to total approved budgeted program costs. In Exhibits AJW-1R through AJW-5R, the PJM net revenue has been made its own variable in the formula (i.e., "PJM"), rather than included in EEC_{Exp1}. The formula now shows how the PJM variable will directly offset the E-Factor in the

EE&C-C Rider calculation, as required under the Phase IV Implementation Order. This revision also alleviates any concerns regarding the 2% spending cap, as the Companies agree the PJM component is outside the 2% spending cap. Thus, I believe Mr. Crandall's concern has been addressed.

Q. Mr. Crandall also asserts that it is unclear how the Companies will allocate the PJM net revenues to the customer classes. (OCA St. No. 1, p. 15.) Could you please clarify?

A. Yes. The PJM net revenues will be assigned to the specific customer class associated with the kilowatt (kW) values of the EE&C programs and measures that cleared in the PJM FCM for each delivery period.

Q. Mr. Crandall also raises a concern about how administrative costs are allocated by the Companies and recommends that those costs be allocated based on total program costs, rather than Conservation Service Provider ("CSP") delivery fees and marketing costs. (OCA St. No. 1, pp. 13-14.) Would you please clarify the Companies' allocation method for administrative costs and respond to Mr. Crandall's recommendation?

A. To clarify, the indirect costs in EEC_{Exp1} and incremental administrative start-up costs in EEC_{Exp2} are allocated to each customer class based on the ratio of class-specific approved budgeted administrative program costs to total plan-specific approved budgeted administrative program costs. In other words, the indirect and administrative start-up costs are allocated to each Company based on each Company's savings and targets and then allocated to each program based on each program's ratio of CSP Delivery and CSP

Marketing costs. This allocation excludes incentives, such as customer rebates and giveaways, as these costs are specific to each program. The Companies' pro forma tariff supplements (Met-Ed/Penelec/Penn Power/West Penn Exhibits AJW-1R through 5R) have been revised to help clarify how the costs are allocated. The tariff language explaining the allocation for EEC_{Exp3} is clear—the costs are allocated to each customer class based on the ratio of class-specific approved budgeted program costs to total approved budgeted program costs.

Q. Does this conclude your rebuttal testimony?

A. Yes, it does. However, I reserve the right to supplement my testimony.

Met-Ed/Penelec/Penn Power/West Penn

Exhibits AJW-1R through AJW-5R

RIDER F
PHASE IV ENERGY EFFICIENCY AND CONSERVATION CHARGE RIDER

An Energy Efficiency and Conservation ("EEC") Charge ("Phase IV EE&C-C") shall be applied to each Billing Unit during a billing month to Customers served under this Tariff, with the exception of those served under Borderline Service rates. Billing Units are defined as follows:

Residential, Commercial, and Street Lighting Customer Classes:	Per kWh
Industrial Customer Class:	Per kW PLC

Residential, Commercial, and Street Lighting Customer Class rates will be calculated to the nearest one-thousandth of a cent per kWh. Industrial Customer Class rates will be calculated to the nearest one-hundredth of a dollar per kW PLC. The Phase IV EE&C-C rates shall be calculated separately for each customer class according to the provisions of this rider.

For service rendered June 1, 2021 through May 31, 2022 the Phase IV EE&C-C rates billed by Customer Class are as follows:

<u>Residential Customer Class (Rate RS)</u>:

0.118 cents per kWh.

<u>Commercial Customer Class (Rate GS-Small, Rate GS-Medium, Rate GS – Volunteer Fire Company and Non-Profit Ambulance Service, Rescue Squad and Senior Center Service Rate, Rate MS and Outdoor Area Lighting Service)</u>:

0.136 cents per kWh.

<u>Street Lighting Customer Class (Street Lighting Service, Ornamental Street Lighting Service, and LED Street Lighting Service):</u>

(0.104) cents per kWh.

<u>Industrial Customer Class (Rate GS-Large, Rate GP, and Rate TP):</u>

$ 0.49 per kW PLC.

RIDERS

Rider F (continued)

The Phase IV EE&C-C rates by Customer Class shall be calculated in accordance with the formula set forth below:

$$EE\&C\text{-}C = [(EEC_C - \{E + PJM\} - E^2) / S] \times [1 / (1 - T)]$$

$$EEC_C = EEC_{Exp1} + EEC_{Exp2} + EEC_{Exp3}$$ Where:

EE&C-C = The charge in cents or dollar per Billing Unit by Customer Class as defined by this rider applied to each Billing Unit for the Rate Schedules identified in this rider.

EEC_C = The Energy Efficiency and Conservation Costs by Customer Class incurred and projected to be incurred by the Company for the EE&C-C Computational Period calculated in accordance with the formula shown above.

EEC_{Exp1} = Costs incurred and projected to be incurred associated with the Customer Class specific Phase IV EE&C Programs as approved by the Commission for the Phase IV EE&C-C Computational Period by Customer Class. These costs also include an allocated portion of any indirect costs incurred associated with all the Company's Phase IV EE&C Programs for the Phase IV EE&C-C Computational Period. ~~EECExp1 costs will be offset by a credit for any PJM capacity market revenues (net of the costs associated with auction participation and including replacing capacity charges), capacity deficiency charges and any unavoidable PJM charges.~~ Such costs shall be allocated to each customer class based on the ratio of class-specific approved budgeted administrative program costs to total plan-specific approved budgeted administrative program costs.~~Such costs shall be allocated to each customer class based on the ratio of class-specific approved budgeted program costs to total approved budgeted program costs.~~

EEC_{Exp2} = An allocated portion of incremental administrative start-up costs incurred by the Company through May 31, 2021 in connection with the development of the Company's Phase IV EE&C Programs in response to the Commission's order and guidance at Docket No. M-2020-3015228. These costs to design, create, and obtain Commission approval for the Company's Phase IV EE&C Programs include, but are not limited to, consultant costs, legal fees, and other direct and indirect costs associated with the development and implementation of the Company's Phase IV EE&C Programs in compliance with Commission directives. Such costs shall be allocated to each customer class based on the ratio of class-specific approved budgeted administrative program costs to total plan-specific approved budgeted administrative program costs.~~Such costs shall be allocated to each customer class based on the ratio of class-specific approved budgeted program costs to total approved budgeted program costs.~~

RIDERS

Rider F (continued)

EEC_{Exp3} = An allocated portion of the costs the Company incurs and projects to incur to fund the Commission's statewide evaluator contract which shall be excluded in the final determination of the Act 129 limitation on the Company's Phase IV EE&C Program costs. Such costs shall be allocated to each customer class based on the ratio of class-specific approved budgeted program costs to total approved budgeted program costs.

E = The cumulative over or under-collection of Phase IV EE&C costs by Customer Class that results from the billing of the Phase IV EE&C-C rates (an over- collection is denoted by a positive E and an under-collection by a negative E).

PJM = A credit for any PJM Forward Capacity Market (FCM) revenues (net of the costs associated with auction participation and including replacing capacity charges, capacity deficiency charges and any unavoidable PJM charges). The credit will be assigned to the specific customer class associated with the kW values of the EE&C programs and measures that cleared in the PJM FCM for each delivery period.

E^2 = Phase III EE&C final reconciliation over or under-collection of EEC costs by Customer Class that results from the billing of the Phase III EE&C-C rates through March 31, 2021 (an over- collection is denoted by a positive E and an under-collection by a negative E), and any expenses to finalize any measures installed and commercially operable on or before May 31, 2021; expenses to finalize any contracts; other Phase III administrative obligations; and any remaining Phase III EE&C revenues after March 31, 2021.

S = The Company's projected Billing Units (kWh sales delivered to all Customers in the specific customer class or kW PLC demand for the Industrial Customer Class).

T = The Pennsylvania gross receipts tax rate in effect during the billing month expressed in decimal form as reflected in the Company's base rates.

All capitalized terms not otherwise defined in this rider shall have the definitions specified in the Definitions of Terms section of this Tariff. For the purpose of this rider, the following additional definitions shall apply:

RIDERS

Rider F (continued)

1. Phase IV EE&C-C Computational Period – The 12-month period from June 1 through May 31.

2. Phase IV EE&C-C Initial Reconciliation Period – June 1, 2021 through March 31, 2022 for the initial period of the rider.

3. Phase IV EE&C-C Reconciliation Period – The 12-month period ending March 31 each year thereafter, except for the Initial Reconciliation Period, for the duration of this rider.

4. Peak Load Contribution (“PLC”) – A Customer’s contribution to the Company’s transmission zone normalized summer peak load, as estimated by the Company in accordance with PJM rules and requirements.

5. Phase III EE&C – The energy efficiency plan that terminates on May 31, 2021. Revenues and EE&C Costs will continue to accrue past the termination date. A final reconciliation of the remaining balance will be included in the June 1, 2022 Phase IV EE&C-C rate calculation as a separate line item.

The Company will submit to the Commission by May 1 of each year starting May 1, 2022: (1) a reconciliation between actual Phase IV EE&C-C revenues and actual Phase IV EE&C-C costs for the Phase IV EE&C-C Reconciliation Period, except for the Phase IV EE&C-C Initial Reconciliation Period, as adjusted for removal of gross receipts tax; (2) any adjustment to the forecasted Phase IV EE&C-C revenues anticipated to be billed during April through May of that year, as adjusted for removal of gross receipts tax; (3) the Phase IV EE&C program cost estimate for the forthcoming Phase IV EE&C-C Computational Period by Customer Class; and (4) Phase III EE&C final reconciliation over or under-collection of EEC costs by Customer Class that results from the billing of the Phase III EE&C-C rates and remaining Phase III EEC costs. There shall also be a final reconciliation of amounts to be collected or refunded after May 31, 2026.

Upon determination that the Phase IV EE&C-C rates, if left unchanged, would result in material over or under-collection of all recoverable costs incurred or expected to be incurred by customer class, the Company may request that the Commission approve one or more interim revisions to the Phase IV EE&C-C rates to become effective thirty (30) days from the date of filing, unless otherwise ordered by the Commission.

The Company shall file an annual report of collections under this rider by April 30th of each year starting April 30, 2022 until the conclusion of this rider.

At the conclusion of the duration of this rider, the Company is authorized to recover or refund any remaining amounts not reconciled at that time under such mechanism as approved by the Commission.

Application of the Phase IV EE&C-C rates shall be subject to annual review and audit by the Commission.

RIDER F
PHASE IV ENERGY EFFICIENCY AND CONSERVATION CHARGE RIDER

An Energy Efficiency and Conservation ("EEC") Charge ("Phase IV EE&C-C") shall be applied to each Billing Unit during a billing month to Customers served under this Tariff, with the exception of those served under Borderline Service rates. Billing Units are defined as follows:

Residential, Commercial, and Street Lighting Customer Classes:	Per kWh
Industrial Customer Class:	Per kW PLC

Residential, Commercial, and Street Lighting Customer Class rates will be calculated to the nearest one-thousandth of a cent per kWh. Industrial Customer Class rates will be calculated to the nearest one-hundredth of a dollar per kW PLC. The Phase IV EE&C-C rates shall be calculated separately for each customer class according to the provisions of this rider.

For service rendered June 1, 2021 through May 31, 2022 the Phase IV EE&C-C rates billed by Customer Class are as follows:

<u>Residential Customer Class (Rate RS)</u>:

0.111 cents per kWh.

<u>Commercial Customer Class (Rate GS-Small, Rate GS-Medium, Rate GS – Volunteer Fire Company and Non-Profit Ambulance Service, Rescue Squad and Senior Center Service Rate, Rate H and Outdoor Area Lighting Service)</u>:

0.149 cents per kWh.

<u>Street Lighting Customer Class (High Pressure Sodium Vapor Street Lighting Service, Municipal Street Lighting Service, and LED Street Lighting Service):</u>

(0.145) cents per kWh.

<u>Industrial Customer Class (Rate GS-Large, Rate GP, and Rate LP):</u>

$ 0.38 per kW PLC.

RIDERS

Rider F (continued)

The Phase IV EE&C-C rates by Customer Class shall be calculated in accordance with the formula set forth below:

$$EE\&C\text{-}C = [(EEC_C - \{E + PJM\}\ \cancel{E} - E^2) / S] \times [1 / (1 - T)]\quad EEC_C = EEC_{Exp1} + EEC_{Exp2} + EEC_{Exp3}$$

Where:

EE&C-C = The charge in cents or dollar per Billing Unit by Customer Class as defined by this rider applied to each Billing Unit for the Rate Schedules identified in this rider.

EEC_C = The Energy Efficiency and Conservation Costs by Customer Class incurred and projected to be incurred by the Company for the EE&C-C Computational Period calculated in accordance with the formula shown above.

EEC_{Exp1} = Costs incurred and projected to be incurred associated with the Customer Class specific Phase IV EE&C Programs as approved by the Commission for the Phase IV EE&C-C Computational Period by Customer Class. These costs also include an allocated portion of any indirect costs incurred associated with all the Company's Phase IV EE&C Programs for the Phase IV EE&C-C Computational Period. ~~EECExp1 costs will be offset by a credit for any PJM capacity market revenues (net of the costs associated with auction participation and including replacing capacity charges), capacity deficiency charges and any unavoidable PJM charges.~~ Such costs shall be allocated to each customer class based on the ratio of class-specific approved budgeted administrative program costs to total plan-specific approved budgeted administrative program costs.~~Such costs shall be allocated to each customer class based on the ratio of class-specific approved budgeted program costs to total approved budgeted program costs~~.

EEC_{Exp2} = An allocated portion of incremental administrative start-up costs incurred by the Company through May 31, 2021 in connection with the development of the Company's Phase IV EE&C Programs in response to the Commission's order and guidance at Docket No. M-2020-3015228. These costs to design, create, and obtain Commission approval for the Company's Phase IV EE&C Programs include, but are not limited to, consultant costs, legal fees, and other direct and indirect costs associated with the development and implementation of the Company's Phase IV EE&C Programs in compliance with Commission directives. Such costs shall be allocated to each customer class based on the ratio of class-specific approved budgeted administrative program costs to total plan-specific approved budgeted administrative program costs.~~Such costs shall be allocated to each customer class based on the ratio of class-~~

~~specific approved budgeted program costs to total approved budgeted program costs.~~

Rider F (continued)

EEC_{Exp3} = An allocated portion of the costs the Company incurs and projects to incur to fund the Commission's statewide evaluator contract which shall be excluded in the final determination of the Act 129 limitation on the Company's Phase IV EE&C Programs costs. Such costs shall be allocated to each customer class based on the ratio of class-specific approved budgeted program costs to total approved budgeted program costs.

E = The cumulative over or under-collection of Phase IV EE&C costs by Customer Class that results from the billing of the Phase IV EE&C-C rates (an over- collection is denoted by a positive E and an under-collection by a negative E).

PJM = A credit for any PJM Forward Capacity Market (FCM) revenues (net of the costs associated with auction participation and including replacing capacity charges, capacity deficiency charges and any unavoidable PJM charges). The credit will be assigned to the specific customer class associated with the kW values of the EE&C programs and measures that cleared in the PJM FCM for each delivery period.

E^2 = Phase III EE&C final reconciliation over or under-collection of EEC costs by Customer Class that results from the billing of the Phase III EE&C-C rates through March 31, 2021 (an over- collection is denoted by a positive E and an under-collection by a negative E), and any expenses to finalize any measures installed and commercially operable on or before May 31, 2021; expenses to finalize any contracts; other Phase III administrative obligations; and any remaining Phase III EE&C revenues after March 31, 2021.

S = The Company's projected Billing Units (kWh sales delivered to all Customers in the specific customer class or kW PLC demand for the Industrial Customer Class).

T = The Pennsylvania gross receipts tax rate in effect during the billing month expressed in decimal form as reflected in the Company's base rates.

All capitalized terms not otherwise defined in this rider shall have the definitions specified in the Definitions of Terms section of this Tariff. For the purpose of this rider, the following additional definitions shall apply:

RIDERS

Rider F (continued)

1. Phase IV EE&C-C Computational Period – The 12-month period from June 1 through May 31.

2. Phase IV EE&C-C Initial Reconciliation Period – June 1, 2021 through March 31, 2022 for the initial period of the rider.

3. Phase IV EE&C-C Reconciliation Period – The 12-month period ending March 31 each year thereafter, except for the Initial Reconciliation Period, for the duration of this rider.

4. Peak Load Contribution ("PLC") – A Customer's contribution to the Company's transmission zone normalized summer peak load, as estimated by the Company in accordance with PJM rules and requirements.

5. Phase III EE&C – The energy efficiency plan that terminates on May 31, 2021. Revenues and EE&C Costs will continue to accrue past the termination date. A final reconciliation of the remaining balance will be included in the June 1, 2022 Phase IV EE&C-C rate calculation as a separate line item.

The Company will submit to the Commission by May 1 of each year starting May 1, 2022: (1) a reconciliation between actual Phase IV EE&C-C revenues and actual Phase IV EE&C-C costs for the Phase IV EE&C-C Reconciliation Period, except for the Phase IV EE&C-C Initial Reconciliation Period, as adjusted for removal of gross receipts tax; (2) any adjustment to the forecasted Phase IV EE&C-C revenues anticipated to be billed during April through May of that year, as adjusted for removal of gross receipts tax; (3) the Phase IV EE&C program cost estimate for the forthcoming Phase IV EE&C-C Computational Period by Customer Class; and (4) Phase III EE&C final reconciliation over or under-collection of EEC costs by Customer Class that results from the billing of the Phase III EE&C-C rates and remaining Phase III EEC costs. There shall also be a final reconciliation of amounts to be collected or refunded after May 31, 2026.

Upon determination that the Phase IV EE&C-C rates, if left unchanged, would result in material over or under-collection of all recoverable costs incurred or expected to be incurred by customer class, the Company may request that the Commission approve one or more interim revisions to the Phase IV EE&C-C rates to become effective thirty (30) days from the date of filing, unless otherwise ordered by the Commission.

The Company shall file an annual report of collections under this rider by April 30th of each year starting April 30, 2022 until the conclusion of this rider.

At the conclusion of the duration of this rider, the Company is authorized to recover or refund any remaining amounts not reconciled at that time under such mechanism as approved by the Commission.

Application of the Phase IV EE&C-C rates shall be subject to annual review and audit by the Commission.

RIDER F

PHASE IV ENERGY EFFICIENCY AND CONSERVATION CHARGE RIDER

An Energy Efficiency and Conservation ("EEC") Charge ("Phase IV EE&C-C") shall be applied to each Billing Unit during a billing month to Customers served under this Tariff. Billing Units are defined as follows:

Residential, Commercial, and Street Lighting Customer Classes:	Per kWh
Industrial Customer Class:	Per kW PLC

Residential, Commercial, and Street Lighting Customer Class rates will be calculated to the nearest one-thousandth of a cent per kWh. Industrial Customer Class rates will be calculated to the nearest one-hundredth of a dollar per kW PLC. The Phase IV EE&C-C rates shall be calculated separately for each customer class according to the provisions of this rider.

For service rendered June 1, 2021 through May 31, 2022 the Phase IV EE&C-C rates billed by Customer Class are as follows:

<u>Residential Customer Class (Rate Schedule RS)</u>:

0.142 cents per kWh.

<u>Commercial Customer Class (Rate GS; GS Special Rule GSDS, Rate GM; Rate PLS; GS Special Provision for Volunteer Fire Companies, Non-Profit Senior Citizen Centers, Non-Profit Rescue Squads and Non-Profit Ambulance Services; and Rate PNP)</u>:

0.171 cents per kWh.

<u>Street Lighting Customer Class (Rate SV; Rate SVD; and Rate LED):</u>

(0.694) cents per kWh.

<u>Industrial Customer Class (Rate GS-Large, Rate GP, and Rate GT):</u>

$ 0.31 per kW PLC.

Rider F (continued)

The Phase IV EE&C-C rates by Customer Class shall be calculated in accordance with the formula set forth below:

$$EE\&C\text{-}C = [(EEC_C - \{E + PJM\}\ \cancel{E} - E^2) / S]\ X\ [\ 1 / (1 - T)]$$

$$EEC_C = EEC_{Exp1} + EEC_{Exp2} + EEC_{Exp3}$$

Where:

EE&C-C = The charge in cents or dollar per Billing Unit by Customer Class as defined by this rider applied to each Billing Unit for the Rate Schedules identified in this rider.

EEC_C = The Energy Efficiency and Conservation Costs by Customer Class incurred and projected to be incurred by the Company for the Phase IV EE&C-C Computational Period calculated in accordance with the formula shown above.

EEC_{Exp1} = Costs incurred and projected to be incurred associated with the Customer Class specific Phase IV EE&C Programs as approved by the Commission for the Phase IV EE&C-C Computational Period by Customer Class. These costs also include an allocated portion of any indirect costs incurred associated with all the Company's Phase IV EE&C Programs for the Phase IV EE&C-C Computational Period. ~~EEC_{Exp1} costs will be offset by a credit for any PJM capacity market revenues (net of the costs associated with auction participation and including replacing capacity charges), capacity deficiency charges and any unavoidable PJM charges.~~ Such costs shall be allocated to each customer class based on the ratio of class-specific approved budgeted administrative program costs to total plan-specific approved budgeted administrative program costs.~~Such costs shall be allocated to each customer class based on the ratio of class-specific approved budgeted program costs to total approved budgeted program costs.~~

EEC_{Exp2} = An allocated portion of incremental administrative start-up costs incurred by the Company through May 31, 2021 in connection with the development of the Company's Phase IV EE&C Programs in response to the Commission's order and guidance at Docket No. M-2020-3015228. These costs to design, create, and obtain Commission approval for the Company's Phase IV EE&C Programs include, but are not limited to, consultant costs, legal fees, and other direct and indirect costs associated with the development and implementation of the Company's Phase IV EE&C Programs in compliance with Commission directives. Such costs shall be allocated to each customer class based on the ratio of class-specific approved budgeted administrative program costs to total plan-specific approved budgeted administrative program costs.~~Such costs shall be allocated to each customer class based on the ratio of class-specific~~

~~approved budgeted program costs to total approved budgeted program costs.~~

Rider F (continued)

EEC_{Exp3} = An allocated portion of the costs the Company incurs and projects to incur to fund the Commission's statewide evaluator contract which shall be excluded in the final determination of the Act 129 limitation on the Company's Phase IV EE&C Programs costs. Such costs shall be allocated to each customer class based on the ratio of class-specific approved budgeted program costs to total approved budgeted program costs.

E = The cumulative over or under-collection of Phase IV EE&C costs by Customer Class that results from the billing of the Phase IV EE&C-C rates (an over-collection is denoted by a positive E and an under-collection by a negative E).

PJM = A credit for any PJM Forward Capacity Market (FCM) revenues (net of the costs associated with auction participation and including replacing capacity charges, capacity deficiency charges and any unavoidable PJM charges). The credit will be assigned to the specific customer class associated with the kW values of the EE&C programs and measures that cleared in the PJM FCM for each delivery period.

E^2 = Phase III EE&C final reconciliation over or under-collection of EEC costs by Customer Class that results from the billing of the Phase III EE&C-C rates through March 31, 2021 (an over- collection is denoted by a positive E and an under-collection by a negative E), and any expenses to finalize any measures installed and commercially operable on or before May 31, 2021; expenses to finalize any contracts; other Phase III administrative obligations; and any remaining Phase III EE&C revenues after March 31, 2021.

S = The Company's projected Billing Units (kWh sales delivered to all Customers in the specific customer class or kW PLC demand for the Industrial Customer Class).

T = The Pennsylvania gross receipts tax rate in effect during the billing month expressed in decimal form as reflected in the Company's base rates.

All capitalized terms not otherwise defined in this rider shall have the definitions specified in the Definitions of Terms section of this Tariff. For the purpose of this rider, the following additional definitions shall apply:

RIDERS

Rider F (continued)

1. Phase IV EE&C-C Computational Period – The 12-month period from June 1 through May 31.

2. Phase IV EE&C-C Initial Reconciliation Period – June 1, 2021 through March 31, 2022 for the initial period of the rider.

3. Phase IV EE&C-C Reconciliation Period – The 12-month period ending March 31 each year thereafter, except for the Initial Reconciliation Period, for the duration of this rider.

4. Peak Load Contribution ("PLC") – A Customer's contribution to the Company's transmission zone normalized summer peak load, as estimated by the Company in accordance with PJM rules and requirements.

5. Phase III EE&C – The energy efficiency plan that terminates on May 31, 2021. Revenues and EE&C Costs will continue to accrue past the termination date. A final reconciliation of the remaining balance will be included in the June 1, 2022 Phase IV EE&C-C rate calculation as a separate line item.

The Company will submit to the Commission by May 1 of each year starting May 1, 2022: (1) a reconciliation between actual Phase IV EE&C-C revenues and actual Phase IV EE&C-C costs for the Phase IV EE&C-C Reconciliation Period, except for the Phase III EE&C-C Initial Reconciliation Period, as adjusted for removal of gross receipts tax; (2) any adjustment to the forecasted Phase IV EE&C-C revenues anticipated to be billed during April through May of that year, as adjusted for removal of gross receipts tax; (3) the Phase IV EE&C program cost estimate for the forthcoming Phase IV EE&C-C Computational Period by Customer Class; and (4) Phase III EE&C final reconciliation over or under-collection of EEC costs by Customer Class that results from the billing of the Phase III EE&C-C rates and remaining Phase III EEC costs incurred after March 31, 2021. There shall also be a final reconciliation of amounts to be collected or refunded after May 31, 2026.

Upon determination that the Phase IV EE&C-C rates, if left unchanged, would result in material over or under-collection of all recoverable costs incurred or expected to be incurred by customer class, the Company may request that the Commission approve one or more interim revisions to the Phase IV EE&C-C rates to become effective thirty (30) days from the date of filing, unless otherwise ordered by the Commission.

The Company shall file an annual report of collections under this rider by April 30th of each year starting April 30, 2022 until the conclusion of this rider.

At the conclusion of the duration of this rider, the Company is authorized to recover or refund any remaining amounts not reconciled at that time under such mechanism as approved by the Commission.

Application of the Phase IV EE&C-C rates shall be subject to annual review and audit by the Commission.

RIDER F
PHASE IV ENERGY EFFICIENCY AND CONSERVATION CHARGE RIDER

An Energy Efficiency and Conservation ("EEC") Charge ("Phase IV EE&C-C") shall be applied to each Billing Unit during a billing month to Customers served under this Tariff. Billing Units are defined as follows:

Residential, Commercial, and Street Lighting Customer Classes:	Per kWh
Industrial Customer Class:	Per kW PLC

Residential, Commercial, and Street Lighting Customer Class rates will be calculated to the nearest one-thousandth of a cent per kWh. Industrial Customer Class rates will be calculated to the nearest one-hundredth of a dollar per kW PLC. The Phase IV EE&C-C rates shall be calculated separately for each customer class according to the provisions of this rider.

For service rendered June 1, 2021 through May 31, 2022 the Phase IV EE&C-C rates billed by Customer Class are as follows:

<u>Residential Customer Class (Rate 10)</u>:

0.139 cents per kWh.

<u>Commercial Customer Class (Rate GS 20, Rate GS 20 - Volunteer Fire Company, and Non-Profit Ambulance Service, Rescue Squad and Senior Center Service Rate and Rate GS 30)</u>:

0.117 cents per kWh.

<u>Street Lighting Customer Class (Rate Schedules 51 through 58, 71, 72):</u>

(0.864) cents per kWh.

<u>Industrial Customer Class (Rate GS 35, 40, 44, 46 and Tariff No. 38):</u>

$ 0.27 per kW PLC.

Rider F (continued)

The Phase IV EE&C-C rates by Customer Class shall be calculated in accordance with the formula set forth below:

$$EE\&C\text{-}C = [(EEC_C - \{E + PJM\}\ \cancel{E} - E^2) / S]\ X\ [\ 1 / (1 - T)]$$

$$EEC_C = EEC_{Exp1} + EEC_{Exp2} + EEC_{Exp3}$$

Where:

EE&C-C = The charge in cents or dollar per Billing Unit by Customer Class as defined by this rider applied to each Billing Unit for the Rate Schedules and Tariffs identified in this rider.

EEC_C = The Energy Efficiency and Conservation Costs by Customer Class incurred and projected to be incurred by the Company for the Phase IV EE&C-C Computational Period calculated in accordance with the formula shown above.

EEC_{Exp1} = Costs incurred and projected to be incurred associated with the Customer Class specific Phase IV EE&C Programs as approved by the Commission for the Phase IV EE&C-C Computational Period by Customer Class. These costs also include an allocated portion of any indirect costs incurred associated with all the Company's Phase IV EE&C Programs for the Phase IV EE&C-C Computational Period. ~~EEC_{Exp1} costs will be offset by a credit for any PJM capacity market revenues (net of the costs associated with auction participation and including replacing capacity charges), capacity deficiency charges and any unavoidable PJM charges. Such costs shall be allocated to each customer class based on the ratio of class-specific approved budgeted program costs to total approved budgeted program costs.~~ Such costs shall be allocated to each customer class based on the ratio of class-specific approved budgeted administrative program costs to total plan-specific approved budgeted administrative program costs.

EEC_{Exp2} = An allocated portion of incremental administrative start-up costs incurred by the Company through May 31, 2021 in connection with the development of the Company's Phase IV EE&C Programs in response to the Commission's order and guidance at Docket No. M-2020-3015228. These costs to design, create, and obtain Commission approval for the Company's Phase IV EE&C Programs include, but are not limited to, consultant costs, legal fees, and other direct and indirect costs associated with the development and implementation of the Company's Phase IV EE&C Programs in compliance with Commission directives. Such costs shall be allocated to each customer class based on the ratio of class-specific approved budgeted administrative program costs to total plan-specific approved budgeted administrative program costs.~~Such costs shall~~

~~be allocated to each customer class based on the ratio of class-specific approved budgeted program costs to total approved budgeted program costs.~~

Rider F (continued)

EEC_{Exp3} = An allocated portion of the costs the Company incurs and projects to incur to fund the Commission's statewide evaluator contract which shall be excluded in the final determination of the Act 129 limitation on the Company's Phase IV EE&C Programs costs. Such costs shall be allocated to each customer class based on the ratio of class-specific approved budgeted program costs to total approved budgeted program costs.

E = The cumulative over or under-collection of Phase IV EE&C costs by Customer Class that results from the billing of the Phase IV EE&C-C rates (an over-collection is denoted by a positive E and an under-collection by a negative E).

PJM = A credit for any PJM Forward Capacity Market (FCM) revenues (net of the costs associated with auction participation and including replacing capacity charges, capacity deficiency charges and any unavoidable PJM charges). The credit will be assigned to the specific customer class associated with the kW values of the EE&C programs and measures that cleared in the PJM FCM for each delivery period.

E^2 = Phase III EE&C final reconciliation over or under-collection of EEC costs by Customer Class that results from the billing of the Phase III EE&C-C rates through March 31, 2021 (an over- collection is denoted by a positive E and an under-collection by a negative E), and any expenses to finalize any measures installed and commercially operable on or before May 31, 2021; expenses to finalize any contracts; other Phase III administrative obligations; and any remaining Phase III EE&C revenues after March 31, 2021.

S = The Company's projected Billing Units (kWh sales delivered to all Customers in the specific customer class or kW PLC demand for the Industrial Customer Class).

T = The Pennsylvania gross receipts tax rate in effect during the billing month expressed in decimal form as reflected in the Company's base rates.

All capitalized terms not otherwise defined in this rider shall have the definitions specified in the Definitions of Terms section of this Tariff. For the purpose of this rider, the following additional definitions shall apply:

RIDERS

Rider F (continued)

1. Phase IV EE&C-C Computational Period – The 12-month period from June 1 through May 31.

2. Phase IV EE&C-C Initial Reconciliation Period – June 1, 2021 through March 31, 2022 for the initial period of the rider.

3. Phase IV EE&C-C Reconciliation Period – The 12-month period ending March 31 each year thereafter, except for the Initial Reconciliation Period, for the duration of this rider.

4. Peak Load Contribution ("PLC") – A Customer's contribution to the Company's transmission zone normalized summer peak load, as estimated by the Company in accordance with PJM rules and requirements.

5. Phase III EE&C – The energy efficiency plan that terminates on May 31, 2021. Revenues and EE&C Costs will continue to accrue past the termination date. A final reconciliation of the remaining balance will be included in the June 1, 2022 Phase IV EE&C-C rate calculation as a separate line item.

The Company will submit to the Commission by May 1 of each year starting May 1, 2022: (1) a reconciliation between actual Phase IV EE&C-C revenues and actual Phase IV EE&C-C costs for the Phase IV EE&C-C Reconciliation Period, except for the Phase IV EE&C-C Initial Reconciliation Period, as adjusted for removal of gross receipts tax; (2) any adjustment to the forecasted Phase IV EE&C-C revenues anticipated to be billed during April through May of that year, as adjusted for removal of gross receipts tax; (3) the Phase IV EE&C program cost estimate for the forthcoming Phase IV EE&C-C Computational Period by Customer Class; and (4) Phase III EE&C final reconciliation over or under-collection of EEC costs by Customer Class that results from the billing of the Phase III EE&C-C rates and remaining Phase III EEC costs. There shall also be a final reconciliation of amounts to be collected or refunded after May 31, 2026.

Upon determination that the Phase IV EE&C-C rates, if left unchanged, would result in material over or under-collection of all recoverable costs incurred or expected to be incurred by customer class, the Company may request that the Commission approve one or more interim revisions to the Phase IV EE&C-C rates to become effective thirty (30) days from the date of filing, unless otherwise ordered by the Commission.

The Company shall file an annual report of collections under this rider by April 30th of each year starting April 30, 2022 until the conclusion of this rider.

At the conclusion of the duration of this rider, the Company is authorized to recover or refund any remaining amounts not reconciled at that time under such mechanism as approved by the Commission.

Application of the Phase IV EE&C-C rates shall be subject to annual review and audit by the Commission.

RIDER F

TARIFF No. 38 – PENNSYLVANIA STATE UNIVERSITY
PHASE IV ENERGY EFFICIENCY AND CONSERVATION CHARGE RIDER

An Energy Efficiency and Conservation ("EEC") Charge ("Phase IV EE&C-C") shall be applied to each Billing Unit during a billing month to Customers served under this Tariff. Billing Units are defined as follows:

Industrial Customer Class rates will be calculated to the nearest one-hundredth of a dollar per kW PLC. The Phase IV EE&C-C rates shall be calculated separately for each customer class according to the provisions of this rider.

For service rendered June 1, 2021 through May 31, 2022 the Phase IV EE&C-C rates billed by Customer Class are as follows:

Industrial Customer Class (Tariff No. 40 Rate Schedule 35, 40, 44 and 46 and Tariff No. 38):

$ 0.27 per kW PLC.

Rider F (Continued)

The Phase IV EE&C-C rates by Customer Class shall be calculated in accordance with the formula set forth below:

$$EE\&C\text{-}C = [(EEC_C - \{E + PJM\}\ \cancel{E} - E^2) / S]\ X\ [1 / (1 - T)]$$

$$EEC_C = EEC_{Exp1} + EEC_{Exp2} + EEC_{Exp3}$$

Where:

EE&C-C = The charge in cents or dollar per Billing Unit by Customer Class as defined by this rider applied to each Billing Unit for the Rate Schedules identified in this rider.

EEC_C = The Energy Efficiency and Conservation Costs by Customer Class incurred and projected to be incurred by the Company for the Phase IV EE&C-C Computational Period calculated in accordance with the formula shown above.

EEC_{Exp1} = Costs incurred and projected to be incurred associated with the Customer Class specific Phase IV EE&C Programs as approved by the Commission for the Phase IV EE&C-C Computational Period by Customer Class. These costs also include an allocated portion of any indirect costs incurred associated with all the Company's Phase IV EE&C Programs for the Phase IV EE&C-C Computational Period. ~~EEC_{Exp1} costs will be offset by a credit for any PJM capacity market revenues (net of the costs associated with auction participation and including replacing capacity charges), capacity deficiency charges and any unavoidable PJM charges. Such costs shall be allocated to each customer class based on the ratio of class-specific approved budgeted program costs to total approved budgeted program costs.~~ Such costs shall be allocated to each customer class based on the ratio of class-specific approved budgeted administrative program costs to total plan-specific approved budgeted administrative program costs.

EEC_{Exp2} = An allocated portion of incremental administrative start-up costs incurred by the Company through May 31, 2021 in connection with the development of the Company's Phase IV EE&C Programs in response to the Commission's order and guidance at Docket No. M-2020-3015228. These costs to design, create, and obtain Commission approval for the Company's Phase IV EE&C Programs include, but are not limited to, consultant costs, legal fees, and other direct and indirect costs associated with the development and implementation of the Company's Phase IV EE&C Programs in compliance with Commission directives. Such costs shall be allocated to each customer class based on the ratio of class-specific approved budgeted administrative program costs to total plan-specific approved budgeted administrative program costs.~~Such costs shall be allocated to each customer class based on the ratio of class-specific approved budgeted program costs to total~~

~~approved budgeted program costs.~~

Rider F (Continued)

EEC_{Exp3} = An allocated portion of the costs the Company incurs and projects to incur to fund the Commission's statewide evaluator contract which shall be excluded in the final determination of the Act 129 limitation on the Company's Phase IV EE&C Programs costs. Such costs shall be allocated to each customer class based on the ratio of class-specific approved budgeted program costs to total approved budgeted program cost.

E = The cumulative over or under-collection of Phase IV EE&C costs by Customer Class that results from the billing of the Phase IV EE&C-C rates (an over- collection is denoted by a positive E and an under-collection by a negative E).

PJM = A credit for any PJM Forward Capacity Market (FCM) revenues (net of the costs associated with auction participation and including replacing capacity charges, capacity deficiency charges and any unavoidable PJM charges). The credit will be assigned to the specific customer class associated with the kW values of the EE&C programs and measures that cleared in the PJM FCM for each delivery period.

E^2 = Phase III EE&C final reconciliation over or under-collection of EEC costs by Customer Class that results from the billing of the Phase III EE&C-C rates through March 31, 2021 (an over- collection is denoted by a positive E and an under-collection by a negative E), and any expenses to finalize any measures installed and commercially operable on or before May 31, 2021; expenses to finalize any contracts; other Phase III administrative obligations; and any remaining Phase III EE&C revenues after March 31, 2021.

S = The Company's projected Billing Units (kWh sales delivered to all Customers in the specific customer class or kW PLC demand for the Industrial Customer Class).

T = The Pennsylvania gross receipts tax rate in effect during the billing month expressed in decimal form as reflected in the Company's base rates.

All capitalized terms not otherwise defined in this rider shall have the definitions specified in the Definitions of Terms section of this Tariff. For the purpose of this rider, the following additional definitions shall apply:

Rider F (continued)

1. Phase IV EE&C-C Computational Period – The 12-month period from June 1 through May 31.

2. Phase IV EE&C-C Initial Reconciliation Period – June 1, 2021 through March 31, 2022 for the initial period of the rider.

3. Phase IV EE&C-C Reconciliation Period – The 12-month period ending March 31 each year thereafter, except for the Initial Reconciliation Period, for the duration of this rider.

4. Peak Load Contribution ("PLC") – A Customer's contribution to the Company's transmission zone normalized summer peak load, as estimated by the Company in accordance with PJM rules and requirements.

5. Phase III EE&C – The energy efficiency plan that terminates on May 31, 2021. Revenues and EE&C Costs will continue to accrue past the termination date. A final reconciliation of the remaining balance will be included in the June 1, 2022 Phase IV EE&C-C rate calculation as a separate line item.

The Company will submit to the Commission by May 1 of each year starting May 1, 2022: (1) a reconciliation between actual Phase IV EE&C-C revenues and actual Phase IV EE&C-C costs for the Phase IV EE&C-C Reconciliation Period, except for the Phase IV EE&C-C Initial Reconciliation Period, as adjusted for removal of gross receipts tax; (2) any adjustment to the forecasted Phase IV EE&C-C revenues anticipated to be billed during April through May of that year, as adjusted for removal of gross receipts tax; (3) the Phase IV EE&C program cost estimate for the forthcoming Phase IV EE&C-C Computational Period by Customer Class; and (4) Phase III EE&C final reconciliation over or under-collection of EEC costs by Customer Class that results from the billing of the Phase III EE&C-C rates and remaining Phase III EEC costs. There shall also be a final reconciliation of amounts to be collected or refunded after May 31, 2026.

Upon determination that the Phase IV EE&C-C rates, if left unchanged, would result in material over or under-collection of all recoverable costs incurred or expected to be incurred by customer class, the Company may request that the Commission approve one or more interim revisions to the Phase IV EE&C-C rates to become effective thirty (30) days from the date of filing, unless otherwise ordered by the Commission.

The Company shall file an annual report of collections under this rider by April 30th of each year starting April 30, 2022 until the conclusion of this rider.

At the conclusion of the duration of this rider, the Company is authorized to recover or refund any remaining amounts not reconciled at that time under such mechanism as approved by the Commission.

Application of the Phase IV EE&C-C rates shall be subject to annual review and audit by the Commission.

Met-Ed/Penelec/Penn Power/West Penn Statement No. 2-R (Supp)

BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION

METROPOLITAN EDISON COMPANY
Docket No. M-2020-3020820

PENNSYLVANIA ELECTRIC COMPANY
Docket No. M-2020-3020821

PENNSYLVANIA POWER COMPANY
Docket No. M-2020-3020822

WEST PENN POWER COMPANY
Docket No. M-2020-3020823

PHASE IV ENERGY EFFICIENCY AND CONSERVATION PLAN

Prepared
Supplemental Rebuttal
Testimony
of
Edward C. Miller

<u>LIST OF TOPICS ADDRESSED</u>

Proposed Scale Back of Behavior Programs

Allocation of Common Costs

FirstEnergy
Statement
2-R Supp

I. INTRODUCTION AND BACKGROUND

Q. Please state your name and business address.

A. My name is Edward C. Miller, and my business address is 800 Cabin Hill Drive, Greensburg, PA 15601.

Q. Mr. Miller, by whom are you employed and in what capacity?

A. I am employed by FirstEnergy Service Company, which is a direct subsidiary of FirstEnergy Corp. ("FirstEnergy"), as Manager, Compliance and Development in the Energy Efficiency Department. I report to the Director, Energy Efficiency Compliance and Reporting. I am responsible for compliance and development activities related to energy efficiency and conservation ("EE&C") programs for the FirstEnergy utilities in Ohio, Maryland, New Jersey, Pennsylvania, and West Virginia. This primarily involves the development of programs and filings to meet the FirstEnergy utilities' EE&C and/or peak demand reduction ("PDR") requirements and obligations.

Q. Did you previously submit testimony in this proceeding?

A. Yes, I submitted direct testimony (Met-Ed/Penelec/Penn Power/West Penn Statement No. 2) and rebuttal testimony (Met-Ed/Penelec/Penn Power/West Penn Statement No. 2-R) in support of the Phase IV EE&C Plan proposed in this proceeding ("Phase IV Plan," "Proposed Plan," or "Plan") by Metropolitan Edison Company ("Met-Ed"), Pennsylvania Electric Company ("Penelec"), Pennsylvania Power Company ("Penn Power"), and West Penn Power Company ("West Penn") (collectively, the "Companies").

Q. Please briefly describe the subject matter of your supplemental rebuttal testimony in this proceeding.

A. I will respond to certain issues raised in the supplemental direct testimony of Geoffrey C. Crandall (OCA Statement No. 1-Supp) submitted on behalf of the Office of Consumer Advocate ("OCA"), specifically concerning his issue with the allocation of common costs to the customer classes and his clarification of his proposed "scale back" of the Companies' behavior programs.

Q. Are there any exhibits that you are sponsoring with your supplemental rebuttal testimony?

A. No.

II. <u>OCA STATEMENT NO. 1-SUPP</u>

Q. In his supplemental direct testimony, OCA witness Crandall recaps his issue with the allocation of common costs to the customers classes and then reiterates his recommendation that the common costs be allocated to the customer classes based on the percentage of total program budgets. (OCA St. No. 1-Supp, pp. 3-5.) Does anything in Mr. Crandall's supplemental direct testimony change your position on the allocation of common costs?

A. No. My position set forth on pages 24-25 of my rebuttal testimony remains unchanged. I believe the common costs should continue to be allocated based on their program specific administrative (e.g., non-incentive) costs, which is consistent with the Companies' allocations in Phase III, instead of being allocated based on the total program specific costs including incentives, which would skew the allocations towards programs with larger incentive budgets.

Q. Mr. Crandall also clarifies his recommendation to "scale back" the Companies behavior programs, specifically requesting that the Companies "reduce their budget for the Behavior modification programs by 50% or more and re-direct those funds to the Weatherization subprogram or the Energy Efficient Products Program to fund long lived energy efficiency measures." (OCA St. No. 1-Supp, pp. 5-6.) Do you agree with this recommendation as clarified?

A. No. As explained on pages 23-24 of my rebuttal testimony, Mr. Crandall's recommended "scale back" of the behavior programs should be rejected. Nothing in Mr. Crandall's supplemental direct testimony changes that position.

Q. Does this conclude your supplemental rebuttal testimony?

A. Yes.

Met-Ed/Penelec/Penn Power/West Penn Statement No. 3-R (Supp)

BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION

METROPOLITAN EDISON COMPANY
Docket No. M-2020-3020820

PENNSYLVANIA ELECTRIC COMPANY
Docket No. M-2020-3020821

PENNSYLVANIA POWER COMPANY
Docket No. M-2020-3020822

WEST PENN POWER COMPANY
Docket No. M-2020-3020823

PHASE IV ENERGY EFFICIENCY AND CONSERVATION PLAN

Prepared
Supplemental Rebuttal
Testimony
of
Anthony J. Woytko

LIST OF TOPICS ADDRESSED

Phase IV Cost Recovery Mechanism and Reconciliation

FirstEnergy
Statement
3-R Supp

21482812v1

I. INTRODUCTION AND BACKGROUND

Q. Please state your name and business address.

A. My name is Anthony J Woytko. My business address is 2800 Pottsville Pike, Reading, Pennsylvania, 19605.

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

A. I am employed by FirstEnergy Service Company as an Analyst in Rates and Regulatory Affairs - Pennsylvania.

Q. Did you previously submit testimony in this proceeding?

A. Yes, I submitted direct testimony (Met-Ed/Penelec/Penn Power/West Penn Statement No. 3) and rebuttal testimony (Met-Ed/Penelec/Penn Power/West Penn Statement No. 3-R) in support of the Phase IV EE&C Plan proposed in this proceeding ("Phase IV Plan" or "Proposed Plan") by Metropolitan Edison Company ("Met-Ed"), Pennsylvania Electric Company ("Penelec"), Pennsylvania Power Company ("Penn Power"), and West Penn Power Company ("West Penn") (collectively, the "Companies").

Q. Please briefly describe the subject matter of your supplemental rebuttal testimony in this proceeding.

A. I will respond to certain issues raised in the supplemental direct testimony of Geoffrey C. Crandall (OCA Statement No. 1-Supp) submitted on behalf of the Office of Consumer Advocate ("OCA"), specifically his issues regarding the Companies' proposed Phase IV EE&C-C Riders (Rider F) and how revenues and costs from the Companies' offering of peak demand reductions into PJM Interconnection LLC's ("PJM") Forward Capacity Market ("FCM") are credited under the Phase IV EE&C-C Riders.

Q. Are you sponsoring any exhibits with your supplemental rebuttal testimony?

A. No.

II. <u>OCA STATEMENT NO. 1-SUPP</u>

Q. OCA witness Crandall says that it appears, based on his review of the Companies' informal discovery responses, that the issue with allocation of PJM net revenues in Rider F will be resolved, but he cannot confirm because he had not reviewed the Companies' rebuttal testimony yet. (OCA St. No. 1-Supp, pp. 2-3.) Do you believe Mr. Crandall's issue with the allocation of PJM net revenues in Rider F has been resolved?

A. Yes. As explained in my rebuttal testimony, the Companies never intended to allocate the PJM net revenues among the customer classes. Attached to my rebuttal testimony were revised pro forma tariff supplements for Rider F (Met-Ed/Penelec/Penn Power/West Penn Exhibits AJW-1R through AJW-5R), in which the PJM net revenue was made its own variable in the formula (i.e., "PJM"), rather than included in EEC_{Exp1}. The PJM variable clearly offsets the E-Factor in the EE&C-C Rider calculation, as required under the Phase IV Implementation Order. Thus, I believe this issue has been resolved.

Q. Does this conclude your supplemental rebuttal testimony?

A. Yes.

COMMONWEALTH OF PENNSYLVANIA

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January 13, 2021

Via Electronic Mail Only
Deputy Chief Administrative Law Judge Mark A. Hoyer
The Honorable Emily I. DeVoe
Office of Administrative Law Judge
Pennsylvania Public Utility Commission
Piatt Place
301 Fifth Avenue, Suite 220
Pittsburgh, PA 15222

Re: Joint Petition for Consolidation of Proceedings and Approval of the Phase IV Energy Efficiency and Conservation Plan of Metropolitan Edison Company, Pennsylvania Electric Company, Pennsylvania Power Company, and West Penn Power Company
Docket Nos. M-2020-3020820
M-2020-3020821
M-2020-3020822
M-2020-3020823

Dear Judge Hoyer and Judge DeVoe:

Enclosed please find a copy of the Direct Testimony being submitted on behalf of the Office of Consumer Advocate in the above-referenced proceedings, as follows:

Direct Testimony of Geoffrey C. Crandall, OCA Statement 1

Copies have been served on the parties as indicated on the enclosed Certificate of Service. Due to the ongoing emergency period, hard copies of the OCA's testimony cannot be provided at this time. Hard copies can be provided as normal operations resume. The OCA appreciates your understanding of this matter.

Respectfully submitted,

/s/ Christy M. Appleby
Christy M. Appleby
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PA Attorney I.D. # 85824
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OCA Statement
1

Enclosures:
cc: PUC Secretary Rosemary Chiavetta (Letter and Certificate of Service only)
Certificate of Service
*302314

CERTIFICATE OF SERVICE

Re:	Joint Petition for Consolidation of Proceedings and Approval of the Phase IV Energy Efficiency and Conservation Plan of Metropolitan Edison Company, Pennsylvania Electric Company, Pennsylvania Power Company, and West Penn Power Company	:	Docket Nos. M-2020-3020820 M-2020-3020821 M-2020-3020822 M-2020-3020823

I hereby certify that I have this day served a true copy of the following document, the Office of Consumer Advocate's Direct Testimony as follows:

Direct Testimony of Geoffrey C. Crandall, OCA Statement 1

upon parties of record in this proceeding in accordance with the requirements of 52 Pa. Code § 1.54 (relating to service by a participant), in the manner and upon the persons listed below:

Dated this 13th day of January 2021.

SERVICE BY E-MAIL ONLY

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Dated: January 13, 2021
*302156

OCA Statement 1

BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION

METROPOLITAN EDISON COMPANY
Docket No. M-2020-3020820

PENNSYLVANIA ELECTRIC COMPANY
Docket No. M-2020-3020821

PENNSYLVANIA POWER COMPANY
Docket No. M-2020-3020822

WEST PENN POWER COMPANY
Docket No. M-2020-3020823

PHASE IV ENERGY EFFICIENCY AND
CONSERVATION PLAN

DIRECT TESTIMONY
OF
GEOFFREY C. CRANDALL

ON BEHALF OF
PENNSYLVANIA OFFICE OF CONSUMER ADVOCATE

January 13, 2021

I. QUALIFICATIONS

Q. What is your name and business address?

A. My name is Geoffrey C. Crandall. My business address is MSB Energy Associates, Inc., 6907 University Avenue #162, Middleton, Wisconsin 53562.

Q. On whose behalf are you testifying today?

A. I am testifying on behalf of the Office of Consumer Advocate ("OCA").

Q. Please describe your background and experience in the field of gas and electric utility regulation.

A. I am a principal and the Vice President of MSB Energy Associates, Inc. I have over 45 years of experience in utility regulatory issues, including resource planning, restructuring, mergers, fuel, purchase power and gas cost recovery and planning analysis, energy efficiency, conservation and load management impacts, program design and other issues. I have provided expert testimony before more than a dozen public utility regulatory bodies throughout the United States. I have provided expert testimony before the United States Congress on several occasions and have previously filed testimony in over a half-dozen cases before the Pennsylvania Public Utility Commission.

My experience includes over 15 years of service on the Staff of the Michigan Public Service Commission. In my tenure at the Michigan Public Service Commission, I served as an analyst in the Electric Division (Rates and Tariff section) involving rate as well as fuel and purchase power cases. I also served as the Technical Assistant to the Chief of Staff, supervisor of the energy conservation section (involving residential and commercial energy efficiency programs). I also served as the Division Director of the Industrial, Commercial and Institutional Division. In that capacity, I was Director of the Division that had responsibility for the energy efficiency and conservation program design, funding, and implementation of Michigan utility and DOE-funded private company implemented programs and initiatives involving Industrial, Commercial and Institutional gas and electric customers throughout Michigan.

In 1990, I became employed by MSB Energy Associates, Inc. and have served clients throughout the United States on numerous projects related to system planning, energy efficiency and load management program development, transmission need and siting, fuel, purchase power and gas cost recovery assessments, , electric restructuring, customer impact analyses, and other issues. My vita is attached as Schedule GCC-1.

II. <u>DIRECT TESTIMONY</u>

Q. What is the purpose of your testimony in this case?

A. The purpose of my testimony is to assess the reasonableness of the proposed Act 129 Energy Efficiency and Conservation Plans that were included in the following First Energy (FE) Dockets: METROPOLITAN EDISON COMPANY Docket No. M-2020-3020820, PENNSYLVANIA ELECTRIC COMPANY Docket No. M-2020-3020821, PENNSYLVANIA POWER COMPANY, Docket No. M-2020-3020822, WEST PENN POWER COMPANY Docket No. M-2020-3020823 (referred to collectively as the "Companies"). I address a number of components of the proposed Act 129 Phase IV plan including program and portfolio development, cost recovery, cost effectiveness, consistency with Commission Orders issued on June 18, 2020 in Docket No. M-2020-3015228, implementation strategy, savings projections and other aspects of the proposed energy efficiency and conservation plans. I offer specific suggestions regarding the appropriateness of various aspects of the Companies proposed Phase IV plans.

Q. Please identify key issues that you believe should be brought to the attention of the Commission in this proceeding.

A. Key concerns and issues that I have with the Companies' proposed Act 129 Phase IV energy efficiency and conservation plans include:

- The Companies' Phase IV Plans are not consistent with the Commission Order issued in Docket No. M-2020-3015228 as a result of the Companies' proposal to rely on behavioral modification subprograms as a resource acquisition strategy.

- The Companies' proposed application of Rider F, cost recovery mechanism and application of the cost recovery procedure is flawed, erroneous and is not consistent with the Commission's guidance that was provided to the Companies in Docket No. M-2020-3015228.

- The Low-Income Energy Efficiency Program being proposed by the Companies will need to be well coordinated with the Low-Income Usage Reduction Programs and the weatherization assistance programs to improve the effectiveness of these low-income energy efficiency programs in the Companies' service territories.

- The Companies' proposal to allocate PJM revenues and costs to customer classes' Phase IV program budgets is not in compliance with the Commission's Implementation Order.

- The Companies' proposal regarding participation in the PM FCM process raises concern with sufficiency and transparency of data provided by the Companies regarding the risk of such participation.

- With the exception of the concerns noted above, the design and implementation strategy of the Act 129 Phase IV Plans appear to be compliant and consistent with the Commission's guidance with respect to meeting the savings projections for MW and MWh, budgets, the offering of energy efficiency services for multiple customer sectors and other aspects of their plans.

Overview of FE's Proposal

Q. Please identify the energy efficiency and conservation programs generated MWh and MW savings for the 2021-2026 period

A. According to the Plan, FE is currently planning to achieve energy savings levels of 1,534,751 MWh (combined total) and coincident peak demand levels of 262 MWs. FE proposes to achieve the following energy savings levels for each of the Companies:

EDC NAME	Phase IV MWh	Phase IV MW
Met-Ed	463,215	76
Penelec	437,676	80
Penn Power	128,909	20
West Penn Power	504,951	86

Q. What are the Companies proposing to offer their residential and commercial customers in the energy efficiency and conservation programs beginning in 2021?

A. FE proposes to offer the following programs in Phase IV:

- The Energy Efficient Products Program
- The Energy Efficient Homes Program
- The Low-Income Energy Efficiency Program
- The C&I Energy Solutions for Business Program-Small
- The C&I Energy Solutions for Business Program-Large

Q. How are the Companies proposing to recover the costs of the Phase IV energy efficiency and conservation programs?

A. FE is proposing to collect program revenues via Rider F and spend the following amounts over the five-year Plan for each of the individual Companies:

EDC NAME	Phase IV Budget
Met-Ed	$124,334,470
Penelec	$114,873,710
Penn Power	$33,298,945
West Penn Power	$117,813,010
Total	$390,320,135

Concerns About Existing Energy Efficiency and Conservation Programs

Q. Do you have concerns related to behavioral energy efficiency and conservation programs?

A. Yes, I do have concerns related to the behavioral elements in several of the residential programs. The Commission, on page 91 of its M-2020-3015228 Order, directed the Companies to "**develop plans to achieve the most lifetime energy savings per expenditure".** In response to the Commission's directives in the above-mentioned Order, the Companies put forward their Phase IV plan and proposed that energy savings be accomplished, in part, by several behavioral modification subprograms. Those subprograms are identified in the program description as being a component of the residential sector programs including the Energy Efficient Homes Program and the Low-Income Energy Efficiency Program. The programs are commonly referred to as the Home Energy Report (HER) Programs which FE proposes to offer to its residential customers. The EMV team, using the Pennsylvania Technical Reference Manual (TRM), typically derives quantifiable values to estimate the impact of the program. The EMV team would determine the actual savings compared to the projected impact resulting from these programs. The programs are designed to generate energy savings by providing residential customers (both low income and non-low-income customers) information on their energy use and energy saved. Program participants will receive information (typically done quarterly) in the form of home energy reports that give customers various types of information such as.

- Assessment of how their recent energy use compared to their own energy use in the past
- Tips on how to reduce energy consumption, some of which were tailored to the customer's circumstances.
- Information on how customer's energy use compared to that of neighbors with similar homes.

Q. **What are the costs, MWh energy and MW demand savings estimated for the behavioral programs in the Low-Income Energy Efficiency Program and the Energy Efficiency Homes program in FE's Phase IV Plan?**

A. FE indicated in Appendix C of its Phase IV Plan that the costs and savings from the behavioral programs are expected to be as follows:

EDC	% of Budget[1]	**kWh % of Savings[2]**	**MW % of Savings**
Met-Ed	3.2%	6.2%	6.2%
Penelec	3.0%	3.8%	3.8%
Penn Power	4.8%	8.0%	7.6%
West Penn Power	4.3%	6.7%	6.4%

Q. **What concerns do you have with the behavioral programs as a component of FE's energy efficiency plan?**

[1] Cost based on Residential and Low-Income Behavior programs Appendix C, Table 1-1 - 1-5

[2] kWh and kW based on Residential and Low-Income Behavior programs Appendix C, Table 2

A. Home Energy Report Programs in the United States have been shown to save energy; however, the savings are not long-lived. Some evaluations have recognized the useful life with the savings being produced for customers who were receiving treatment. Savings have been accomplished in the 1-2% range. However, the Pennsylvania Technical Reference Manual (TRM) allows for recognition of savings beyond one year for the treatment group. The PA TRM gives credit for energy saved during the first-year treatment period and also allows for a recognition of savings offset by a "decay of savings." The decay in savings recognizes a lower annual savings in period 2 and a lesser amount in period three (For customers having only received treatment for the first annual period). I also note that FE indicated in its Phase IV Plan that the Companies intended to use a behavioral program element for small and large commercial and industrial customers. However, at the informal discovery meeting held with FE on January 8, 2021, FE indicated that a HER program was not going to be used with their commercial or industrial customers. Rather, they are intending to provide these commercial and industrial customers with technical information, tips and energy efficiency information to help customers reduce energy costs. The HER program is not intended, nor is it being planned, to be used with the Companies' commercial or industrial programs.

Q. **How do the FE Phase IV programs comply with the Commission Order language requiring it to "develop plans to achieve the most lifetime energy savings per expenditure"?**

A. The Companies have included a behavioral element for its residential customers which accounts for approximately 4% of its budget. Since the Commission expected the Companies to "develop plans to achieve the most lifetime energy savings per expenditure" it appears that the Companies' plan will come up short of achieving this expectation. I recommend scaling back the behavior modification programs and allocating those funds to the weatherization subprogram within the Low-Income Energy Efficiency Program or the Energy Efficient Products Program. These programs are greatly needed and includes long-lived and efficient measures such as refrigerators and building shell measures.

Rider F – Phase IV Cost Recovery

Q. Please briefly describe Rider F, the cost recovery and reconciliation mechanism for Phase IV EE&C costs.

A. Rider F describes the derivation of the rate the Companies have proposed to recover the costs associated with the Phase IV EE&C Plan. The Companies' witness Anthony Woytko presents Rider F in Exhibit AJW-1 for Met-Ed, Exhibit AJW-2 for Penelec, AJW-3 for Penn Power, AJW-4 for West Penn Power and AJW-5 for West Penn Power Tariff No. 38. Although the numerical values for the rates by customer class for the June 1, 2021 through May 31, 2022 time period vary, the underlying formula for the rates is the same. I've included an excerpt from the Companies' Riders presenting the formula and defining terms in Schedule GCC-2. The formula for the rates presented by the Companies is:

$$\text{EE\&C-C} = [(\text{EEC}_{\text{C}} - \text{E} - \text{E}^2) / \text{S}] \text{ X } [1 / (1 - \text{T})]$$

$$\text{EEC}_{\text{C}} = \text{EEC}_{\text{Exp1}} + \text{EEC}_{\text{Exp2}} + \text{EEC}_{\text{Exp3}}$$

First Energy's proposed terms are defined in Schedule GCC-2.

Q. **Please describe the rate calculation for Rider F.**

A. The rate for a customer class (EE&C-C) equals the rider revenue requirement for the customer class divided by the sales volume (S) for that customer class and adjusted for the gross receipts tax (T). I am focusing on the rider revenue requirement ($\text{EEC}_{\text{C}} - \text{E} - \text{E}^2$), and particularly on the costs of the Phase IV EE&C Programs (EEC_{C}).

E and E^2 are reconciliation terms. E reconciles the actual costs and actual revenues of the Phase IV Programs for that customer class, while E^2 addresses the final reconciliation of the Phase III Programs for that customer class.

Q. Are you recommending changes to Rider F?

A. Yes. I am recommending modifications to the following terms in the rider revenue requirement:

- Modify $EECexp_1$, the direct costs and allocated common costs of the Phase IV EE&C Programs by customer class, to remove the PJM net revenues and clarify the basis for allocating indirect costs from.
- Clarify the basis for allocating startup costs in $EECexp_2$, the allocated portion by customer class of the startup costs through May 31, 2021 to design, create, and obtain Commission approval for Phase IV EE&C Programs.
- Clarify the basis for allocating SWE costs in $EECexp_3$, the allocated portion by customer class of the SWE costs.
- Add a term to the reconciliation portion of the rider revenue requirements to reflect PJM revenues (R_{PJM}) and PJM costs (C_{PJM}) and revise the basis for allocating PJM net revenues.

Q. How did you change the formulas and terms for Rider F?

A. Schedule GCC-3 shows the changes I made to the Companies' Rider F. Schedule GCC-3 replaces the portions of the Companies' Rider F displayed in Schedule GCC-2. The formula I'm recommending is:

$$EE\&C\text{-}C = [(EEC_C - E + \{R_{PJM} - C_{PJM}\} - E^2) / S] \times [1 / (1 - T)]$$

$$EEC_C = EEC_{Exp1} + EEC_{Exp2} + EEC_{Exp3}$$

My proposed terms are defined in Schedule GCC-3.

The term $\{R_{PJM} - C_{PJM}\}$ is the difference between the revenues from PJM for cleared resources nominated from Phase IV EE&C programs and the cost of participating in the PJM capacity market, including penalties for failing to deliver the cleared capacity. It is the PJM revenues net of costs.

Q. Why did you remove the PJM net revenues from the EEC_{Exp1} term?

A. There are two reasons:

First, the EEC_{Exp1} term is the EE&C program budget for each customer class. Summing across the customer classes is the portfolio-wide budget, which is established by the Commission and capped at 2%. PJM revenues do not increase the EE&C budget; rather the net PJM revenues are flowed back to ratepayers by reducing the amounts of EE&C expenditures collected through Rider F[3]. The expenditures are limited to 2%, some of which is paid by PJM revenues and the rest is collected from ratepayers through Rider F. Mixing in the PJM revenues and costs, which are not subject to the 2% cap, obscures the capped amounts.

Second, including the PJM net revenues in the EEC_{Exp1} term is not compliant with the Commission's Implementation Order.

Q. Why is the Companies' method of addressing PJM net revenues not compliant with the Commission's Implementation Order?

A. The Commission's June 18 Phase IV Implementation Order stated that proceeds from PJM are to be "used to reduce Act 129 surcharges and collections for customer classes from which the savings were acquired, ***via the reconciliation for over-under collection process***." (Page 138, emphasis added). The EEC_{Exp1} term sets the actual and projected costs initially to be recovered through the rider. It is not the reconciliation term which is E for Phase IV and E^2 for Phase III.

In addition, the Commission's June 18 Phase IV Implementation Order stated that the "reconciliation statement should clearly identify PJM FCM[4] proceeds as cost reductions and PJM FCM deficiency charges as cost increases." (Page 142). The Companies' proposed Rider F rolls the net PJM revenue into the EE&C cost, not the reconciliation

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[3] The Commission stated "Like our position that FCM proceeds should not act as a de facto increase in EDC budgets, the Commission clarifies that FCM penalties should not be treated as a de facto reduction in EDC budget. To summarize, the 2% spending cap is a limit on EE&C Plan expenditures. To the extent that those expenditures generate proceeds or penalties, those proceeds or penalties should be reflected in cost recovery, but the 2% spending cap is unaffected." Energy Efficiency and Conservation Program Implementation Order, Docket No. M-2020-3015228, June 18, 2020, page 141.

[4] FCM – Forward Capacity Market as used in Commission's Implementation Order, page 5.

statement, and does not clearly identify the PJM proceeds as cost reductions nor PJM charges as cost increases.

Q. What method of allocating common costs to customer classes did the Companies propose in their Rider F?

A. The Companies' Rider F allocates common costs to each customer class based on the ratio of class-specific approved budgeted program costs to total approved budgeted program costs. Rider F specifically uses that method to:

a. Allocate to customer classes the PJM revenues net of associated costs in EEC_{Exp1}.
b. Allocate to customer classes the indirect costs associated with all of the Company's Phase IV EE&C Programs in EEC_{Exp1}.
c. Allocate to customer classes the incremental administrative startup costs prior to May 31, 2021 associated with the Company's design, creation and obtaining approval for Phase IV EE&C Programs in EEC_{Exp2}.
d. Allocate to customer classes each utility's share of the costs to fund the Commission's statewide evaluator in EEC_{Exp3}.

Q. Is it appropriate to allocate PJM revenues and associated costs to each customer class based on the ratio of class-specific approved budgeted program costs to total approved budgeted program costs?

A. No. The class specific budgets are to implement class-specific Phase IV EE&C programs. According to the EE&C Plans, Section 1.6 (attached as Schedule GCC-4), many of those programs are not eligible to be PJM capacity resources, and thus cannot be nominated. These include online audits, appliance recycling, smart thermostats, behavioral programs and education programs among others. It would not be proper to allocate PJM revenues and costs based on the customer class ratios of the budgets, which include many measures that aren't eligible and many others which may not be nominated because they are too risky or costly to nominate. When the nominations are made and resources cleared, the allocations of the PJM revenues and costs are appropriately made using the proportion of the energy efficiency peak reduction supplied by each customer class.

In addition, the Companies' proposal to allocate PJM revenues and costs to customer classes Phase IV program budgets is not in compliance with the Commission's Implementation Order. The Implementation Order stated that proceeds from PJM are to be "used to reduce Act 129 surcharges and collections for ***customer classes from which the savings were acquired***, via the reconciliation for over-under collection process." (Page 138, emphasis added)

Q. Is it appropriate to allocate the other above-mentioned common costs to each customer class based on the ratio of class-specific approved budgeted program costs to total approved budgeted program costs?

A. Yes. Since the indirect costs in EEC_{Exp1}, the Phase IV incremental startup costs in EEC_{Exp2}, and statewide evaluator costs in EEC_{Exp3} are each tied to the overall EE&C plan, it would be reasonable to allocate each Company's common costs among the customer classes in proportion to the budget for each customer class.

Q. Are the Companies actually using the proposed ratio of class-specific approved budgeted program costs to total approved budgeted program costs to allocate the common costs among the customer classes?

A. That is unclear. Given the compact timelines for considering the Companies' EE&C Plans, OCA participated in an informal verbal discovery session on Friday, January 8, to address OCA's potential questions and issues. During that discussion, FirstEnergy indicated that it actually has been allocating the common costs based on the ratio of each customer classes' CSP Delivery Fees plus Marketing costs to the Companies' total CSP Delivery Fees plus Marketing costs. The Companies indicated that they would assess the discrepancy between actual practice and the proposed Rider and provide an explanation. As of this time, OCA has not received the explanation.

Q. Does the choice of allocation mechanism affect the costs allocated to residential customers?

A. Yes. Using the method the Companies verbally stated they actually use allocates more of the common costs to the residential ratepayers than the method spelled out in the Companies' proposed Rider F. Using Appendix B, Tables 10-1 through 10-3 to derive the class factors to allocate the common costs in Appendix B, Table 12, I derived the allocation factors for the residential classes.

Residential Allocation Factors for Common Costs Associated with Phase IV EE&C		
	Rider F as Proposed	Actual Approach
MetEd	41.6%	41.8%
Penn Power	40.8%	42.8%
Penelec	46.4%	50.1%
West Penn	46.7%	50.0%

Q. Did the Companies provide any reasons for preferring the allocation of common costs based on the CSP delivery fees and marketing costs rather than the total program costs proposed in Rider F?

A. No. I recommend that the Commission use the allocation method as proposed in Rider F and as contained in Schedule GCC-3.

Q. How did you address PJM revenues from and associated costs of participating in PJM's Capacity Market?

A. I added the terms $\{R_{PJM} - C_{PJM}\}$ to the reconciliation process to explicitly list PJM revenues as reducing costs for the EE&C programs borne by the ratepayers and PJM costs as increasing the ratepayer costs. Effectively, the EE&C program costs are subject to the 2% limit, but those costs are recovered from PJM revenues and the balance from ratepayers through the Rider. These changes make it easier to track the actual revenues and costs associated with selling energy efficiency peak demand reduction resources to PJM. These changes are also necessary to comply with the Commission's Implementation Order, that the proceeds or penalties should be reflected in cost recovery but not affect the 2% spending cap (page 141) and that the reconciliation statement clearly identify PJM FCM proceeds and charges (page 142).

I also changed how the Companies were proposing in the Rider to allocate the PJM revenues and costs. The Companies' Rider F allocated them proportional to the customer class budgets. I am proposing to allocate the PJM revenues and associated costs in proportion to the customer class share of peak demand reduction nominated and cleared. It is logical to share the benefits (and costs, i.e., net benefits) in proportion to the classes from which the benefits were derived. This approach is also consistent with the Commission's Implementation Order.

Q. Are the Companies actually using the method of allocating PJM revenues and costs that they proposed in the Riders?

A. That is unclear. In the informal verbal discovery session on Friday, January 8, FirstEnergy indicated that it actually has been allocating the net PJM revenues to customer classes based on the proportion of total MWs of nominated and cleared resources attributed to each customer class. That is the same approach I am recommending, and is compliant with the Commission's Implementation Order, but it is not what is proposed in the Rider. The Companies indicated that they would assess the discrepancy between actual practice and the Rider and provide an explanation. As of this time, OCA has not received the explanation.

Participating in the PJM Forward Capacity Market

Q. Referring to page 138 of the Implementation Order, the Commission directed that EDCs "carefully consider their nomination levels and adopt a conservative bidding strategy to limit the likelihood of deficiency charges or nominated resources not clearing." Are you convinced that the EE&C Plan as proposed by the Companies complies with the Commission's directive?

A. No. The Companies have provided only general guides regarding how they will determine the amount of energy efficiency peak reduction from its Phase IV EE&C plan to nominate. The EE&C Plan provided those guidelines in Section 1.6. (See Schedule GCC-4) In addition to removing the measures contained in the EE&C Plan that would not be eligible to offer into PJM's Forward Capacity Market, the Companies indicated that the primary measures offered would be lighting, HVAC equipment, refrigeration, water heating and custom programs. The Companies did not specify which elements of which programs they would nominate, nor how much of these measures were built into the various programs offered under Phase IV. This is consistent with the Commission's Implementation Order which concluded:

> We find the suggestion made by FirstEnergy persuasive and will not require detailed breakdowns by measure, program, customer class, and year. Instead, as suggested by FirstEnergy, EDCs may limit EE&C Plan content to a description of the strategy and approach of offering resources into the PJM capacity market. However, we note that nomination of peak demand savings to PJM will require EDCs to develop specific projections (e.g. bids) so the description should include an estimated number of MW and a trajectory of that MW total over time. (page 140)

Using Met-Ed as an example, Met-Ed expects to be able to nominate between 2.4 and 4.2 MWs per program year (Appendix C, Table 3). Met-Ed anticipates the peak demand reduction due to the Phase IV EE&C plan is 16.76 MW per program year (Appendix C, Table 2). For the EE&C Plan, the peak demand reduction is based on summer peak. However, of the 16.76 MW summer peak reduction attributable to the Phase IV EE&C Plan, some is not eligible under PJM rules. Some is eligible, but according to the Companies, PJM rules limit the nominated amount to the lesser of the summer peak reduction and the winter peak reduction. While a measure may be responsible for a large summer peak reduction, it may have little or no winter peak reduction, and thus would result in a smaller or no nomination. The Companies also stated that they ruled out some potential resources because it would be too expensive to conduct the evaluations necessary to certify to PJM that the resource was provided.

The Companies did not document which of its Phase IV measures they would nominate or the offer price. While the amount they expect to nominate is a small fraction (14% to 25%) of the total summer peak demand reduction projected for the Phase IV EE&C Plan, the Companies did not indicate or document the fraction of the maximum demand reduction they could nominate that is represented by the 2.4-4.2 MWs. The 2.4-4.2 MW range lacks context. If that range represents 100% of what the Companies could nominate, it would be a risky proposition because it would leave no room for capacity deficiency when the resource is evaluated to meet PJM requirements, and the Companies could face penalties. If that range represents 50% of what the Companies could nominate, there would be a cushion for potential capacity deficiency, and it would be much less risky for ratepayers.

Q. How should the Commission proceed regarding nominating energy efficiency-based capacity resources to PJM?

A. Cautiously. As the Commission pointed out in its Implementation Order, the Companies are to adopt a conservative bidding strategy (page 138). The Companies have not provided information that would enable the Commission to assess how conservative their bidding strategy is.

I recommend that the Commission direct the Companies to develop a more transparent way to evaluate the amount of its Phase IV demand reduction that could be nominated into the PJM FCM and to evaluate the risk-reward relationship for their nomination strategies. I recommend the following approach to provide more context and connection between the EE&C Plan peak reductions and the amounts the Companies expect to nominate into the PJM capacity markets. Each step in this approach would be reported at the plan level, not by measure.

1. The EE&C Plan summer peak reduction (currently provided).
2. The summer peak reduction of those measures that are eligible to nominate to PJM.
3. The winter peak reduction of those measures that are eligible to nominate to PJM.
4. The maximum permissible bid amount (lesser of summer and winter peak demand reductions).
5. Adjustments to the maximum permissible bid amount (to reflect practical consideration, such as the size of the resource relative to the cost of certifying it, and other adjustments the EDC believes appropriate)
6. The bid range (potential nomination range currently provided).

Each step removes another layer of energy efficiency resources identified in the EE&C Plan that is not viable as a PJM capacity nomination. The context needed to assess the conservatism of the nomination range the Companies are required to provide is derived by comparing Step 6 to Step 4 (how much of the maximum the Companies could bid are the Companies intending to bid).

I also recommend closely monitoring and reporting on the results of the Companies' nomination and pricing strategies with the intent of modifying those strategies to optimize the probable net PJM revenues to reduce ratepayer cost for the Phase IV EE&C programs. The monitoring and reporting should include the following information:

- The amount nominated.
- The measures nominated, including the amount by measure, program and customer class.
- The bid price.
- Whether the nomination cleared.
- The costs incurred to participate in the market.
- For cleared nominations, a comparison of the certified demand reduction compared to the forecasted amount.
- The revenues generated.
- The penalties incurred.
- The net revenues.

Review of Program Elements included in the Proposed Energy Efficiency and Conservation Programs

Q. In addition to the concerns noted above, are the energy efficiency programs FE is proposing cost-effective?

A. According to the Companies filing the TRC values are all in excess of 1.0 and range between 1.3 and up to 1.5 for the benefit cost ratio. West Penn is 1.3, Penelec 1.5, Penn

Power 1.3 and Met-Ed 1.5. See Met-Ed/Penelec/Penn Power/West Penn Power, St. No. 2 of Edward C. Miller, page 20.

Q. Does the energy efficiency program FE is proposing for Low-Income customers meet the criteria the Commission set forward?

A. Yes, it appears that it does. However, coordination will be necessary with the LIURP program as well as the Weatherization Assistance Program.

Q. In addition to the concerns noted above, are the energy efficiency programs the Companies have developed consistent with the Commission directives on budgets?

A. Yes, the total budget has a five-year cap of $390,320,135 and the requirement that over 50% of the budget be targeted to direct incentives. The proposed budget and allocation of direct incentives appears to be consistent with Commission guidance and directives. FE's savings targets are as follows:

EDC NAME	Phase IV MWh	Phase IV MW
Met-Ed	463,215	76
Penelec	437,676	80
Penn Power	128,909	20
West Penn Power	504,951	86

Q. What should the Commission do in response to your recommendations?

A. The Commission should specifically address the following recommendations:

- The Commission should require the Companies to revise its portfolio by scaling back the behavior modification programs and replace them with programs that offer long lived measures that will save energy for many years to come such as the Weatherization subprogram or the Energy Efficient Products Program.

- The Companies should coordinate their low-income energy efficiency programs with other programs in service territory. In particular, the Commission should instruct the Companies ensure that the low-income energy efficiency program be well coordinated with the LIURP and Weatherization Assistance Program.

- The Companies should comply with Rider F and credit PJM net revenues from PJM FCM revenue producing transactions consistent with Exhibit GCC-2.

- The Companies should allocate PJM revenues and costs to customer class Phase IV program budgets in compliance with the Commissions implementation Order M-2020-3015228.

- The Companies need to provide sufficient information to allow the parties and the Commission to understand and assess the risk of participating in the PJM FCM process.

Q. Does that conclude your testimony?

A. Yes.

Exhibits GCC – 1 through GCC -- 4

Résumé of
Geoffrey C. Crandall
Vice President and Principal

EDUCATION

B.S. in Business and Pre-Law, Western Michigan University, 1974.

Mr. Crandall has also completed courses at Michigan State University Graduate School, the University of Wisconsin-Madison and Wayne State University, in areas of federal taxation, accounting, management and the economics of utility regulation. Mr. Crandall also completed the examination for the National Conference of States on Building Codes and Standards Energy Auditor.

EXPERIENCE

Mr. Crandall joined MSB in January 1990. Mr. Crandall has addressed issues related to fuel and purchase power, natural gas, re-regulation, planning, regulatory issues, residential and low-income issues, energy efficiency and impacts of utility restructuring on customers in California, New York, Colorado, Iowa, and Michigan. He has analyzed and/or designed energy efficiency programs for residential customers in Michigan, Georgia, Wisconsin, Arizona, and New Orleans, and has conducted workshops on system planning, energy efficiency, low-income restructuring and energy efficiency issues in over 20 states, including Washington, Hawaii, Nevada, Kansas, Michigan, Rhode Island, California, Virginia, and New Orleans. Mr. Crandall has analyzed integrated resource plan and or energy efficiency programs in the states of Arizona, Georgia, Hawaii, Illinois, Maine, Michigan, Minnesota, North Carolina, Ohio, Pennsylvania, Utah, Washington State, California, Iowa, Montana, Colorado, Missouri, Virginia, Wisconsin, and Washington D.C.

Prior to joining MSB, Mr. Crandall was employed by the Michigan Public Service Commission from 1974 through 1989, where he served in several capacities including analyst in the rates and tariff section, Technical Assistant to the Chief of Staff, and as the Director of the Demand-Side Management Division. He had responsibilities that included rate and tariff review, rate cases, utilities uncollectible and bad debts, integrated resource planning, the development, implementation and monitoring of government- and utility-sponsored demand-side management, energy-efficiency and load response policies and programs. These activities involved customers in the residential, commercial, industrial and institutional sectors.

Mr. Crandall has dealt with a wide variety of regulatory issues beyond energy efficiency, including utility diversification, incentive regulation, utility billing practices, utility power plant maintenance and management of plant outages.

Mr. Crandall served as Chair of the NARUC Energy Conservation Staff Subcommittee from 1986-1989. He has lectured and made presentations to many groups on demand-side programs and least-cost planning, including two NARUC-sponsored least-cost planning conferences; the 1990 NARUC Regional Workshops on Least-Cost Utility Planning in Newport, Rhode Island and Little Rock, Arkansas; the Wisconsin Public Service Commission's Integrated Resource Planning Workshop; the 1988, 1989, and 1990 Michigan State University Graduate School of Public Utilities and the U.S. Department of Energy.

Mr. Crandall has testified before the: United States Congress, Michigan Legislature, Michigan Public Service Commission, North Carolina Utilities Commission, Public Service Commission of the District of Columbia, Illinois Commerce Commission, Maine Public Utilities Commission, Massachusetts Department of Public Utilities, Public Service Commission of Hawaii, Minnesota Public Service Commission, Iowa Public Service Commission, Georgia Public Service Commission, Public Utility Commission of Ohio, Virginia Public Service Commission, Wisconsin Public Service Commission, and the City Council of the City of New Orleans, Louisiana.

Mr. Crandall has written several articles published in the Public Utilities Fortnightly and Electricity Journal, Natural Gas Magazine, and a number of proceedings for the Biennial Regulatory Information Conference and the American Council for an Energy-Efficient Economy.

TESTIMONY

Case No. U-5531, (8/77), Consumers' Power Company electric rate increase application. Mr. Crandall served as the Staff Witness and recommended that the Applicant initiate the Residential Electric Customers' Information program.

Case No. U-6743, (3/81), Michigan Consolidated Gas Company. Mr. Crandall served as the Staff policy witness and recommended that the Commission approve a surcharge to cover all reasonable and prudent costs associated with Applicant's implementation of the Michigan Residential Conservation Services Program.

Case No. U-6819, (6/81), Michigan Power Company-Gas. Mr. Crandall served as the Staff policy witness and described the basis for the program and the expected level of activity, recommending that the Commission approve a surcharge to cover all reasonable and prudent costs associated with Applicant's implementation of the Michigan Residential Conservation Service Program.

Case No. U-6787, (6/81), Michigan Gas Utilities Company. Served as the Staff policy witness and described the basis for the program and the expected level of activity, recommending that the Commission approve a surcharge to cover all reasonable and prudent costs associated with the implementation of the Michigan Residential Conservation Service Program.

Case No. U-6820, (6/81), Michigan Power Company-Electric. Served as the Staff policy witness and reviewed the Applicant's request to operate the Michigan Residential Conservation Service Program. Although not mandated by federal law, Applicant chose to operate the program in conjunction with its other services offered to residential gas customers. Recommended the establishment of a surcharge to cover all reasonable and prudent costs associated with the operation of that program.

Case No. U-5451-R, (10/82), Michigan Consolidated Gas Company. Served as the Staff policy witness and described the Staff's position regarding Applicant's proposed adjustment of surcharge level. Recommended that the eligibility criteria for customers be adjusted to more accurately reflect proper fuel consumption and to include customers who would be likely to realize a seven-year return on their investment by installing flue-modification devices in conjunction with Applicant's financing program.

Case No. U-6743-R, (10/82), Michigan Consolidated Gas Company. Served as the Staff policy witness regarding the Applicant's proposed expenses and revenues, as well as the reasonableness of activity and expense levels in the company's projected period.

Case No. U-7341, (12/84), Detroit Edison Company, Request for Authority for Certain Non-Utility Business Activities. Represented the Staff's position during settlement discussions and sponsored the settlement agreement.

Case No. U-6787-R, (3/84), Michigan Gas Utilities Company. Served as the Staff witness regarding the Applicant's proposed expenses and revenues. This also included a review of the company's future expenses associated with the Energy Assurance Program, the Specialized Unemployed Energy Analyses, and the Michigan Business Energy Efficiency Program expenses.

Case No. U-8528, (3/87), Commission's Own Motion on the Costs, Benefits, Goals and Objectives of Michigan's Utility Conservation Programs. Represented the Staff on the costs and savings of conservation programs and the other benefits of existing programs and described alternative actions available to the Commission relative to future energy-conservation programs and services and other conservation policy matters.

Case No. U-8871, et al., (4/88), Midland Cogeneration Venture Limited Partnership. For approval of capacity charges contained in a power-purchase agreement with Consumers' Power Company. Served as the Staff witness on Michigan conservation potential and reasonably achievable programs that could be operated by Consumers' Power Company and testified to the potential impact of these conservation programs on the Company's request for use of its converted nuclear plant cogeneration project. Also recommended levels of demand-side management potential for the commercial, industrial and institutional sectors in Consumers' Power service territory.

Case No. U-9172, (1/89), Consumers' Power Company, Power-Supply Cost-Recovery Plan and Authorization of Monthly Power-Supply Cost-Recovery Factors for 1989. Served as Staff witness on the conservation potential and reasonably achievable programs that could be operated by Consumers' Power Company. Testified to the potential impact of these conservation programs on the Company's fuel and purchase practices, its five-year forecast and the fuel factor. Recommended levels of demand-side management potential for the commercial, industrial and institutional sectors in Consumers' Power service territory as an offset to its more-expensive outside and internally generated power. Suggested that CPCO vigorously pursue conservation, demand-side management research, and planning and program implementation.

Case No. U-9263, (4/89), Consumers' Power Company Request to Amend its Gas Rate Schedule to Modify its Rule on Central Metering. Served as a Staff witness on the conservation effect of converting from individual metered apartments to a master meter. Suggested that the Commission continue its moratorium on the master meters, due to the adverse energy-conservation and efficiency impact.

Case No. E-100, (1/90), North Carolina Public Service Commission proceeding on review of the Duke Power Company's least-cost utility plan. Testified on behalf of the North Carolina Consumers' Council regarding utility energy-efficiency and demand-side management programs and the concept of profitability and implementation of demand-side management programs.

Case No. 889, (1/90), Public Service Commission of the District of Columbia. Testified on behalf of the Government of the District of Columbia in the Potomac Electric Power Company's application for an increase in its retail rates (general rate case). Sponsored testimony regarding the design and implementation and overall appropriateness of PEPCO's existing and proposed energy-efficiency and conservation programs.

Case No. 889, (4/90), Public Service Commission of the District of Columbia. Provided supplemental direct testimony and testified on behalf of the Government of the District of Columbia in the Potomac Electric Power Company's application for an increase in its retail rates (general rate case). Offered supplemental testimony regarding a more detailed review of PEPCO's existing pilot and full-scale energy-efficiency and conservation programs. Offered suggestions and recommendations for a future direction for PEPCO to pursue in order to implement more cost-effective and higher-impact energy-efficiency and conservation programs.

Case No. ICC Docket 90-004 and 90-0041, (6/90), Illinois Commerce Commission proceeding to adopt an electric-energy plan for Central Illinois Light Company (CILCO). Testified on behalf of the State of Illinois, Office of Public Counsel and the Small-Business Utility Advocate. Reviewed the CILCO electric least-cost plan filing and the conservation and load-management programs proposed in its filing. Sponsored testimony regarding my analysis of the proposed programs and offered alternative programs for the Company's and the Commission's consideration.

Case No. D.P.U. 90-55, (6/90), Commonwealth of Massachusetts Department of Public Utilities. Testified on behalf of the Commonwealth of Massachusetts, Division of Energy Resources. Reviewed and analyzed Boston Gas' proposed energy-conservation programs that were submitted for pre-approval in its main rate case. In addition, suggested that it might consider implementation of other natural-gas energy- efficiency programs, and not award an economic incentive for energy-efficiency and conservation programs until minimum program-implementation standards are satisfied.

Case No. U-9346, (6/90), Michigan Public Service Commission. Testified on behalf of the Michigan Community Action Agency Association. Reviewed and analyzed the Consumers' Power Company rate-case filing related to energy-efficiency and demand-side management programs. Proposed alternative energy-efficiency programs and recommended program budgets and a cost-recovery mechanism.

Case No. 89-193; 89-194; 89-195; and 90-001, (6/90), Maine Public Utilities Commission. Testified on behalf of the Maine Public Advocate's Office. Reviewed the appropriateness of Bangor Hydro-Electric Company's existing energy-efficiency and demand-side management programs in the context of BHE's main rate case and request for approval to construct the Basin Mills Hydro-Electric dam. Reviewed the overall resource plan and suggested alternative programs to strengthen the energy-efficiency and demand-side management resource efforts.

Case No. 6617, (4/91), Hawaii Public Utility Commission. Testified on behalf of the Hawaii Division of Consumer Advocacy. Described what demand-side management resources are, why they should be included in the integrated resource planning process and proposed the implementation of several pilot projects in Hawaii along with guidelines for the pilot programs.

Case No. E002/GR-91-001, (5/91), Minnesota Public Utilities Commission. Testified on behalf of Minnesotans for an Energy Efficient Economy. Assessed the DSM programs being operated or proposed by Northern States Power Company and made recommendations as to ways in which NSP could improve its DSM efforts.

Case No. 905, (6/91), Public Service Commission of the District of Columbia. Testified on behalf of the District of Columbia Energy Office. Responded to the energy-efficiency and load management aspects of Potomac Electric Company's filing and made several recommendations for DC-PSC action.

Case No. 6690-UR-106, (9/91), Public Service Commission of Wisconsin. Testified on behalf of The Citizens' Utility Board of Wisconsin. Assessed the DSM programs being operated or proposed by the Wisconsin Public Service Corporation, made recommendations as to the WPSCO energy efficiency programs, and suggested ways the company could improve its DSM efforts.

Case No. E002/CN-91-19, (12/91), Minnesota Public Utilities Commission. Testified on behalf of Minnesota Department of Public Service. Assessed the DSM potential and programs being operated or proposed by Northern States Power Company and made recommendations as to the potential for energy efficiency in the NSP service territory and ways in which NSP could improve its DSM efforts.

Case No. 912, (4/92), Public Service Commission of the District of Columbia. Testified on behalf of the Government of the District of Columbia in the Potomac Electric Power Company's application for an increase in its retail rates for the sale of electric energy. Testified regarding the reasonableness of DSM and EUM policy changes, the cost allocation of the DSM and EUM expenses, an examination of the prudence of management regarding the energy-efficiency programs, and an examination of the appropriateness of the costs associated with energy-efficiency programs.

Case No. PUE 910050, (5/92), Virginia State Corporation Commission. Testified on behalf of the Citizens for the Preservation of Craig County regarding the need for the Wyoming-Cloverdale 765 kV transmission line. Specifically, addressed the adequacy of the DSM planning of Appalachian Power Company and Virginia Power/North Carolina Power. Made recommendations as to APCO and VEPCO's energy efficiency programs, and suggested ways the company could improve its DSM efforts.

Case No. EEP-91-8, (5/92), Iowa Utilities Board. Testified on behalf of the Izaak Walton League concerning the adequacy of Iowa Public Service Company's Energy Efficiency Plan. Reviewed the plan and suggested modifications to it.

Case No. 4131-U and 4134-U, (5/92), Georgia Public Service Commission. Testified on behalf of the Georgia Public Service Commission staff regarding the demand-side management portions of Georgia Power Company's and Savannah Electric and Power Company's Integrated Resource Plans. Testimony demonstrated that it is reasonable for the Commission to expect that the utilities can successfully secure substantial amounts of demand-side management resources by working effectively with customers.

Case No. 917, (8/92), Public Service Commission of the District of Columbia. Testified on behalf of the District of Columbia Energy Office in hearings on Potomac Electric Power Company's Integrated Resource Planning process. Addressed a number of program-specific issues related to PEPCO's demand-side management efforts.

Case No. 4132-U, 4133-U, 4135-U, 4136-U, (10/92), Georgia Public Service Commission. Testified on behalf of the Staff Adversary IRP Team of the Georgia PSC. Provided a critique of Georgia Power Company's and Savannah Electric and Power Company's proposed residential and small commercial DSM programs.

Case No. 4135-U, (3/93), Georgia Public Service Commission. Testified on behalf of the Staff Adversary IRP Team of the Georgia PSC. Provided a critique of Savannah Electric and Power Company's proposed Commercial and Industrial DSM programs.

Case No. R-0000-93-052, (12/93), Arizona Corporation Commission. Testified on behalf of the Arizona Community Action Association. Critiqued and made recommendations regarding the integrated resource plans and demand-side management programs of Arizona Public Service Company and Tucson Electric Power Company.

Case No. 934, (4/94), Public Service Commission of the District of Columbia. Filed testimony on behalf of the District of Columbia Energy Office in hearings concerning the Washington Gas Light Company (WGL) general rate case application to increase existing rates and charges for gas service. Testimony involved critiquing and reviewing WGL's least cost planning efforts and integration of DSM, marketing and gas supply efforts.

Case No. U-10640, (10/94), Michigan Public Service Commission. Testified on behalf of the Michigan Community Action Agency Association concerning the need to integrate DSM and load promotion analysis into MichCon's GCR planning process.

Case No. 05-EP-7, (3/95), Wisconsin Public Service Commission. Testified on behalf of the Citizens' Utility Board on level of utility DSM and program designs and strategies.

Case No. 05-EP-7, (3/95), Wisconsin Public Service Commission. Testified on behalf of the Wisconsin Community Action Program Association on low-income customers and utility DSM programs.

Case No. TVA 2020-IRP, (9/95), Tennessee Valley Authority. Testified on behalf of the Tennessee Valley Energy Reform Coalition. Assessed, critiqued and made recommendations regarding the integrated resource plans and demand-side management programs proposed by the Tennessee Valley Authority.

Case No. R-96-1, (10/95), Alaska Public Utilities Commission. Testified on behalf of the Alaska Weatherization Directors Association regarding the proposed standards and guidelines for integrated resource planning and energy efficiency initiatives under consideration in Alaska.

Case No. D95.9.128, (2/96), Montana Public Service Commission. Testified on behalf of the District XI Human Resources Council concerning the low-income energy efficiency programs offered by the Montana Power Company.

Case No. DPSC Docket No. 95-172, (5/96), Delaware Public Service Commission. Prepared draft testimony on behalf of the Low-Income Energy Consumer Interest Group regarding Delmarva Power & Light Company's application to revise its demand-side programs. The case was settled, with LIECIG obtaining funding for low-income energy efficiency programs, prior to testimony.

Case No. U-11076, (8/96), Michigan Public Service Commission. Testified on behalf of the Michigan Community Action Agency regarding the Michigan Jobs Commission's recommendations regarding electric and gas reform. Discussed the implications of utility restructuring and the needs of residential and low-income households, and proposed regulatory and industry solutions.

Case No. 96-E-0897, (3/97), New York Public Service Commission. Prepared draft testimony for New York's Association for Energy Affordability regarding the impact of proposed utility restructuring plans on low-income customers. The case was settled in Spring 1997.

Case No. R-00973954, (7/97), Pennsylvania Public Utilities Commission. Testified on behalf of the Commission on Economic Opportunity regarding the economics of demand-side measures and programs proposed for implementation by Pennsylvania Power & Light Company.

Case No. 98-07-037, (7/98), California Public Utilities Commission. Testified on the California Alternative Rates for Energy and the Low-Income Energy Efficiency programs regarding the implementation and adoption of revisions to these programs necessitated by the AB 1890 and the Low-Income Governing Board.

Case No. U-12613, (3/01), Michigan Public Service Commission. Testified on behalf of the Michigan Community Action Agency regarding the Wisconsin Public Service Corporation application to implement PA 141 the electricity deregulation law. I reviewed the portions of the filing related to their provision of electric energy efficiency and load management.

Case No. U-12649, (3/01), Michigan Public Service Commission. Testified on behalf of the Michigan Community Action Agency regarding the Wisconsin Electric Power Company and the Edison Sault Electric Company application to implement PA 141 Michigan's electricity deregulation law. I reviewed the portions of the filing related to their provision of electric energy efficiency and load management.

Case No. U-12651, (3/01), Michigan Public Service Commission. Testified on behalf of the Michigan Community Action Agency regarding the Northern States Power Company – Wisconsin application to implement PA 141 the electricity deregulation law. I reviewed the portions of the filing related to their provision of electric energy efficiency and load management.

Case No. U-12652. (3/01), Michigan Public Service Commission. Testified on behalf of the Michigan Community Action Agency regarding the Indiana Michigan Power Company d/b/a American Electric Power application to implement PA 141 the electricity deregulation law. I reviewed the portions of the filing related to their provision of electric energy efficiency and load management.

Case No. U-12725, (4/01), Michigan Public Service Commission. Testified on behalf of the Michigan Community Action Agency regarding the Wisconsin Electric Power Company and the Edison Sault Electric Company application to increase its residential rates. I reviewed the portions of the filing related to their provision of electric energy efficiency and load management and recommended a significant increase in these activities.

Case No. U-13060, (12/01), Michigan Public Service Commission. Testified on behalf of the Michigan Community Action Agency regarding the Michigan Consolidated Gas Company application for Approval of their Gas Cost Recovery Plan and Five-Year gas Forecast. I reviewed the filing and recommended the Commission reject the proposed GCR factor and suggested continuation of the existing GCR factor or adopt an adjusted MCAAA sponsored GCR factor. I also suggested a set-aside allocation be designated for low-income customers to ensure access to alternative gas providers under the applicant's customer choice program.

Case No. 6690-UR-114, (9/02), Wisconsin Public Service Commission. Testified on behalf of the Citizens Utility Board regarding the Wisconsin Public Service Corporation application to increase its electric and natural gas rates. I reviewed the portions of the filing related to their low-income assistance/weatherization and the proposed executive compensation incentive plan.

Case No. U-14401, (04/05), Michigan Public Service Commission. Testified on behalf of the Michigan Community Action Agency regarding the Michigan Consolidated Gas Company application for Approval of their Gas Cost Recovery Plan and Five-Year gas Forecast. I reviewed the filing and recommended the Commission reject the proposed plan and suggested initiation of strategies that would lower the need to acquire expensive and unnecessary gas supplies.

Case No. U-14401-R, (10/05), Michigan Public Service Commission. Testified on behalf of the Michigan Community Action Agency regarding the Michigan Consolidated Gas Company application re-opener Approval of their Gas Cost Recovery Plan and Five-Year gas Forecast. I reviewed the filing and recommended the Commission reject the proposed plan and suggested initiation of strategies that would lower the need to acquire expensive and unnecessary gas supplies.

Case No. U-14701, (02/06), Michigan Public Service Commission. Testified on behalf of the Michigan Environmental Council and The Public Interest Group In Michigan regarding the Consumers Energy Company application for Approval of a Power Supply Cost Recovery Plan and for Authorization of Monthly Power Supply Cost Recovery Factors for calendar year 2006. I reviewed the filing including the application, testimony, exhibits, discovery responses and submitted testimony recommending that the Commission not approve the five-year PSCR plan as filed due to the impacts related to the Palisades sale and the absence of alternative resources in the projected five-year resource portfolio.

Case No. U-14702, (02/06), Michigan Public Service Commission. Testified on behalf of the Michigan Environmental Council and The Public Interest Group In Michigan regarding The Detroit Edison Company application for authority to implement a Power Supply Cost Recovery Plan in its rate schedules for 2006-metered jurisdictional sales of electricity. I reviewed the application; testimony, exhibits and submitted testimony that recommended that the Commission not approve the proposed five-year PSCR plan as filed due because it was deficient in its selection of alternative resources in the projected five-year resource portfolio.

Case No. U-14992, (12/06), Michigan Public Service Commission. Testified on behalf of the Michigan Environmental Council and The Public Interest Group In Michigan regarding The Consumers Energy Company application for approval of the proposed Power Purchase Agreement in connection with the sale of the Palisades Nuclear Power Plant and other assets. The purpose of my testimony was to address the overall soundness of this application and proposal. I reviewed the application, testimony, exhibits and submitted testimony that recommended that the Commission not approve the proposed purchase power agreement and transfer the ownership of the nuclear plant and other assets.

Case No. 06-0800, (3/07), Illinois Commerce Commission. Provided testimony on behalf of the Illinois Citizens Utility Board regarding the Illinois electricity resource auction process. I assessed the existing resource/power supply auction-based bidding process and recommended modifications and improvements to the Illinois resource acquisition mechanism.

Case No. 24505-U, (5/07), Georgia Public Service Commission. Testified on behalf of the Georgia Public Service Commission Advocacy staff regarding the demand-side management portions of Georgia Power Company's Integrated Resource Plans. Testimony demonstrated that it is reasonable for the Commission to approve the five proposed DSM programs and expect that Georgia Power can successfully secure considerably more demand-side management resources by working effectively with its customers.

Case No. U-14992, (11/07), Michigan Public Service Commission. Testified on behalf of the Michigan Environmental Council and The Public Interest Group In Michigan regarding The Consumers Energy Company rate application for approval of a rate increase and the recovery of energy efficiency programs and certain costs in connection with the sale of the Palisades Nuclear Power Plant and other assets. I reviewed the application, testimony, exhibits and submitted testimony that recommended that the Commission not approve the recovery of transaction costs involving the transfer the ownership of the nuclear plant and other assets and on various aspects of its proposed energy efficiency programs and proposed incentives.

Case No. 07-0540, (12/07), Illinois Commerce Commission. Provided testimony on behalf of the Environmental Law and Policy Center regarding the Commonwealth Edison Company application for approval of its proposed Energy Efficiency and Demand Response Plan. I assessed the proposed energy efficiency and demand response plan and recommended modifications and improvements to the proposed plan filing.

Case No. 07-0539, (12/07), Illinois Commerce Commission. Provided testimony on behalf of the Environmental Law and Policy Center regarding the Central Illinois Light Company d/b/a and Ameren CIPS CENTRAL ILLINOIS PUBLIC SERVICE COMPANY and Ameren CIPS ILLINOIS POWER COMPANY d/b/a Ameren IP application for approval of its proposed Energy Efficiency and Demand Response Plan. I assessed the proposed energy efficiency and demand response plan and recommended modifications and improvements to the proposed plan filing.

Case No. U-15415, (2/08), Michigan Public Service Commission. Testified on behalf of the American Association of Retired People regarding The Consumers Power Company application for approval for authority to implement a Purchase Power recovery plan, 5-year forecast, and monthly PSCR factors for the 12-month period calendar year 2008.
I reviewed the application, testimony, exhibits and submitted testimony that recommended that the Commission adopt a more effective and less expensive resource acquisition procedure to help keep the cost of energy down in Michigan.

Case No. U-15417, (4/08), Michigan Public Service Commission. Provided testimony on behalf of the American Association of Retired People regarding The Detroit Edison Company for Authority to Implement a Power Supply Cost Recovery Plan in its Rate Schedule for 2008 Metered Jurisdictional Sales of Electricity. I reviewed the application, testimony, exhibits and submitted testimony that recommended that the Commission adopt a more effective and less expensive resource acquisition procedure to help keep the cost of energy down in Michigan.

Case No. U-15244, (7/08), Michigan Public Service Commission. Provided testimony on behalf of the Michigan Environmental Council and The Public Interest Group In Michigan regarding The Detroit Edison Company request for Authority to increase rates, amend its rate schedules and rules governing the distribution and supply of electric energy, and for miscellaneous accounting authority. I reviewed the application, testimony, and exhibits and submitted testimony that recommended that the Commission direct DECO to make modifications to its Integrate Resource Planning analysis.

Case No. EEP-08-2, (7-08), Iowa Public Utilities Board. Provided testimony on behalf of the environmental interveners regarding the request of the Mid-American Energy Company for approval of an Energy Efficiency Plan. I made an assessment of the proposed energy efficiency and demand response plan and recommended modifications and improvements to the implementation strategy and proposed programs.

Case No. EEP-08-1, (8-08), Iowa Public Utilities Board. Provided testimony on behalf of the environmental interveners regarding the Interstate Power and Light Company request for approval of an Energy Efficiency Plan. I made an assessment of the proposed energy efficiency and demand response plan and recommended modifications and improvements to the proposed programs and implementation strategy.

Case No. 137-CE-147, (2-09), Public Service Commission of Wisconsin. Provided testimony on behalf of PRESERVE OUR RURAL LANDS regarding the Application of American Transmission Company, as an Electric Public Utility, to Construct a new 345 kV Line from the Rockdale Substation to the West Middleton Substation, Dane County, Wisconsin. I suggested modifications of the proposal and rejection of the approval of the line.

Case No. M2009-2093218, (8-09), Pennsylvania Public Utility Commission. Provided testimony on behalf of The Office Of Consumer Advocate regarding the West Penn Power Company d/b/a Allegheny Power Energy Efficiency and Conservation Plan request for plan approval. I analyzed the proposed plan and made an assessment of the proposed energy efficiency and demand response and cost recovery plan. I suggested modifications and improvements to the proposed programs as well as the proposed implementation strategy.

Case No. 09-1947-EL-POR, 09-1948-EL-POR, 09-1949-EL-POR, 09-1942-EL-EEC, 09-1943-EL-EEC, 09-1944-EL-EEC, POR, 09-580-EL-EEC, 09-580-EL-EEC, 09-580-EL-EEC, Public Utilities Commission of Ohio. Provided testimony on behalf of The Office Of The Environmental Law and Policy Center regarding the Ohio Edison Company, The Cleveland Electric Illuminating Company and the Toledo Edison Company for approval of their energy efficiency and peak demand reduction program portfolio and associated cost recovery mechanism and approval of their initial benchmark reports and in the matter of the energy efficiency and peak demand reduction programs. I reviewed, analyzed and assessed the appropriateness of the proposed plans, benchmark reports and proposed peak reduction program portfolio. I suggested modifications and improvements to the proposed programs. I also made recommendations regarding the proposed implementation strategy as well as accounting and program cost tracking.

Case No. U-16412, (10/10), Michigan Public Service Commission. Provided testimony on behalf of the Natural Resources Defense Council, Michigan Environmental Council and The Environmental Law and Policy Center regarding the Consumers Energy Company request to Amend its natural gas & energy efficiency Energy Optimization Plan. I reviewed the application, testimony, exhibits, discovery responses and submitted testimony that recommended modifications to the proposed Energy Optimization Plan.

Case No. 10-0570, (11/10), Illinois Commerce Commission. Provided testimony on behalf of the Environmental Law and Policy Center regarding the Commonwealth Edison Company application for approval of its proposed Energy Efficiency and Demand Response Plan. Assessed the proposed energy efficiency and demand response plan and recommended modifications and improvements to the proposed plan filing.

Case No. 10-0568, (11/10), Illinois Commerce Commission. Provided testimony on behalf of the Environmental Law and Policy Center regarding the Central Illinois Light Company d/b/a and Ameren CIPS CENTRAL ILLINOIS PUBLIC SERVICE COMPANY and Ameren CIPS ILLINOIS POWER COMPANY d/b/a Ameren IP application for approval of its proposed Energy Efficiency and Demand Response Plan. Assessed the proposed energy efficiency and demand response plan and recommended modifications and improvements to the proposed plan filing.

Case No. 10-0564, (11/10), Illinois Commerce Commission. Provided testimony on behalf of the Environmental Law and Policy Center regarding the People's Gas Light and Coke Company and

North Shore Gas Company request for approval of its proposed Energy Efficiency Plan. Assessed the proposed energy efficiency and demand response plan and recommended modifications and improvements to the proposed plan filing.

Case No. 10-0567, (11/10), Illinois Commerce Commission. Provided testimony on behalf of the Environmental Law and Policy Center regarding the Northern Illinois Gas Company application for approval of its proposed Energy Efficiency Plan and approval of Rider 30, Energy Efficiency Plan Cost recovery and related changes to Nicor tariffs. Assessed the proposed energy efficiency and demand response plan and recommended modifications and improvements to the proposed plan filing.

Case No. M-2010-2210316, (3/11), Pennsylvania Public Utility Commission. I provided testimony on behalf of The Office Of Consumer Advocate regarding the UGI Utilities, Inc. Electric Division (UGI-Electric) request for Efficiency and Conservation Plan approval. I analyzed the proposed plan and made an assessment of the proposed energy efficiency and demand response and cost recovery plan. I suggested modifications and improvements to the proposed programs and implementation strategy.

Case No. 11-07026 and 11-07027, (11/11), Public Utilities Commission of Nevada. I provided testimony on behalf of the Bureau of Consumer Protection regarding both the Sierra Pacific Power Company and Nevada Power Company 2011 Annual Demand Side Management Update reports. I reviewed the filings and made recommendations regarding various aspects of demand response resources and demand side management portfolios.

Case No., U-16671 (01/12), Michigan Public Service Commission. I provided testimony on behalf of the Environmental Law and Policy Center regarding the reasonableness of the Detroit Edison Company's filing and assertions made by a witness regarding a net-to-gross factor relative to the 2010 and 2011 energy efficiency programs implemented in response to Public Act 295 of 2008.

Case Nos. P-2012-2320468, P-2012-2320480, P-2012-2320484, P-2012-2320450, (10/12), Pennsylvania Public Utility Commission. I provided testimony on behalf of The Office Of the Consumer Advocate regarding the application of Metropolitan Edison Company, Pennsylvania Electric Company, West Penn Power, Pennsylvania Power Company on the Energy Efficiency regarding the benchmarks established for the period June 1, 2013 through May 31, 2016.
I analyzed the proposed adjustments of Phase II Energy Efficiency and Conservation target levels and energy efficiency acquisition costs.

Case No. Case Nos. 12-2190-EL-POR, 12-2191-EL-POR, 12-2192-EL-POR, (10/12) Application of Ohio Edison Company, The Cleveland Electric Illuminating Company and the Toledo Edison Company for Approval of their energy efficiency and peak demand reduction program portfolio plan for 2013-2015. I provided testimony on behalf of Ohio Environmental Council and The Environmental Law and Policy Center regarding the Ohio Edison Company, The Cleveland Electric Illuminating Company and the Toledo Edison Company for approval of their 2013-2015 energy efficiency and peak demand reduction program portfolio. I reviewed, analyzed and assessed the appropriateness of the proposed plans, benchmark reports and proposed peak reduction program portfolio. I suggested modifications and improvements to the proposed programs and made recommendations and proposed new approaches to the proposed implementation strategy.

Case No., 12-06052 and 12-06053 (10/12), Public Utilities Commission of Nevada, I provided testimony on behalf of the Attorney General of the State of Nevada, Bureau of Consumer Protection regarding both the Sierra Pacific Power Company and Nevada Power Company 2013-2015 Triennial Integrated Resource Plan covering the period 2013-2032 and Approval of its Energy Supply Plan for the period 2013-2015. I reviewed, analyzed and assessed the appropriateness of the proposed plans and proposed peak reduction portfolio. I suggested modifications and improvements to the proposed programs and made recommendations and proposed new approaches to the implementation strategy.

Case No. U-16434-R, (10/12), Michigan Public Service Commission. Provided testimony on behalf of the Michigan Community Action Agency Association regarding The Detroit Edison Company for Reconciliation of its Power Supply Cost Recovery Plan for 12-month Period Ending December 31, 2011. I reviewed the application, testimony, exhibits and submitted testimony that recommended that the Commission adopt a remedy in regard to several aspects of the Reduced Emission Fuels projects that Detroit Edison was involved in.

Case No. Docket No. M-2012-2334388 (12/12), Pennsylvania Public Utility Commission. I provided testimony on behalf of The Office of the Consumer Advocate regarding the Petition of PPL Electric Utilities Corporation for Approval of an Energy Efficiency and Conservation Plan. I analyzed the proposed plan and made an assessment of the proposed energy efficiency and demand response and cost recovery plan. I suggested modifications to the proposed programs and implementation strategy to enhance its effectiveness.

Case No. U-17097, (03/13) Michigan Public Service Commission. Provided testimony on behalf of the Michigan Community Action Agency Association regarding The Detroit Edison Company filing for Reconciliation of its Power Supply Cost Recovery Plan for 12-month Period Ending December 31, 2013. I reviewed the application, testimony, exhibits and submitted testimony recommending that the Commission adopt a remedy regarding the Reduced Emission Fuels projects that Detroit Edison was participating in.

Case No. U-17095, (04/13) Michigan Public Service Commission. Provided testimony on behalf of the Michigan Community Action Agency Association regarding The Consumers Electric Company Application for Approval of A Power Supply Cost Recovery Plan and for Authorization of Monthly Power Supply Cost Recovery Factors for 2013. I reviewed the application, testimony, and exhibits and submitted testimony recommending that the Commission reject the proposed five-year resource plan. I also recommend that the Commission prohibit CECO from collecting capital related investments for a pipeline in Zeeland, Michigan. I also recommended that CECO demonstrate to the Commission that the Palisades and MCV generation plants purchase power agreements are cost-effective, being complied with and are in the public interest.

Case No. EEP-2012-0001, (4-13), Iowa Public Utilities Board. Provided testimony on behalf of the environmental interveners regarding the Interstate Power and Light Company 2014-2018 Energy Efficiency Plan. I made an assessment of IPL's proposed resource planning as well their energy efficiency, renewable energy and demand response resources. I recommended modifications and improvements to the proposed programs, implementation and resource measurement strategy.

Case No. U-17131, (04/13), Michigan Public Service Commission. Testified on behalf of the Michigan Community Action Agency regarding the Michigan Consolidated Gas Company application for Approval of their Gas Cost Recovery Plan and Five-Year gas Forecast and approval to implement a reservation charge. I reviewed the filing and recommended the Commission require MichCon to initiate procurement strategies that would reduce the heavy reliance that is being placed on the 75% VCA gas procurement strategy.

Case No. U-17133, (04/13), Michigan Public Service Commission. Testified on behalf of the Michigan Community Action Agency regarding the Consumers Energy Company application for approval of its gas cost recovery plan and authorization of a gas cost recovery factor from April 2013- March 2014. I reviewed the filing and made recommendations regarding the Quartile Fixed Price Purchases Gas purchasing strategy used by CECO.

Case No. EEP-2012-0002, (6/13), Iowa Public Utilities Board. Provided testimony on behalf of the environmental interveners regarding the Mid-American Energy Company 2014-2018 Energy Efficiency Plan. I made an assessment of MidAm's proposed resource planning as well their energy efficiency, renewable energy and demand response resources. I recommended modifications and improvements to the proposed programs, implementation and resource measurement strategy.

Case No. 13-0431-EL-POR (08/13), Public Utility Commission of Ohio. Provided testimony regarding the Application of Duke Energy Ohio, Inc. for Approval of its Energy Efficiency and Peak Demand Reduction Portfolio of Programs.

The testimony was provided on behalf of Ohio Environmental Council and The Environmental Law and Policy Center. Duke Energy Ohio, Inc. was seeking approval of their revised energy efficiency and peak demand reduction program portfolio. I analyzed and reviewed the appropriateness of the revised plan and proposed peak reduction program portfolio. I suggested significant additions and modifications to the proposed programs. I offered specific program recommendations and new elements be added to their programs and implementation strategy.

Case No. 13-0498, (10/13), Illinois Commerce Commission. Provided testimony on behalf of the Environmental Law and Policy Center regarding the request by Ameren Illinois for approval of its proposed Energy Efficiency and Demand Response Plan 3. Assessed the proposed energy efficiency and demand response plan and recommended modifications and improvements to the proposed plan filing.

Case No. 13-0499 (10/13), Illinois Commerce Commission. Provided testimony on behalf of the Environmental Law and Policy Center regarding the request by The Illinois Department of Commerce and Economic Opportunity for approval of its proposed Energy Efficiency Plan 3. Assessed the proposed energy efficiency plan and recommended modifications and improvements to the proposed plan filing.

Case No. 13-0495 (11/13), Illinois Commerce Commission. Provided testimony on behalf of the Environmental Law and Policy Center regarding the request by Commonwealth Edison application for approval of its proposed third Energy Efficiency Plan. I assessed the proposed energy efficiency plan and recommended modifications and enhancements to the proposed plan.

Case No. 13-0550 (12/13), Illinois Commerce Commission. Provided testimony on behalf of the Environmental Law and Policy Center regarding the request by North Shore Gas Company and The Peoples Gas Light and Coke Company for approval of its proposed second Energy Efficiency Plan. I assessed the proposed energy efficiency plan and recommended modifications and enhancements to the proposed plan.

Case No. 13-0549, (01/14), Illinois Commerce Commission. Provided testimony on behalf of the Environmental Law and Policy Center regarding the Northern Illinois Gas Company D/b/a/ Nicor for approval of its proposed second Energy Efficiency Plan, Cost recovery and related changes to Nicor tariffs. I assessed the proposed energy efficiency plan and recommended modifications and improvements to the proposed plan filing.
Case No. U-17319, (06/14), Michigan Public Service Commission. Provided testimony on behalf of the Great Lakes Renewable Energy Association regarding the DTE Electric Company application for approval of its PSCR Plan 2014 - 2018. I reviewed the filing and made recommendations regarding the PSCR five-year forecast and plan.

Case No. U-17317, (08/14), Michigan Public Service Commission. Provided testimony on behalf of the Great Lakes Renewable Energy Association regarding the Consumers Energy Company application for approval of its PSCR Plan 2014 - March 2018. I reviewed the filing and made recommendations regarding the PSCR five-year forecast and plan.

Case No. U-17680, (03/15), Michigan Public Service Commission. Provided testimony on behalf of the Great Lakes Renewable Energy Association regarding the DTE Electric Company application for approval of its PSCR Plan 2015 - 2019. I reviewed the filing and made recommendations regarding the PSCR five-year forecast and plan.

Case No. U-17678, (04/15), Michigan Public Service Commission. Provided testimony on behalf of the Great Lakes Renewable Energy Association regarding the Consumers Energy Company application for approval of its 2015 – 2019 PSCR Plan. I reviewed the application, filing and related documents and offered suggestions to improve the proposed five-year PSCR forecast and plan.

Case No. U-17735, (04/15), Michigan Public Service Commission. Provided testimony on behalf of the Michelle Rison and the Residential Consumer Group regarding aspects of the Consumers Energy Company general rate case application for authority to increase its rates for the generation and distribution of electricity and other relief. I reviewed the general rate case application, filing and related documents regarding CECO's reliance on and implementation of an Advanced Metering Infrastructure to deliver services to its customers. I offered specific recommendations regarding tariffs and policies related to Advanced metering infrastructure.

Case No. U-17767, (05/15), Michigan Public Service Commission. Provided testimony on behalf of a number of residential customers of DTE Electric under the nomenclature of Dominic and Lillian Cusumano and the Residential Customer Group. I provided testimony regarding DTE Electric's general rate case application for authority to increase its rates for the generation and distribution of electricity and other relief. I reviewed the general rate case filing and issues related to DTE Electric's reliance on and implementation of an Advanced Metering Infrastructure. I offered specific suggestions to improve DTE Electric's tariffs, policies and procedures related to implementation of an advanced metering infrastructure.

Case No. Docket No. P-2014-2459362 (06/15), Pennsylvania Public Utility Commission. I provided testimony on behalf of The Office of the Consumer Advocate regarding the Petition of Philadelphia Gas Works for Approval of Demand-Side Management Plan for FY 2016-2020; and Philadelphia Gas Works Universal Service and Energy Conservation Plan for 2014-2016 52 Pa Code Section 62.4- Request for Waivers. I analyzed the proposed five-year DSM plan and made an assessment of the proposed plan emphasizing the proposed conservation adjustment mechanism and the proposed performance incentives mechanisms. I suggested extensive modifications to the proposed Plan.

Case No. U-17792 (08/15), Michigan Public Service Commission. Provided testimony on behalf of the Great Lakes Renewable Energy Association. I provided testimony and exhibits regarding Consumers Energy Company proposed 2015 Biennial Renewable Energy Plan. I reviewed the Biennial Renewable Energy Plan, testimony, exhibits and supporting information related to Consumers Energy Company renewable resource strategy resulting from the enabling statute (Public Act 295 of 2008). I offered my opinion and assessment of the reasonableness of the proposed plan as well as specific recommendations to improve the 2015 Biennial Renewable Energy Plan as well as Consumers Energy Company's electric resource planning procedures.

Case No. U-17793 (08/15), Michigan Public Service Commission. Provided testimony on behalf of the Great Lakes Renewable Energy Association. I provided testimony and exhibits regarding the proposed DTE Electric Company 2015 Biennial Renewable Energy Plan. I reviewed the proposed Biennial Renewable Energy Plan, testimony, exhibits and supporting information related to the DTE Electric Company renewable resource strategy resulting from Public Act 295 of 2008. I offered my opinion and assessment of the reasonableness of the proposed plan and made specific recommendations for improvement of the 2015 Biennial Renewable Energy Plan as well as DTE Electric Company's annual PSCR plan development and electric resource planning procedures.

Case No. M-2015-2514767 (01/16). I provided testimony on behalf of The Office of the Consumer Advocate regarding the joint Petition of the First Energy Companies serving customers in Pennsylvania. I reviewed the proposed five-year Energy Efficiency and Conservation Plan and offered suggestions to modify and improve various programs proposed for the 2016-2020 Plans.

Case No. M-2015-2515691 (01/16). I provided testimony on behalf of The Office of the Consumer Advocate regarding the joint Petition of the PECO Energy Company serving customers in Pennsylvania. I reviewed the proposed five-year Energy Efficiency and Conservation Plan and offered suggestions to modify and improve various programs proposed for the Act 129 related Energy Efficiency and Conservation Plan for 2016 – 2020.

Case No. U-17920, (03/16), Michigan Public Service Commission. Provided testimony on behalf of the Great Lakes Renewable Energy Association regarding the DTE Electric Company application for approval of its PSCR Plan 2016 – 2020. I reviewed the filing and made recommendations regarding the PSCR five-year forecast and plan.

Case No. U-17918, (03/16), Michigan Public Service Commission. Provided testimony on behalf of the Great Lakes Renewable Energy Association regarding the Consumers Energy Company application for approval of its PSCR Plan 2016 – 2020. I reviewed the application, filing and supporting materials and made recommendations regarding the PSCR five-year forecast and plan.

Case No. U-18014, (07/16), Michigan Public Service Commission. Provided testimony on behalf of the Great Lakes Renewable Energy Association regarding the DTE Electric Company general rate case application for approval to raise rates. I reviewed the filing and made recommendations regarding inclusion of a corporate tax deferred debit, policies and tariffs related to smart meters and DTE's transition to an automated meter infrastructure.

Case No. U-17087 (Remand), (08/16), Michigan Public Service Commission. Provided testimony on behalf of the Residential Consumer Group regarding the Consumers Energy Company application to increase its rates for the generation and distribution of electricity. I reviewed the filing regarding the support and substantiation for the opt-out tariff that is included and approved for Consumers Energy Company. I made a series of specific recommendations regarding the lack of substantiation for the up-front and monthly charges (both existing and proposed) contained within the non-transmitting meter tariff (among other tariffs) and policies related to smart meters and DTE's transition to an automated meter infrastructure.

Case No. U-18111, (08/16), Michigan Public Service Commission. The purpose of my testimony was to address the reasonableness of Detroit Edison Company's (DTE) requested changes to its Biennial Renewable Energy Plan which had been previously approved in Case No. U-17793. I also recommended procedural changes in an effort to enhance the review, assessment and ultimately the integration of additional renewable resources into DTE's provision of electricity to its customers in the future.

Case No. U-18090, (10/16), Michigan Public Service Commission. Provided testimony on behalf of the Great Lakes Renewable Energy Association regarding the Consumers Energy response to the Commission's own Motion to establish a method and avoided cost for comply with the Public Utilities Regulatory Policy Act of 1978, 16 USC 2601 et seq. I reviewed the filing including Consumers Energy proposal for their preferred avoid cost methodology and made recommendations as to an appropriate approach and methodology for deriving avoided costs to be relied upon by Qualifying Facilities in Michigan.

Case No. U-18402 (04/18), I provided testimony on behalf of the Great Lakes Renewable Energy Association regarding Consumers Energy Company PSCR application, 2018-2022 five-year plan and filing materials. Based on my review I offered suggestions and recommendations regarding the PSCR level, impacts of residential, commercial and industrial customer owned renewable resources in its 2018-2022 PSCR resource mix.

Case No. M-2017-2640306 (04/18), The Pennsylvania Office of Consumer Advocate regarding a Peoples Natural Gas Company proposed the Energy Efficiency and Conservation Plan. I reviewed the proposed five-year Combined Heat and Power, Energy Efficiency and Conservation Plan proposed by Peoples Natural Gas Company. I sponsored direct, rebuttal and surrebuttal testimony, which addressed the design of the programs due to the deficiencies that were embodied in the proposed Plan.

Case No. U-18403 (04/18), I provided testimony on behalf of the Great Lakes Renewable Energy Association regarding the Application of DTE Electric Company for authority to Implement a Power Supply Cost Recovery Plan in its Rate Schedules For 2018 Metered Jurisdictional Sales of Electricity. Based on my review I offered recommendations regarding the reasonableness of its PSCR factor level and resource mix proposed for its 2018-2022 PSCR resource mix.

Case No. U-18231 (04/18), I provided testimony on behalf of the Great Lakes Renewable Energy Association regarding Consumers Energy Company Renewable Energy Plan application. I reviewed the proposed renewable energy plan and related filing materials. Based on my review I offered suggestions and recommendations regarding to improve the REP Plan development process. I recommended that the REP Plan development process be coordinated with Act 304 as well as Integrated Resource Planning processes and general rate proceedings to result in a more beneficial resource mix to better serve CECO ratepayers.

Case No. U-18232 (07/18), I provided testimony on behalf of the Great Lakes Renewable Energy Association regarding The Detroit Edison Company Biennial Renewable Energy Plan application. I reviewed the proposed renewable energy plan and related filing materials. Based on my review I offered suggestions and recommendations regarding to improve the REP Plan development process. I recommended that the REP Plan development process be coordinated with Act 304 as well as Integrated Resource Planning processes and general rate proceedings to result in a more beneficial resource mix which would benefit Detroit Edison Company ratepayers.

Case No. M-2017-2640306 (09/18), The Pennsylvania Office of Consumer Advocate regarding a Peoples Natural Gas Company proposed the Energy Efficiency and Conservation Plan. I reviewed the proposed five-year Combined Heat and Power, Energy Efficiency and Conservation Plan proposed by Peoples Natural Gas Company. I offered Supplemental Surrebuttal testimony with suggestions for energy efficiency program and plan improvements.

Case No. M-2017-2640195 (09/18), The Pennsylvania Office of Consumer Advocate regarding an Application of Transource Pennsylvania, LLC for approval of the Siting and Construction of the

230 kV Transmission Line Associated with the Independence Energy Connection - East and West Projects in portions of York and Franklin Counties, Pennsylvania. I reviewed the proposed transmission project and plan. I offered suggestions for utilization of energy efficiency programs and improvements to the transmission plan.

Case No. U-20219 (05/19), Michigan Public Service Commission. Provided testimony on behalf of the Michelle Rison and the Residential Consumer Group regarding aspects of the Consumers Energy Company PSCR Plan application seeking authorization to increase its rates for the generation and distribution of electricity and other relief. I reviewed the PSCR Plan application, filing and related documents. I reviewed, assessed and offered suggestions to improve the PSCR Plan and 5-year forecast that Consumers Energy Company (CECO) provided and to made recommendations to improve the PSCR Plan. I pointed out concerns regarding lack of benefits emanating from the Tax Cut and Jobs Act of 2017 (TCJA), leasing the Zeeland plant interconnection pipeline, and the gas management services contract terms for acquisition of natural gas at its Zeeland, Jackson and Karn plants.

Case No. U-20561 (11/19), Michigan Public Service Commission. Provided testimony on behalf of Michelle Rison and the Residential Consumer Group regarding aspects of THE DTE ELECTRIC COMPANY rate case seeking authority to increase its rates, amend its rate schedules and rules governing the distribution and supply of electric energy, and for miscellaneous accounting authority. I reviewed the application, supporting testimony, exhibits and work papers and related documents. I addressed the issue of the appropriateness of a projected test period compared to a historic test period. In addition, I addressed the issue of the initiation and modification of DTE's advanced metering infrastructure .

Case No. U-20209 (03/20) Michigan Public Service Commission. Provided testimony on behalf of Michelle Rison and the Residential Consumer Group regarding aspects of the application of CONSUMERS ENERGY COMPANY reconciliation portion of the case dealing with implementation of its approved gas cost recovery plan for the 12-month period of April 1, 2018 through March 31, 2019. I reviewed the filing including the application, testimony, exhibits, work papers and other supporting documentation. I highlighted several concerns regarding the lack of GCR customer benefits that should have been derived from implementation of the Tax Cut and Jobs Act of 2017, leasing arrangements regarding an interconnection pipeline, and failure to identify or quantify GCR customer benefits resulting from the gas management services that CECO subcontracted out for its Zeeland, Jackson and Karn plants.

Case No. U-20525 (06/20) Michigan Public Service Commission. Provided testimony on behalf of Michelle Rison and the Residential Customer Group regarding the application of CONSUMERS ENERGY COMPANY for approval of a power Supply cost Recovery Plan for the 12 months ending December 31, 2020. I reviewed the filing including the application, testimony, exhibits, work papers and supporting documents. I highlighted several concerns regarding the lack of GCR customer benefits that should have been derived from implementation of the Tax Cut and Jobs Act of 2017, leasing arrangements regarding an interconnection pipeline, and failure to identify or quantify GCR customer benefits resulting from the gas management services that CECO subcontracted out relative to the Zeeland, Jackson and Karn facilities.

Docket No. R-2020-3018929 (12/20), The Pennsylvania Office of Consumer Advocate regarding an Application of PECO Energy Company - Gas Division. I reviewed the natural gas energy efficiency and conservation plan that was proposed in conjunction with the PECO Energy Company general rate case. I reviewed the proposed energy efficiency plan and programs. I offered suggestions for modifications to their energy efficiency programs.

Case No. U-20220 (12/20) Michigan Public Service Commission. Provided testimony on behalf of Michelle Rison and the Residential Customer Group regarding the application of CONSUMERS ENERGY COMPANY for reconciliation of its power Supply cost Recovery Plan for the 12 months ending December 31, 2019. I reviewed the case filing including the application, testimony, exhibits, work papers and supporting documents. I identified and defended several concerns regarding the deficiency of GCR customer benefits regarding the implementation of the Tax Cut and Jobs Act of 2017, leasing arrangements regarding an interconnection pipeline as well as the failure to identify or quantify GCR customer benefits resulting from the gas management services that CECO subcontracted out.

In addition, I have served the following public sector clients since 1990.

Client	**Nature of Service**
Alaska Housing Finance Corporation	Analysis of energy efficiency, system planning and applicability of Energy Policy Act standards to Alaska resource selection process.
California Low Income Governing Board	In conjunction with AB 1890 the state's restructuring statute provided analyses of options to deliver energy efficiency and assistance programs to low-income households in a restructured utility environment. Assisted the CPUC and Low-Income Governing Board in de low-income energy assistance and energy efficiency programs, implementation methods and procedures under interim utility administration.
Conservation Law Foundation of New England	Provided technical support to the collaborative working groups with Boston Edison, United Illuminating, Eastern

	Utilities Association, and Nantucket Electric regarding system planning approaches, energy efficiency programs and resource screening.
District of Columbia Public Service Commission	Testimony regarding demand-side management, least cost planning principles.
Germantown Settlement, Philadelphia	Analysis and technical support regarding business structure and market to aggregate load and/or provide energy efficiency and energy assistance services to low-income households.
City of New Orleans	Developed least cost planning rules, guided a public working group to develop demand-side programs, and developed a low income, senior citizens energy efficiency program.
Oak Ridge National Laboratory	Prepared an economic analysis of the customer impact from various electricity restructuring configurations for the State of Ohio
Ohio Office of Consumer Council	Analyzed two utilities' long-range plans and energy efficiency resource options. Analyzed the Dominion East Gas Company application to be relieved of the merchant function.
Ontario Energy Board	Developed demand-side management programs and evaluated need for natural gas integrated resource planning rules.
U.S. Environmental Protection Agency	Developed handbook, "Energy Efficiency and Renewable Energy: Opportunities from Title IV of the Clean Air Act", which focuses on how energy efficiency and renewables relate to acid rain compliance strategies.
U.S. Environmental Protection Agency and U.S. Department of Energy	Analyzed and compared utility supply- and demand-side resource selection for Clean Air Act compliance on the Pennsylvania-New Jersey-Maryland (PJM) interconnection.
Washington State Weatherization Directors	Natural Gas energy conservation program design involving Cascade Natural Gas Company

Excerpt from Met-Ed/Penelec/Penn Power/West Penn Power EEC Plan Exhibit AJW-1

RIDERS

The Phase IV EE&C-C rates by Customer Class shall be calculated in accordance with the formula set forth below:

$$EE\&C\text{-}C = [(EEC_C - E - E^2) / S] \; X \; [\, 1 / (1 - T)]$$

$$EEC_C = EEC_{Exp1} + EEC_{Exp2} + EEC_{Exp3}$$ Where:

EE&C-C = The charge in cents or dollar per Billing Unit by Customer Class as defined by this rider applied to each Billing Unit for the Rate Schedules identified in this rider.

EEC_C = The Energy Efficiency and Conservation Costs by Customer Class incurred and projected to be incurred by the Company for the EE&C-C Computational Period calculated in accordance with the formula shown above.

EEC_{Exp1} = Costs incurred and projected to be incurred associated with the Customer Class specific Phase IV EE&C Programs as approved by the Commission for the Phase IV EE&C-C Computational Period by Customer Class. These costs also include an allocated portion of any indirect costs incurred associated with all the Company's Phase IV EE&C Programs for the Phase IV EE&C-C Computational Period. EEC_{Exp1} costs will be offset by a credit for any PJM capacity market revenues (net of the costs associated with auction participation and including replacing capacity charges), capacity deficiency charges and any unavoidable PJM charges. Such costs shall be allocated to each customer class based on the ratio of class- specific approved budgeted program costs to total approved budgeted program costs.

EEC_{Exp2} = An allocated portion of incremental administrative start-up costs incurred by the Company through May 31, 2021 in connection with the development of the Company's Phase IV EE&C Programs in response to the Commission's order and guidance at Docket No. M-2020-3015228. These costs to design, create, and obtain Commission approval for the Company's Phase IV EE&C Programs include, but are not limited to, consultant costs, legal fees, and other direct and indirect costs associated with the development and implementation of the Company's Phase IV EE&C Programs in compliance with Commission directives. Such costs shall be allocated to each customer class based on the ratio of class-specific approved budgeted program costs to total approved budgeted program costs.

EEC_{Exp3} = An allocated portion of the costs the Company incurs and projects to incur to fund the Commission's statewide evaluator contract which shall be excluded in the final determination of the Act 129 limitation on the Company's Phase IV EE&C Program costs. Such costs shall be allocated to each customer class based on the ratio of class-specific approved budgeted program costs to total approved budgeted program costs.

E = The cumulative over or under-collection of Phase IV EE&C costs by Customer Class that results from the billing of the Phase IV EE&C-C rates (an over-collection is denoted by a positive E and an under- collection by a negative E).

E^2 = Phase III EE&C final reconciliation over or under-collection of EEC costs by Customer Class that results from the billing of the Phase III EE&C-C rates through March 31, 2021 (an over- collection is denoted by a positive E and an under-collection by a negative E), and any expenses to finalize any measures installed and commercially operable on or before May 31, 2021; expenses to finalize any contracts; other Phase III administrative obligations; and any remaining Phase III EE&C revenues after March 31, 2021.

S = The Company's projected Billing Units (kWh sales delivered to all Customers in the specific customer class or kW PLC demand for the Industrial Customer Class).

T = The Pennsylvania gross receipts tax rate in effect during the billing month expressed in decimal form as reflected in the Company's base rates.

All capitalized terms not otherwise defined in this rider shall have the definitions specified in the Definitions of Terms section of this Tariff. For the purpose of this rider, the following additional definitions shall apply:

1. Phase IV EE&C-C Computational Period – The 12-month period from June 1 through May 31.
2. Phase IV EE&C-C Initial Reconciliation Period – June 1, 2021 through March 31, 2022 for the initial period of the rider.
3. Phase IV EE&C-C Reconciliation Period – The 12-month period ending March 31 each year thereafter, except for the Initial Reconciliation Period, for the duration of this rider.
4. Peak Load Contribution ("PLC") – A Customer's contribution to the Company's transmission zone normalized summer peak load, as estimated by the Company in accordance with PJM rules and requirements.
5. Phase III EE&C – The energy efficiency plan that terminates on May 31, 2021. Revenues and EE&C Costs will continue to accrue past the termination date. A final reconciliation of the remaining balance will be included in the June 1, 2022 Phase IV EE&C-C rate calculation as a separate line item.

The Company will submit to the Commission by May 1 of each year starting May 1, 2022: (1) a reconciliation between actual Phase IV EE&C-C revenues and actual Phase IV EE&C-C costs for the Phase IV EE&C-C Reconciliation Period, except for the Phase IV EE&C- C Initial Reconciliation Period, as adjusted for removal of gross receipts tax; (2) any adjustment to the forecasted Phase IV EE&C-C revenues anticipated to be billed during April through May of that year, as adjusted for removal of gross receipts tax; (3) the Phase IV EE&C program cost estimate for the forthcoming Phase IV EE&C-C Computational Period by Customer Class; and (4) Phase III EE&C final reconciliation over or under-collection of EEC costs by Customer Class that results from the billing of the Phase III EE&C-C rates and remaining Phase III EEC costs. There shall also be a final reconciliation of amounts to be collected or refunded after May 31, 2026.

Upon determination that the Phase IV EE&C-C rates, if left unchanged, would result in material over or under-collection of all recoverable costs incurred or expected to be incurred by customer class, the Company may request that the Commission approve one or more interim revisions to the Phase IV EE&C-C rates to become effective thirty (30) days from the date of filing, unless otherwise ordered by the Commission.

The Company shall file an annual report of collections under this rider by April 30th of each year starting April 30, 2022 until the conclusion of this rider.

At the conclusion of the duration of this rider, the Company is authorized to recover or refund any remaining amounts not reconciled at that time under such mechanism as approved by the Commission.

Application of the Phase IV EE&C-C rates shall be subject to annual review and audit by the Commission.

Proposed Revision to Met-Ed/Penelec/Penn Power/West Penn Power EEC Plan Riders in Exhibit AJW-1

RIDERS

The Phase IV EE&C-C rates by Customer Class shall be calculated in accordance with the formula set forth below:

$$EE\&C\text{-}C = [(EEC_C - E + \{R_{PJM} - C_{PJM}\} - E^2) / S] \text{ X } [1 / (1 - T)]$$

$$EEC_C = EEC_{Exp1} + EEC_{Exp2} + EEC_{Exp3}$$

Where:

EE&C-C = The charge in cents or dollar per Billing Unit by Customer Class as defined by this rider applied to each Billing Unit for the Rate Schedules identified in this rider.

EEC_C = The Energy Efficiency and Conservation Costs by Customer Class incurred and projected to be incurred by the Company for the EE&C-C Computational Period calculated in accordance with the formula shown above.

EEC_{Exp1} = Costs incurred and projected to be incurred associated with the Customer Class specific Phase IV EE&C Programs as approved by the Commission for the Phase IV EE&C-C Computational Period by Customer Class. These costs also include an allocated portion of any indirect costs incurred associated with all the Company's Phase IV EE&C Programs for the Phase IV EE&C-C Computational Period. Such costs shall be allocated to each customer class based on the ratio of class- specific approved budgeted program costs to total approved budgeted program costs.

EEC_{Exp2} = An allocated portion of incremental administrative start-up costs incurred by the Company through May 31, 2021 in connection with the development of the Company's Phase IV EE&C Programs in response to the Commission's order and guidance at Docket No. M-2020-3015228. These costs to design, create, and obtain Commission approval for the Company's Phase IV EE&C Programs include, but are not limited to, consultant costs, legal fees, and other direct and indirect costs associated with the development and implementation of the Company's Phase IV EE&C Programs in compliance with Commission directives. Such costs shall be allocated to each customer class based on the ratio of class-specific approved budgeted program costs to total approved budgeted program costs.

EEC_{Exp3} = An allocated portion of the costs the Company incurs and projects to incur to fund the Commission's statewide evaluator contract which shall be excluded in the final determination of the Act 129 limitation on the Company's Phase IV EE&C Program costs. Such costs shall be allocated to each customer class based on the ratio of class-specific approved budgeted program costs to total approved budgeted program costs.

E = The cumulative over or under-collection of Phase IV EE&C costs by Customer Class that results from the billing of the Phase IV EE&C-C rates (an over-collection is denoted by a positive E and an under- collection by a negative E).

R_{PJM} Th allocated portion of any PJM capacity market revenues. The PJM capacity market revenues shall be allocated to each customer class in proportion to the cleared nominations by customer class. The term $\{R_{PJM} - C_{PJM}\}$ is the net PJM revenue by customer class – positive net PJM revenues are a credit to the customer class and reduce the reconciliation component of the rider.

C_{PJM} Th allocated portion of any PJM capacity market costs associated with auction participation and including replacing capacity charges, capacity deficiency charges and any unavoidable PJM charges. The PJM capacity market costs shall be allocated to each customer class in proportion to the cleared nominations by customer class. The term $\{R_{PJM} - C_{PJM}\}$ is the net PJM revenue by customer class – negative net PJM revenues are a cost to the customer class and increase the reconciliation component of the rider.

E^2 = Phase III EE&C final reconciliation over or under-collection of EEC costs by Customer Class that results from the billing of the Phase III EE&C-C rates through March 31, 2021 (an over- collection is denoted by a positive E and an under-collection by a negative E), and any expenses to finalize any measures installed and commercially operable on or before May 31, 2021; expenses to finalize any contracts; other Phase III administrative obligations; and any remaining Phase III EE&C revenues after March 31, 2021.

S = The Company's projected Billing Units (kWh sales delivered to all Customers in the specific customer class or kW PLC demand for the Industrial Customer Class).

T = The Pennsylvania gross receipts tax rate in effect during the billing month expressed in decimal form as reflected in the Company's base rates.

All capitalized terms not otherwise defined in this rider shall have the definitions specified in the Definitions of Terms section of this Tariff. For the purpose of this rider, the following additional definitions shall apply:

6. Phase IV EE&C-C Computational Period – The 12-month period from June 1 through May 31.

7. Phase IV EE&C-C Initial Reconciliation Period – June 1, 2021 through March 31, 2022 for the initial period of the rider.
8. Phase IV EE&C-C Reconciliation Period – The 12-month period ending March 31 each year thereafter, except for the Initial Reconciliation Period, for the duration of this rider.
9. Peak Load Contribution ("PLC") – A Customer's contribution to the Company's transmission zone normalized summer peak load, as estimated by the Company in accordance with PJM rules and requirements.
10. Phase III EE&C – The energy efficiency plan that terminates on May 31, 2021. Revenues and EE&C Costs will continue to accrue past the termination date. A final reconciliation of the remaining balance will be included in the June 1, 2022 Phase IV EE&C-C rate calculation as a separate line item.

The Company will submit to the Commission by May 1 of each year starting May 1, 2022: (1) a reconciliation between actual Phase IV EE&C-C revenues and actual Phase IV EE&C-C costs for the Phase IV EE&C-C Reconciliation Period, except for the Phase IV EE&C- C Initial Reconciliation Period, as adjusted for removal of gross receipts tax; (2) any adjustment to the forecasted Phase IV EE&C-C revenues anticipated to be billed during April through May of that year, as adjusted for removal of gross receipts tax; (3) the Phase IV EE&C program cost estimate for the forthcoming Phase IV EE&C-C Computational Period by Customer Class; and (4) Phase III EE&C final reconciliation over or under-collection of EEC costs by Customer Class that results from the billing of the Phase III EE&C-C rates and remaining Phase III EEC costs. There shall also be a final reconciliation of amounts to be collected or refunded after May 31, 2026.

Upon determination that the Phase IV EE&C-C rates, if left unchanged, would result in material over or under-collection of all recoverable costs incurred or expected to be incurred by customer class, the Company may request that the Commission approve one or more interim revisions to the Phase IV EE&C-C rates to become effective thirty (30) days from the date of filing, unless otherwise ordered by the Commission.

The Company shall file an annual report of collections under this rider by April 30th of each year starting April 30, 2022 until the conclusion of this rider.

At the conclusion of the duration of this rider, the Company is authorized to recover or refund any remaining amounts not reconciled at that time under such mechanism as approved by the Commission.

Application of the Phase IV EE&C-C rates shall be subject to annual review and audit by the Commission.

EXCERPT FROM FIRSTENERGY PHASE IV ENERGY EFFICIENCY AND CONSERVATION PLAN Section 1.6

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.*

The Companies plan 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. The Companies will base their actual offer values on their experience evaluating programs for PJM capacity market participation, taking into account capacity ownership rights, EM&V results and costs, changing PJM market rules, and other variables to balance the risk and cost of capacity market participation with the anticipated revenue.

The Companies anticipate measures being offered from primarily lighting, HVAC equipment, refrigeration, water heating and custom project programs. See Sections 3.2, 3.3 and 3.4 for the Companies' program and measure offerings from which resources will be considered in determining its offers into PJM's Forward Capacity Market. The Companies provided estimated ranges of the PJM Summer and Winter MW EE potential for each PJM delivery year as shown in Appendix C, Table C-3 based on the MWh savings as projected in the EE&C Plan, with the following assumptions and modifications:

- Identified and removed energy savings of all measures not eligible for PJM including:
  - online audits;
  - appliance recycling;
  - building lighting controls and occupancy sensors;
  - smart thermostats, energy management systems or smart homes;
  - behavioral programs;
  - educational programs;
- Assumed utilities retain all Phase IV Plan program Capacity Rights to support their offered EE resources and to ensure no double counting of EE resources by third parties;
- Assigned an initial savings load shape to each PJM eligible EE measure;
- Estimated the potential kW savings values for each measure for the PJM defined Summer and Winter periods using the appropriate load shape curve; and
- Included T & D line losses to adjust retail kW values to wholesale kW values.

The Companies anticipate participation of Phase IV Plan resources installed starting June 1, 2021 in the 2023/24 Base Residual Auction ("BRA"). All EE sell offer values and buy bids shall remain confidential because they are considered market sensitive information; however, they can be provided to Commission Staff via confidential submission and after the applicable auction results are available. The Companies' considerations and processes to further evaluate the potential values provided in Appendix C, Table C-3 for their participation in the PJM Capacity Auctions also include, but are not limited to, the following:

- Adjustment of the PJM kW estimates for any Point of Sales (POS), Mid-Stream, and Up-Stream Programs. Measures from these programs require additional PJM EM&V and annual persistence studies to ensure offered EE measures are initially installed in the applicable PJM zone and remain in service during each applicable delivery year.
- The Initial PJM EM&V Plan values are based on many assumptions including adoption/installation rates, more generic or composite measure savings curve shapes, initial incentives or rebate levels, line losses and current measure baselines. Adjustments to each must be considered for actual EE offers.
- Adjustments to recognize that EE resources have a limited offer duration of four years with additional installation period limitations and PJM auction parameter changes which will require true-up of market positions.
- Consideration of Capacity Market rule changes like the pending PJM Minimum Offer Price Rules (MOPR) and FERC Order 2222 - DER Aggregation which includes Energy Efficiency Resources.

BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION

Joint Petition for Consolidation of Proceedings and Approval of the Phase IV Energy Efficiency and Conservation Plan of Metropolitan Edison Company, Pennsylvania Electric Company, Pennsylvania Power Company, and West Penn Power Company	:	Docket Nos. M-2020-3020820 M-2020-3020821 M-2020-3020822 M-2020-3020823

VERIFICATION

I, Geoffrey C. Crandall, hereby state that the facts set forth in my Direct Testimony, OCA Statement 1, are true and correct (or are true and correct to the best of my knowledge, information, and belief) and that I expect to be able to prove the same at a hearing held in this matter. I understand that the statements herein are made subject to the penalties of 18 Pa.C.S. § 4904 (relating to unsworn falsification to authorities).

DATED: January 13, 2021
*302286

Signature: Geoff C Crandall
Geoffrey C. Crandall

Consultant Address: MSB Energy Associates, Inc.
6907 University Ave # 162
Middleton, WI 53562

COMMONWEALTH OF PENNSYLVANIA

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January 25, 2021

Via Electronic Mail Only
Deputy Chief Administrative Law Judge Mark A. Hoyer
The Honorable Emily I. DeVoe
Office of Administrative Law Judge
Pennsylvania Public Utility Commission
Piatt Place
301 Fifth Avenue, Suite 220
Pittsburgh, PA 15222

Re: Joint Petition for Consolidation of Proceedings and Approval of the Phase IV Energy Efficiency and Conservation Plan of Metropolitan Edison Company, Pennsylvania Electric Company, Pennsylvania Power Company, and West Penn Power Company
Docket Nos. M-2020-3020820
M-2020-3020821
M-2020-3020822
M-2020-3020823

Dear Judge Hoyer and Judge DeVoe:

Enclosed please find a copy of the Supplemental Direct Testimony being submitted on behalf of the Office of Consumer Advocate in the above-referenced proceedings, as follows:

Supplemental Direct Testimony of Geoffrey C. Crandall, OCA Statement 1-SUPP.

Copies have been served on the parties as indicated on the enclosed Certificate of Service. Due to the ongoing emergency period, hard copies of the OCA's testimony cannot be provided at this time. Hard copies can be provided as normal operations resume. The OCA appreciates your understanding of this matter.

Respectfully submitted,

/s/ Christy M. Appleby
Christy M. Appleby
Assistant Consumer Advocate
PA Attorney I.D. # 85824
E-Mail: CAppleby@paoca.org

OCA Statement
1 Supp

Enclosures:
cc: PUC Secretary Rosemary Chiavetta (Letter and Certificate of Service only)
Certificate of Service
*302948

CERTIFICATE OF SERVICE

Re:	Joint Petition for Consolidation of Proceedings and Approval of the Phase IV Energy Efficiency and Conservation Plan of Metropolitan Edison Company, Pennsylvania Electric Company, Pennsylvania Power Company, and West Penn Power Company	:	Docket Nos. M-2020-3020820 M-2020-3020821 M-2020-3020822 M-2020-3020823

I hereby certify that I have this day served a true copy of the following document, the Office of Consumer Advocate's Supplemental Direct Testimony as follows:

Supplemental Direct Testimony of Geoffrey C. Crandall, OCA Statement 1-SUPP.

upon parties of record in this proceeding in accordance with the requirements of 52 Pa. Code § 1.54 (relating to service by a participant), in the manner and upon the persons listed below:

Dated this 25th day of January 2021.

SERVICE BY E-MAIL ONLY

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Fax: (717) 783-7152
Dated: January 25, 2021
*302950

OCA Statement 1-Supp.

BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION

METROPOLITAN EDISON COMPANY
Docket No. M-2020-3020820

PENNSYLVANIA ELECTRIC COMPANY
Docket No. M-2020-3020821

PENNSYLVANIA POWER COMPANY
Docket No. M-2020-3020822

WEST PENN POWER COMPANY
Docket No. M-2020-3020823

PHASE IV ENERGY EFFICIENCY AND
CONSERVATION PLAN

SUPPLEMENTAL DIRECT TESTIMONY
OF
GEOFFREY C. CRANDALL

ON BEHALF OF
PENNSYLVANIA OFFICE OF CONSUMER ADVOCATE

January 25, 2021

Q. What is your name and business address?

A My name is Geoffrey C. Crandall. My business address is MSB Energy Associates, Inc. 6907 University Avenue # 162, Middleton, WI 53562

Q. Are you the same Geoffrey Crandall that provided Direct Testimony in this Docket?

A. Yes.

Q. What is the purpose of your Supplemental Direct Testimony?

A. The primary purpose is to provide information pertinent to two issues raised in my Direct Testimony that the Companies provided subsequent to the filing of my Direct Testimony. As described on page 13 my Direct Testimony, OCA participated in an informal verbal discovery session on Friday, January 8, 2021. During that session, OCA identified two issues in which there was an inconsistency between the provisions of Rider F and the verbal description of what the Companies actually do or propose to do. The Companies agreed to investigate the inconsistencies and provide the resolution to OCA. When my Direct Testimony was filed on January 13, 2021, the Companies had not yet provided responses. The Companies provided a response on January 14 and further amended it on January 21, 2021. Excerpts from the Companies' email responses are attached as Schedule GCC-1-Supp.

Q. What are the issues affected by the inconsistencies?

A. One issue, raised on page 13 of my Direct Testimony, is how the common costs associated with the EE&C portfolio are allocated to each customer class. Rider F as proposed by the Companies allocates the common costs (indirect program costs, incremental Phase IV startup/development costs, and statewide evaluator costs) to each customer class in proportion to the budget for each customer class. The Companies indicated during the January 8 informal discovery session that the common costs are actually allocated based on the ratio of each customer classes' CSP Delivery Fees plus Marketing costs to the Companies' total CSP Delivery Fees plus Marketing costs.

The other issue, discussed on page 15 of my Direct Testimony, is the allocation of the PJM revenues and costs associated with the Companies' nomination of energy efficiency peak demand reductions into the PJM capacity market. Rider F as proposed by the Companies allocates the PJM revenues and costs to each customer class in proportion to the budget for each customer class. During the January 8 informal discovery session, the Companies indicated that the PJM revenues net of costs are assigned to the customer class associated with the kW values of EE&C measures that cleared in PJM's Forward Capacity Market.

Q. Has the PJM net revenue allocation issue been resolved?

A. According to the January 14 email from the Companies (See Schedule GCC-1-Supp), the Companies assign PJM revenues net of PJM costs to the specific customer class that was the source of the EE&C peak reductions that cleared in the PJM Forward Capacity Market and indicated that Rider F would be revised. On January 21, the Companies reaffirmed the PJM net revenues allocation method and proposed further changes to move the PJM net revenues from the EEC_{Exp1} term to the E term. The Companies further indicated that the revised Rider F would be addressed in more detail by Mr. Woytko in the Companies Rebuttal Testimony.

The Companies' proposed revisions to Rider F are consistent with the recommendation in my Direct Testimony. Because the Companies will not provide a Revised Rider F, or address it in more detail, until their January 25 Rebuttal Testimony, I am not able to verify that all of my recommended changes to Rider F will be made or functionally met by the Companies' revised Rider F. For example, while the Companies propose to remove the erroneous allocation language from Rider F, it appears from the emails that the Companies' Revised Rider F will not state how the net revenues are to be allocated.

It remains my recommendation that the Commission approve Rider F as contained in my proposed Revisions to Rider F (Direct Testimony Schedule GCC-3), or language that is functionally the same.

Q. Has the issue about allocating common costs among customer classes been resolved?

A. That remains unclear. In a January 14 email (Schedule GCC-1-Supp), the Companies state that "all indirect and common cost are allocated to the customer classes based on the percentage of program budgets." In the answer part d, the Companies say that the "costs are allocated to the customer classes based on the percentage of total program budgets." This suggests that the language in the Rider is correct. My recommendation was to allocate the common costs in that manner.

In a January 21 email (Schedule GCC-1-Supp) confuses the issue by stating “the allocation of the indirect, common, and administrative start-up costs were not correctly defined in the EE&C Riders. These costs are allocated to the customer classes based on the percentage of total plan-specific administrative program budgets.” While it doesn’t explicitly say so, it suggests that these costs will be allocated according to the proportion of CSP delivery fees and marketing costs associated with each customer class. Because the Companies have not yet provided a Revised Rider F, or will address this in more detail, until their January 25, 2021 Rebuttal Testimony, I am not able determine on what basis the Companies propose to allocate common costs.

Q. On what basis did the Companies allocate projected common costs in the Phase IV EE&C Plan?

A. The Phase IV EE&C Plan customer class allocations are based on the proportion of CSP Delivery and Marketing costs. Appendix B, Table 12 of the EE&C Plan filing shows the common costs by customer class. Dividing each sector common cost by the total common cost yields the percentage of the common costs allocated to each customer class.

Appendix B, Tables 10-1 through 10-3 contains the total program-specific costs as well as the CSP Delivery fees and Marketing costs by program and customer class. Dividing each customer class’ program-specific costs by the total Company program-specific costs yields the percentage allocator based on total program-specific costs. Dividing each customer class’ Conservation Service Provider (CSP) delivery fees and marketing costs by the total Company CSP delivery fees and marketing costs yields the percentage allocator based on CSP delivery fees and marketing costs.

The percentage allocators based on CSP Delivery fees plus marketing costs match the allocation percentages from Appendix B, Table 12. See Schedule GCC-2-Supp. Thus, I have concluded that the Companies actually used the CSP Delivery plus marketing costs to allocate the common costs. They did not use the percentage of program budgets as indicated in Rider F.

Q. How does this new information affect your recommendations regarding Rider F?

A. The Companies appear to be rewriting Rider F to allocate costs based on the percentage of total plan-specific administrative program budgets. This will mean more of the common cost will be allocated to the residential (including low income) customers. The Companies did not provide any justification for using the percentage of total plan-specific administrative program budgets to allocate common costs.

I reaffirm my recommendation that the common cost be allocated to the customer classes based on the percentage of program budgets.

Q. Please address your suggestion to improve the Companies' proposed portfolio as you identified in your Direct Testimony.

A. On page 19 (Lines 16-19) of my Direct Testimony I recommend that the Commission require the Companies to scale back their proposed behavior modification programs. In addition, I suggested that the Companies replace them with long lived energy efficiency measures.

Q. Do you have further clarification or more specificity to offer regarding this recommendation?

A. Yes. I suggest that the Companies reduce their budget for the Behavior modification programs by 50% or more and re-direct those funds to the Weatherization subprogram or the Energy Efficient Products Program to fund long lived energy efficiency measures.

Q. Does that complete your Supplemental Direct Testimony?

A. Yes, pending the receipt of the corrected and revised Rider F and supporting document related thereto.

From January 21, 2021 E-mail*

The Companies are modifying their response to informal discovery request No. 15 regarding PJM revenues and costs. In compliance with the Phase IV Implementation Order, the Companies now realize that this sentence should be removed from EECexp1 and be treated as a separate line item in the rate calculation. The net PJM revenues/costs should be treated as an offset to the E-Factor. Also, the allocation of the indirect, common, and administrative start-up costs were not correctly defined in the EE&C Riders. These costs are allocated to the customer classes based on the percentage of total plan-specific administrative program budgets. These issues will be addressed in more detail in the Companies' Rebuttal Testimony of Anthony J. Woytko.

From January 14, 2021 E-mail*

As a follow-up from our discussion last Friday, below is the Companies' response to Number 15 of the OCA's informal discovery requests:

Q. See Direct Testimony of Mr. Woytko, Page 11, line 23 - EECexp1 include an allocated portion of indirect costs such as EEC&P Marketing.

a. How are the indirect and common program costs allocated to customer classes?
b. How are the allocations determined?
c. EECexp1 also includes PJM capacity market revenues and costs. Are those allocated based on the rate classes which are the sources of the reductions.
d. The Direct Testimony of Mr. Woytko, page 12 line 5 - EECexp2 includes an allocated portion admin and start-up costs. How are the allocations determined? How are EECexp3 costs (supporting SWE) allocated?

A. a. & b. All indirect and common program costs are allocated to the customer classes based on the percentage of program budgets. The Direct Testimony of Mr. Woytko at page 11, line 23 was intended to communicate that each Companies' Plan program budgets upon which EECexp1 are calculated include allocated indirect and common program costs.

c. PJM revenues net of PJM costs are assigned to the specific customer class associated with the kW values of the EE&C programs and measures that cleared in the PJM Forward Capacity Market for each delivery period. The sentence of EECexp1 regarding PJM revenues and costs should be moved to the last sentence of EECexp1as the costs are not allocated.

d. Admin and start-up costs are allocated to the customer classes based on the percentage of total program budgets. EECexp3 costs are also allocated based on the percentage of total program budgets.

* *The emails were sent to OCA by Devin Ryan, Principal, Post & Schell, P.C. on behalf of the Companies in response to OCA's informal discovery requests. On January 25, 2021, OCA received authorization from the Companies to quote directly from the counsel's e-mail.*

PERCENTAGE ALLOCATION OF EE&C PLAN COMMON COSTS

Met Ed	**Residential**	**Small C&I**	**Large C&I**
Allocated Results Appendix B Table 12	42%	25%	33%
Allocation Factor CSP Delivery & Marketing	42%	25%	33%
Allocation Factor Total Program Budgets	42%	29%	29%
Penelec	**Residential**	**Small C&I**	**Large C&I**
Allocated Results Appendix B Table 12	43%	31%	26%
Allocation Factor CSP Delivery & Marketing	43%	31%	26%
Allocation Factor Total Program Budgets	41%	34%	25%
Penn Power	**Residential**	**Small C&I**	**Large C&I**
Allocated Results Appendix B Table 12	50%	27%	23%
Allocation Factor CSP Delivery & Marketing	50%	27%	23%
Allocation Factor Total Program Budgets	46%	30%	23%
West Penn	**Residential**	**Small C&I**	**Large C&I**
Allocated Results Appendix B Table 12	50%	26%	24%
Allocation Factor CSP Delivery & Marketing	50%	26%	24%
Allocation Factor Total Program Budgets	47%	30%	24%

BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION

Joint Petition for Consolidation of Proceedings and Approval of the Phase IV Energy Efficiency and Conservation Plan of Metropolitan Edison Company, Pennsylvania Electric Company, Pennsylvania Power Company, and West Penn Power Company	:	Docket Nos. M-2020-3020820 M-2020-3020821 M-2020-3020822 M-2020-3020823

VERIFICATION

I, Geoffrey C. Crandall, hereby state that the facts set forth in my Supplemental Direct Testimony, OCA Statement 1-SUPP., are true and correct (or are true and correct to the best of my knowledge, information, and belief) and that I expect to be able to prove the same at a hearing held in this matter. I understand that the statements herein are made subject to the penalties of 18 Pa.C.S. § 4904 (relating to unsworn falsification to authorities).

DATED: January 25, 2021
*302945

Signature: Geoffrey C. Crandall
Geoffrey C. Crandall

Consultant Address: MSB Energy Associates, Inc.
6907 University Ave # 162
Middleton, WI 53562

OCA Hearing Exhibit #1

Date Entered: 02/05/2021

Joint Petition for Consolidation of Proceedings and Approval of the Phase IV Energy Efficiency and Conservation Plan of Metropolitan Edison Company, Pennsylvania Electric Company, Pennsylvania Power Company, and West Penn Power Company	: : : : : :	Docket Nos. M-2020-3020820 M-2020-3020821 M-2020-3020822 M-2020-3020823

OCA Hearing

1

Joint Petition for Consolidation of Proceedings and Approval of the Phase IV Energy Efficiency and Conservation Plan of Metropolitan Edison Company, Pennsylvania Electric Company, Pennsylvania Power Company, and West Penn Power Company Docket Nos. M-2020-3020820, M-2020-3020821, M-2020-3020822, M-2020-3020823

OCA RESPONSE TO INTERROGATORIES AND REQUESTS FOR PRODUCTION OF DOCUMENTS ON OCA – SET I

FE to OCA-I-3

Re: OCA Statement No. 1. For each recommendation made in OCA Statement No. 1:

(a) Please explain whether Mr. Crandall has studied or evaluated his recommendation's impact on:

(1) The individual programs' cost-effectiveness;

(2) The overall portfolio's cost-effectiveness;

(3) The savings for all customer sectors and programs; and

(4) The costs for all sectors and programs.

(5) If so, please provide those studies or evaluations, including all documents, reports, and workpapers that Mr. Crandall relied upon in performing those studies or evaluations, in their native format (e.g., Microsoft Excel).

(b) Please identify where the dollars in the budget for the Phase IV EE&C Plan will come from to implement this recommendation.

(c) If the recommendation is the addition of a new measure, program, or pilot program, please provide its projected budget, participation level, and savings for each Program Year of Phase IV.

(d) If the recommendation is the addition of a new measure, program, or pilot program, please provide its TRC benefit-cost ratio.

(e) Please provide all documents, reports, and workpapers relied upon by Mr. Crandall in providing the information requested in subparts (c) and (d) above.

RESPONSE:

Of the five recommendations summarized on pages 19-20 of OCA Statement No. 1, only the first involves revising the portfolio and thus is the only one that has the potential to affect the programs or portfolios. The recommendation is to scale back the behavior modification programs and replace them with programs based on long lived measures, such as the Weatherization subprogram or the Energy Efficient Product Program, both of which reside in the residential sector.

(a)(1) and (a)(2) Mr. Crandall did not eliminate any measures or programs. Nor did he add new measures or programs. Mr. Crandall recommends shifting some of the budget from the behavioral programs (which the Companies proposed only for the residential sector) to other existing programs or subprograms in the residential sector. The large and small commercial sector programs would be unaffected by Mr. Crandall's recommendation.

Within the residential sector, Mr. Crandall's recommendation would improve the overall cost effectiveness. According to the Companies' data, the behavioral and low-income behavioral programs have lower Gross TRCs (which are used for compliance with Act 129) than the programs to which Mr. Crandall recommends moving the money. Attachment I-3 shows the Gross TRC Ratios for each Companies' behavioral, low income behavioral and the low income weatherization programs. The average Gross TRC over the five program years is summarized below.

	MetEd	Penelec	Penn Power	West Penn
Behavioral	0.21	0.13	0.25	0.15
LI Behavioral	0.29	0.24	0.31	0.31
LI Weatherization	0.41	0.40	0.37	0.36

Moving money from the behavioral programs to the low income weatherization program will improve the overall cost effectiveness of the programs for the residential sector. Since Mr. Crandall did not propose changes to the non-residential sectors, the overall portfolio cost effectiveness would also improve. Putting the money from the behavioral programs to the Energy Efficient Product Program, which has a Gross TRC at or in excess of 1.0 for each of the Companies will only further improve the cost effectiveness of residential sector programs and the overall portfolio for each Company. From Appendix B, Table 13-1, the

Gross TRC for each Companies' Energy Efficient Product Program follows:

	MetEd	Penelec	Penn Power	West Penn
Energy Efficient Product Program	1.1	1.1	1.0	1.0

(a)(3) The lifetime savings for large commercial and small commercial programs are unaffected by Mr. Crandall's recommendation. The lifetime savings for the residential sector overall would increase. The lifetime savings from the behavioral programs would decrease. The lifetime savings from the low-income weatherization and/or Energy Efficient Product Program would increase.

(a)(4) The costs for large commercial and small commercial programs are unaffected by Mr. Crandall's recommendation. The costs for the residential sector overall are unaffected, since the costs are shifted between programs within the residential sector. The costs of the behavioral programs would decrease. The costs of the low-income weatherization and/or Energy Efficient Product Program would increase.

(a)(5) See the response to FE to OCA-I-1. Mr. Crandall relied on the Companies analyses. First Energy did not provide the underlying spreadsheets.

(b) The dollars for the low income weatherization and/or Energy Efficient Product Program expansion would be obtained from scaling back behavioral programs. See OCA Statement No. 1, Page 8, line 28.

(c) Not applicable.

(d) Not applicable.

(e) Not applicable.

RESPONDENT: GEOFFREY CRANDALL

Attachment I-3

PA	PrgID	ProgramName	TRCRatio
ME	113	Behavioral2021	0.3250
ME	117	LI Weatherization - Res2021	0.3745
ME	123	Behavioral - LI2021	0.3065
ME	213	Behavioral2022	0.1790
ME	217	LI Weatherization - Res2022	0.3925
ME	223	Behavioral - LI2022	0.1703
ME	313	Behavioral2023	0.1816
ME	317	LI Weatherization - Res2023	0.4065
ME	323	Behavioral - LI2023	0.1728
ME	413	Behavioral2024	0.18
ME	417	LI Weatherization - Res2024	0.42
ME	423	Behavioral - LI2024	0.37
ME	513	Behavioral2025	0.19
ME	517	LI Weatherization - Res2025	0.44
ME	523	Behavioral - LI2025	0.42

MetEd 5-Year EE&C Plan Period	**TRC (Gross)**
Average Behavioral	0.21
Average Low Income Behavioral	0.29
Aveage Low Income Weatherization	0.41

PA	PrgID	ProgramName	TRCRatio
PN	113	Behavioral2021	0.1936
PN	117	LI Weatherization - Res2021	0.3667
PN	123	Behavioral - LI2021	0.2182
PN	213	Behavioral2022	0.1062
PN	217	LI Weatherization - Res2022	0.3834
PN	223	Behavioral - LI2022	0.2560
PN	313	Behavioral2023	0.1077
PN	317	LI Weatherization - Res2023	0.3972
PN	323	Behavioral - LI2023	0.2327
PN	413	Behavioral2024	0.11
PN	417	LI Weatherization - Res2024	0.41
PN	423	Behavioral - LI2024	0.26
PN	513	Behavioral2025	0.11
PN	517	LI Weatherization - Res2025	0.43
PN	523	Behavioral - LI2025	0.24

Penelec 5-Year EE&C Plan Period	**TRC (Gross)**
Average Behavioral	0.13
Average Low Income Behavioral	0.24
Aveage Low Income Weatherization	0.40

PP	113	Behavioral2021	0.2327
PP	117	LI Weatherization - Res2021	0.3444
PP	123	Behavioral - LI2021	0.2407
PP	213	Behavioral2022	0.2665
PP	217	LI Weatherization - Res2022	0.3607
PP	223	Behavioral - LI2022	0.2751
PP	313	Behavioral2023	0.2432
PP	317	LI Weatherization - Res2023	0.3739
PP	323	Behavioral - LI2023	0.3114
PP	413	Behavioral2024	0.27
PP	417	LI Weatherization - Res2024	0.39
PP	423	Behavioral - LI2024	0.35
PP	513	Behavioral2025	0.25
PP	517	LI Weatherization - Res2025	0.40
PP	523	Behavioral - LI2025	0.40

Penn Power 5-Year EE&C Plan Period	**TRC (Gross)**
Average Behavioral	0.25
Average Low Income Behavioral	0.31
Aveage Low Income Weatherization	0.37

WPP	113	Behavioral2021	0.23
WPP	117	LI Weatherization - Res2021	0.33
WPP	123	Behavioral - LI2021	0.28
WPP	213	Behavioral2022	0.12
WPP	217	LI Weatherization - Res2022	0.35
WPP	223	Behavioral - LI2022	0.33
WPP	313	Behavioral2023	0.13
WPP	317	LI Weatherization - Res2023	0.36
WPP	323	Behavioral - LI2023	0.30
WPP	413	Behavioral2024	0.13
WPP	417	LI Weatherization - Res2024	0.38
WPP	423	Behavioral - LI2024	0.34
WPP	513	Behavioral2025	0.13
WPP	517	LI Weatherization - Res2025	0.39
WPP	523	Behavioral - LI2025	0.31

West Penn 5-Year EE&C Plan Period	**TRC (Gross)**
Average Behavioral	0.15
Average Low Income Behavioral	0.31
Aveage Low Income Weatherization	0.36

BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION

Joint Petition for Consolidation of Proceedings and Approval of the Phase IV Energy Efficiency and Conservation Plan of Metropolitan Edison Company, Pennsylvania Electric Company, Pennsylvania Power Company, and West Penn Power Company	:	Docket Nos. M-2020-3020820 M-2020-3020821 M-2020-3020822 M-2020-3020823

VERIFICATION

I, Geoffrey C. Crandall, hereby state that I am the witness responsible for responding to Metropolitan Edison Company, Pennsylvania Electric Company, Pennsylvania Power Company, and West Penn Power Company's Interrogatories directed to the Office of the Consumer Advocate, Set I, and that the facts above set forth are true and correct to the best of my knowledge, information and belief in the interrogatory responses. I understand that the statements herein are made subject to the penalties of 18 Pa.C.S. § 4904 (relating to unsworn falsification to authorities).

DATED: January 19, 2021
*302487

Signature: Geoffrey C. Crandall
Geoffrey C. Crandall

Consultant Address: MSB Energy Associates, Inc.
6907 University Ave # 162
Middleton, WI 53562

BEFORE THE

PENNSYLVANIA PUBLIC UTILITY COMMISSION

Joint Petition for Consolidation of Proceedings and Approval of the Phase IV Energy Efficiency and Conservation Plan of Metropolitan Edison Company, Pennsylvania Electric Company, Pennsylvania Power Company, and West Penn Power Company	:	Docket Nos.	M-2020-3020820 M-2020-3020821 M-2020-3020822 M-2020-3020823

DIRECT TESTIMONY OF JIM GREVATT

ON BEHALF OF

THE COALITION FOR AFFORDABLE UTILITY SERVICES AND

ENERGY EFFICIENCY IN PENNSYLVANIA ("CAUSE-PA")

January 13, 2021

CAUSE-PA
Statement
1

PREPARED DIRECT TESTIMONY OF JIM GREVATT

Q. Please state your name, title, and employer.

A. My name is Jim Grevatt. I am a Managing Consultant at Energy Futures Group, located at 10298 Route 116, Hinesburg, VT 05461.

Q. Please describe Energy Futures Group.

A. Energy Futures Group ("EFG") is an energy efficiency consulting firm established in 2010. EFG specializes in the design, implementation, and evaluation of energy efficiency programs and policies, with an emphasis on cutting edge strategies to cost-effectively achieve deep levels of savings and broad program participation. EFG has worked on behalf of utilities and other energy efficiency program administrators, government and regulatory agencies, and environmental, low income, and affordable housing advocacy organizations in 40 states and Canadian provinces, as well as several countries in Europe. EFG's recent work has included serving as advisors on the development of efficiency program portfolios and policies in eight of the ten highest-ranking states in the American Council for an Energy-Efficient Economy's ("ACEEE") 2018 State Energy Efficiency Scorecard. In addition, EFG played key roles in developing a report on lessons learned from leading residential retrofit programs in North America and Europe; an analysis on the key pitfalls that can be encountered in performing energy efficiency potential studies; a study of emerging practices in the use of energy efficiency to defer or entirely avoid electric transmission and distribution upgrades; the development of a regional residential lighting strategy for the Northeast; and an assessment of the effectiveness of leading efficiency financing initiatives.

I. INTRODUCTION

Q. Please summarize your professional and educational experience.

A. I have worked in the energy efficiency industry since 1991 in a wide variety of roles. Prior to joining EFG in 2013, I served as the Director of Residential Energy Services at Efficiency Vermont and the District of Columbia Sustainable Energy Utility. I also helped develop and launch the award-winning natural gas energy efficiency programs at Vermont Gas Systems, where I worked for eleven years, including four years as the Manager of Energy Services. I have extensive hands-on experience conducting hundreds of energy audits for Vermont's Low Income Weatherization Assistance Program and Vermont Gas Systems' DSM programs.

In my current role as Managing Consultant at EFG, I have advised regulators, utilities, and other energy efficiency program administrators, environmental organizations, and low income and affordable housing advocates in numerous states, including California, Colorado, Delaware, Illinois, Indiana, Iowa, Kentucky, Maine, Maryland, Mississippi, Missouri, Nevada, New Hampshire, New Jersey, New Mexico, North Carolina, Pennsylvania, Vermont, Virginia, and West Virginia, as well as the Canadian provinces of British Columbia and Manitoba. I focus on using my in-depth knowledge of energy efficiency program management and operations as well as experience in strategic planning to ensure that programs achieve their desired market impacts.

I received a B.F.A. from the University of Illinois.

My resume, included as Attachment A, provides additional detail regarding my professional and educational experience.

Q. Have you previously testified in any proceeding before the Pennsylvania Public Utilities Commission?

A. Yes, I recently testified on behalf of CAUSE-PA in Docket No. P-2014-2459362. I have also testified before utility commissions in Colorado, Florida, Illinois, Iowa, Indiana, Kentucky, Nevada, North Carolina, Vermont, Virginia, and West Virginia, as well as in the Canadian provinces of British Columbia and Manitoba.

Q. On whose behalf are you testifying in this case?

A. I am testifying on behalf of the Coalition for Affordable Utility Services and Energy Efficiency in Pennsylvania ("CAUSE-PA").

Q. What is the purpose of your testimony?

A. The purpose of my testimony is to offer observations on the portfolio of energy efficiency programs that Metropolitan Edison Company, Pennsylvania Electric Company, Pennsylvania Power Company, and West Penn Power Company (collectively, "Companies" or "First Energy") propose in hopes that I may inform the Commission's consideration of the Companies' Petition. The Companies filed a Petition for Approval of their Act 129 Phase IV Energy Efficiency and Conservation Plan (Phase IV Plan) on November 30, 2020 with the Pennsylvania Utility Commission (Commission). The Phase IV Plan was filed pursuant to the requirements of Act 129 and the Commission's Act 129 Phase IV Implementation Order, Energy Efficiency and Conservation Phase IV Implementation Order (Implementation Order), entered on June 18, 2020, at Docket No. M-2020-3015228 (Phase IV Implementation Order). Specifically, I discuss the sufficiency of the Companies' approach to programs that are intended to reduce the energy bills of those customers who lack the financial means to make investments in energy efficiency, i.e. households with income at or below 150% of the federal poverty income level (FPL). Throughout this testimony, the term “low income” as applied to persons or households will refer to those individuals and/or households whose income is at or below 150% FPL.

Q. What are your principal observations about the Companies’ filing?

A. My principal observations are as follows:

1. The Companies’ plan includes a variety of programs and program sub-components that collectively are intended to achieve compliance with the Companies’ requirement to achieve 5.8% of their total portfolio savings for low income customers. The Companies’ low income focused initiatives span a variety of measures and program types but fail to meet the level of comprehensiveness provided for in the Commission’s directives. In fact, some of the proposed initiatives stretch beyond a reasonable interpretation of the Commission’s directive that savings counted towards the low income savings requirement must come “from programs solely directed at low income customers or low income verified participants in multifamily housing programs.”[1] For example, nearly 14% of West Penn’s low income savings are expected to come from the “School Education – LI” initiative, which appears to be virtually identical to the Energy Efficient Homes Program’s “School Education” initiative. In both cases the school education kits “are provided at no additional cost.”[2] The only apparent difference between the two is that the kits for the low income schools program contain a smart strip in addition to the measures contained in the residential schools program.

[1] Phase IV Final Implementation Order at 28.

[2] Energy Efficiency and Conservation Plan, p. 52 of 142 (pdf p.78) and p.62 of 142 (pdf p. 88).

2. The Companies state that their low income programs "will serve a dual purpose of contributing to Act 129 goal attainment and minimizing the percentage of household income that is devoted to energy costs";[3] yet they propose to offer certain measures to low income households that it is implausible to believe will be installed. These include measures such as "Pool Pump Variable Speed," "EV charging Cord – Level 2 – RES," and "Water Cooler." These measures will have almost certainly have no applicability for low income households.

3. The Companies state that they will provide "enhanced incentives for ENERGY STAR and other energy efficient appliances"[4] for low income customers; but rather than pay the full cost of such measures, they intend to require customers to contribute to the costs. It is unreasonable to assume that households earning 150% of the Federal Poverty Level ("FPL") can be expected to contribute to measure costs.

4. The Companies seem to plan to offer higher incentives for more efficient appliances where multiple efficiency levels exist, yet the planned participation for low income customers is overwhelmingly greatest for level 1 clothes washers, refrigerators, and room air conditioners, even though installation of level 2 and level 3 appliances would result in more energy savings for these households.

5. The Companies' Plan provides a list of measures that are available through its low income programs in Table 14,[5] yet some of the listed measures are either not included in Appendix B, Table 8 at all (where participation estimates are recorded) or are only included with

[3] Id. at p. 14 of 142 (pdf p. 40).

[4] Id. at p. 57 of 142 (pdf p. 83).

[5] Id. at p. 137 of 142 (pdf p. 163).

remarkably low participation estimates. For example, Table 14 lists "Heat Pump Water Heater" as a low income measure when Appendix B, Table 8 shows that West Penn only plans for a single installation in each year of its Plan. Merely saying that a measure is available is meaningless when the Companies do not provide participation estimates that indicate they will promote it.

6. The Companies intend to implement their Act 129 Phase IV low income programs in a coordinated manner with their LIURP programs, which should lead to administrative efficiencies and potentially increased savings for those households who receive these services – yet too little emphasis is placed on these comprehensive energy saving initiatives compared with the Behavioral Savings, School Education, and other low-impact measures that comprise the majority of low income savings for the Companies.

Q. What are your recommendations for the Commission?

A. In order to improve the availability of meaningful energy efficiency opportunities for the Companies' low income customers, I recommend the Commission take the following steps prior to its approval of the Companies' Plan:

1. Disallow the Companies from counting savings from their "School Education – LI" program towards their LI savings requirement, and replace those savings by directing the Companies to double the planned participation levels in the "Weatherization (Warm Plus)" and "Warm Extra Measures" programs.
2. Direct the Companies to prioritize the highest levels of equipment efficiency when varying levels are available (such as with clothes washers and refrigerators) in order to provide low income program participants with the greatest level of savings.

3. Direct the Companies to eliminate all requirements for contributions to measure costs from low income households and to re-calculate their planned LI savings to include only measures that can plausibly be expected to be installed by low income households.
4. Direct the Companies to target replacement of electric resistance heating and water heating with heat pumps and heat pump water heaters in qualifying households, such that LI-appliance savings, including these measures, is equivalent to 10% of the Companies' low income savings.
5. Direct the Companies to increase savings from multifamily low income housing, including both master-metered and split-metered properties.

II. BACKGROUND OF ACT 129 PROGRAMMING

Q. Please summarize the low income energy savings requirements for Phases I, II, III, and IV of Act 129.

A. Act 129 requires that each Electric Distribution Company (EDC) include in its Energy Efficiency and Conservation Plan specific energy efficiency measures for low income households in proportion to that sector's share of the total energy usage in a given service territory.[6] The Commission enforced this statutory requirement for all Phase I EDC Plans, but did not require EDCs to achieve a specific percentage of overall consumption savings from the low income sector.

In Phase II, the Commission continued to require that each plan include specific measures for low income households in proportion to the sector's percentage of usage. In addition, the Commission required that each EDC obtain a minimum of four-and-a-half percent (4.5%) of its

[6] 66 Pa. C.S. §2806.1(b)(1)(i)(G).

overall consumption reduction requirements from the low income sector.[7] Eligibility for the Phase II low income sector programs was limited to low income households; however, low income customers could participate in any general residential program. To determine whether an EDC met its 4.5% target, the Commission allowed EDCs to include all savings achieved through dedicated low income programs, as well as a portion of savings achieved through non-low income programs based on estimated low income participation.[8]

In Phase III, the Commission again continued implementation of the statutory measure requirement, and increased the low income consumption reduction requirement from four-and-a-half percent (4.5%) to five-and-a-half percent (5.5%) of the overall savings achieved.[9] In calculation of Phase III compliance, the Commission provided: "Savings counted towards the 5.5% target may only come from specific low income programs or low income verified participants in multifamily housing programs. Savings from non-low income programs will not be counted for compliance."[10] In addition to the specific savings carve-out, the Commission further directed that "low income savings should primarily come from measures that are directly provided to low income households."[11]

For Phase IV, the Commission again increased the minimum low income savings requirement from 5.5% to 5.8% of total consumption reduction, and maintained its requirement from Phase III that low income savings be derived from programs "solely directed at low income

[7] Phase II Implementation Order at 55.

[8] Id. at 58.

[9] Phase III Implementation Order at 69.

[10] Id. at 69.

[11] Id. at 69.

customers or low income verified participants in multifamily housing programs."[12] In setting the low income savings requirement, the Commission reiterated that the 5.8% savings requirement is drawn from the Statewide Evaluator's assessment of program potential, "which is significantly below the maximum achievable potential."[13] For the Companies in total, the percentage low income savings requirement equates to 89,015 MWh.[14]

Table 1: First Energy Low Income Savings Targets

Met-Ed	26,866 MWh
Penelec	25,385 MWh
Penn Power	7,477MWh
West Penn	29,287 MWh
Total	**89,015 MWh**

Notably, while the 5.8% savings requirement is higher in terms of the percentage of overall savings, the actual MWh savings requirement from the low income customer segment is lower than in Phase III because the overall portfolio savings targets are lower, "due to the higher portfolio-level acquisition costs used to set the Phase IV targets."[15] This is an important point to keep in mind generally in assessing the adequacy of the Companies' proposed Phase IV Plan as a whole, and specifically the adequacy of their proposed low income programs. Indeed, the Commission explained that the overall portfolio savings requirements were established based on higher acquisition costs for two primary reasons:

[12] Phase IV Implementation Order at 28.

[13] Id. at 33.

[14] Id. at 35.

[15] Id. at 36.

> First, a sizeable share of low-cost savings in prior phases have been driven by residential lighting measures, which are expected to play a very limited role in Phase IV and were modeled as such. Second, though the Commission acknowledges it is possible to design programs that capture savings at a lower average acquisition cost in Phase IV than modeled by the results of the [potential study], directing the EDCs to do so would be in contravention of the Commission's stated encouragement for EDCs to pursue comprehensive portfolios with a greater focus on longer-lived, deeper-savings measures. The [potential study] included a comprehensive mix of measures to reflect this Commission position."[16]

On this last point encouraging EDCs to pursue "comprehensive portfolios with a greater focus on longer-lived, deeper-savings measures", the Commission "strongly encourage[d] EDCs to submit EE&C plans that adhere to this recommendation and encourage[d] stakeholders to engage in proceedings related to those plans."[17]

Regarding coordination of Act 129 and the utilities' Low Income Usage Reduction Programs, the Commission "encourages stakeholders to consider more comprehensive proposals describing the nature, structure, and implications of potential alternate approaches to coordination in future proceedings."[18] I take that to mean proposals for enhanced coordination of Act 129 and LIURP should be considered in the instant proceeding.

With regard to multifamily savings, the Commission declined to require a specific multifamily savings carve-out, but directed the EDCs "to report savings achieved in multifamily housing, both for the low income carve-out and for their portfolio programs."[19] The Commission reiterated its direction from Phase III "that savings from multifamily housing, up to the percentage

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[16] Phase IV Implementation Order at 15.

[17] Id. at 15.

[18] Id. at 37.

[19] Id.

of verified low income households living in the multifamily housing, are eligible for the low income carve-out."[20]

III. THE NEED FOR LOW INCOME ENERGY EFFICIENCY

Q How many low income customers do the First Energy Companies have?

A. This is a difficult question to answer precisely at this point in time due to the economic effects of the COVID-19 pandemic – however, it is clear that low income customers make up a very large portion of the Companies' overall customer base. The Commission publishes data about the Companies' low income customers annually in its Universal Service Report; however, the most recent report only includes data through 2019, prior to the onset of the COVID-19 pandemic.[21] Unfortunately, the economic landscape has and continues to change drastically as a result of the pandemic, which has likely caused a substantial increase to the number of low income households in the Companies' service territory.[22]

Q. Given the changing economic landscape, what is it possible to say about how many low income customers the Companies currently have?

A. EDCs report their low income customer population two ways: estimated low income customers and confirmed low income customers.[23] The "estimated low income" customer number

[20] Phase IV Implementation Order at 37.

[21] See Pa. PUC, BCS, 2019 Report on Universal Service Programs & Collections Performance, at 4 (Dec. 2019) (herein 2019 Universal Service Report), available at: https://www.puc.pa.gov/General/publications_reports/pdf/EDC_NGDC_UniServ_Rpt2019.pdf.

[22] See Kris Maher and Eric Morath, Pennsylvania, With Most Jobless Claims in U.S., Could Foretell High Numbers Elsewhere, Wall Street Journal (March 27, 2020), available at https://www.wsj.com/articles/pennsylvania-with-most-jobless-claims-in-u-s-could-foretell-high-numbers-elsewhere-11585323969; see also Pa. Office of Unemployment Compensation, UC Claim Statistics, https://www.uc.pa.gov/COVID-19/Pages/UC-Claim-Statistics.aspx.

[23] 2019 Universal Service Report at 4-6.

is derived using local census data, scaled against residential customer counts in a given geographic area, to approximate the percentage of low income households in a utility's service territory.[24] The "confirmed low income" number is a count of those customers for whom the Companies have obtained information that would reasonably indicate that their income is at or below 150% of the federal poverty level (FPL).[25] In 2019, the Companies reported 1,779,077 total residential customers, of which 465,005 (26.1%) were estimated low income and 259,421 (14.6%) were confirmed low income.[26] Thus, it is likely that between 14.6% to 26.1% of the Companies' residential customers were low income customers before the onset of the pandemic. The pandemic has caused much economic struggle throughout the Companies' service territory and the impact continues to grow at this time.

Table 2: First Energy Companies Low Income Customer Counts[27]

EDC	Residential Customers	Confirmed Low income	Estimated Low income
Met-Ed	504,684	73,647 -- 14.6%	116,570 -- 23.1%
Penelec	500,877	91,350 -- 18.2%	155,072 -- 31.0%
Penn Power	146,017	20,221 -- 13.8%	35,872 -- 24.6%
West Penn	627,499	74,203 -- 11.8%	157,491 -- 25.1%
Total/Avg.	***1,779,077***	***259,421 – 14.6%***	***465,005 – 26.1%***

Q. You say above that the Universal Service Reports may not capture all of the Companies' low income customers. Do you mean that the Companies have more low income customers than are reported?

A. Yes. Since these data only reflect the subgroup of customers that the Companies have confirmed meet its definition of low income, many low income customers are not included. The

[24] Id. at 6.

[25] Id. at 2.

[26] Id. at 5, 7.

[27] Id. at 4-6.

actual number of low income customers is estimated to be significantly higher – and due to the pandemic, there is little doubt that the number is growing. As such, the number of households in poverty who are terminated and without gas service each year is likely to grow.

Q. How much income must a household receive each month to be considered low income?

A. With some exceptions, most utility assistance programs require households to have income that is not greater than 150% of the federal poverty level ("FPL") to qualify. The FPL is a measure of poverty based exclusively on the size of the household, but not the composition of the household (i.e., whether the household consists of adults or children) or geography. Under current federal guidelines, a family of four at 150% FPL would have a gross annual income of just $39,300, while for a family of four at 50% FPL the number would be just $13,100.[28] For context, a full time (40 hour/week) worker making minimum wage ($7.25/hour) would have a gross annual income of $15,080, assuming no time off. This is substantially less than a household needs to meet their basic expenses.[29] For reference, the self-sufficiency standard (the income needed to afford basic needs without assistance) for Pennsylvania for a family of four with two adults, one preschooler, and one school aged child is $65,155.[30] Thus, a similarly situated family with income at 150% FPL would need to come up with an additional $25,855 just to afford necessary expenses. Thus,

[28] U.S. Dept. of Health and Human Services, 2020 U.S. Federal Poverty Guidelines, available at https://aspe.hhs.gov/2020-poverty-guidelines.

[29] See PathWays PA, Overlooked and Undercounted 2019 Brief: Struggling to Make Ends Meet in Pennsylvania, available at: http://www.selfsufficiencystandard.org/Pennsylvania

[30] See Pennsylvania Self Sufficiency Standard, http://www.selfsufficiencystandard.org/Pennsylvania (The Self Sufficiency Standard is a tool that measures the income that a family must earn to meet their basic needs and consists of the combined cost of 6 basic needs – housing, child care, food, health care, transportation, and taxes – without the help of public subsidies.).

these families are forced, on a monthly basis, to make impossible choices between necessary goods and services such as utility service, rent, food, and medicine.

In its 2019 Universal service Report, the Commission acknowledges that low income consumers in Pennsylvania often have income below 150% of FPIG.[31] The report states:

> According to the U.S. Bureau of Labor Statistics, the definition of a "working poor" household begins with a wage-earner who works full time (35+ hrs/week) at a minimum-wage job. In 2019, minimum wage in Pennsylvania was $7.25 per hour, the same as it has been since 2009. Annual income for an individual wage earner who works at a full time (40hr/week) minimum-wage job is $15,080, which equates to 121% of FPIG in 2019 and 118% FPIG in 2020.[32]

For all 2019 participants in universal service programs statewide, average annual household income **for electric customers was $14,594**.[33] The average electric CAP household (two persons) had an income of $14,387, which placed these households' incomes at approximately 85% of FPIG (for two persons) for 2019, and 83% for 2020.[34] Electric customers who received LIURP services in 2019 had average annual household incomes of $17,947.[35]

Q. Has the Commission studied energy affordability as it relates to low income households?

A: Yes. In 2019, the Commission published a statewide home energy affordability analysis, wherein it evaluated the relative energy burdens (the percentage of a household income dedicated to energy costs) among low income and non-low income households.[36] The Commission found

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[31] 2019 Universal Service Report at 44.

[32] Id.

[33] Id.

[34] Id.

[35] Id. at 41.

[36] Energy Affordability for Low income Customers, Docket No. M-2017-2587711 (*Energy Affordability* proceeding), (Order entered January 17, 2019) available at: http://www.puc.pa.gov/pcdocs/1602386.pdf.

that even with discounted CAP payments, many low income customers still had disproportionate energy burdens to those paid by non-low income households.[37] The Commission's findings were consistent with the findings of the annual Home Energy Affordability Gap report, which has consistently indicated that customers in the lowest income tier often have energy burdens in excess of 30%, while energy burdens for non-low income households are consistently around 4%.[38]

Q. What does this mean?

A: The overwhelming energy burden on low income households makes it difficult to pay for other basic necessities such as housing, food, and medicine; threatens stable and continued employment and education; has substantial and long-term impacts on mental and physical health; creates serious risks to the household and the larger community; and negatively impacts the greater economy.[39] According to the US Energy Information Administration, roughly 1 in 5 households in 2015 – when the economy was experiencing a relatively prosperous economic period – reported that they reduce or forego other critical necessities like food and medicine to afford their home energy costs, and more than 1 in 10 reported keeping their home at an unsafe or unhealthy temperature.[40] Even with financial assistance, low income households are still unable to afford the cost of energy. According to a survey conducted by the National Energy Assistance Directors' Association, 72% of LIHEAP recipients reported that they forego other necessities to afford

[37] Id. at 5-6.

[38] See Id.; See also Fisher, Sheehan & Colton, The Home Energy Affordability Gap: Pennsylvania (April 2019), http://www.homeenergyaffordabilitygap.com/03a_affordabilityData.html

[39] US EIA, Residential Energy Consumption Survey (2015), https://www.eia.gov/consumption/residential/reports/2015/energybills/; see also NEADA, 2018 National Energy Assistance Survey, at 17, 20 (Dec. 2018), http://neada.org/wp-content/uploads/2015/03/liheapsurvey2018.pdf (hereinafter NEADA Survey).

[40] US EIA, Residential Energy Consumption Survey (2015), https://www.eia.gov/consumption/residential/reports/2015/energybills/.

energy, and 26% reported keeping their home at unsafe or unhealthy temperatures.[41] Indeed, as recent research and data has continually showed, vulnerable low income families simply cannot afford the cost of energy services.

Q. Is there other evidence that the Companies' low income customers struggle to afford service?

A. Yes. The Commission's Universal Service Reports shows that the Companies' confirmed low income customers are terminated for nonpayment at **more than double the rate** of non-low income customers. In 2019, the termination rates for the Companies' residential customers ranged between 2.9% to 5.2%, but for confirmed low income customers the termination rates were 13.0% to 15.2%.[42]

[41] NEADA Survey at 17, 20.

[42] 2019 Universal Service Report at 13.

Table 3: First Energy Companies Termination Rates[43]

EDC	Residential Customers	Confirmed Low income
Met-Ed	5.2%	19.2%
Penelec	4.2%	14.6%
Penn Power	2.9%	13.0%
West Penn	3.1%	15.2%

Confirmed low income customers are also more likely to be payment troubled. Despite making up only between 11.8% to 18.2% of residential customers, confirmed low income customers make up 61.4% to 69.2% of payment arrangements and 68.2% to 73.2% of payment troubled customers (defined as failing to maintain at least one payment arrangement).[44]

Table 4: First Energy Low Income Statistics[45]

	Residential Customers	Payment Arrangements	Payment Troubled
Met-Ed	14.6%	61.4%	68.2%
Penelec	18.2%	67.9%	73.2%
Penn Power	13.8%	65.1%	71.0%
West Penn	11.8%	69.2%	68.7%

Q. Has the pandemic worsened these struggles?

A. Yes. Customer arrearages have grown significantly since the onset of the COVID-19 pandemic.[46] Also, as a result of the deep economic impact of the pandemic, energy usage patterns in the short term have changed and may continue to change. Many Pennsylvanians who used to go to work and school every day now find themselves at home during the day, and are using more electricity at home as a result. While we do not yet know the extent of the impact on electric

[43] Id. at 4-6.

[44] 2019 Universal Service Report at 8-9.

[45] Id.

[46] See Public Utility Service Termination Moratorium – Modification of March 13, 2020 Emergency Order, Letter of Met-Ed, et. al., Docket No. M-2020-3019244 (filed Dec. 15, 2020).

consumption and the state's economy, energy efficiency programming is even more important for low income families who are most profoundly impacted by the economic repercussions of the pandemic.

Q. Do the Companies' respective customer assistance programs (CAP) alleviate these struggles?

A. CAP helps; however, CAP only reaches a small percentage of eligible customers. In 2019, only 50,998 of the Companies' customers were enrolled in CAP – this is just 19.7% of confirmed low income customers and 11% of estimated low income customers.[47]

Table 5: First Energy CAP Enrollment[48]

EDC	Number of CAP Customers	Percent of Confirmed-Low Income	Percent of Estimated Low income
Met-Ed	13,043	17.7%	11.2%
Penelec	18,287	20.0%	11.8%
Penn Power	3,976	19.7%	11.1%
West Penn	15,692	21.2%	10.0%
Total/Avg.	***50,998***	***19.7%***	***11.0%***

Thus, between 80.3% to 89% of low income customers are not enrolled in CAP and are charged the full residential rate.

Q. What is the relationship between energy efficiency and CAP?

A. CAP costs are recovered through a rider assessed to all customers; thus, lowering energy costs for CAP participants brings down the cost of service for other ratepayers.[49] In its Phase IV

[47] 2019 Universal Service Report at 50.

[48] Id.

[49] Met-Ed Tariff Electric-Pa. P.U.C. No. 52 (Supp. 56) at 110-111;
Penelec Tariff Electric Pa. P.U.C. No. 81 (Supp. 61) at 117-118;
Penn Power Tariff Electric Pa. P.U.C. No. 36 (Supp. 48) at 106;

Final Implementation Order, the Commission acknowledged this potential stating, "[t]he Commission agrees with CAUSE-PA that low income programming has the potential to reduce universal service and uncollectible expenses, particularly if EDC programs target more comprehensive measures within the low income sector."[50] Additionally, CAP participants can be removed from the program due to year-over-year usage spikes.[51] CAP customers also have a limited amount of CAP credits, which is the dollar amount of the discount given to the customer (i.e. the difference between the full rate and the discount rate). Customers that expend their maximum CAP credits too soon due to high usage must pay the full rate until the credits reset.[52] Thus, providing comprehensive and effective EE&C programing to CAP customers helps them to afford their bills and helps control costs for all ratepayers.

Q. Do the Companies' respective Low Income Usage Reduction Programs (LIURP) satisfy the need for low income energy efficiency programming?

A. LIURP is a vital program, but it cannot, by itself, satisfy the need for low income energy efficiency programing. While there are substantial similarities between Act 129 and LIURP, each of the two programs provides distinct and important benefits to low income households. Specifically, Act 129 programs allow any low income household to access energy efficiency measures without being subject to the LIURP minimum usage thresholds. This benefit is particularly important for low income residents in multifamily buildings and small single family homes, who may have relatively high usage but may not meet the usage threshold to qualify for

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West Penn Power Tariff Electric Pa. P.U.C. No. 40 (Supp. 44) at 156.

[50] Phase IV Final Implementation Order at 105-106.

[51] First Energy, Amended Joint Universal Service & Energy Conservation Plan 2019-2021 at 11-12.

[52] Id. at 12

LIURP.[53] LIURP, on the other hand, is specifically designed to target the very highest users to help reduce collections and universal service costs.[54]

Thus, the Companies must be careful that coordination between Act 129 and LIURP programs does not compromise the integrity of the distinct program budgets. I understand from counsel that Act 129 requires that EDC's respective Act 129 low income expenditures to be *in addition to* LIURP expenditures.[55] It is thus critical that the integrity of each program be maintained – even as we move to harmonize the two programs to streamline services and delivery to low income consumers.

IV. PHASE IV LOW INCOME PROGRAMS

Q. Please summarize the Companies' low income offerings in its proposed Phase IV Plan.

A. The Companies are proposing a Low income Energy Efficiency Program, which they state offers basic, enhanced, and comprehensive services and education.[56] The Companies propose to provide home energy efficiency kits, school education, and customized home energy reports providing low income customers with basic energy savings measures and/or energy efficiency education, recommendations, and information regarding other services upon which they can act.[57] The Companies also propose low income program offerings designed to help identify new low income customers, achieve additional energy savings opportunities, or promote energy efficiency

[53] Id. at 19 (First Energy generally requires a minimum usage threshold of 6,500 kWh or more annually).

[54] See Id.; see also 52 Pa. Code § 58.1.

[55] 66 Pa. C.S. § 2806.1(b)(i)(G).

[56] First Energy St. 2 at 12-13.

[57] Id.

in multifamily or other low income homes.[58] The Companies also plan to achieve additional new and incremental electric energy savings through the Weatherization subprogram as part of the delivery of the Companies' existing comprehensive Low income Usage Reduction Program ("LIURP"). [59] The Low income Energy Efficiency Program also includes a New Homes subprogram, where the Companies state they will promote the construction of new energy efficient housing for income-qualified customers.[60]

Q. From which program types or measures do the Companies propose to obtain the majority of their low income savings?

A. The Companies propose to obtain a disproportionate amount of savings from behavioral savings, school education, energy efficiency kits, and other low-impact measures that comprise the majority of low income savings for the Companies. The Companies place only modest emphasis on comprehensive energy saving initiatives.

Q. Is the Companies' Plan consistent with Commission direction to "increase their focus on more comprehensive measures."[61]

A. No. The Companies are over-reliant on "light-touch" measures that reach a large number of customers but fail to achieve the savings for individual customers that the Commission asked for. I provide more information on the makeup of the Companies' low income portfolio in the discussion below.

[58] Id.

[59] Id.

[60] Id.

[61] Phase IV Final Implementation Order at 7.

WEATHERIZATION AND LIURP COORDINATION

Q. What is your understanding of the Companies approach to Act 129 low income program coordination with its LIURP programs?

A. As I understand the explanation of program coordination provided by Mr. Miller at an informal discovery conference on January 8, 2021, the Companies' Weatherization (WARM PLUS) and WARM Extra Measures program subcomponents are delivered in an integrated manner with the LIURP program. The Companies utilize the same program delivery contractors and agencies in a manner that streamlines the process for customers and provides for more measures to be installed than might otherwise be the case if LIURP was the only funding stream used.

Q. What is your understanding of how Act 129 funding is utilized in the Weatherization (WARM PLUS) subprogram?

A. As explained by Mr. Miller, Act 129 funding is used for income-eligible customers who do not meet the LIURP high usage criterion to deliver effectively identical services to what is delivered to LIURP-eligible customers. As Mr. Miller explained, the delivery is provided by the same contractors and agencies, and the measure lists are the same. In my view this is an effective approach because it should deliver high-value, comprehensive measures that provide significant bill reductions to participating low income households. In fact, for West Penn, the Companies estimate that participants will on average save 1,441 kWh per year,[62] which is worth about $160 per year.[63] Further, it does so in an administratively efficient manner by using the same program delivery infrastructure that is already in place for LIURP.

[62] First Energy EE&C Plan, Append. B, T8: Estimated Savings and Participation, West Penn.

[63] Average price of $0.1110/kWh EIA Table 6 2019 Utility Bundled Retail Sales-Residential. https://www.eia.gov/electricity/sales_revenue_price/

Q. How does the WARM Extra Measures program sub-component differ from the Weatherization (WARM PLUS) Program sub-component that you describe above?

A. As explained by Mr. Miller, the WARM Extra Measures program sub-component increases the number of measures received by customers who are eligible and receive LIURP energy efficiency program services. In effect, Act 129 funds are used to provide even more bill savings to these customers than they would receive simply through LIURP – on average 818 kWh per year in additional savings, worth approximately $91 per year. [64]

Q. Do you support the Companies' approach in these program sub-components?

A. Yes. I think that coordinated delivery provides a cost-efficient means of delivering significant savings to the Companies' customers – by which I mean savings that are large enough to have a material effect on families' ability to meet their basic needs. This is in contrast to some of the other sub-components the Companies use to meet their Act 129 savings obligation that I believe are over-reliant on measures that are not comprehensive and that do not deliver meaningful savings to participating low income households. For this reason, I recommend the Commission direct the Companies to increase the investments they propose to make in these sub-components by a large margin, equivalent to a doubling of the sub-component budgets compared with what the Companies have proposed.

[64] Average price of $0.1110/kWh EIA Table 6 2019 Utility Bundled Retail Sales-Residential. https://www.eia.gov/electricity/sales_revenue_price/ .

LOW INCOME PROGRAMS THAT FAIL TO DELIVER MEANINGFUL SAVINGS TO CUSTOMERS

Q. What is an example of a program sub-component that you believe does not deliver meaningful savings to low income households?

A. The Companies' Behavior program sub-component is one example of a program that the Companies use to make a significant contribution to meeting the Act 129 low income savings requirement, without providing significant savings to the average participant. West Penn, for example, estimates that on average a participant in the Behavioral – LI sub-component will save between 50 kWh to 113 kWh per year[65] (depending on the program implementation year). This would reduce that participant's bill by between $5.55 and $12.54 per year, or on average about seventy-five cents per month.[66] While any bill savings for low income customers are worth pursuing, I believe that savings at this level are unlikely to materially change households' ability to pay their energy bills or increase their access to other necessities such as food and health care.

Q. Can you provide another example of a program sub-component that the Companies rely on for significant contributions to their required low income savings goal, yet that does not provide significant savings to individual households that participate?

A. Yes. I believe that the School Education – LI program provides savings opportunities that are too limited. The Companies indicate that the average expected savings for a participant in this program would be 211 kWh per year. Consistent with my statements above in which I suggest the Companies are not adequately providing significant savings opportunities for their LI customers,

[65] First Energy EE&C Plan, Append. B, T8: Estimated Savings and Participation, West Penn.

[66] Average price of $0.1110/kWh EIA Table 6 2019 Utility Bundled Retail Sales-Residential. https://www.eia.gov/electricity/sales_revenue_price/

I would argue that here, too, while any savings are worth pursuing, the savings in this program are too small to materially improve the condition of low income households that participate.

Q. Do you have other concerns with the School Education – LI program?

A. As I indicated in my introductory comments, I disagree with the Companies' position that savings from the School Education – LI program should be counted towards its low income savings requirement. I disagree with the premise that when the School Education program takes place in schools that are believed to serve significant numbers of students from low income households those savings should be considered to be low income savings. I believe to do so would contradict the spirit and the letter of the Commission's Phase III Order in which it rejected the Phase II practice of allocating savings from non-specific LI programs toward meeting its low income requirements based on assumptions of low income participation. I believe this because, as far as can be told from the Companies' filing, the School Education – LI program is no different than the School Education program within the Energy Efficient Homes Program, other than that it is larger.

Q. What would the benefit be for customers if the Commission were to adopt your recommendation that the School Education – LI program not be counted towards the LI savings requirement?

A. If the Commission adopted my recommendations to both disqualify the savings from the School Education – LI program and require the Companies to make up the difference by doubling the savings they obtain through the Weatherization (WARM PLUS) and WARM Extra Measures programs, more low income households would receive the kinds of energy savings and bill reduction benefits that could materially reduce their financial insecurity, allowing them to better meet family needs for food and health care, for example. I believe this would more closely reflect legislative intent and the Commission's directions with respect to low income energy savings. And of course, there is nothing that should preclude the Companies from continuing to offer the School Education program for schools in lower-income communities – they would just need to report the savings in the school education program that is implemented more broadly.

Q. Can you provide other examples of program sub-components where the Companies fail to maximize savings for their low income customers?

A. Yes. It appears, for example, that the Companies intend to offer three different levels of efficient clothes washers and refrigerators to its low income customers. Unfortunately, they appear to plan for the vast majority of these to be at the lowest efficiency level rather than at the highest. The Companies estimate that the average participant will save 117 kWh per year for a level 1 clothes washer and 178 kWh per year for a level 3 clothes washer – yet for West Penn they estimate only one level 3 incentive per year, in contrast to 80 level 1 incentives.

Q. Surely there must be a reason that the Companies assume that virtually all of their clothes washer incentives for low income customers will occur at level 1?

A. I do not know the specific costs of the various efficiency levels for clothes washers used in the Companies' analysis, but assume they justify this planning assumption on the basis of presumed higher costs for more efficient appliances. However, in my considerable experience implementing low income energy efficiency programs, I always held it to be a fundamental goal to maximize per household savings whenever possible. Even if a level 3 appliance costs more than a level 1 appliance, it will not cost more than the difference in purchase prices for the Company to install the highest efficiency model. This is because the "transaction costs" – those costs incurred in the operation of the program – will be identical. Opportunities such as this, where simple choices will lead to more savings for customers, should favor maximizing efficiency and thus the bill savings that customers obtain. I recommend the Commission direct the Companies to prioritize the highest levels of equipment efficiency when varying levels are available, in order to provide low income program participants with the greatest level of savings.

IMPLAUSIBLE LOW INCOME MEASURES

Q: Do the Companies propose low income measures that you believe will fail to deliver on their promise of "minimizing the percentage of household income that is devoted to energy costs"?

A: Yes, the Companies propose several measures that they cannot rationally believe are applicable to low income customers. For example, it is almost impossible to see how a family with household income at or below 150% of FPL would be in the market for an "EV Charging Cord – Level 2 – RES." While it seems unlikely that income-eligible households will be purchasing new vehicles at all, the idea that they will have the discretionary income to choose a new electric vehicle is baffling. This notion is even more absurd when the Companies estimated incremental cost of $500 is compared with the "modeled rebate" of only $80.[67]

Q. Why would the Companies include this level 2 EV charging cord in their list of low income program measures?

A. I cannot guess as to why the Companies made this decision; however, I will observe that the effect is to artificially inflate the breadth and range of measures that are nominally available to low income households, though the benefit of doing so is unclear. In any event, these measures do not contribute to the minimization of energy bills for low income households.

[67] First Energy EE&C Plan, Append. D T2.

Q. The Companies state that they provide "Enhanced Incentives" for certain measures, implying that there is an expectation that low income customers could contribute to the costs of making energy efficient purchases. Are there additional measures that you have identified where the Companies expect low income customers earning less than 150% of FPL to pay a portion of the measure costs?

A. Yes. For example, Appendix B, Table 7: Eligible Measures indicates an incremental cost of $187 for an ENERGY STAR clothes washer, and an incentive of $50.[68] The clothes dryer measure shows an incremental cost of $358 and an incentive of $75.[69] It is simply implausible to think that low income customers would make such purchases, and the Companies reflect this to a degree in their very, very low estimated participation for such measures.

Q. What other measures do the Companies include for which they expect only limited participation?

A. A partial list of measures the Companies purport to be low income measures, with expected participation of only one customer per year, includes Clothes Washer – level 2, Clothe Washer – level 3, Refrigerator – level 2, Refrigerator – level 3, Water Heater, Pool Pump Variable Speed, Dishwasher, Water Cooler, EV Charging Cord – Level 2 – Res. It makes no sense that the Companies includes these as low income measures. In my view, doing so reduces transparency about what the Companies actually plan to implement for their low income customers by artificially inflating the number of measures they propose to offer.

[68] First Energy EE&C Plan at Append. B, T7

[69] Id.

Q: Do these types of measures further the goals of Act 129 low income programing?

A: No. In its Final Implementation Order, the Commission indicated that the low income carve-out is designed to, "ensure that low income customers are able to access and participate in EDCs' efficiency programs."[70] I do not believe that it is plausible that low income customers will be able to access or participate in any of the measures I describe above. Thus, the Company should not be allowed to count the savings from these measures toward its low income savings goal, unless the programs are adjusted so that a substantial number of low income customers are able to participate.

MULTIFAMILY

Q. Do the Companies place a sufficient focus on providing savings opportunities for affordable multifamily housing?

A: I believe that the Companies needs to place a greater focus on ensuring the equitable provision of energy efficiency services to affordable multifamily housing. While the Companies do indicate that a non-trivial fraction of their total low income savings will come from direct install measures such as lighting when tenants are on residential accounts (8.0% for Penelec),[71] the fraction of savings coming from commercially metered low income housing units is small – in fact, it is virtually non-existent for tenants (less than 0.02% for Penelec).[72] Master-metered properties that provide affordable housing are critically important resources for low income families. These types of properties are disproportionately occupied by low income families and are underserved by energy efficiency programs due to landlord permission and cost sharing issues. Especially in light of the COVID-19 pandemic, many landlords of properties that house low

[70] Phase IV Final Implementation Order at 33.

[71] First Energy EE&C Plan at Append B, T8.

[72] Id.

income families are struggling themselves and are either unwilling or unable to pay for energy efficiency measures in tenant occupied properties. Thus, simply including master-metered properties in the pool of savings that count toward the low income carve-out is not enough to ensure that these properties are served effectively and comprehensively. Master-metered low income multifamily properties and those that have split metering, in which the living units are on individually metered residential accounts and the common areas are on commercial meters, need unique treatment by programs to ensure that they receive savings opportunities.

Affordable multifamily buildings are difficult to serve, and their operational budgets – especially in supportive nonprofit housing for seniors, veterans, and individuals with a disability – do not have room for building upgrades and improvements, such as energy efficiency projects. Without enhanced programming and reduced customer contributions, affordable multifamily owners and occupants are most often unable to access energy efficiency programming.

LOW INCOME SAVINGS LACK COMPREHENSIVENESS

Q. The issues you lay out paint a picture of the Companies' low income program that is not consistent with the Commission's directive for comprehensiveness – is it your opinion that the Companies fail in this regard?

A. Yes, I believe that the Companies' low income programs are inconsistent with the Commission's directives regarding comprehensiveness, and also inconsistent with the SWE's cost analysis that suggested reduced annual savings as a trade-off for more comprehensive, longer-lived savings. As illustrated in Table 6 below, using Penelec as an example, the Companies propose that less than a quarter of their low income savings will come from Weatherization measures. While there are encouraging signs regarding the Weatherization program, including estimates of large savings per participant, it is still worth noting that the specific measures that will make up the Weatherization savings are unknown and may include a significant portion of savings from lighting.

Table 6: Penelec LI Savings[73]

Program Category	% of LI Savings
Weatherization	22.6%
Appliance Recycling	10.1%
Appliances	1.4%
School Education kits and LI EE kits	36.3%
LI-Behavioral	15.3%
LI-multifamily-RES	9.5%
LI-multifamily-commercial	4.4%
LI-new construction	0.4%

Q. Which sources of low income savings in particular concern you?

A. It is my opinion that, other than the Weatherization programs, virtually all of the Companies' low income programs fail to include comprehensive savings that will provide material benefits to participants. 10% of the Plan low income savings come from appliance recycling in which functioning, but inefficient appliances are removed from low income households without a provision for replacing those appliances with more efficient ones. Indeed, barely more than 1% of the Plan low income savings come from appliance upgrades, and over 50% of the Plan low income savings come from the combination of the Behavioral program – primarily home energy reports – and energy efficiency kits. While not specified, it is also highly likely that the majority of the low income multifamily savings are from lighting, given that they are nearly all attributed to tenant direct install measures.

Q. If the Companies reach their low income savings requirement, why does it matter whether the savings meet the Commission's directive for comprehensiveness?

[73] First Energy EE&C Plan, Append B, T8.

A: The Companies' reliance on home energy reports, efficiency kits, and appliance recycling is indicative of their strong preference for short-term measures that provide limited savings to low income households. The Commission has made it clear that for Phase IV of Act 129 it wants the Companies to provide more focus on providing comprehensive measures that provide longer-lasting savings, including for low income households.[74] The Commission stated in its Phase IV Tentative Implementation Order:

> We note that the EE&C Programs have matured enough so that EDCs can **increase their focus on more comprehensive measures** which tend to require greater implementation timeframes.[75]

The Commission also stated that it:

> …proposes to require each EDC to obtain a minimum of 5.8% of its total consumption reduction target from the low income sector…from programs solely directed at low income customers or low income-verified participants in multifamily housing programs. Savings from non-low income programs, such as general residential programs, would not be counted toward these targets.[76]

The Commission echoes its preference for longer-lived measures in its discussion of demand savings targets when it says "because EE measures typically have multiple years of useful life, their associated incremental annual peak demand reductions will continue to provide value beyond the year in which they are claimed as incremental annual peak demand reductions in EE&C programs. The Commission prefers the lasting peak demand reductions achieved by EE measures."[77] In short, the Companies' programs as proposed do not meet the needs of their low income customers and do not comply with the directives of the Commission.

[74] Phase IV Tentative Order at 8,17.

[75] Id. at 8.

[76] Id. at 17.

[77] Id. at 34.

RECOMMENDATIONS

Q. What are your recommendations to the Commission regarding approval of the Companies' Act 129 Phase IV Filing?

A. My overarching recommendation is that the Commission reject the Companies' Plan as filed and require them to amend the Plan to provide for a much greater focus on comprehensive, long-lived energy efficiency measures that will provide meaningful savings to participating low income households. To accomplish this I specifically recommend the following:

1. Disallow the Companies from counting savings from their "School Education – LI" program towards their LI savings requirement, and replace those savings by directing the Companies to double the planned participation levels in the "Weatherization (Warm Plus)" and "Warm Extra Measures" programs;
2. Direct the Companies to prioritize the highest levels of equipment efficiency when varying levels are available (such as with clothes washers and refrigerators) in order to provide low income program participants with the greatest level of savings;
3. Direct the Companies to eliminate all requirements for contributions to measure costs from low income households and to re-calculate their planned LI savings to include only measures that can plausibly be expected to be installed by low income households;
4. Direct the Companies to target replacement of electric resistance heating and water heating with heat pumps and heat pump water heaters in qualifying households, such that LI-appliance savings, including these measures, is equivalent to 10% of the Companies' low income savings; and
5. Direct the Companies to increase savings from multifamily low income housing, including both master-metered and split-metered properties.

Q. Does this conclude your Direct Testimony?

A. Yes.

CAUSE-PA ST. 1, ATTACHMENT A
RESUME OF JIM GREVATT

Jim Grevatt
Managing Consultant

ENERGY FUTURES GROUP

Professional Summary

Jim Grevatt has 30 years of experience in energy efficiency program planning and operations. At Energy Futures Group Jim has advised regulators, program implementers, and advocates in Florida, Louisiana, West Virginia, Colorado, Nevada, British Columbia, Manitoba, Maryland, Pennsylvania, Delaware, Virginia, New Jersey, Illinois, Iowa, Indiana, Mississippi, North Carolina, South Carolina, California, Vermont, Maine, Kentucky, and New Hampshire, and has provided expert witness testimony in twelve of those jurisdictions. Jim has hands-on experience with industry-leading approaches to designing and managing energy efficiency programs, including multi-family, low income, residential retrofit, new construction, HVAC, and efficient products programs. His in-depth knowledge of program operations and clear understanding of strategic thinking and planning ensure that programs achieve their desired market impacts. Throughout his career, Jim has focused on building strong relationships with staff, peers, trade allies, regulators, and clients as the best way to understand the needs and challenges that each sector faces. In past leadership roles at Efficiency Vermont, the DCSEU, and Vermont Gas, Jim had overall responsibility both for program design and operations. He was responsible for finding successful consensus approaches among diverse groups of partners and stakeholders, and for policy interactions with regulators, assuring that program processes were efficient and effective.

Experience

2013-present: Managing Consultant, Energy Futures Group, Hinesburg, VT

2012-2013: Director, Targeted Implementation, Vermont Energy Investment Corp., Burlington, VT

2011-2012: Director, Residential Energy Services, District of Columbia Sustainable Energy Utility
for Vermont Energy Investment Corp., Washington, D.C. and Burlington, VT

2010-2012: Managing Consultant, Vermont Energy Investment Corporation, Burlington, VT

2005-2010: Director, Residential Services, Vermont Energy Investment Corp., Burlington, VT

2001-2005: Manager, Energy Services, Vermont Gas Systems, S. Burlington, VT

1998-2001: Manager, Residential Energy Services, Vermont Gas Systems, S. Burlington, VT

1996-1998: Manager, HomeBase Retrofit Program, Vermont Gas Systems, S. Burlington, VT

1994-1996: Technical Specialist, Vermont Gas Systems, S. Burlington, VT

1991-1994: Associate Director and Technical Specialist, Champlain Valley Weatherization Program, Burlington, VT

Education

B.F.A., University Honors, University of Illinois, 1982

Energy Futures Group, Inc
PO Box 587, Hinesburg, VT 05461 – USA | 802-482-4086 | jgrevatt@energyfuturesgroup.com

Selected Projects

- The Coalition for Affordable Utility Services and Energy Efficiency in Pennsylvania ("CAUSE-PA"). Provided expert witness testimony in Philadelphia Gas Works Petition for Approval of Demand-Side Management Plan for FY 2016-2020. (2020)
- Appalachian Voices and Natural Resources Defense Council. Provided expert witness testimony in Virginia Electric and Power Co. Phase VIII DSM Program Application. (2020)
- Citizens Action Coalition of Indiana. Provided expert witness testimony in Duke Energy Indiana 2020-2023 DSM Plan. (2020)
- The Consumers' Association of Canada (Manitoba) and Winnipeg Harvest. Provided expert witness testimony in the Efficiency Manitoba 2020/23 Efficiency Plan proceeding. (2019-2020)
- British Columbia Sustainable Energy Association. Provided expert review, discovery, and evidence in DSM-related aspects of multiple proceedings with Fortis BC, BC Hydro, and FEI. (2017-2020)
- Southern Environmental Law Center. Provided technical support to environmental and social justice advocates in the Carolinas, and ongoing participation in the Duke Energy EE Collaborative (2019-2020) and Dominion South Carolina EE Advisory Group (2020).
- Coalition of Maryland Energy Efficiency Advocates. Prepared written comments and multiple appearances before the Commission to present evidence regarding Maryland utilities' 2015-2017, 2018-2020, and 2021-2023 EmPOWER Maryland energy efficiency plans, and in additional proceedings related to utility goal setting, cost-effectiveness testing, best-practices in low-income programs, and energy efficiency financing. (2014-2020)
- Southern Alliance for Clean Energy and Earthjustice. Provided expert witness testimony in the Florida Energy Efficiency and Conservation Act goal setting proceeding. (2019)
- Energy Efficient West Virginia, West Virginia Citizen Action Group, and Earthjustice. Provided expert witness testimony in Appalachian Power Company and Wheeling Power Company's Petition regarding EE/DR program approvals. (2019)
- Alliance for Affordable Energy and Natural Resources Defense Council. Provided expert technical support for Louisiana Public Service Commission EE Rulemaking and Entergy New Orleans DSM Plan. (2019-2020)
- New Jersey Clean Energy Program. Planning support for NJCEP implementation team. Facilitated focus groups, worked with Board of Public Utilities Staff, program administrators, utility companies, and other stakeholders to identify opportunities to improve NJCEP strategic direction and increase benefits for ratepayers. Lead author drafting strategic plan. (2015-2020)
- Natural Resources Defense Council and Sierra Club. Provided expert witness testimony in Public Service Company of Colorado's Strategic Issues, 2019-2020 DSM Plan, and 2021-2022 DSM Plan proceedings. (2017-2020)
- Natural Resources Defense Council and Sierra Club. Provided expert witness testimony in Nevada Energy Company's 2019-2038 Triennial Integrated Resource Plan and 2019-2021 Energy

Supply Plan, and 2019 and 2020 DSM Update proceedings and participated in stakeholder collaboratives. (2018-2020)

- Environmental Law & Policy Center and Iowa Environmental Council. Provided expert witness testimony in DSM proceedings regarding MidAmerican Energy Company's and Interstate Power and Light's 2019-2023 Energy Efficiency Plans. (2018)
- Pueblo County Colorado. Provided expert witness testimony in DSM proceedings regarding Black Hills Energy Company's 2019-2021 DSM Plan. (2018)
- Sierra Club. Provided expert witness testimony in proceedings regarding Kentucky Power Company's DSM programs and cost-effectiveness. (2017-2018)
- California Alternative Energy and Advance Transportation Financing Authority. Provide technical assistance on development of commercial energy efficiency financing pilot. (2017-2019)
- Energy Efficiency for All. Expert technical support for affordable multifamily energy efficiency advocacy in Pennsylvania and Virginia. Worked with a coalition of energy efficiency and affordable housing advocates to shape advocacy efforts with utilities and regulators. (2015-2020)
- Southern Environmental Law Center. Provided expert witness testimony in DSM proceedings with Duke Energy Progress and Dominion Virginia, as well as technical support for SELC staff regarding pre-pay programs and other policy issues. (2015-2019)
- Regulatory Assistance Project. Researched and co-authored with Chris Neme: The Next Quantum Leap in Efficiency: 30 Percent Electric Savings in Ten Years, addressing program and policy questions related to doubling the best efficiency program results. (2016)
- Natural Resources Defense Council. Provided expert witness testimony in support of NRDC's intervention in Ameren Illinois' 2014-2016 energy efficiency plan. Testimony demonstrated that Ameren would be capable of capturing significantly greater efficiency savings than it had proposed. (2013)
- Regulatory Assistance Project. Expert technical support for DSM in China. Worked with various government agencies and grid companies, as well as advocacy organizations to provide technical support related to advancing DSM and energy efficiency in China. (2015)
- Vermont Public Service Department. Evaluation of Clean Energy Development Fund. Conducted interviews of staff and key stakeholders under contract to NMR and prepared memo outlining process findings and recommendations. (2014-2015)
- Evaluation of Efficiency Maine Low-Income Multi-Family Weatherization Program. Responsible for program staff and building owner interviews and process evaluation under contract to NMR and Efficiency Maine. (2014-2015)
- Northeast Energy Efficiency Partnerships. Researched and co-authored meta-study of the use of energy efficiency to defer T&D investments. (2014)
- Northeast Energy Efficiency Partnerships- Researched and co-authored meta-study of ductless heat pump performance and market acceptance. (2014)
- New Hampshire Electric Co-op. Conducted assessment of the co-op's environmental and social responsibility programs' promotion of whole building efficiency retrofits, cold climate heat pumps and renewable energy systems. Presented recommendations to the co-op Board. (2014)

- High Meadows Fund. Co-authored a study assessing the market viability of "High Performance Homes" in Vermont. (2014)
- Energy Savings Potential Study, Delaware Department of Natural Resources. Led narrative development for the residential programs for a study of the energy efficiency savings potential in Delaware. (2013-2014)
- Regulatory Assistance Project. Provide technical support to energy efficiency advocates in proceedings in Maryland, Mississippi, and Missouri. (2013-2017)
- Better Buildings Solutions Center, U. S. Department of Energy. Energy Futures Group's lead author in drafting and reviewing web content for ten how-to "handbooks" detailing proven approaches to designing and implementing residential retrofit efficiency programs. (2013-2014)
- Utility Program Benchmarking. Led research on behalf of a large IOU to compare the cost of saved energy across ~10 leading utility portfolios. The research sought to determine if there are discernable differences in the cost of saved energy related to utility spending in specific non-incentive categories, including administration, marketing, and EM&V. (2013)
- Research on trends in multi-family, HVAC, and new construction programs. Developed an analysis of emerging program trends on behalf of a leading energy efficiency industry firm. (2013-2014)
- Efficiency Power Plant, Regulatory Assistance Project. Partnered with RAP to develop a demonstration tool to show how energy efficiency measures can be used to mitigate air quality impacts related to power production. (2013)
- Natural Gas Energy Efficiency Analysis, the Green Energy Coalition. Provided analytical support to demonstrate in testimony that Enbridge Gas could reduce the scale of its proposed pipeline expansion by implementing aggressive energy efficiency programs. (2013)
- Targeted Implementation, VEIC. Responsible for market analysis and strategic planning for a new division expanding VEIC's energy efficiency program implementation projects. (2012-2013)
- DC Sustainable Energy Utility. Led the planning and startup implementation of Residential programs for the DC SEU, including single and multi-family and retail market programs. Led the development of the initial portfolio-level Annual Plan. Led client and partner interactions around planning and policy development. Member of DC SEU Senior Management Team. (2011-2012)
- EmPOWER Maryland Critical Program Review. Expert consultant to the Maryland Office of Peoples' Counsel in EmPOWER Maryland hearings regarding utility energy efficiency planning and reporting. Represented the OPC in stakeholder meetings that informed the current 2012-2014 EmPOWER plans. Multiple appearances before the Maryland Public Service Commission. (2010-2012)
- Efficiency Vermont 20 year Forecast of Efficiency Potential. Senior Advisor in developing the forecast scenarios that led to significantly increased efficiency investment in Vermont. (2010-2011)
- Efficiency Vermont Residential Programs. Directed 100% growth in program budgets to nearly $10M annually. Responsible for strategic direction, leadership, and results for Efficiency Vermont's award-winning residential retrofit, new construction, retail, and low-income programs. Supported excellence in a staff of 30. (2005-2010)

- Vermont Gas Systems Efficiency Program Leader. Directed strategic planning and program operations that led to six programs and portfolio as a whole being recognized as exemplary in Responding to the Natural Gas Crisis: America's Best Natural Gas Energy Efficiency Programs (ACEEE, 2003). Built contractor infrastructure and internal support to consistently meet program objectives. Led development of Annual Reports, planning and budgeting. Collaborated with Efficiency Vermont staff to develop a fuel-blind, state-wide, jointly offered residential new construction program. (2001-2005)
- Residential Retrofit Program Development. Enhanced design and performance of VGS' residential retrofit offerings by streamlining delivery and building strong relationships with contractors, homeowners, and property managers. (1994-2005)
- Demonstrated Technical Excellence in Approaches to Residential Retrofits. Conducted hundreds of residential energy audits and quality assurance inspections for natural gas and alternative-fueled homes. Trained and coached installers to obtain desired quality. Worked to satisfy homeowners through explanation, education, sound listening to concerns, and ultimately assuring that concerns were addressed. Trained new staff in auditing techniques. (1991-1998)

Selected Presentations

Keys to the House: Unlocking Residential Savings with Program Models for Home Energy Upgrades- ACEEE 2016 Summer Study on Energy Efficiency in Buildings, August, 2016

Home Upgrade Program Design & Implementation Models for Acquiring Savings in Multiple Climate Zones- 2016 National Home Performance Conference, April, 2016

EERS Advancements in Maryland: EmPOWER After 2015- Presentation at ACEEE Energy Efficiency as a Resource Conference, September, 2015

Leveling the Playing Field for Distributed Energy Resources- Panelist discussing the use of energy efficiency to defer T&D investments, Acadia Center forum on Envisioning Our Energy Future, February, 2015

Residential Retrofit Programs: What's Working? Perspectives from National Program Leaders- Panelist at AESP National Conference 2012

Elements of Retrofit Program Incentive Design- DOE Technical Assistance Program Publication, April, 2011

Designing Effective Incentives to Drive Residential Retrofit Participation- DOE Technical Assistance Program Webinar, October, 2010

Quality Assurance for Residential Retrofit Programs- DOE Technical Assistance Program Webinar, October, 2010

Home Performance with ENERGY STAR, Quality Assurance in Vermont- Panelist at the ACI Home Energy Retrofit Summit, April 2010

Delivering on the Promise-Engaging Communities and the Public- Panelist at 2010 NEEP Summit, March, 2010

Home Performance with Energy Star in Vermont - Presentation at CEE Member meeting, June 2009

Leading by Example: Exemplary Low Income Energy Efficiency Programs –Presented on Efficiency Vermont's Residential low income services at California's Low Income Energy Efficiency Symposium, June 2006

"Natural Gas Efficiency Policies, Responding to the Natural Gas Crisis One Therm at a Time" - Co-presented with Dan York and Anna Monis Shipley of American Council for an Energy-Efficient Economy (ACEEE) -ACEEE/CEE Market Transformation Symposium, 2004

CAAP Statement
1-R

COMMUNITY ACTION ASSOCIATION OF PENNSYLVANIA

CAAP Statement No. 1-R

Rebuttal Testimony of Susan A. Moore

In Re: Joint Petition for Consolidation of Proceedings and Approval of the Phase IV Energy Efficiency and Conservation Plan of Metropolitan Edison Company, Pennsylvania Electric Company, Pennsylvania Power Company and West Penn Power Company

Docket Numbers:	M-2020-3020820
	M-2020-3020821
	M-2020-3020822
	M-2020-3020823

Q. Please state your name, title, and business address.

A. My name is Susan A. Moore, Chief Executive Officer, Community Action Association of Pennsylvania, 222 Pine Street, Harrisburg, PA 17101.

Q. On whose behalf are you testifying?

A. The Community Action Association of Pennsylvania (CAAP), a statewide association of local Community Action Agencies in Pennsylvania.

Q. What is your relevant experience in this case before the Commission?

A. CAAP's membership covers each of the counties in the Companies service territory. CAAP was incorporated in 1975 and, as an integral part of its mission, has advocated for the low-income population of Pennsylvania. I have been the CEO of this agency for eleven years. Prior to that, I worked as the CEO for The Florida Patient Safety Corporation, an organization dedicated to the continuous improvement of patient safety in Florida by serving as a learning and research organization, created and funded by the Florida Legislature in recognition of the need to improve patient safety and address skyrocketing liability insurance premiums in Florida. I also served on the Board of Directors for the Pennsylvania Hunger Action Center, an organization advocating against hunger insufficiency on a statewide basis. On behalf of our member agencies, CAAP has intervened in numerous rate and restructuring cases before the PUC including Peoples' Natural Gas rate case (R-2012-2285985) as well as the rate cases of Duquesne Light Company (R-2018-3000124) and PECO Energy Company (R-2018-3000164).

CAAP also intervened in Columbia Gas' 2018 and 2020 rate cases. (R-2018-2647577, R-2020-3018835).

Q. What is the interest of CAAP in this proceeding?

A. The interest of CAAP in this proceeding is basically the same as it has been in those prior proceedings I mentioned above. Our general concern is the impact of the Companies' Plans on low-income customers. We want to ensure that the Company's Plan provides substantive and comprehensive measures to their low-income customers and that those measures are provided directly to low-income customers.

Q. What is the purpose of your rebuttal testimony?

A. The purpose of this rebuttal testimony is to generally comment upon and support recommendations set forth by CAUSE-PA through its witness Jim Grevatt. (CAUSE-PA Statement No. 1).

Q. Specifically, what areas of Mr. Grevatt's testimony would you like to address?

A. Mr. Grevatt takes issue with a number of aspects of the Companies' low-income portion of the Plan. He addresses the failure of the Plan to provide their low-income customers with a sufficient level of comprehensive, long-lived energy efficiency measures; Mr. Grevatt asserts that instead of such comprehensive measures the Companies' Plan offers a variety of "light touch" measures to low-income customers. Mr. Grevatt also takes issues with how the Plan proposes to meet the low-income savings target set forth by the Commission; he asserts that the Plan counts, as low-income savings, savings that are not solely directed at verified low-income customers.

I agree with Mr. Grevatt's main points and support his more specific recommendations.

Q. Why do you think it is important to provide low-income customers with more comprehensive energy savings measures?

A. Initially, in its Implementation Order the Commission encouraged EDCs to pursue "comprehensive portfolios with a greater focus on longer-lived, deeper saving measures" and "strongly encourage[d] EDCs to submit EE&C plans that adhere to this recommendation and encourage[d] stakeholders to engage in proceedings related to those plans." (Phase IV Implementation Order at 15).

Also, the COVID-19 pandemic has been difficult for all, but low-income households have been particularly hard hit both from a health perspective and economically. Providing low-income households with long lasting, comprehensive energy savings measures not only serves the purposes of Act 129 but allows low-income households to reduce their energy consumption and therefore lower their bills.

I also believe, as the Commission as directed, that only low-income savings obtained from verified low-income customers should counts towards the required low-income savings mandate.

Q. Do you agree with and support Mr. Grevatt's recommendations in regard to the low-income portion of the Company's Plan?

A. I do. I believe that Mr. Grevatt correctly points out the deficiencies in the low-income portion of the Company's Plan. Specifically, he addresses correctly in my view how the Plan fails to provide comprehensive, long-lasting energy savings measures to low-income households. He also addresses how the Plan should be amended to provide that only dedicated measures, provided to verified low-income customers, should count towards the low-income savings mandate. It is for these reason that I join in his recommendation that the Plan be amended and in his specific recommendations set forth in his testimony at page 33.

Q. Does this conclude your testimony?

A. Yes.

BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION

Joint Petition for Consolidation of Proceedings And Approval of the Phase IV Energy Efficiency And Conservation Plan of Metropolitan Edison Company, Pennsylvania Electric Company, Pennsylvania Power Company, and West Penn Power Company	:	Docket Nos. M-2020-3020820 M-2020-3020821 M-2020-3020822 M-2020-3020823

CERTIFICATE OF SERVICE

The undersigned certified that he served a copy of the foregoing Community Action Association of Pennsylvania's Statement No. R-1, Rebuttal Testimony of Susan A. Moore upon the following participants this 25 day of January, 2021, via electronic mail:

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JOINT PETITION OF METROPOLITAN EDISON COMPANY, PENNSYLVANIA ELECTRIC COMPANY, PENNSYLVANIA POWER COMPANY, WEST PENN POWER COMPANY FOR APPROVAL OF THE ENERGY EFFICIENCY AND CONSERVATION PLAN
Docket Nos. M-2020-3020820; M-2020-3020821; M-2020-3020822; M-2020-3020823

MET-ED INDUSTRIAL USERS GROUP, PENELEC INDUSTRIAL CUSTOMER ALLIANCE, AND WEST PENN POWER INDUSTRIAL INTERVENORS INTERROGATORIES - SET I

For Met-Ed's Phase IV EE&C Plan please provide an explanation for the increase in the cost allocated or budgeted for Large C&I customers from 21% of the total program budget in Phase III to 29% of the total program budget in Phase IV. Please also provide any supporting workpapers.

RESPONSE:

The Companies developed the Phase IV Plan in consideration of many factors including, but not limited to, the Pennsylvania Act 129 - Phase IV Energy Efficiency and Peak Demand Reduction Market Potential Study Report (“PA MPS”) prepared for the Pennsylvania Public Utility Commission by the Pennsylvania Statewide Evaluation Team, dated February 28, 2020, and the Commission’s Phase IV Implementation Order.[1] The PA MPS included “Special Considerations for Lighting” and “Special Considerations for Home Energy Reports,” which significantly reduced the savings potential in the residential sector from lighting and Home Energy Reports for Phase IV (See pages 16-18 of the PA MPS). In addition, the PA MPS provides that the program potential by sector for the Companies, as a percentage of the total across the sectors, ranges from 28% to 38% for the residential sector, 26% to 42% for the small commercial & industrial sector, and 28% to 41% for the large commercial & industrial sector (See Tables 12, 17 and 21 of the PA MPS). Specific to Met-Ed, the PA MPS provides the program potential for the large commercial & industrial sector as 41% of the total program potential (See Tables 12, 17 and 21 of the PA MPS). Furthermore, the establishment of coincident peak demand reduction targets adopted by the Commission’s Phase IV Implementation Order favors energy savings from the non-residential sector due to the load profiles of non-residential applications in relation to peak load periods. While underlying program designs and budgets specific to each sector also contribute to the sector level budgets, the Companies’ Phase IV Plan has a shift of savings (and budgets) from the residential to the non-residential sectors compared to prior Phases as a result of the shift in market potential as documented in the PA MPS and the establishment of coincident peak demand reduction targets under the Commission’s Phase IV Implementation Order.

Industrial Group
1

JOINT PETITION OF METROPOLITAN EDISON COMPANY, PENNSYLVANIA ELECTRIC COMPANY, PENNSYLVANIA POWER COMPANY, WEST PENN POWER COMPANY FOR APPROVAL OF THE ENERGY EFFICIENCY AND CONSERVATION PLAN
Docket Nos. M-2020-3020820; M-2020-3020821; M-2020-3020822; M-2020-3020823

MET-ED INDUSTRIAL USERS GROUP, PENELEC INDUSTRIAL CUSTOMER ALLIANCE, AND WEST PENN POWER INDUSTRIAL INTERVENORS INTERROGATORIES - SET I No. 10

For Penelec's Phase IV EE&C Plan please provide an explanation for the increase in the cost allocated or budgeted for Large C&I customers from 14% of the total program budget in Phase III to 25% of the total program budget in Phase IV. Please also provide any supporting workpapers.

RESPONSE:
See response to Industrials-I-5. Specific to Penelec, the PA MPS provides the program potential for the large commercial and industrial sector as 30% of the total program potential (See Tables 12, 17 and 21 of the PA MPS).

JOINT PETITION OF METROPOLITAN EDISON COMPANY, PENNSYLVANIA ELECTRIC COMPANY, PENNSYLVANIA POWER COMPANY, WEST PENN POWER COMPANY FOR APPROVAL OF THE ENERGY EFFICIENCY AND CONSERVATION PLAN
Docket Nos. M-2020-3020820; M-2020-3020821; M-2020-3020822; M-2020-3020823

MET-ED INDUSTRIAL USERS GROUP, PENELEC INDUSTRIAL CUSTOMER ALLIANCE, AND WEST PENN POWER INDUSTRIAL INTERVENORS INTERROGATORIES - SET I

For West Penn's Phase IV EE&C Plan please provide an explanation for the increase in the cost allocated or budgeted for Large C&I customers from 21% of the total program budget in Phase III to 24% of the total program budget in Phase IV. Please also provide any supporting workpapers.

RESPONSE:

See response to Industrial-I-5. Specific to West Penn, the Pennsylvania Act 129 - Phase IV Energy Efficiency and Peak Demand Reduction Market Potential Study Report ("PA MPS") provides the program potential for the large commercial and industrial sector as 34% of the total program potential (See Tables 12, 17 and 21 of the PA MPS).

JOINT PETITION OF METROPOLITAN EDISON COMPANY, PENNSYLVANIA ELECTRIC COMPANY, PENNSYLVANIA POWER COMPANY, WEST PENN POWER COMPANY FOR APPROVAL OF THE ENERGY EFFICIENCY AND CONSERVATION PLAN
Docket Nos. M-2020-3020820; M-2020-3020821; M-2020-3020822; M-2020-3020823

MET-ED INDUSTRIAL USERS GROUP, PENELEC INDUSTRIAL CUSTOMER ALLIANCE, AND WEST PENN POWER INDUSTRIAL INTERVENORS INTERROGATORIES - SET I

For the Phase IV EE&C Plan, please explain the process by which the Companies will obtain ownership of the attributes for energy efficiency projects needed to nominate these projects into PJM's Forward Capacity Market.

RESPONSE:

The Companies will include specific language in their requests for proposals, conservation service provider (“CSP”) or subcontractor contracts, CSP and Companies’ program websites, customer applications, customer literature, in retail stores, at point-of-sale, and at mid-stream or upstream locations informing customers that the Companies shall retain the capacity rights for all energy efficiency resource attributes created by participation in the programs to offer into PJM Interconnection LLC’s Forward Capacity Market.

PSU Statement No. 1

BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION

Joint Petition for Consolidation and Approval	:	
of the Act 129 Phase IV Energy Efficiency	:	M-2020-3020820
and Conservation Plan of Metropolitan	:	M-2020-3020821
Edison Company, Pennsylvania Electric	:	M-2020-3020822
Company, Pennsylvania Power Company,	:	M-2020-3020823
and West Penn Power Company	:	

DIRECT TESTIMONY OF JAMES L. CRIST

ON BEHALF OF

THE PENNSYLVANIA STATE UNIVERSITY

January 13, 2021

PSU Statement
1

I. WITNESS BACKGROUND

Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS, AND ON WHOSE BEHALF YOU ARE TESTIFYING?

A. I am James L. Crist, President of Lumen Group, Inc., a consulting firm focused on regulatory and market issues. My business address is 4226 Yarmouth Drive, Suite 101, Allison Park, Pennsylvania, 15101. I am presenting testimony on behalf of The Pennsylvania State University ("Penn State", "PSU", or "University").

Q. DO YOU HAVE ANY QUALIFICATIONS OR OTHER SPECIALIZED KNOWLEDGE THAT WOULD ASSIST THE COMMISSION IN ITS DELIBERATIONS IN THIS CASE?

A. Yes.

Q. WHAT IS YOUR EDUCATIONAL BACKGROUND?

A. I have a B.S. in Chemical Engineering from Carnegie Mellon University and an MBA from the University of Pittsburgh. Additionally, I am a Registered Professional Engineer in the Commonwealth of Pennsylvania.

Q. BRIEFLY DESCRIBE YOUR RELEVANT BUSINESS QUALIFICATIONS.

A. I have run a consulting practice for the past twelve years focused on regulated and deregulated energy company strategy, market strategy, and regulatory issues. During 2004 and 2005, I undertook a consulting assignment as the Vice President of Consumer Markets for ACN Energy. ACN is a gas and electric marketer that is active in eight states. Prior to my consulting practice, I worked at three major energy companies for a total of 19 years. Most recently I was Vice President of Marketing for Equitable Resources. In that function I was responsible for the development of the company's deregulated business strategy.

Prior to that I was Vice President of Marketing for Citizens Utilities, responsible for gas, electric, water and wastewater marketing activities in several service territories within the United States. The gas and electric utility operations were in Vermont, Louisiana, Arizona, Colorado, and Hawaii. Under my direction, Citizens initiated commercial and industrial transportation and supply services at its gas operation in Arizona. As a consultant for Citizens I designed a demand response program for its electric operations in Arizona.

Before that, during 1988 through 1994, I was the Marketing Director at the Peoples Natural Gas Company where I was actively involved in many gas transportation programs as the company relaxed transportation requirements so that customers would have supply choices. In summary, I have considerable experience in several states involving residential, commercial, and industrial customer energy procurement and industry restructuring programs.

Q. HAVE YOU PREVIOUSLY TESTIFIED BEFORE THIS PUBLIC UTILITY COMMISSION?

A. Yes, I have appeared before the Pennsylvania Public Utility Commission ("Commission") in several gas and electric regulatory proceedings. Additionally, I have provided testimony on a variety of issues relating to energy procurement, industry restructuring, and demand response before regulatory Commissions in Arizona, Illinois, New Mexico, Ohio, Maryland and the U.S. Virgin Islands.

II. PENN STATE'S SERVICE

Q. WOULD YOU BRIEFLY DESCRIBE PENN STATE'S SERVICE FROM FIRSTENERGY?

A. Yes. Penn State is a distribution service customer of FirstEnergy's Penelec subsidiary at Penn State Erie, The Behrend College and the Altoona and Dubois campuses, along with some accounts near University Park. The University receives service from FirstEnergy's Met Ed subsidiary for campuses at York and at the Fruit Research and Extension Center in Biglerville. The Shenango campus receives service from FirstEnergy's Penn Power subsidiary. Service from West Penn is described below. In 2019-2020, the University received 277 million kWh through West Penn Power, MetEd, Penn Power and Penelec and paid over $2.9 million for distribution services and over $1 million for bundled services. The major electric consumer on the First Energy system is the University Park campus which is served by West Penn.

Q. WOULD YOU BRIEFLY DESCRIBE PENN STATE'S SERVICE FROM WEST PENN?

A. Yes. Penn State is a major generation, transmission and distribution service customer of West Penn Power at its University Park campus receiving service through West Penn Retail Tariff Electric – Pa. P.U.C. No. 38 ("Tariff 38"). In June

2019—May 2020 the University received 200 million kWh of electric energy from West Penn under Tariff 38 at the University Park campus and paid West Penn $1.7 million for distribution service.

The University receives generation, transmission and distribution service from West Penn under rate schedules other than Tariff 38 for approximately 100 additional accounts at the University Park campus including the airport and campuses at New Kensington, Fayette and Mont Alto.

Q. WHAT ELECTRIC SERVICE IS RECEIVED BY THE UNIVERSITY UNDER WEST PENN'S TARIFF 38?

A. The largest Penn State load on any of the Companies' systems is Penn State's University Park campus which covers 8,500 acres and contains nearly 1,000 buildings. There the University receives service through Tariff 38. The University takes service from four West Penn substations around the campus at 12,470 volts.

Q. HOW DOES PENN STATE CURRENTLY OBTAIN ITS ELECTRIC SUPPLY?

A. At University Park campus since 2009 and all other commercial accounts at Commonwealth Campus locations since 2011, the supply is obtained through contracts with an electric generation supplier ("EGS"). PSU currently has a single broker serving as its EGS with multiple electric contracts with wholesale suppliers. Small commercial and residential accounts of PSU are served by either retail suppliers or the utilities' default service procured through the sales tariffs of the electric distribution companies.

Q. WHAT IS THE HISTORY OF PENN STATES INVOLVEMENT IN ENERGY EFFECIENCY AND CONSERVATION PROGRAMS?

A. Penn State has participated in the Companies' EE&C programs since inception and found them to be beneficial, and have appreciated improvements the Companies have made during the existence of the program. Institutionally, Penn State is a strong supporter of energy efficiency and conservation and has employees dedicated to energy conservation projects, academic courses encompassing energy efficiency and research initiatives in sustainability. PSU is dedicated to increased conservation efforts as it manages efforts on climate change, recognizing that energy consumption is fundamental to solving climate issues. On December 2, 2020, Penn State was one of 37 international universities that endorsed a letter drafted by the International Universities Climate Alliance that urged world leaders to protect humankind from climate change. Penn State President Eric Barron stated, "To help address the challenges of climate change, there's an urgent need to integrate sustainability in all we do at Penn State." The University looks forward to continuing to work with the Companies through the EE&C programs and the Phase IV Plan.

III. PURPOSE OF TESTIMONY

Q. WHAT ARE THE ISSUES YOU WILL DISCUSS IN THIS TESTIMONY?

A. Having described Penn State's service from West Penn Power ("West Penn" or "Company") and FirstEnergy (collectively "Companies"), I will explain observations I have with Phase IV of the Act 129 Energy Efficiency & Conservation Plan ("EE&C" or "Plan") as detailed in its filing and the direct testimonies of Company witnesses Mr. Turosky, Mr. Miller, and Mr. Woytko. In general, I find that the Plan complies with 66 Pa. C.S. §2806 however the experience at Penn State shows that administrative improvements can be made to make the administrative processes more user-friendly for program applicants.

Q. WHAT ARE KEY ASPECTS OF 66 PA C.S. §2806 THAT APPLY TO PENN STATE?

A. Penn State has a multitude of electric accounts across the distribution systems of the Companies that range from residential, small commercial, and large commercial that are all served under the rates schedules of the Companies and in the case of West Penn, Tariff 40, while a substantial portion of the electric load of the University Park campus is served under Tariff 38. Therefore, it is important to Penn State that the EE&C programs offered by the Companies cover all customer classes as stated in 66 Pa. C.S. §2806.1(a)(5) "…each plan includes a variety of energy efficiency and conservation measure and will provide the measures equitably to all classes of customers."

Another critically important part mandated by 66 Pa. C.S. §2806.1(a)(11) is that cost recovery for the programs funded under each rate class must come from that rate class. It is stated "Cost recovery to ensure that measures approved are financed by the same customer class that will receive the direct energy and conservation benefits." The Companies' plan complies with that requirement and is clear that there will be no cross-subsidization by other classes.

Q. WHAT ADMINISTRATIVE CHANGES OCCURRED IN 2020 DURING PHASE III?

A. The program was suspended due to COVID-19 reasons on March 24, 2020. FirstEnergy changed its Conservation Service Provider ("CSP") abruptly at the end of April. The Companies' CSP was Sodexo and PSU had a project meeting with Sodexo on April 8, 2020 to review ongoing and potential projects. Shortly after that meeting on April 27, 2020, the Sodexo contract ended. At that point First Energy took control of direct contact with PSU. The Company then selected CleaResult as the replacement CSP. Penn State had several active projects at that time and the change of CSPs caused a disruption in those projects, and some of the projects have not yet been resumed. Much of this problem can be attributed to Sodexo's failure to properly record/submit the information PSU was sharing with them over time. These actions (or rather inactions) resulted in a significant amount of re-work once the new CSP CleaResult was brought on board and all of the project applications had to be redone. This re-work entailed completing several application forms that had already been completed when submitted to Sodexo in the past, but had to be initiated from scratch because CleaResult has a different application process than Sodexo.

Q. SHOULD THE COMPANIES BE PERMITTED TO CHANGE CONSERVATION SERVICE PROVIDERS DURING A PROGRAM PHASE?

A. Yes. In the case where a CSP is underperforming the Companies should take the initiative to make a change and improve the services rendered by the CSP to customers with active projects. First Energy was prudent in initiating the switch of CSPs from Sodexo to CleaResult.

Q. WHAT IMPACT DID THE CHANGE OF CSPs HAVE ON THE PENN STATE PROJECTS?

A. At the time of the switch Penn State had seventeen active projects registered with Sodexo. Since that time, Penn State has received rebate payments for two of those projects and it is still anticipating payment for eight of the projects by the end of Phase III. However due to the burdensome administrative requirements required to reapply, since information in Sodexo's possession was not passed on to CleaResult, Penn State has tabled seven projects. Due to COVID-19, the manpower is not available to completely redo the comprehensive application forms and fulfill the documentation process again. This impacts both Penn State from a financial perspective, and the Companies' program as those projects will not be counted as part of the overall energy reduction benefit.

Q. HOW COULD A GAP IN PROJECT MANAGEMENT BY THE CSP BE PREVENTED?

A. In this recent change of CSPs the transition between Sodexo and CleaResult could have included transfer of project information and data so that such a transition would appear seamless to customers, however it did not work that way. One recommendation would be that in the future if the Companies are contemplating changing the CSP, it should first contact customers with active projects to discuss the planned change, the reasons for such a change, and obtain customer feedback as part of its decision-making process. I am not disputing that the Companies have the right to change, and consideration of the customers feedback should be helpful in its decision-making process. First Energy can develop a system to collect and store all customer documentation from its CSPs on a regular basis, either monthly or quarterly and should ensure that CleaResult has capabilities to transfer project information and data to any future CSP in advance of making such a switch.

Q. WHAT STREAMLINING OF THE APPLICATION PROCESS CAN BE DONE?

A. This process which is managed by the CSP can be improved. Currently, when any customer (even an established customer such as Penn State) has a new project, it must fill out a project application that requires detailed customer account information to be resubmitted, including contact person, address, a W-9 tax identification form and utility bill used to determine account numbers and rate schedule. Imagine if every time you logged into your personal checking account to initiate a bill payment, or to Amazon to purchase an item, you had to completely populate all of your extensive and detailed account information instead of the system using the same information that it already has on file. This is a simple improvement to make and it should be done.

Q. HOW CAN COMMUNICATION BE IMPROVED?

A. Penn State would prefer to only have a few points of contact/touches as project applications work through the system to prevent confusion and re-work, and to keep communications consistent. A specific example would be the application for PSU's East Campus Steam Plant Uprate project (First Energy tracking #EA-0000566481). During finalization of this application, First Energy requested proof of payment for project equipment and Penn State submitted such proof identified as alternative supporting documentation in lieu of an invoice for review by First Energy and CleaResult. The Company confirmed in a meeting on December 9, 2020 that such alternative supporting document invoices were acceptable and advanced the project forward for payment. Penn State then uploaded the rebate offer letter on December 18, 2020, and awaited payment. However, last week, PSU received the notification from a previously unknown contact at CleaResult requesting PSU move the project forward for payment, as well as provide a new Letter of Attestation (LOA) and Invoice in order to pay this application, despite that assurance received at the December 9th meeting that all proper forms and proof were submitted and approved by First Energy/CleaResult. PSU has questioned the request and is waiting for response of resolution.

Q. HOW CAN TECHNICAL REVIEW OF LARGE CUSTOM PROJECTS BE IMPROVED?

A. The Phase IV EE&C plan does not go into specific detail regarding technical review of complex/larger projects, or details of measurement & verification (M&V) requirements, and leaves much of this up to the CSP as well as the Third Party Evaluator. These are both areas that caused difficulties in past projects. M&V efforts can be intrusive and this becomes particularly concerning with PSU's sensitive building spaces such as residence halls, certain lab facilities, and power plants, where access may be limited and there is a need for advance scheduling. Proactively managing such requirements and understanding exactly what information is required and the timetable for submission of that information would be helpful for better proactivity of these efforts rather than the rush or extensive back and forth while concluding an application for payment.

Q. WHAT IMPROVEMENTS SHOULD BE MADE IN THE M&V PROCESS?

A. There are some very simple and clear changes that can be made that would result in an easier technical review and M&V:

1. Provide an outline of the inspection/logging/metering/etc. thresholds, and the M&V requirements at each threshold level. This outline should be provided annually at the start of each program year (June 1st of each year), with notification in writing if this change or shift throughout the program year.

2. Provide a copy of the calculation method, template, and other information the Third Party Evaluator uses to verify savings recorded by a project. By far one of the most time-consuming tasks is the back and forth between the PSU project team and the Third Party Evaluator – often times because the Third Party Evaluator will not accept PSU's savings calculations as presented, needs additional information and details not initially requested, or requires a reformat or recalculation of information already presented. If the requirements were clearly provided to customers and they had access to what the Third Party Evaluator needs up front and had a better understanding of their approach to calculation/savings verification, customers could collect that information and provide it all at once, rather than piece by piece, over time.

3. Provide a clear understanding of the M&V requirements that a particular application would/could be subject to, as early on in the application process as possible, so customers and their vendors can plan accordingly. It is difficult to prepare certain spaces for these type of invasive inspections on short notice. Additionally, some information may be unavailable or even lost during construction and if it were known at the inception of the application, the customer could prepare accordingly. While this may not work perfectly for all of the applications, it would be an improvement for a good majority.

4. Either First Energy should provide or the CSP should have a technical expert on its staff or available to assist as it reviews projects. It can be

frustrating if those involved in the "technical review" do not seem to understand the scope of the project. Such lack of understanding leads to much of the re-formatting, recalculating, and further explanation adds to the time required that Penn State staff must invest in having a rebate application approved.

Q. DOES THIS CONCLUDE YOUR TESTIMONY?

A. Yes.

PSU Statement No. 1-R

BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION

Joint Petition for Consolidation and Approval	:	
of the Act 129 Phase IV Energy Efficiency	:	M-2020-3020820
and Conservation Plan of Metropolitan	:	M-2020-3020821
Edison Company, Pennsylvania Electric	:	M-2020-3020822
Company, Pennsylvania Power Company,	:	M-2020-3020823
and West Penn Power Company	:	

REBUTTAL TESTIMONY OF JAMES L. CRIST

ON BEHALF OF

THE PENNSYLVANIA STATE UNIVERSITY

January 25, 2021

PSU Statement
1-R

Q. PLEASE STATE YOUR NAME AND ON WHOSE BEHALF YOU ARE TESTIFYING?

A. I am James L. Crist, President of Lumen Group, Inc., a consulting firm focused on regulatory and market issues. I presented direct testimony (PSU Statement No. 1) and am presenting rebuttal testimony on behalf of The Pennsylvania State University ("Penn State", "PSU", or "University").

Q. WHAT ISSUE YOU WILL ADDRESS IN THIS TESTIMONY?

A. I will discuss the formula used by West Penn Power ("West Penn" or "Company") and FirstEnergy (collectively "Companies") in Rider F to determine the rate to collect the costs spent on the Phase IV of the Act 129 Energy Efficiency & Conservation Plan ("EE&C" or "Plan") as detailed in its filing and the direct testimonies of Company witness Mr. Woytko. In his direct testimony, OCA witness Mr. Crandall suggested changes to the formula to which I disagree. I will explain why those changes are inappropriate and why the Company's proposed method should not be altered.

Q. WHAT IS MR. CRANDALL'S CONTENTION REGARDING THE ALLOCATION OF COMMON COSTS?

A. Mr. Crandall references an informal discovery discussion with the Company on January 8, 2021 and says that the Company allocates common costs based on the ratio of the class CSP Delivery Fees plus Marketing costs to the overall CSP Delivery Fees plus Marketing costs. He believes this is inconsistent with the language of Rider F, and opines that the Company should change its allocation methodology. I disagree with his interpretation.

Q. IS MR. CRANDALL CERTAIN OF HIS FACTS?

A. No. When responding to the question at page 13 of his testimony, "Are the Companies actually using the proposed ratio of class-specific approved budgeted program costs to total approved budgeted program costs to allocate the common costs among the customer classes?" he admits "That is unclear".

Q. HOW SHOULD COSTS BE ALLOCATED?

A. Costs must be allocated using a method that avoids cross-subsidization of other classes under Act 129 at 66 Pa. C.S. Section 2806.1(a)(11).

The method used by the Companies for the recent Phase III avoids cross-subsidization and is properly based on cost-causation principles.

Q. WHY SHOULD MR. CRANDALL'S PROPOSAL REGARDING ALLOCATION OF COMMON COSTS BE REJECTED?

A. Common costs are the program development and management costs the Companies incur in planning and executing the EE&C programs. They are largely labor and labor-related costs. In his testimony on page 14 Mr. Crandall presents a table showing the Companies' method of allocation of common costs along with his proposed allocation method. The Companies allocate common costs based on the sum of the CSP program costs and program marketing costs by customer class compared to the total of those costs over all customer classes, which is consistent with regulatory principles and the Act's requirements against cross-subsidization by one class to another. Regardless of the customer sector that houses specific programs, it takes a certain amount of Company labor to manage programs. Allocating common costs based on the CSP program and marketing costs provides the correct basis for allocations that do not result in cross subsidization.

Mr. Crandall also wishes to add in the incentive costs that are paid out based on the number and size of projects achieved in a given year. However, including such costs would increase the volatility of Rider F, as those payments have greater variance than the common costs from year to year. Addition of incentive costs to the allocation formula would violate cost-causation principles for it is the CSP programing and marketing costs that drive common costs, again mostly Company labor. Because common costs do not vary based on incentive payments, Mr. Crandall's adjustment consequently violates fundamental ratemaking principles of cost-causation. Accordingly, Mr. Crandall's wish to change the allocation method of such costs should be denied.

Q. HOW DOES RIDER F STATE COSTS WILL BE ALLOCATED?

A. The filed Rider F tariff pages for each of the four Company's electric distribution utilities are presented as Mr. Woytko's Exhibits AJW 1-5. Exhibit AJW-5 is Rider F that would apply to West Penn Power Company's Tariff No. 38, which is exclusively for Penn State. Examination of Mr. Woytko's Exhibits AJW 1-5 shows the identical language in all tariffs of, "Such costs shall be allocated to each customer class based on the ratio of class-specific approved budgeted program costs to total approved budgeted program costs." Therefore, costs budgeted for a specific customer class will be collected from that customer class, and not from other customer classes. The Companies' method of allocating common costs is consistent with established ratemaking principles and consistent with how such costs have been allocated during the recent Phase III and the preceding Phase II. The method should not be changed for Phase IV. The Companies should clarify that "approved budgeted program costs" include CSP program costs, program marketing costs, and common costs in its tariff language.

Q. WHAT IS MR. CRANDALL'S CONCERN WITH PJM COSTS AND REVENUES?

A. Mr. Crandall expressed concern that the PJM revenues and costs were included with the direct and allocated costs of the Phase IV program. He wishes to remove them from the term EECexp1 and state them explicitly. I have no objection to that.

Q. HOW SHOULD PJM COSTS AND REVENUES BE ALLOCATED?

A. There must be no cross-class subsidization. FirstEnergy should track the program source of the power that it provides to PJM. The program, and power obtained through the program are identified by customer class. In the case of common programs that apply to more than one customer class, the power obtained can clearly be identified and totaled by customer class. Costs can also be identified by customer class. The net amount, revenues less costs, should be assigned according to customer class.

Q. HOW DOES RIDER F STATE PJM COSTS AND REVENUES WILL BE ALLOCATED?

A. The rider states that net revenues by customer class will be credited against the program costs of the same customer class, therefore there is no cross-class subsidization.

Q. WHAT SHOULD THE COMPANY DO TO ADDRESS MR. CRANDALL'S CONCERNS?

A. The Company can add clarifying language to its tariff. The Company should not change the method it has been using during Phase III to collect PJM costs and assign PJM revenues, and Mr. Crandall's request to separate out the PJM costs and revenues and state them explicitly makes sense. Mr. Crandall proposed a formula for Rider F in his testimony (*id* 10:20-21), and the Company may accept that or develop a formula modification of its own that achieves the same goal of clearly identifying the PJM costs and revenues.

Q. DOES THIS CONCLUDE YOUR REBUTTAL TESTIMONY?

A. Yes.