COMMONWEALTH OF PENNSYLVANIA

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December 11, 2009

James J. McNulty
Secretary
Pennsylvania Public Utility Commission
Commonwealth Keystone Building
400 North Street
Harrisburg, PA 17120

RE: Joint Petition of Metropolitan Edison Company, Pennsylvania Electric Company and Pennsylvania Power Company for Approval of Smart Meter Technology Procurement and Installation Plan
Docket No. M-2009-2123950

Dear Secretary McNulty:

Enclosed for filing is the Main Brief of the Office of Consumer Advocate, in the above-referenced proceeding.

Copies have been served as indicated on the enclosed Certificate of Service.

Respectfully Submitted,

Aron J. Beatty
Assistant Consumer Advocate
PA Attorney I.D. # 86625

Enclosures
cc: Honorable Susan D. Colwell

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BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION

Joint Petition of Metropolitan Edison Company, Pennsylvania Electric Company and Pennsylvania Power Company for Approval of Smart Meter Technology Procurement and Installation Plan	:	Docket No. M-2009-2123950

MAIN BRIEF OF THE OFFICE OF CONSUMER ADVOCATE

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Dated: December 11, 2009

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I. INTRODUCTION

The Office of Consumer Advocate (OCA) submits this Main Brief in accordance with the August 25, 2009, Prehearing Conference Order of Administrative Law Judge Susan D. Colwell (ALJ). This Main Brief is in response to the Joint Petition of Metropolitan Edison Company, Pennsylvania Electric Company and Pennsylvania Power Company for Approval of Smart Meter Technology Procurement and Installation Plan (Joint Petition) filed on August 14, 2009, the Comments thereto filed by various parties on September 25, 2009, and the direct, rebuttal and surrebuttal testimonies admitted into the record on November 19, 2009.

On November 14, 2008, Act 129 of 2008 (Act 129) became effective and among other programs, contained a program requiring Electric Distribution Companies (EDCs) with at least 100,000 customers to present a Smart Meter Technology Procurement and Installation Plan (Plan) to the Pennsylvania Public Utility Commission (Commission) for approval. 66 Pa.C.S. § 2807(f). Each Plan must describe the smart meter technologies that the EDC plans to install upon customer request and at the customer's cost or in new building construction and in accordance with a depreciation schedule not to exceed fifteen years. Id. Act 129 also requires that, with customer consent, the EDCs make available direct meter access and electronic access to customer meter data to third parties, including Electric Generation Suppliers (EGSs) and providers of conservation and load management services. Id. The Act also defines the required smart meter technology capabilities. 66 Pa.C.S. § 2807(g). Finally, the Act established acceptable cost recovery methods. 66 Pa.C.S. § 2807(7).

On March 30, 2009, the Commission issued a Secretarial Letter seeking comments on a draft proposal and additional questions regarding EDC smart meter procurement and installation. Comments were due by April 15, 2009, with reply comments due April 27, 2009. The

Commission later extended the Comments deadline to April 20, 2009, and the Reply Comments deadline to April 29, 2009. The OCA participated by submitting Comments on April 20, 2009.

On June 24, 2009, the Commission entered an order, *inter alia*, detailing the standards and guidelines for implementing the smart meter requirements of Act 129. See Re: Smart Meter Procurement and Installation, Docket No. M-2009-2092655, Implementation Order (Order entered June 24, 2009) (Implementation Order). In the Implementation Order, the Commission granted a network development and installation grace period of up to thirty months following plan approval and clarified that the fifteen-year depreciation period should commence upon plan approval (with the thirty-month grace period to be treated as part of that timeframe).[1] Id. at 5, 8. The Commission also set forth specific network development and installation milestones and directed each EDC to provide a set schedule for meeting each milestone as well as reporting requirements. Id. at 4-5.

EDCs are also required to detail in their Plans their system-wide deployment strategy, which should be coordinated with new construction smart meter deployment. See Implementation Order at 8.

As to cost recovery, the Commission allowed each EDC to develop a reconcilable adjustment clause tariff mechanism in accordance with 66 Pa.C.S. § 1307. Implementation Order at 31. The Commission also held that loss of decreased revenues by an EDC due to reduced electricity consumption or shifting energy demand cannot be considered a cost of the smart meter technology recoverable under a reconcilable automatic adjustment clause. Id. at 28. As to allocation of costs to customer classes, the Commission required that all measures

[1] The Commission specifically removed support for service-limiting and prepaid service as a minimum capability requirement due to their policy implications and determined to resolve these issues in another proceeding prior to requiring such capability in smart meters. See Implementation Order at 18.

associated with an EDC's smart metering plan be financed by the customer class that receives the benefits of such measures. Id. at 32.

II. PROCEDURAL HISTORY

Pursuant to the Implementation Order, Metropolitan Edison Company (Met-Ed), Pennsylvania Electric Company (Penelec) and Pennsylvania Power Company (Penn Power) (collectively FirstEnergy Companies or Companies) filed their Joint Petition on August 14, 2009. The Office of Trial Staff (OTS) entered its appearance in this matter on August 20, 2009. On September 1, 2009, the OCA filed a Notice of Intervention and Public Statement. On September 18, 2009, the Department of Environmental Protection (DEP) filed a Petition to Intervene. On September 22, 2009, a Joint Intervention was filed by Met-Ed Industrial Users Group, Penelec Industrial Customer Alliance, and Penn Power Users Group (collectively MEIUG *et al*.). On September 25, 2009, the Office of Small Business Advocate (OSBA) filed a Notice of Intervention and Public Statement. On September 25, 2009, the Pennsylvania Association of Community Organizations for Reform Now (ACORN) filed a Petition to Intervene. On September 29, 2009, Constellation NewEnergy, Inc. and Constellation Energy Commodities Group, Inc. filed a Petition to Intervene.

Comments to the FirstEnergy Companies' Joint Petition were filed by the OCA, OTS, DEP and ACORN on September 25, 2009. An Initial Prehearing Conference was convened by ALJ Colwell on September 28, 2009. A technical conference was held in this matter before ALJ David A. Salapa on October 20, 2009.

Hearings were held before ALJ Colwell on November 19, 2009. During hearings, the following testimonies of the OCA's witnesses were admitted into the record: Direct Testimony

of J. Richard Hornby[2] (OCA St. 1); Direct Testimony of Nancy Brockway[3] (OCA St. 2); Surrebuttal Testimony of J. Richard Hornby (OCA St. 1S); and Surrebuttal Testimony of Nancy Brockway (OCA St. 2S).

This Main Brief is submitted pursuant to ALJ Colwell's Prehearing Conference Order dated August 25, 2009.

III. OVERVIEW OF SMART METER PLAN

On August 14, 2009, the FirstEnergy Companies filed their Joint Petition and Smart Meter Implementation Plan (SMIP or Plan). The SMIP is applicable to all three service territories. The Companies anticipate a thirteen-year full scale deployment of smart metering across their service territories, with such deployment completed no later than March 2022. See ME/PN/PP St. 1 at 9. The Companies' Plan involves two distinct periods. For the first 24 months, the Companies propose an "Assessment Period," during which the Companies will assess needs, select technology, secure vendors, train personnel, install and support test equipment, and establish a detailed meter deployment schedule. See Joint Petition at 5. At the end of the Assessment Period, the FirstEnergy Companies intend to submit a "Deployment Plan" for Commission approval. Id.

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[2] Mr. Hornby is a Senior Consultant at Synapse Energy Economics, Inc., specializing in planning, market structure, ratemaking, and gas supply/fuel procurement in the electric and gas industries for more than 20 years. He has presented expert testimony and provided litigation support in approximately 100 proceedings in over 30 jurisdictions on behalf of state energy offices, consumer advocate offices, marketers and staff of public utility commissions. Mr. Hornby is a former Assistant Deputy Minister of Energy for the Province of Nova Scotia. He has a Master of Science in Energy Technology and Policy from the Massachusetts Institute of Technology (MIT) and a Bachelor of Industrial Engineering from the Technical University of Nova Scotia, now merged with Dalhousie University.

[3] Ms. Brockway heads her own consulting firm specializing in the energy and utility industries, with particular attention on the role of regulation in the protection of consumers and the environment. She has over 25 years of experience and is a former Commissioner of the New Hampshire Utilities Commission. She was also formerly a hearing officer and advisor to the Maine Public Utilities Commission and General Counsel of the Massachusetts Department of Public Utilities. Ms. Brockway earned a Juris Doctor degree from Yale Law School and a Bachelor of Arts degree from Smith College.

The Deployment Plan will include the following components: (1) a detailed long-term time line, with key milestones; (2) a smart meter solution; (3) the costs of such solution, along with an assessment of benefits; (4) a network design solution; (5) a communications architecture design solution; (6) a training assessment and proposed curriculum; (7) a cost recovery forecast; (8) a transition plan including communications to employees and customers; and (9) a detailed tiered roll out plan. See Joint Petition at 8. Once approved, the Deployment Plan will establish the framework by which the FirstEnergy Companies install and operate a fully functional smart metering network. The Deployment Plan is expected to be completed by March 2022. The Companies submit that this deployment schedule is consistent with Act 129's requirement that smart metering be in place for all customers within 15 years. See Joint Petition at 5.

The FirstEnergy Companies have proposed a combined budget of $29.5 million for costs related to the Assessment Period. See ME/PN/PP St. 2 at 12. Of this amount, the Companies anticipate that $20.2 million will be spent during the first twelve months of the Assessment Period. Id. at 13. The Companies preliminarily anticipate a total cost for smart meter implementation throughout all three service territories to be at least $325 million. See ME/PN/PP St. 1 at 12.

In order to recover the costs of the Smart Meter Plan, the Companies propose to implement a "Smart Meter Technologies (SMT-C) Rider" for each Company. See ME/PN/PP St. 3 at 3. The Companies have not developed a specific rate at this time. The rates will be calculated when the Companies' Plan has been approved by the Commission and will be effective beginning April 1, 2010, and adjusted annually. Id. at 6, 10.

IV. SUMMARY OF ARGUMENT

While the OCA believes the FirstEnergy Companies' SMIP is generally reasonable, except with regard to cost allocation and recovery, the OCA has made several recommendations for improvements to the Companies' SMIP. These recommendations include specific data collection and analyses that the Companies should perform during the Assessment Period. The OCA has made these recommendations so that the Companies will have adequate information to develop a full Deployment Plan when the Assessment Period comes to an end. Further, such adequate information will ensure that the Companies submit the most cost-effective, reasonable and up-to-date Deployment Plan out of the range of options available to them. The OCA's specific recommendations should be adopted.

The Companies have proposed to allocate the majority of Assessment Period costs, estimated at $29.5 Million, on a per metered customer basis. The Companies' allocation of these common costs would result in the residential class paying for the vast majority of costs associated with their Smart Meter Plan. The Companies' proposed allocation does not properly reflect cost causation in this case. The SMIP is required under Act 129, which has as its purpose driving down energy usage and peak demand. The Companies have acknowledged this purpose in their filing. The benefit of the smart meter network will accrue to all customer classes through peak demand reduction and energy usage reductions. As a result, the Companies' allocation should be rejected and an allocation of the Assessment Period common costs that reflects demand and energy usage should be adopted.

The Companies have further proposed to collect Plan costs through a surcharge mechanism that reflects only the costs of the Plan and no savings. The OCA submits that Act 129 requires that the Companies' proposed rate mechanism include the impact of any savings

that result from the Plan. In addition, the OCA submits that a volumetric charge should be adopted for recovery of costs from residential customers for those costs that have traditionally been excluded from the fixed customer charge. A volumetric charge would allow the Companies to collect their costs, while providing customers with an incentive to reduce usage, consistent with the purposes of Act 129. The Commission should require the Companies to modify their cost recovery mechanism to comply with the Act.

V. ARGUMENT

1. Smart Meter Plan.

A. Act 129 Requirements.

Act 129 made several critical changes to the Public Utility Code in an effort to bring reliable, affordable, efficient and environmentally sustainable electric service to Pennsylvania consumers at the least cost over time. In this proceeding, the Commission will consider the provisions of Act 129 that call for the deployment of smart meter technology as one tool to achieve the overall goals of Act 129. Act 129 requires that EDCs file a smart meter technology procurement and installation plan with the Commission for approval by August 2009, and the plan shall describe the smart meter technologies proposed for installation in accordance with Section 2807(f)(2).

Specifically, Section 2807(f)(2) states:

> (2) [EDCs] shall furnish smart meter technology as follows:
>
> (i) Upon request from a customer that agrees to pay the cost of the smart meter at the time of the request.
>
> (ii) In new building construction.
>
> (iii) In accordance with a depreciation schedule not to exceed 15 years.

66 Pa.C.S. § 2807(f)(2).

The OCA submits that the deployment of smart meter technology throughout the Commonwealth is a challenging initiative with many uncertainties and unknowns. As explained by OCA witness Hornby in his Direct Testimony, utilities do not have long-term experience with the performance and economics of smart meters and dynamic pricing on a system-wide/full deployment basis. See OCA St. 1 at 7-8.

Also in his Direct Testimony, OCA witness Hornby recognized the concerns expressed by the National Association of Regulatory Utility Commissioners (NARUC) regarding the potential for adverse rate and bill impacts from too rapid a transition to full deployment of smart meters. See OCA St. 1 at 8-9. In his March 3, 2009, testimony to the United States Senate Committee on Energy and Natural Resources, New Jersey Commissioner Frederick Butler, President of NARUC, expressed a number of concerns regarding a rapid move to full deployment of Smart Grid systems. In that testimony, President Butler makes a number of important points regarding consideration of ratepayer reaction:

> I know the Smart Grid can change how utilities oversee their networks and improve reliability. I know that, in the end, consumers could have greater control over their usage and have the potential to lower their bills. I also know, however, that if we do not do this correctly, if we move too quickly and promise too much we can endanger our coming close to meeting any of those lofty aspirations.
>
> But we do need to be careful. Right now, we are selling the Smart Grid as a means of empowering consumers to lower their usage and, correspondingly, their energy bills. While this may ultimately be the case, we must learn our lesson from the restructuring experience before heading down this path. The promise of restructuring was that consumers would save money by shopping for power….
>
> The problem here was not restructuring per se, but it was the way it was sold to consumers. Instead of determining the best way to move forward deliberatively, we jumped right in, with the promise

> of lower rates to follow. Because of this approach, and because of the results, the concept of restructuring has taken a significant hit.
>
> The concern that many of my colleagues are trying to resolve is that consumers are convinced that the Smart Grid will only raise their rates with no discernable benefits. In a high-priced environment, some or perhaps most consumers see advanced metering rollouts as just one more headache and budget buster and are particularly scared that utilities and vendors will keep raising rates as the technology changes.
>
> We have to remember that the Smart Grid will only achieve its vast potential if consumers embrace it.

See OCA St. 1 at 8-9.

In light of the challenges of smart meter deployment, the OCA generally supports the FirstEnergy Companies' SMIP.[4] OCA witness Hornby is generally, yet cautiously, supportive of the Companies' SMIP. Specifically, Mr. Hornby states:

> My primary conclusion is that the Companies' proposed Smart Meter Plan is reasonable. However, it is important that FirstEnergy Companies understand that they will be required to demonstrate that their proposed Deployment Plan is the most cost-effective approach available to them for meeting the goals of Pennsylvania Act 129 with respect to deploying smart meter technology and supporting reductions in peak load and annual energy consumption.
>
> Based upon those two conclusions, I recommend that the Commission approve the Companies' proposed Smart Meter Plan. I further recommend that the Commission clearly indicate that its decision is to be interpreted as approval of the planning process, timeline and milestones proposed in the SMIP for the Assessment Period and not as approval of any specific decisions that management of the Companies may make during that Period.

See OCA St. 1 at 4.

[4] However, as discussed at length *infra*, the OCA does not concur with various aspects of the Companies' cost recovery proposals and cost allocation.

While the OCA believes the FirstEnergy Companies' SMIP is generally reasonable, as discussed in the relevant sections below, the Plan requires further improvement so that the Companies are able to develop the most cost-effective Deployment Plan at the end of the Assessment Period.

B. Commission Smart Meter Implementation Order Requirements.

The Implementation Order permits a network development and installation grace period of up to thirty months following plan approval and clarified that the fifteen-year depreciation period should commence upon plan approval (with the thirty-month grace period to be treated as part of that timeframe). Implementation Order at 5, 8. The Commission also set forth specific network development and installation milestones and directed each EDC to provide a set schedule for meeting each milestone as well as reporting requirements. Id. at 4-5. EDCs are also required to detail in their Plans their system-wide deployment strategy. Id. at 8.

The FirstEnergy Companies have proposed a Plan that will allow them to utilize the thirty-month grace period provided in the Commission's Implementation Order to conduct analysis and research, train personnel, secure vendors, select appropriate technology, and install and test support equipment and establish a detailed meter deployment schedule. See Joint Petition at 5-7. The OCA generally agrees with this approach that will allow FirstEnergy to take the time to develop a detailed business plan that fully considers the goals of the smart metering program, the costs and benefits of the system, as well as the need to integrate technological changes, customer research regarding the potential use and acceptance of the systems and the evaluation of lessons learned. See generally OCA St. 1 and 2.

OCA witnesses Hornby and Brockway made recommendations tailored to improve the Companies' SMIP. These recommendations include specific data collection and analyses that should be performed during the Assessment period. The OCA has made these recommendations so that Companies will have adequate information to develop a full deployment plan when the Assessment Period comes to an end.

Specifically, OCA witness Hornby asserts:

> The quantification of those projected benefits [associated with the business plan the Companies will develop during the Assessment period] is essential in order to demonstrate that [the Companies'] proposal is the most cost-effective reasonable approach relative to the range of other approaches available to them.

See OCA St. 1 at 12. OCA witness Brockway goes on further to assert:

> [T]here are ongoing developments in the technologies and industries involved in smart metering, and the Companies can get the benefit of the grace period to observe developments and incorporate the most up-to-date, effective and cost-effective smart metering approaches in their detailed Deployment Plan.

See OCA St. 2 at 8.

Again, while the OCA believes the FirstEnergy Companies' SMIP is generally reasonable, the Plan requires modifications in order for the Companies to be able to adequately demonstrate that they have chosen the most cost-effective, reasonable and up-to-date approach available when they submit their Business Plan to the Commission at the end of the Assessment Period. The OCA's recommendations for additional analyses and data collection will be discussed at length in the relevant sections below.

Additionally, OCA witness Brockway expresses some concerns regarding the Companies' estimated time-line for full deployment of smart meters. As discussed *infra*, Ms. Brockway recommends that the FirstEnergy Companies complete detailed and varied analyses

during the Assessment Period. See Sections V.1.C and D, V.2.A *infra*. If the issues revealed by these analyses can be resolved, Ms. Brockway asserts that the Companies should be open to beginning and completing the deployment of smart meters more expeditiously than outlined in their SMIP should it be cost-effective to do so. See OCA St. 2 at 8. In his Rebuttal Testimony, FirstEnergy Companies witness Mills agrees with Ms. Brockway, stating that a shorter timeline for full deployment may ultimately be adopted depending on the knowledge acquired and decisions made during the Assessment Period. See ME/PN/PP St. 2-R at 2.

C. Data Access, Security and Privacy Issues.

As stated above, the OCA is generally supportive of the FirstEnergy Companies' Plan and utilization of the thirty-month grace period to, *inter alia*, conduct analysis and research, select appropriate technology and install and test support equipment. See generally OCA St. 1 and 2. Such an approach is particularly appropriate given the uncertainties that currently exist and the state of technological development in the industry. Deploying smart meters is not simply a task of replacing hardware that is outside of a home or business and then continuing with business as usual. New or heightened challenges will be faced in many areas.

By way of example, the deployment of smart meters provides new challenges regarding security of the system and the privacy of customer information. See generally OCA St. 2 at 13-19. The identification and design of a secure and protected system will be a major challenge. As the Commission is aware, cyber-security is a growing concern. With access to data by the utility and third parties, diverse communications systems such as in-home networks, internet connections, radio communications and the utility backbone communication infrastructure, the potential for unauthorized access of critical systems and information is a major concern. Standards and systems that provide a secure platform are still under development nationwide, but

firm and comprehensive solutions have not been fully developed or deployed in a large scale. See generally OCA St. 2 at 15-19.

OCA witness Brockway testified that industry groups are meeting with government facilitation in an attempt to establish common standards in key areas, which include cyber-security[5], interoperability[6] and consumer privacy protection. See OCA St. 2 at 13. Ms. Brockway described these efforts as follows:

> Under the Energy Independence and Security Act (EISA) of 2007, the National Institute of Standards and Technology (NIST) is taking the lead in promoting comprehensive standards in the area of interoperability. As part of this effort, NIST convened the Cyber Security Coordinating Task Group, and is promoting the development and implementation of associated cyber security standards. As yet, it is not possible to be sure when NIST and the entities developing the standards themselves (i.e. IEEE, NERC) will be able to complete their work. NIST has issued a "roadmap" for the work needed to get from here to standards (the draft NIST Framework and Roadmap for Smart Grid Interoperability Standards on September 24, 2009)(Roadmap), and has set timing goals for release of standards in the most important topic areas by the end of 2010. The roadmap itself, however, is not a set of standards, and the timing goals for standard release are very ambitious.

See OCA St. 2 at 15. (Footnote omitted). Ms. Brockway outlines the obstacles and limitations on NIST's timing and goals for release of industry standards and quotes Commerce Secretary Locke, who opines: "[The Roadmap] presents a high-level conceptual model to ensure that

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[5] Cyber-security refers to the security of information passing over the communications networks of the Smart Grid and to the security of controls over system components, such as circuit breakers and other components essential to the functioning of the Grid. The term also refers to the security of customer data. Security may be compromised by equipment or operational faults, as well as intentional breaches by hackers and unauthorized access to data and controls. See OCA St. 2 at 13-14.

[6] The term interoperability refers to the ability of any given component of the Smart Grid to communicate with the other components to which it is connected, passing data and commands smoothly, quickly and accurately back and forth. Protocols for data transfer must be compatible for components to be interoperable. See OCA St. 2 at 14.

everyone is on the same page before moving forward to develop more detailed, formal Smart Grid architectures." See OCA St. 2 at 17.

However, there are currently some standards in place for utilities to follow to minimize threats to the cyber-security of the Smart Grid, assure customer control of personally identifying information and assure the smooth interoperability of the Grid's various parts. Ms. Brockway provides the example that the ZigBee® protocol is becoming the standard for communications within a home area network. See OCA St. 2 at 17.

Given the timetable for developing industry-wide standards for cyber-security, interoperability and customer privacy protection, there is risk that rolling out smart meter technology too soon could create additional costs for EDCs. See OCA St. 2 at 18. For instance, if the currently available technologies are rolled out immediately by an EDC and later prove incompatible with the standards ultimately adopted, the EDC will incur the duplicative costs of rolling out additional, compatible smart meters. Hence, OCA witness Brockway testified:

> The Companies have taken a prudent course in the timetable of their SMI planning and deployment. It will be prudent to use the grace period to see if the national standards are developed in time to be incorporated into smart metering planning and deployment before major investments must be made.

See OCA St. 2 at 19. Specifically, OCA witness Brockway recommends:

> Before technology and program selection, the Companies should assure themselves that necessary technical standards are in place to include in their Deployment Plan, including standards and enforcement mechanisms to ensure adequate security and protect consumer privacy.

See OCA St. 2 at 3.

In his Rebuttal Testimony, FirstEnergy Companies witness Mills agrees with Ms. Brockway that security and consumer privacy are important issues and provides assurance that the Companies will use the Assessment Period to monitor the development of relevant industry standards and incorporate adequate consume protections before moving forward with deployment. See ME/PN/PP St. 2-R at 2.

D. Issues Concerning Residential and Vulnerable Customers.

i. Issues Concerning Residential Customers.

OCA witness Brockway identified consumer protection issues raised by smart meter implementation. See OCA St. 2 at 19. For instance, meters outfitted with modules that permit remote disconnection of customer service give rise to serious consumer protection concerns. Id. Even without the remote disconnection functionality, advanced metering presents additional consumer issues, specifically:

> Smart meters can be used to introduce three practices, each of which pose risks to certain customers of unnecessary or unfair disconnections. First, as noted, smart meters can be installed with modules that permit the utility to disconnect the power to a customer's house remotely, by flicking a switch at the utility's offices, without sending a technician to disconnect the meter. Second, smart metering provides a relatively inexpensive foundation for implementing pre-payment metering. Third, smart metering provides a relatively inexpensive foundation for implementing service limiters. All three of these practices, if implemented, threaten residential consumers with unfair and unnecessary service disconnection.

Id.

Ms. Brockway recommends the completion of specific analyses by the Companies during the Assessment Period of the impacts of the proposed SMIP on residential customers. See OCA St. 2 at 9-13. Again, these analyses will arm the Companies with proper data to develop the

most cost-effective, reasonable and up-to-date Business Plan. Specifically, Ms. Brockway recommends:

> - The Companies should assess the likely response of residential customers overall to the imposition of AMI-enabled rates before settling on technologies and deployment plans. The Companies should use customer-focused research and obtain more comprehensive usage data for residential customers to better understand the uses that may be made of the smart meter technology.
>
> - To protect consumer rights, the Companies should exclude the use of smart metering for remote disconnection, prepaid metering and service limiting from their Plan at this time. They can address these issues in the separate docket the Commission will open to address impacts of SMI on these consumer rights. If and to the extent they do propose to include meters with remote disconnection modules, they should first prepare the thorough cost/benefit analysis required by the Commission. The cost/benefit analysis should include a comparison of all costs of the module and its use against the operational benefits if the remote disconnection capability were only used in situations where the Companies had explicit customer agreement for the service termination and where they knew that the premises are in fact vacant. As part of this analysis the Companies should review available data on the experience of utilities that use or have used remote disconnection, to learn, if possible, what has been the experience of customers of those utilities.

See OCA St. 2 at 3-4.

Ms. Brockway also recommends that the Companies attempt to assess residential customer usage characteristics to better understand how their customers might use and benefit from smart meter technology. See OCA St. 2 at 10. Such assessment will be important in determining the technology to be used and the types of programs and rates to be implemented as part of full deployment. Id. Specifically, during the Assessment Period:

> The Companies should research bill impacts and, using bill frequency analysis and other tools, estimate the bill impacts on various groups of customers. The Companies should identify the

> extent to which their residential customers are low-income, low-use, medically challenged, or otherwise at risk. The Companies should work with community groups to educate them about possible smart meter technology, and obtain feedback about likely problems in the community, and possible ways to address such problems (including changes to the SMIP design).

See OCA St. 2 at 11. Since the Companies' current meters are not able to provide a granular level of detail about customer usage for use in the above analysis, Ms. Brockway recommends that the Companies install interval meters at a variety of residential premises to support detailed bill frequency and load shape analysis. Id. at 12. Importantly, these analyses and the designing of programs based on the analyses will assist in keeping the deployment costs as minimal as possible, thereby mitigating the bill impacts on customers. Id. at 12-13.

ii. Issues Concerning Vulnerable Customers.

Ms. Brockway recommends the completion of specific analysis by the Companies during the Assessment Period of the impacts of the proposed SMIP on vulnerable residential customers. See OCA St. 2 at 9-13. Vulnerable customers include low-income customers, customers with disabilities, the elderly, and others who cannot afford bill increases but may not enjoy many of the benefits of smart meter implementation. See OCA St. 2 at 11. Specifically, Ms. Brockway recommends:

> The Companies should particularly assess the impacts of their proposed SMIP on vulnerable customers. Working with community groups, the Company should identify to what extent their customers are low-income, low-use, medically challenged, or otherwise at risk, and develop plans to mitigate the risks to such customers of smart metering costs, including consideration of smart metering technologies, price and program designs, and equipment specification. This assessment should include a granular analysis of load shapes and usage characteristics of a sample of identified vulnerable customers before the end of the

> grace period to ensure sufficient reliable data and understanding of the needs of these customers.

See OCA St. 2 at 3-4.

According to Ms. Brockway, the most important step in mitigating the risks of smart meter deployment *vis a vis* vulnerable customers is:

> [T]o keep the costs of the deployment down as much as possible. This will help mitigate the bill impacts on customers who cannot necessarily participate in programs or rate offerings that may be enabled by smart meters. Requiring a robust benefit/cost ratio will help to keep the pressure on deployment costs and ensure that the optimal plan is chosen. Holding customers harmless from (a) excessive spending on deployment, (b) insufficient savings to offset deployment costs for all customers, or (c) both, would also help protect customers who cannot participate directly in programs or rate offerings that may develop.

See OCA St. 2 at 12. An additional way to mitigate the burdens of smart meter deployment on vulnerable customers who cannot take advantage of SMIP rebates is to recover SMIP costs primarily on a volumetric rather than fixed basis. Id. at 13.

In his Rebuttal Testimony, Companies witness Parrish disagrees with Ms. Brockway's recommendation to develop plans to mitigate the risks of smart meter deployment on vulnerable customers so that such customers could be "held harmless." See ME/PN/PP St. 3-R at 13-14. Mr. Parrish also suggests that the FirstEnergy Companies' Universal Service Programs (USP) and the Low Income Home Energy Assistance Program (LIHEAP) will further assist in mitigating bill impacts of smart meter deployment on vulnerable customers. Id. at 14.

In her Surrebuttal Testimony, OCA witness Brockway states that her "reference to holding vulnerable customers harmless was perhaps not as clear as it could have been." Ms. Brockway intended that her recommendation was "to minimize any possible adverse impacts of smart metering deployment on such customers." See OCA St. 2S at 1. Ms. Brockway further

asserts that the approaches specified by Mr. Parrish in his Rebuttal Testimony will be valuable tools but will not adequately mitigate potential adverse impacts of smart meter deployment on vulnerable customers. Id. Specifically, Ms. Brockway explains:

> The actions the Companies propose and the programs to which the Companies refer will be helpful in addressing some problems of some customers and I commend the Companies on their actions to develop and support these programs. But even in the aggregate, they are not sufficient to mitigate adverse effects on vulnerable customers. Education, for example, will not assist customers who cannot in fact move usage off peak. Education will not be sufficient to enable socially or mentally disabled customers to make use of complex options for moving use of appliances and other end users around to avoid high peak and critical peak costs. With respect to the CAP programs, their budgets may not be sufficient to address the needs that may arise if vulnerable customers experience adverse bill impacts. LIHEAP, for its part is a federal program not within the control of the Commonwealth, whose budget (and thus availability) fluctuates. LIHEAP is only available for home heating applications. For the energy efficiency and smart meter program, while available to low income customers, many such programs require the customer to make an investment to be able to take advantage of the programs.

See OCA St. 2S at 2. Therefore, Ms. Brockway recommends that the Companies keep their SMIP costs as low as possible and make the benefits to vulnerable customers as high as possible. Id. at 3. Furthermore, Ms. Brockway recommends that the Companies complete the analysis requested regarding their residential class as a whole. See Section V.1.D.a, *supra*. The OCA submits that these recommendations should be adopted.

2. Cost Issues.

A. Cost Effectiveness/Cost-Benefit Issues.

As noted above, OCA witnesses Hornby and Brockway made specific recommendations tailored to improve the Companies' SMIP. These recommendations include specific data collection and analyses that should be performed during the Assessment Period so that the

Companies submit the most cost effective, reasonable and up-to-date approach to smart meter deployment to the Commission at the end of the Assessment Period. Mr. Hornby made the following specific recommendations for completion by the Companies during the Assessment Period:

> - Identify potential demand response programs and/or new rate offerings to enable with, and implement in conjunction with, their particular smart meter plan;
> - Estimate the number of customers by rate class likely to participate in each program or rate offering on a sustained basis; and
> - Estimate the average reduction in demand and energy per customer by rate class expected from each program or rate offering on a sustained basis.

See OCA St. 1 at 13.

In order to prepare the foregoing estimates, Mr. Hornby recommends that the Companies conduct market research to understand the usage characteristics of their residential customers and to review the programs and rate offerings implemented by comparable utilities. Id. Once the FirstEnergy Companies have an initial projection of reductions in demand and energy by rate class or customer segment by year, OCA witness Hornby recommends that the Companies proceed to estimate the value of those reductions in terms of avoided distribution service capital costs and avoided electricity supply costs. See OCA St. 1 at 13-14. To estimate those values, Mr. Hornby recommends that the Companies prepare the following analyses:

> - Estimate savings in local transmission and/or distribution capital costs from delaying or downsizing investments because of reductions in demand. This will require a projection of these costs for a reference case in the absence of these reductions;
> - Estimate savings in wholesale electric capacity costs that can be realized, explicitly through bidding into the PJM RPM, or implicitly due to reductions in peak demand and hence reductions in the quantity of capacity required;
> - Estimate savings in wholesale electric energy costs that can be realized, explicitly through participation in the PJM energy

market in peak hours, or implicitly due to reductions in purchases during peak hours due to reductions in peak demand; and

- Estimate savings in electricity supply costs due to the reductions in market prices for wholesale electric capacity and/or peak hour energy resulting from reductions in peak demand.

See OCA St. 1 at 14.[7] These data and analyses will better allow the Companies to estimate the potential benefits of AMI-enabled dynamic pricing. Further, the quantification of these projected benefits is essential for the Companies to be able to demonstrate that their Business Plan for full deployment at the end of the Assessment Period is the most cost-effective, reasonable approach relative the range of approaches available to them. See OCA St. 1 at 12-13.

OCA witness Brockway also recommends that the FirstEnergy Companies utilize the Assessment Period to conduct further research and analyses in order to present the most technologically up-to-date approach possible. See OCA St. 2 at 8-9. Ms. Brockway recommends:

> As part of the Assessment Period and before deployment, the Companies should perform a thorough cost-benefit analysis, with sensitivities to assess the possible impact of uncertainties that remain at the time of deployment. The cost-benefit analysis should be comprehensive and should place particular emphasis on identifying and quantifying benefits related to operational savings, reliability improvements, and energy supply savings that could be enabled by smart meter technology.

See OCA St. 2 at 3.

More specifically, Ms. Brockway recommends:

> [T]he Companies should perform a rigorous assessment of savings that can be expected in their distribution operations. I would include in this review any reliability benefits that may be expected to result from the installation of the smart meters. The analyses performed should look not only at the total expected costs and

[7] The last three sets of estimates will require a projection of the values of wholesale capacity and peak hour energy over the study period for the PJM zone in which the FirstEnergy Companies are located.

> benefits but at the timing of those costs and benefits to help guide decisions regarding deployment. In addition, the Companies should analyze the costs and benefits of the various functionalities to better guide their decision as to the functionalities that will be included in the smart meter technology.

See OCA St. 2 at 9-10.

The OCA submits that the cost-benefit analyses recommended by OCA witnesses Hornby and Brockway be performed by the Companies during the Assessment Period so that adequate information is available to determine the most cost-effective Deployment Plan.

B. Cost Allocation.

i. The Companies' Allocation Of The Assessment Period Costs Is Not Consistent With Accepted Cost Causation Principles.

The Companies' SMIP outlines how the costs of the Plan will be allocated to the customer classes during the initial 24-month Assessment Period, and then during the full roll out of smart meters under its future Deployment Plan. During the Assessment Period, the Companies propose to allocate all Plan costs, estimated to be approximately $29.5 Million, to each customer class based on the number of metered customers. See Joint Petition at 11. For the estimated $330 Million to $400 Million costs incurred during the Deployment Plan, the Companies will allocate the total costs in two ways. First, the Companies will allocate customer class costs directly to the benefiting class on a customer count basis (*e.g.*, the cost of meters). See ME/PN/PP St. 3 at 7. Second, the Companies will allocate to the different classes a "portion of any projected indirect costs that benefit all the respective Companies' Customer Classes during this same period." See ME/PN/PP St. 3 at 7. The method for the allocation of the indirect costs was not specified.

The OCA does not support the Companies' proposal to allocate the Assessment Period costs incurred by the Companies on a per metered customer basis. OCA witness Hornby explained why the Companies' proposed allocation of the revenue requirement for the $29.5 Million proposed budget for costs incurred during the Assessment Period is unreasonable. Mr. Hornby testified as follows:

> The FirstEnergy Companies consider the costs they will incur during the Assessment Period to be common costs. They are proposing to allocate these common costs based on the number of customers. However, the Companies have not demonstrated that this allocation is based upon cost causation.

See OCA St. 1 at 15. Importantly, the OCA submits that the number of customers is neither a measure of the benefits derived from the smart meter system nor the causation of the system costs.

As OCA witness Hornby noted, the costs of the Assessment Period are common costs. In the Implementation Order, the Commission stated that costs incurred that provide a benefit across multiple classes should be allocated among the appropriate classes using reasonable cost of service practices. Implementation Order at 32. The costs that the Companies will incur during the Assessment Period will result in the development and construction of a smart meter network in accordance with Act 129 designed to drive down peak demands and wholesale costs of power. In other words, the purpose of the smart meter network is to reduce costs and improve reliability to the benefit of all classes. As Mr. Hornby testified:

> [S]ince these AMI related costs are being incurred, or "caused", primarily in anticipation of substantial savings in electricity supply costs they should be allocated in a manner that reflects those anticipated benefits. Allocating based on number of customers does not properly reflect the fact that the majority of the benefits are savings related to reductions in either demand or energy.

See OCA St. 1 at 15.

Reasonable cost of service practices require that costs be allocated among rate classes according to cost causation. See OCA St. 1 at 15; OCA St. 1S at 3. These costs are caused by compliance with Act 129. The preamble to Act 129 states that one of the main goals of the Act is to reduce the cost and price instability of electric energy:

> The General Assembly recognizes the following public policy findings and declares that the following objectives of the Commonwealth are served by this act:
>
> (1) The health, safety and prosperity of all citizens of this Commonwealth are inherently dependent upon the availability of adequate, reliable, affordable, efficient and environmentally sustainable electric service at the least cost, taking into account any benefits of price stability over time and the impact on the environment.

Act 129, 66 Pa.C.S. § 2806.1 *et seq*, pmbl. The purpose of this massive new investment is not simply to count kilowatt hours and provide accurate bills to each individual customer. Rather, it is to reduce overall demand and energy costs for the benefit of all customers. Allocating these common costs based on energy and demand recognizes the purpose of Act 129 and also recognizes that larger customers (in terms of demand and energy usage) will derive far greater benefits from both the smart meter systems and the enhanced technological capabilities.

The OCA submits that it is wholly unreasonable to allocate the common costs of the Companies' program based on the number of customers. Instead, these common costs should be allocated to customer classes in some reasonable proportion to the benefits received by each class from the planning and implementation of the smart meter system. This treatment is in

keeping with the language of Act 129 itself, as well as with the Commission's Implementation Order.[8]

The Commission clearly evidenced its intention to assign costs to the classes which derive the benefit when it stated:

> …we will require the EDC to allocate those costs to the classes whom derive the benefit from such costs.

Implementation Order at 32. The Commission went on to say:

> Any costs that can be clearly shown to benefit solely one specific class should be assigned wholly to that class. Those costs that provide benefit across multiple classes should be allocated among the appropriate classes using reasonable cost of service practices.

Id.

OCA witness Hornby addressed the causes of cost incurrence in this proceeding noting that smart meter costs are being incurred, or "caused," primarily in anticipation of substantial savings in electricity supply costs. See OCA St. 1 at 15. Mr. Hornby explained the principles of cost causation that are at issue here, as follows:

> [T]he Companies are incurring these costs solely to comply with the smart meter plan requirements of Act 129 and the primary goals of that Act are to reduce annual energy use, peak load and the costs and environmental impacts associated with those two factors.
>
> Act 129 is clearly "causing" the Companies to incur incremental costs to deploy smart meter technology. The Companies note that they are submitting a smart meter plan to comply with the Act in their petition on page 3, in their Plan on pages 1 and 3, in the Direct Testimony of Mr. Paganie on page 7 at lines 7 and 8 and in the Direct Testimony of Mr. Mills on page 12 at lines 16 to 18.

See OCA St. 1S at 4-5. For example, the Companies SMIP begins as follows:

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[8] As noted below, this more reasonable methodology has been proposed in neighboring Maryland by BG&E. See OCA St. 1S at 4.

1.1 Introduction

> On October 15, 2008, Governor Rendell signed House Bill 2200 into law as Act 129 of 2008 ("Act 129"), which became effective on November 14, 2008. Among other things, Act 129 directed each electric distribution company ("EDC") with more than 100,000 customers to file with the Pennsylvania Public Utility Commission ("Commission") by August 14, 2009, its Smart Meter Technology Procurement and Installation Plan ("Plan").

See ME/PN/PP Exh. JEP-2 at 4. In addition, the Companies' witness, Robert A. Mills, noted:

> The [Assessment Period] costs identified above represent costs that are necessary to prepare the Deployment Plan for deploying smart meters in Pennsylvania in order to meet the Companies' statutory obligations under Act 129.

See ME/PN/PP St. 2 at 12.

The Companies' cost recovery witness, Raymond I. Parrish, explained the purpose of their proposed rate recovery mechanism, as follows:

> The purpose of my testimony is to introduce and explain the Companies' proposed cost recovery mechanism that will be used to ***recover the costs incurred by the Companies*** during the planning and implementation of the Companies' Smart Meter Technology Procurement and Installation Plan ("Plan") that is being filed ***pursuant to Act 129*** of 2008, 66 Pa. C.S. §2807(f) ("Act 129").

See ME/PN/PP St. 3 at 2. (Emphasis added). As Mr. Parrish testified, the Companies have developed a cost recovery plan to collect those costs that they are required to incur due to the passage of Act 129. As explained by OCA witness Hornby and acknowledged by the Companies' witnesses, Act 129 is the direct cause of the current filing.

Act 129 was passed for the purpose of driving down the costs of energy, to the benefit of all customers. Importantly, Mr. Hornby testified that the Companies have acknowledged that the purpose of Act 129 is to drive down costs to the benefit of all customers, noting:

> Act 129 is also explicitly trying to achieve important public policy goals of reducing annual energy use, reducing the air emissions associated with that annual energy use, and reducing peak load. The General Assembly obviously expects that achieving these public policy goals will provide benefits to all customers in all rate classes. The joint and common costs associated with smart meter technology and energy efficiency are ultimately being caused by current levels of energy and demand, and the goal of Act 129 to reduce those current levels. For example, Mr. Paganie lists "…achieving Energy Efficiency and Demand Response" as the first benefits of the Companies' Plan (Paganie Direct, page 7 at line 23).

See OCA St. 1S at 5.

In Exhibit JRH-3, OCA witness Hornby detailed the energy consumed by each major customer class for each of the three Companies. The following chart shows the percentage of each company's total energy usage:

	Met-Ed	Penelec	Penn Power
Residential	39.4%	31.6%	35.5%
Commercial	33.6%	36.0%	29.9%
Industrial	27.0%	32.4%	34.6%

Source: OCA St. 1, Exh. JRH-3 (page 2 of 2).

As the chart demonstrates, the energy consumed by each Company is spread somewhat evenly among the customer classes. This is the case despite the fact that residential customers are 88%, 86%, and 87% of Met-Ed, Penelec and Penn Power's total customer base, respectively. See ME/PN/PP St. 1 at 4-5. As a result, to the extent each FirstEnergy Company's Plan achieves the General Assembly's goals and produces cost savings, those savings will be spread among all of the customer classes. Under the Companies' proposed allocation, however, the residential class will pay the lion's share of the costs. It simply defies logic that residential customers, who are responsible for only 31.6% to 39.4% of the Companies' energy usage, should pay for 86% to 88% of these costs.

By allocating on a purely customer count basis, the Companies will not be collecting the appropriate level of common costs from those customers causing such costs. As OCA witness Hornby explained:

> Allocating based on number of customers does not properly reflect the fact that the majority of the benefits are savings related to reductions in either demand or energy. Therefore the allocation factor should be based upon demand (kW), energy (kWh) or some combination of both.

See OCA St. 1 at 15. The OCA submits that the Companies' proposal to allocate costs based on customers should be rejected.

The Commission should ensure that the costs of the SMIP are properly allocated to the classes. Importantly, the Commission must recognize that costs are being incurred in this case not for the sake of placing meters in service, but for the benefits that will result from the creation of a fully integrated smart meter network and the corresponding reduction in energy and capacity prices. This causal relationship between costs and benefits is an accepted cost of service principle that is directly applicable here.

For example, in the recent case Illinois Commerce Commission v. FERC, hereinafter ICC, the Seventh Circuit stated:

> FERC is not authorized to approve a pricing scheme that requires a group of utilities to pay for facilities from which its members derive no benefits, or benefits that are trivial in relation to the costs sought to be shifted to its member…Not surprisingly, we evaluate compliance with this unremarkable principle by comparing the costs assessed against a party to the burdens imposed or benefits drawn by that party.

Illinois Commerce Commission v. FERC, 576 F.3d 470, 476 (Seventh Cir. 2009) (citing KN Energy, Inc. v. FERC, 968 F.2d 1295, 1300 (D.C. Cir. 1992); Transmission Access Policy Study Group v. FERC, 225 F.3d 667, 708 (D.C. Cir. 2000); Pacific Gas & Elec. Co. v. FERC, 373 F.3d

1315, 1320-21 (D.C. Cir. 2004); Midwest ISO Transmission Owners v. FERC, 373 F.3d 1361, 1368 (D.C. Cir. 2004)); see also Alcoa Inc. v. FERC, 564 F.3d 1342, 1346-47 (D.C. Cir. 2009); Federal Power Act, 16 U.S.C. § 824d. In ICC, the Court heard an appeal from various Commissions and utilities in PJM regarding the financing of new transmission facilities. ICC, 576 F.3d at 474. The PJM-proposed and FERC-approved method at issue would have required all utilities in PJM's region to contribute pro rata for facilities of over 500kV. Id. In overturning this treatment, the Seventh Circuit noted that not even the roughest estimate of likely benefits to the objecting utilities was presented. Id. at 475. In fact, FERC counsel conceded that Commonwealth Edison would derive only $1 million in expected benefits from the project for which it was being asked to pay $480 million. ICC, 576 F.3d at 478. The Court specifically stated that the disparity between benefit and costs would be unreasonable. Id.[9]

OCA witness Hornby recommended that a reasonable cost allocation methodology would distribute costs based on both customer usage and demand. See OCA St. 1 at 15. Mr. Hornby explained his alternative allocation methodology, as follows:

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[9] Similarly, the PJM Interconnection and the Midwest Independent Transmission System Operator (MISO) proposed a methodology for allocating the costs of projects built into one regional transmission organization that also provided benefits to another Regional Transmission Operator (RTO). These benefits are referred to as "economic cross-border projects." In its Order addressing this issue, the FERC described the methodology it then approved as follows:

> If a project qualifies as an economic cross-border project, its costs will be allocated to each RTO in proportion to the present value of the RTO's share of the annual benefits that are calculated for the proposed project…
>
> We accept the RTO's proposal as just and reasonable and in compliance with the Commission's directives to revise the JOA [Joint Operating Agreement] to include a methodology to allocate between the RTOs, the costs of economic cross-border transmission projects.
>
> We find that the proposed JOA economic cross-border benefit formula is a just and reasonable method of allocating costs since it is based on criteria that the Commission previously accepted for use by each RTO to measure the benefits of adding new transmission within its footprints.

Order on Cross-Border Facilities Cost Allocation, 129 F.E.R.C. ¶ 61,102 at ¶¶ 9, 26-27 (2009).

> [I]t is reasonable for the Companies to allocate Assessment Period costs using a simple allocator consistent with the anticipated benefits which are driving, or causing, the implementation of AMI and to collect those costs through a charge consistent with the categories of those costs.

See OCA St. 1 at 16. Mr. Hornby further explained his recommendation for allocating Assessment Period costs, as follows:

> I am proposing that they be allocated based upon the Companies' current levels of energy and demand which I consider to be the factors causing or underlying the Act's requirement that the Companies incur these costs.

See OCA St. 1S at 9.

A more reasonable allocation, similar to that proposed by OCA witness Hornby, has been proposed in other jurisdictions. Mr. Hornby testified as follows:

> In Maryland, Baltimore Gas and Electric is proposing to allocate all smart meter costs among electric rate classes using a demand allocation factor, i.e. a three year average of weather normalized peak load contribution by class measured as an average of five coincident peaks.

See OCA St. 1S at 4.

The OCA submits that a part demand, part energy allocation of Assessment Period costs, as proposed by Mr. Hornby, is reasonable and should be adopted in this proceeding. A reasonable allocation factor for the Assessment Period costs would be a composite factor that is a weighting of energy and demand. See OCA St. 1S at 6. Mr. Hornby calculated the allocation factors for each Company using a 50% energy, 50% demand factor in his Exhibit JRH-3. See OCA St. 1S, Exhibit JRH-3.

The Companies' Plan will provide economic benefits to all customers. Indeed, the purpose of the pending filing is to reduce total usage and peak usage, to the benefit of all

ratepayers. The OCA submits that an allocation based on both energy usage and demand properly recognizes why costs are being borne and should be adopted in this case.

ii. The Companies Must Properly Allocate Costs Among Themselves.

The FirstEnergy Companies have proposed an initial estimate of $29.5 million for costs related to the Assessment Period. See ME/PN/PP St. 2 at 12; Joint Petition at 9. This initial estimate includes test lab costs, equipment costs, computer hardware and software, professional consulting fees and other labor and expenses. See Joint Petition at 9. Of this amount, the Companies anticipate that $20.2 million will be spent during the first twelve months of the Assessment Period. See ME/PN/PP St. 2 at 13. The Companies propose to allocate these Assessment Period costs between the Companies based on the existing metered customers of each FirstEnergy Company. See Joint Petition at 9.

The OCA submits that the FirstEnergy Companies should be directed to allocate the Assessment Period costs among the three Companies using an allocation factor based on both energy and demand factors. OCA witness Hornby developed reasonable allocation factors for the distribution of Assessment Period costs among the Companies in his Exhibit JRH-3 (Section A). OCA St. 1S at 5-6; OCA St. 1S, Exh. JRH-3.

The OCA further submits that the Companies should be directed to determine the costs associated with the Deployment Plan on a Company-by-Company basis. The FirstEnergy Companies' service territories differ greatly in terms of density and geography. ME/PN/PP St. 2 at 6. Therefore, the costs incurred for test labs, equipment, computer hardware and software, professional consulting fees and other labor and expenses, and later deployment of smart meters, are likely to differ due to the unique circumstances that each service territory presents in the planning and later deployment of smart meters on a basis other than number of customers. The

OCA submits that the Companies should develop accounting and allocation protocols to avoid any cross-subsidization across the Companies and submit the results with its full Deployment Plan, identifying any differences in costs between the Companies.

C. Cost Recovery Issues.

i. FirstEnergy's Cost Recovery Proposal.

In order to recover the costs of the Plan, the FirstEnergy Companies propose to implement a "Smart Meter Technologies(SMT-C) Rider" for each Company. See ME/PN/PP St. 3 at 3. The Companies have not developed a specific rate at this time. The rates will be calculated when the Companies' Plans have been approved by the Commission and will be effective beginning April 1, 2010, and adjusted annually. See Joint Petition at 6, 10. The FirstEnergy Companies reserve the right to request Commission approval of interim revisions to the SMT-C rates if they anticipate a material over- or under-collection of recoverable costs. Id. at 10.

The costs related to the smart meter program will be collected through the SMT-C rates proposed by Companies' witness Raymond Parrish. The SMT-C rates will contain two components. The first component is the SMTc "current cost." The second is the reconciliation component, or the "E" factor. See ME/PN/PP St. 3 at 7. The SMTc "current cost" will collect the following costs:

> A projection of costs to be incurred associated with the Customer Class specific Smart Meter Technology Procurement and Installation Plan ("Plan") as approved by the Commission for the SMT-C Computation Year by Customer Class including carrying charges on capital costs, depreciation expense, and operational and maintenance expenses. These costs would also include an allocated portion of any projected indirect costs to be incurred benefiting all Customer Classes of the Company's Plan for the SMT-C Computational Year.

See ME/PN/PP Exhibit RIP-1-RIP-3. In addition, the SMT-C rate will include an allocated portion of administrative start-up costs incurred by the Companies through March 31, 2010. The Companies provide examples of these costs that include consultant costs, legal fees, and other direct and indirect costs associated with the development of the Companies' Plan. See ME/PN/PP St. 3 at 8. The Companies plan to amortize these start-up costs over a 12-month period, with interest. Id. The Companies have not specifically identified all of the start-up costs, nor have they reflected any expected cost savings realized by the Companies as a result of installing smart meters.

The Companies propose to combine the costs assigned to each class and divide that total cost by the "Average Customer Class Count." See ME/PN/PP Exhibit RIP-1, RIP-2, RIP-3. Once those combined costs have been divided evenly over all of the customers in the Customer Class, gross receipts tax will be added in order to develop the final, fixed, per customer rate. Id. In other words, customers will be billed a fixed monthly charge. The Companies propose that the SMT-C rates be calculated and stated separately for residential, commercial, and industrial customer classes. Id. The Companies' witness Parrish testified that the SMT-C rates will be "expressed as a monthly customer charge and will be billed on that basis to all metered customer accounts." Id. at 3.

ii. The Companies' Rate Recovery Mechanism Does Not Provide For The Offsetting Savings As Required By Act 129.

Under Act 129, each EDC is given an opportunity to recover the reasonable and prudent costs of its smart meter program. See 66 Pa. C.S. §2807(f)(7). The Act details the types of costs allowed to be recovered by the Companies. Importantly, the Act recognized that "costs" must reflect operating and capital costs *savings* realized as a result of each Company's installation and

use of smart meter technology. Id. In other words, the costs incurred by the Companies reflect the netting out of savings enjoyed by the Companies.[10] Act 129 clearly defines the obligation of each EDC to reflect savings, as follows:

> An electric distribution company may recover reasonable and prudent costs of providing smart meter technology under paragraph (2)(ii) and (iii), as determined by the commission. This paragraph includes annual depreciation and capital costs over the life of the smart meter technology and the cost of any system upgrades that the electric distribution company may require to enable the use of the smart meter technology which are incurred after the effective date of this paragraph, **less operating and capital cost savings realized by the electric distribution company from the installation and use of the smart meter technology**.

See 66 Pa.C.S. § 2807(f)(7). (Emphasis added). As the Act details, the Companies are entitled to recover reasonable and prudent costs, minus the savings that result from the SMIP.

Act 129 further details the rate mechanisms through which the Companies are entitled to recover their net costs, as follows:

> An electric distribution company may recover smart meter technology costs:
>
> (i) through base rates, including a deferral for future base rate recovery or current basis with carrying charge as determined by the commission; ***or***
>
> (ii) on a full and current basis through a reconcilable automatic adjustment clause under section 1307.

See 66 Pa.C.S. § 2907(f)(7). (Emphasis added). The Act clearly establishes a choice of mechanisms for each EDC to recover smart meter program costs. Either the EDC can recover

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[10] The netting construct created under Section 2807(f)(7) is similar to the Public Utility Code's calculation of "stranded costs" in Section 2803 (defining stranded costs as the "net electric generation related cost…."). 66 Pa.C.S. § 2803. The Commission has ruled that the netting concept is part of the calculation of "costs." Petition of Metropolitan Edison Company and Pennsylvania Electric Company for Approval to Revise the Accounting Methodology Used for NUG-Related Costs, Docket No. P-00062235 (Order entered November 8, 2007).

costs and reflect savings through base rates, ***or*** it can do so through a 1307 reconcilable automatic adjustment clause.

In this case, the Companies have chosen to recover their costs through a 1307 rate mechanism. The Companies do not, however, recognize savings through this rate. OCA witness Hornby explained the flaw in the Companies' argument as follows:

> The Act, in Section 2807 (f) (7), specifies the Company may recover reasonable and prudent smart meter technology costs net of operating and capital cost savings it realizes from that technology. That Section also gives electric distribution companies (EDCs) the option of recovering their net costs either through deferral and recovery in future base rates or a reconcilable automatic adjustment clause. The Companies have chosen the automatic adjustment clause option, i.e., the SMT-C rider. In its Implementation Order, the Commission states that EDCs such as the Companies who have chosen the adjustment clause option shall include a tariff for that rate mechanism that reflects "…operating and cost savings realized by the EDC from the installation and use of smart meter technology".
>
> The Companies have chosen the automatic clause recovery option rather than the base rate recovery option. (Moreover, they have given no commitment to file a base rate case, per response to OCA I-34.) Having elected the automatic clause recovery option, the Act and the Commission's Implementation Order require that the Companies file a tariff that includes a description of the credit they will provide for operating and capital cost savings. If the Companies do not expect any such savings during the Assessment Period, they can propose a value of zero for that credit during the Assessment Period.

See OCA St. 1S at 12.

Other EDCs have included appropriate language that will allow savings to be reflected in rates as required by Act 129. For example, as noted by OCA witness Hornby:

> [T]he Commission should require the Companies to modify its tariff to include such text. For example the comparable PECO tariff states: *"Any reductions in operating expenses or avoided capital expenditures due to the Smart Meter Program will be deducted from the incremental costs of the Smart Meter Program*

> *to derive the net incremental cost of the Program that is recoverable. Such reductions shall include any reductions in the Company's current meter and meter reading costs."*

See OCA St. 1 at 17-18.

The OCA submits that the Act requires that the Companies reflect savings in their chosen rate mechanism for the collection of smart meter costs. In this case, the Companies have chosen a 1307 reconcilable rate mechanism. As a result, the Companies should be required to reflect savings in those rates, and must adopt appropriate language in their tariff that states as follows:

> Any reductions in operating expenses or avoided capital expenditures due to the Smart Meter Program will be deducted from the incremental costs of the Smart Meter Program to derive the net incremental cost of the Program that is recoverable. Such reductions shall include any reductions in the Company's current meter and meter reading costs.

The OCA submits that the Companies are required by law to reflect savings in their cost calculation and must incorporate those savings in their selected rate recovery mechanism. The Companies should be directed to include this language in their tariffs to ensure that ratepayers receive the credited savings they are entitled to under the law.

iii. Return On Equity.

The Companies have proposed to use a common equity rate of 10.1% when computing the weighted average monthly return on smart meter technologies capital expenditures. See ME/PN/PP St. 3 at 9. The Commission approved this return on equity in Met-Ed and Penelec's last base rate proceeding. The Companies intend to utilize that rate for Met-Ed and Penelec, as well as Penn Power. See OCA St. 1 at 17. The OCA submits that the proposed return on equity is a reasonable starting point.

As time passes, however, the OCA submits that the proposed return on equity may no longer reflect the Companies' cost of capital. OCA witness Hornby testified that a mechanism should be developed to update the return on equity, as follows:

> Going forward, I recommend that a procedure be developed so that an equity return based on the most recent "Report on the Quarterly Earnings of Jurisdictional Utilities" (Quarterly Earnings Report) prepared by the Bureau of Fixed Utility Services and released by the Commission could be used when the rate from the last base rate case is no longer representative of current conditions.

See OCA St. 1 at 17.

The OCA submits that an alternative mechanism should be developed in order to prevent the Companies' return on equity component from becoming stale. Such a procedure has been in place for water utilities recovering costs related to distribution system improvement projects in between base rate proceedings. See 66 Pa.C.S. § 1307(g); Petition of Pennsylvania-American Water Company for Approval to Implement a Tariff Supplement Establishing a Distribution System Improvement Charge, Docket No. P-00961031 (Order entered August 16, 1996)(Attachment A, "Sample Tariff Language" at 4). The OCA submits that it may be appropriate to adjust the Companies' ROE in a future proceeding accordingly.

iv. The Companies' Fixed Charge Proposal Should Be Rejected.

The Companies proposed to recover costs allocated to each class using a fixed customer charge. The OCA submits that the Companies' Assessment Period costs should be recovered on a per kWh, or usage, basis. The Companies' proposal to collect all smart meter costs through fixed customer charges is not consistent with the Commission's ratemaking standards.

Utilizing traditional ratemaking principles, the Commission has limited the costs that can be included for recovery in the customer charge to "basic customer costs" necessary to customer service. See e.g., Pa. PUC v. West Penn Power Co., 69 PUR4th 470, 521 (1985) (West Penn);

Pa. PUC v. West Penn Power Co., 1994 Pa. PUC LEXIS 144, 154 (1994). The Commission has defined "basic customer costs" to include the costs for the meter and service drop, meter reading and billings. See West Penn at 521. OCA witness Hornby testified that the Companies' proposal would improperly collect common costs through a customer charge, as follows:

> The Companies' proposal to apply the SMT-C as a customer charge is not reasonable for the Assessment Period. As noted above, the Companies consider the costs it will incur to be joint and common costs rather than customer-related costs. There is no support for recovering costs that are classified as joint and common via a customer charge.

See OCA St. 1 at 16. The OCA submits that a proper recognition of basic customer costs will result in a cost recovery scheme that collects indirect smart meter network costs through a usage based charge. See also OCA St. 1S at 9.

In addition to these traditional ratemaking principles regarding customer charges, the collection of all smart metering costs through a fixed charge is antithetical to the guiding principles of Act 129. A major purpose of Act 129 is the reduction of energy consumption, both on an annual basis and with regard to peak energy usage. As the Commission is well aware, the use of fixed charges for the recovery of a utility's costs reduces customers' incentives to decrease usage. If all of the smart meter costs are collected through a fixed customer charge, the incentive to reduce usage will decrease to the detriment of the energy efficiency goals of Act 129.

OCA witness Brockway also testified that the Companies should move to a volumetric approach in order to benefit more vulnerable customers. Ms. Brockway testified as follows:

> SMIP costs should be recovered primarily on a volumetric rather than fixed basis. In this way, low-use customers who cannot take advantage of SMIP tariff benefits will not be as burdened with costs of the new system as they would be under fixed charge cost recovery.

See OCA St. 2 at 13. As Ms. Brockway explained, certain vulnerable customers are unable to respond to peak pricing signals obtained through smart metering. The OCA submits that a volumetric charge will provide more assistance to low-use vulnerable customers who cannot take advantage of peak pricing programs.

The OCA submits that recovery of the Assessment Period costs on a per kWh basis is reflective of the greater benefits that residential customers with greater usage stand to realize from smart meter capabilities. Finally, because the FirstEnergy Companies will be allowed to fully reconcile smart meter costs and revenues, the Companies bear no risk of under-recovery if actual sales are less than projected.

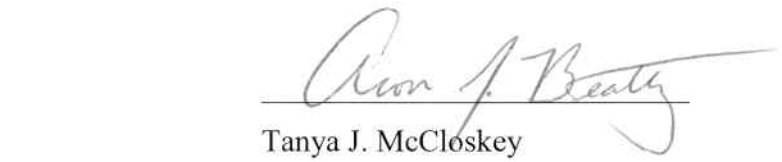
VI. CONCLUSION

The OCA submits that, in general, the FirstEnergy Companies' Smart Meter Implementation Plan provides a reasonable approach for the development and deployment of a smart meter network. While the Plan provides a reasonable foundation, the Companies should be required to gather additional data and conduct cost-benefit analyses, as detailed above, in order to ensure that the Companies submit the most cost-effective, reasonable and up-to-date Deployment Plan out of the range of options available to them.

The OCA further submits that the Companies' allocation of costs among the rate classes fails to reflect what is causing the costs of the smart meter network and how customers will benefit from its development. The Companies' allocation must be rejected in favor of an allocation, which accurately captures these principles. The OCA's proposed allocation, detailed above, meets these standards and should be adopted.

Finally, the OCA submits that the Companies' rate mechanism must be modified. Act 129 requires that the Companies reflect savings in the calculation of smart meter rates to be collected from customers. The Companies' proposal does not meet the Act's requirements in this regard. In addition, the Companies' proposal to collect all costs through a fixed customer charge is not consistent with sound ratemaking principles, and must be rejected.

Respectfully Submitted,



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Dated: December 11, 2009

BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION

Joint Petition of Metropolitan Edison Company, Pennsylvania Electric Company and Pennsylvania Power Company for Approval of Smart Meter Technology Procurement and Installation Plan	:	Docket No.	M-2009-2123950

APPENDICES TO THE
MAIN BRIEF OF THE
OFFICE OF CONSUMER ADVOCATE

Appendix A Proposed Findings of Fact

1. On August 14, 2009, Metropolitan Edison Company, Pennsylvania Electric Company and Pennsylvania Power Company (jointly FirstEnergy Companies or Companies) filed a Joint Petition for Approval of Smart Meter Technology Procurement and Installation Plan, Smart Meter Implementation Plan (SMIP or Plan) and Testimony with the Pennsylvania Public Utility Commission (Commission) pursuant to Section 2807(f)(1) of the Public Utility Code, 66 Pa.C.S. § 2807(f)(1), and the Implementation Order entered by the Commission at Docket No. M-2009-2092655.

2. The SMIP is applicable to all three FirstEnergy Companies service territories. See Joint Petition at 4.

3. The Companies anticipate a thirteen-year full scale deployment of smart metering across their service territories, with such deployment completed no later than March 2022. See ME/PN/PP St.1 at 9.

4. The Companies' Plan involves two distinct periods. For the first 24 months, the Companies propose an "Assessment Period," during which the Companies will assess needs, select technology, secure vendors, train personnel, install and support test equipment, and establish a detailed meter deployment schedule. See Joint Smart Meter Petition at 5. At the end of the Assessment Period, the FirstEnergy Companies intend to submit a "Deployment Plan" for Commission approval. Id.

5. The Companies' Deployment Plan is expected to be completed by March 2022. See Joint Smart Meter Petition at 5.

6. The FirstEnergy Companies have proposed a combined budget of $29.5 million for costs related to the Assessment Period. See ME/PN/PP St. 2 at 12. Of this amount, the Companies anticipate that $20.2 million will be spent during the first twelve months of the Assessment Period. Id. at 13.

7. The Companies preliminarily anticipate a total cost for smart meter implementation throughout all three service territories to be at least $325 million. See ME/PN/PP St. 1 at 12.

8. In order to recover the costs of the Plan, the Companies propose to implement a "Smart Meter Technologies (SMT-C) Rider" for each Company. See ME/PN/PP St. 3 at 3.

9. The Companies have not developed a specific rate at this time. The rates will be calculated when the Companies' Plan has been approved by the Commission and will be effective beginning April 1, 2010, and adjusted annually. Id. at 6, 10.

10. The Companies filed their Smart Meter Implementation Plan as a result of the passage of Act 129. ME/PN/PP Exh. JEP-2 at 4.

11. The Companies are incurring Smart Meter Implementation Plan costs in order to comply with the smart meter plan requirements of Act 129. OCA St. 1S at 4; ME/PN/PP Exh. JEP-2 at 4; ME/PN/PP St. 2 at 12.

12. The Companies have developed a Cost Recovery Mechanism in order to recover the costs incurred by the Companies pursuant to Act 129. ME/PN/PP St. 3 at 2.

13. The Companies' total energy usage by class is as follows:

	Met-Ed	Penelec	Penn Power
Residential	39.4%	31.6%	35.5%
Commercial	33.6%	36.0%	29.9%
Industrial	27.0%	32.4%	34.6%

Source: OCA St. 1, Exh. JRH-3 (page 2 of 2).

14. Residential customers account for 88%, 86%, and 87% of Met-Ed, Penelec and Penn Power's total customer base, respectively. See ME/PN/PP St. 1 at 4-5.

15. The joint and common costs associated with smart meter technology and energy efficiency are being caused by current levels of energy and demand, and the goal of Act 129 to reduce those current levels. OCA St. 1S at 5l; See also ME/PN/PP St. 1 at 7.

16. Allocating based on number of customers does not properly reflect the fact that the majority of the benefits are savings related to reductions in either demand or energy. OCA St. 1 at 15.

17. The FirstEnergy Companies' service territories differ greatly in terms of density and geography. ME/PN/PP St. 2 at 6.

18. The Companies have chosen the automatic adjustment clause option, i.e., the SMT-C rider, for the recovery of reasonable and prudent smart meter costs. OCA St. 1S at 12.

19. The Companies' proposed tariff for the SMT-C makes no reference to crediting customers with savings in distribution service operating costs that result from its smart meter plan. OCA St. 1 at 17.

20. Other EDCs have included appropriate language that will allow savings to be reflected in rates as required by Act 129. For example the comparable PECO tariff states: "*Any reductions in operating expenses or avoided capital expenditures due to the Smart Meter Program will be deducted from the incremental costs of the Smart Meter Program to derive the net incremental cost of the Program that is recoverable. Such reductions shall include any reductions in the Company's current meter and meter reading costs.*" See OCA St. 1 at 17-18.

21. The Companies have proposed to use a common equity rate of 10.1% when computing the weighted average monthly return on smart meter technologies capital expenditures. See ME/PN/PP St. 3 at 9.

22. The Companies propose a capital structure based upon Met-Ed's and Penelec's normalized capital structures of 51% long-term debt and 49% common equity. See ME/PN/PP St. 3 at 8.

23. The Companies propose to apply the SMT-C as a customer charge. OCA St. 1 at 16.

Conclusions of Law

1. The FirstEnergy Companies' SMIP is generally reasonable and intended to comply with the requirements of Act 129 and the Commission's Implementation Order but requires modification.

2. Act 129 has cost reduction and price stability of electric energy as one of its primary goals. Act 129, 66 Pa.C.S. § 2806.1 *et seq*, pmbl.

3. The Companies must allocate costs to the classes whom derive the benefit from such costs. Smart Meter Procurement and Installation, Docket No. M-2009-2092655 at 32 (Order entered June 24, 2009).

4. The Companies have not met their burden of proof that the proposed allocation methodology for common costs based on the number of customers is reasonable or consistent with Act 129, the Commission's Implementation Order, or cost of service principles.

5. Under Act 129, each EDC is given an opportunity to recover the reasonable and prudent costs of its smart meter program. See 66 Pa. C.S. §2807(f)(7).

6. Act 129 requires that "costs" reflect operating and capital costs *savings* realized as a result of each Company's installation and use of smart meter technology. Id.

7. Act 129 requires that the Companies reflect savings in their chosen rate mechanism for the collection of smart meter costs. Id.

8. Utilizing traditional ratemaking principles, the Commission has limited the costs that can be included for recovery in the customer charge to "basic customer costs" necessary to customer service. See e.g., Pa. PUC v. West Penn Power Co., 69 PUR4th 470, 521 (1985) (West Penn); Pa. PUC v. West Penn Power Co., 1994 Pa. PUC LEXIS 144, 154 (1994).

9. The Companies' proposal to recover the smart meter costs as a fixed customer charge is not just and reasonable.

Appendix B Proposed Ordering Paragraphs
It is ordered:

1. That, in addition to the data collection and analyses the Companies intend to complete during the Assessment Period, the Companies shall also complete the following and file such data and analyses with their full Deployment Plan filing:

    a. Before technology and program selection, the Companies shall demonstrate that necessary technical standards are in place to include in their Deployment Plan, including standards and enforcement mechanisms to ensure adequate security and protect consumer privacy;

    b. As part of the Assessment Period and before deployment, the Companies shall perform a thorough cost-benefit analysis, with sensitivities to assess the possible impact of uncertainties that remain at the time of deployment. The cost-benefit analysis shall be comprehensive and place particular emphasis on identifying and quantifying benefits related to operational savings, reliability improvements, and energy supply savings that could be enabled by smart meter technology in accordance with the recommendation in OCA St. 2 at 3;

    c. The Companies shall assess the likely response of residential customers overall to the imposition of AMI-enabled rates before settling on technologies and deployment plans. The Companies shall use customer-focused research and obtain more comprehensive usage data for residential customers to better understand the uses that may be made of the smart meter technology;

    d. The Companies shall research bill impacts and, using bill frequency analysis and other tools, estimate the bill impacts on various groups of customers. The Companies shall identify the extent to which their residential customers are low-income, low-use, medically challenged, or otherwise at risk. The Companies shall work with community groups to educate them about possible smart meter technology, and obtain feedback about likely problems in the community, and possible ways to address such problems (including changes to the SMIP design);

    e. The Companies shall assess the impacts of their proposed SMIP on vulnerable customers. Working with community groups, the Companies shall develop plans to mitigate the risks to vulnerable customers of smart metering costs, including consideration of smart metering technologies, price and program designs, and equipment specification. This assessment shall include a granular analysis of load shapes and usage characteristics of a sample of identified vulnerable customers before the end of the grace period to ensure sufficient reliable data and understanding of the needs of these customers;

    f. Identify potential demand response programs and/or new rate offerings to enable, and implement in conjunction with, their particular smart meter plan;

g. Estimate the number of customers by rate class likely to participate in each program or rate offering on a sustained basis;

h. Estimate the average reduction in demand and energy per customer by rate class expected from each program or rate offering on a sustained basis; and

i. Conduct market research to understand the usage characteristics of the Companies' residential customers and to review the programs and rate offerings implemented by comparable utilities. Once the Companies have an initial projection of reductions in demand and energy by rate class or customer segment by year, the Companies shall proceed to estimate the value of those reductions in terms of avoided distribution service capital costs and avoided electricity supply costs;

2. That the Companies allocate the costs incurred during the Assessment Period on a composite demand and energy basis as contained in OCA St. 1S, Exh. JRH-3;

3. That the Companies develop accounting and allocation protocols to avoid any cross-subsidization across the three utilities and submit the results with its full Deployment Plan, identifying any differences in costs between Companies;

4. That the Companies modify their Smart Meter Technologies Rider to reflect savings associated with smart meter implementation, as follows:

> Any reductions in operating expenses or avoided capital expenditures due to the Smart Meter Program will be deducted from the incremental costs of the Smart Meter Program to derive the net incremental cost of the Program that is recoverable. Such reductions shall include any reductions in the Company's current meter and meter reading costs;

5. That the Companies collect Smart Meter Implementation Plan costs from residential customers on a volumetric basis;

CERTIFICATE OF SERVICE

Joint Petition of Metropolitan Edison Company, Pennsylvania Electric Company and Pennsylvania Power Company for Approval of Smart Meter Technology Procurement and Installation Plan	:	Docket No. M-2009-2123950

I hereby certify that I have this day served a true copy of the foregoing document, the Main Brief of the Office of Consumer Advocate, upon parties of record in this proceeding in accordance with the requirements of 52 Pa. Code Section 1.54 (relating to service by a participant), in the manner and upon the persons listed below:

Dated this 11th day of December 2009.

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