

August 14, 2009

**VIA PERSONAL DELIVERY**

James J. McNulty, Secretary  
Pennsylvania Public Utility Commission  
Commonwealth Keystone Building  
400 North Street, 2<sup>nd</sup> Floor  
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:

Metropolitan Edison Company (“Met-Ed”), Pennsylvania Electric Company (“Penelec”) and Pennsylvania Power Company (“Penn Power”) (collectively, the “Companies”) hereby submit an original and nine (9) copies of the above-mentioned Joint Petition for Approval of Smart Meter Technology Procurement and Installation Plan, and related documents. This filing is being submitted in accordance with Section 2807(f) of the Public Utility Code, 66 Pa. C.S. § 2807(f), and the Commission’s Implementation Order entered June 24, 2009, in the matter of Smart Meter Procurement and Installation, at Docket No. M-2009-2092655.

In addition to the enclosed Joint Petition and the instant Transmittal Letter, this filing includes the following documents: the Companies’ Smart Meter Technology Procurement and Installation Plan; Met-Ed/Penelec/Penn Power Statement No. 1: Testimony of John E. Paganie; Met-Ed/Penelec/Penn Power Statement No. 2: Testimony of Robert Mills; and Met-Ed/Penelec/Penn Power Statement No. 3: Testimony of Raymond I. Parrish.

A CD containing the complete filing in PDF format is also enclosed herewith.

August 14, 2009

Please contact me should you have any questions regarding this matter.

Very truly yours,



Bradley A. Bingaman

dIm  
Enclosures

cc: As per Certificate of Service

Via Personal Delivery:

The Honorable James H. Cawley, Chairman  
The Honorable Tyrone J. Christy, Vice Chairman  
The Honorable Kim Pizzigrilli, Commissioner  
The Honorable Wayne E. Gardner, Commissioner  
The Honorable Robert F. Powelson, Commissioner  
The Honorable Veronica A. Smith, Chief Administrative Law Judge  
Robert F. Young, Esq., Law Bureau  
Paul T. Diskin, Fixed Utility Services  
Wayne Williams, Bureau of CEEP

**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**  
: :

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**JOINT PETITION OF METROPOLITAN EDISON COMPANY,  
PENNSYLVANIA ELECTRIC COMPANY AND  
PENNSYLVANIA POWER COMPANY**

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**Dated: August 14, 2009**

**Counsel for:  
Metropolitan Edison Company,  
Pennsylvania Electric Company and  
Pennsylvania Power Company**

In accordance with the Implementation Order entered June 24, 2009, by the Pennsylvania Public Utility Commission (“Commission”) in the Matter of Smart Meter Procurement and Installation at Docket No. M-2009-2092655<sup>1</sup>, Metropolitan Edison Company (“Met-Ed”), Pennsylvania Electric Company (“Penelec”) and Pennsylvania Power Company (“Penn Power”) (collectively, the “Companies”) hereby file this Joint Petition with the Commission requesting approval of the attached Smart Meter Technology Procurement and Installation Plan (“Plan”) of the Companies and authorization for each of the Companies to implement proposed tariff riders for cost recovery purposes, as described herein.

In support of this Joint Petition, the Companies state as follows:

## **I. INTRODUCTION AND BACKGROUND**

1. On October 15, 2008, Governor Rendell signed House Bill 2200 into law as Act 129 of 2008 (“Act 129”). Act 129 became effective on November 14, 2008, and imposed new requirements on Pennsylvania’s electric distribution companies (“EDCs”) in the areas of energy efficiency and conservation, smart meters, electricity procurement and alternative energy sources.

2. Among other things, Act 129 directed that EDCs with at least 100,000 customers must file smart meter technology procurement and installation plans with the Commission for approval on or before August 14, 2009. 66 Pa. C.S. § 2807(f)(1) and (6) . Pursuant to Act 129, the EDC plan must describe the smart meter technologies the EDC proposes to install:

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<sup>1</sup> *Smart Meter Procurement and Installation*, Docket No. M-2009-2092655 (Implementation Order entered June 24, 2009) (“Implementation Order”).

- Upon request from a customer at the customer's expense, 66 Pa. C.S. § 2807(f)(2)(i);
- In new building construction, 66 Pa. C.S. § 2807(f)(2)(ii); and
- In accordance with a depreciation schedule not to exceed 15 years, 66 Pa. C.S. § 2807(f)(2)(iii).

3. On June 24, 2009, the Commission issued its Implementation Order establishing standards each plan must meet and providing guidance on the procedures to be followed for submittal, review and approval of all aspects of each smart meter plan. The Implementation Order also established minimum smart meter capability and guidance on the Commission's expectations for deployment of smart meters. Specifically, the smart meter plans must address: 1) the Companies' current deployment of smart meter technology; 2) a plan for future deployment, complete with dates for key milestones and measurable goals; 3) the Companies' plans for meeting certain specific milestones during the 30-month grace period, including a status reporting plan, and a plan to distribute interval data meters and access to interval data upon customer request; 4) certain meter functionality; 5) data access and EDI capabilities; and 6) costs and cost recovery.

4. On July 16, 2009, the Commission convened a stakeholder meeting to address the following issues: 1) to obtain feedback from EDCs on their ability to provide the information requested in the Implementation Order on cost-benefit information; 2) to determine whether publicly available information is available on those issues; 3) to determine whether smart meter companies can share cost data; and 4) to gather input on whether a common template would be feasible to illustrate costs and savings information in the August 14 filings. At the meeting, it was recognized that the cost-benefit data available to each EDC as it prepared for the August 14

filing may differ. Several companies indicated that the filings would provide overall cost estimates, but that assessment and selection of technologies and vendors will not have occurred prior to August 14. Therefore, those EDCs will make supplemental filings during the 30-month grace period established in the Implementation Order to provide additional cost information and details of benefits.

5. Following the passage of Act 129, the Commission conducted an extensive process in implementing the new law. The Companies have been active participants in the Commission's efforts and have worked with the Commission and other interested parties to develop the rules and processes associated with this endeavor.

6. The Companies hereby respectfully submit for approval their Plan pursuant to Act 129 and the Commission's Implementation Order. The Plan outlines the Companies' strategies and programs in order to implement and deploy smart meters in accordance with Act 129. The Plan includes a proposed tariff rider to be utilized by each company that would establish a Smart Meter Technology Charge Rider ("Tariff Rider") to be utilized to recover the costs associated with the Companies' Plan.

7. Documentation and testimony supporting the Companies' Plan is provided and attached hereto. Specifically, Mr. John E. Paganie (Met-Ed/Penelec/Penn Power Statement No. 1) provides a summary and overview of the Companies' Plan and process utilized to develop the Plan. Mr. Robert Mills (Met-Ed/Penelec/Penn Power Statement No. 2) describes and discusses the Plan and key milestones. Mr. Raymond I. Parrish (Met-Ed/Penelec/Penn Power Statement No. 3) provides an overview of the Companies' proposals to recover the costs associated with the Plan through new tariff riders for each of the Companies. The Companies reserve the right to introduce and offer additional witnesses during this proceeding, as needed.

8. Met-Ed, Penelec and Penn Power specifically request that the Commission approve the Plan and authorize the Companies to implement the proposed tariff riders, as described herein. The Companies are asking the Commission to approve, as part of the approval of the Plan, both the proposed recovery mechanism and the recovery of costs of the Assessment Period described herein (currently estimated at \$29.5 million) through such mechanism.

## II. PLAN

### A. **Overview of the Plan:**

#### **General**

9. Met-Ed, Penelec and Penn Power have coordinated certain efforts across the Pennsylvania service territories of each of the Companies in order to achieve cost efficiencies and develop a consistent plan to begin implementing across the service territories of all three Companies to procure and install smart meter technology. The continued coordinated efforts of the Companies will result in a comprehensive plan, consistent with the Implementation Order, which will enable the Companies to meet the objectives of Act 129. The Companies' Plan includes both a general long-term time line based on information currently available and a more detailed short-term plan to be implemented during the 30-month grace period.

10. The Companies have selected by competitive bid and entered into a contract with Black & Veatch Corporation ("Black & Veatch"), to assist the Companies with the development of the Plan.

11. Rather than submitting three separate plans, the Companies, given that they are part of an integrated distribution system, are submitting a single comprehensive plan that applies to all three Companies.

### **Current Deployment**

12. The Companies' current deployment of smart meter technology consists of the MV-90 commercial and industrial system. This technology is a proven, low-cost, solution for interval data collection, management and analysis and can be used as a data collection engine that interfaces to existing data management and analysis tools. It can also be used as an end-to-end interval data collection and management solution both currently and in the interim during the comprehensive implementation of smart metering technology.

### **Assessment Period Plan**

13. The Companies' long-term plan anticipates a 15-year full scale deployment of smart metering across the Companies' service territories. The full deployment will occur in a tiered roll out to maximize the cost to benefit ratio and to minimize the cost to customers. Consistent with the Implementation Order and in order to develop a plan to accomplish the full deployment, the Companies' will utilize the first 24 months ("Assessment Period") of the 30-month grace period authorized by the Commission to create a business plan resulting in the submission of a deployment plan to the Commission.

14. Throughout the Assessment Period, the Companies will assess needs, select technology, secure vendors, train personnel, install and support test equipment and establish a detailed meter deployment schedule consistent with the requirements of Act 129. At the end of the Assessment Period, the Companies will submit to the Commission a supplement to the Plan ("Deployment Plan") to set forth in detail the Companies' plan for the full scale deployment of smart meters.

15. The Companies' needs and technology assessment will begin by evaluating its service territory characteristics. The Companies serve approximately 1.3 million customers over

22,000 square miles in Pennsylvania. Due to the service territories' diversity and differences, a one-size-fits-all approach may not be feasible. Therefore, a comprehensive and detailed assessment analysis prior to selecting the proper smart metering technologies that best meet the needs of the Companies' customers in a cost effective manner is necessary. This evaluation will include the completion of major steps which are described in detail in the Companies' Plan.

16. A technology assessment of the requisite smart meter functionality is also necessary to evaluate potential vendors and equipment. The Companies' Plan includes an example of a preliminary evaluation form to be used when assessing potential vendors which includes all of the smart meter functional requirements set forth in the Implementation Order. The Companies intend to hire a consultant to assist with the needs and technology assessment.

17. Vendor selection will be based on the results of the needs and technology assessments. The Companies anticipate that the vendor and technology selection process will start in September, 2010 and continue for almost ten months. The major steps to be completed during this time period are set forth in the Companies' Plan.

18. The Companies will also conduct an evaluation of the current legacy systems to assess network design. The network design task is expected to commence in January, 2011 and be completed before the end of 2013. The details associated with the network design task and major steps to be completed are set forth in the Companies' Plan.

19. The Companies view training and organizational readiness needs as an on-going task throughout the implementation of the Plan. The Companies anticipate performing a formal assessment of employee skill sets during the grace period. Some of the significant steps surrounding organizational readiness and the development of a training plan are set forth in greater detail in the Companies' Plan.

20. The specific details surrounding the establishment of plans for installation, testing and rollout will be developed during the Assessment Period and included in the Deployment Plan. The Companies will perform a technical trial, which will involve the deployment and testing of 5,000 to 10,000 smart meters prior to December 31, 2013, and will consist of two major components: 1) an AMI test lab; and 2) a pre-implementation assessment and upgrade. Details regarding the technical trial, AMI test lab and pre-implementation assessment and upgrade are discussed in detail in the Companies' Plan. Following the proper testing of the selected technology, the Companies will commence the build out of the necessary infrastructure with a minimum of an additional 60,000 meters expected to be installed in order to "de-bug" the system prior to full deployment. Presently, the Companies anticipate that the more densely populated areas within their respective service territories will receive partial to full scale smart meter deployment earlier than the 15-year target completion date.

21. The Companies will work with the Electronic Data Exchange Working Group and submit no later than January 1, 2010, a proposal for EDI capabilities, including planned target dates for testing and certification.

### **Deployment of Meters**

22. During the 30-month grace period, the Companies intend to continue to deploy MV 90 interval meters for such requests by industrial or large commercial customers pursuant to the Implementation Order. The Companies will assess various options for residential customer needs during the Plan review and approval process to select a meter technology that provides the requisite data as identified in the Implementation Order based on various criteria, including customer costs.

23. While the long-term plan anticipates a 15-year full scale, 100% deployment of smart meter technology throughout the Companies' three service territories, as discussed in more detail in the Plan, after the 30-month grace period and during the network system build out, the Companies will provide smart meters based on customer requests and for all new construction. The type of meter will be based on the nature of information desired, such as a meter with a communication card to provide for price signals for real-time pricing or a meter with a network card to provide pulse data for time-of-use rates.

24. In order to obtain a smart meter during the post-grace period, the customer must agree to pay the incremental costs of installing the meter. Inasmuch as the Companies have not yet selected the smart meter technology to be utilized, any estimate of incremental costs is premature. The Companies will submit for review and approval by the Commission any incremental cost estimates at a later date, understanding that such approval must be granted before the expiration of the grace period.

#### **System-wide Deployment**

25. The system-wide deployment of smart meter technology will be included in the Companies' supplemental Deployment Plan that will be submitted to the Commission within 24 months of this Plan being approved.

26. The Deployment Plan will include, among other things: 1) a detailed long-term time line, with key milestones; 2) a smart meter solution; 3) the costs of such a 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. Key milestones for the Companies' long-term plan are set forth in greater detail in

the Companies' Plan. A more detailed and specific timeline for deployment will be provided in the Companies' supplemental Deployment Plan that will be submitted to the Commission within 24 months of this Plan being approved (currently anticipated to be on or about April 1, 2012).

**B. Costs and Smart Meter Technologies Charge Rider:**

**Costs**

27. At the present time, the Companies' estimate the total cost to deploy smart meters throughout the three company service territories, in accordance with the requirements in Act 129, to be approximately \$330 million to \$400 million, not including operation and maintenance expenses. Pursuant to the Commission's direction in its Implementation Order (Implementation Order, at 31), and due to the fact that the Companies are not able to provide definitive cost data at this time, the Companies request permission, as part of the Commission's approval of the Plan, to file such cost data at a later time. This initial cost estimate will be updated after more specific data is gathered during the studies, evaluations and assessments that will be performed during the Assessment Period. Specifically, the Companies will provide this cost data in its supplemental Deployment Plan filing that will be submitted to the Commission after the Assessment Period, on or about April 1, 2012.

28. The present, initial estimate of the costs expected to be incurred during the Assessment Period is approximately \$29.5 million. These reasonable and prudent costs include test lab costs, equipment costs, computer hardware and software, professional consulting fees and other labor and expenses. The Companies propose to allocate the costs of the Assessment Period based on the existing metered customers of each company. The Companies are requesting approval to recover these Assessment Period costs through the cost recovery mechanism described herein.

### **Cost Recovery**

29. Currently, absent a cost recovery rider, the FirstEnergy Companies do not have a mechanism available to recover the costs associated with developing and implementing a smart meter plan. Pursuant to Act 129 (66 Pa.C.S. § 2807(f)(7)), the Companies are proposing to recover on a full and current basis from customers, through a reconcilable adjustment clause under 66 Pa. C.S. §1307, all reasonable and prudent costs incurred in the development, provision and management of the Plan.

30. In this Joint Petition, and as part of the Plan filing, the Companies are seeking approval to establish proposed tariff riders (i.e., Smart Meter Technologies Charge Rider) as a mechanism to recover the costs incurred during the planning and implementation of the Plan on a current cost basis, as budgeted by each of the Companies and allocated based on the existing metered customers of each company. The proposed tariff riders are described in detail in the testimony of Mr. Parrish and attached as testimony exhibits marked as Met-Ed/Penelec/Penn Power Exhibits RIP-1 through RIP-3.

31. The proposed cost-recovery tariff mechanism included in the Companies' Plan, and in accordance with 66 Pa. C.S. §1307, will ensure full and current recovery of prudent and reasonable costs to fund the development, provision and management of the Plan.

32. The rates resulting from the Smart Meter Technologies Charge Riders ("SMT-C") will be expressed as a monthly customer charge and will be billed on that basis. The SMT-C rates will be calculated and stated separately for the residential, commercial, and industrial customer classes.

33. The Companies are proposing that the SMT-C for each company become effective for service rendered on or after April 1, 2010. The initial rate will include

administrative costs incurred to date plus the budget estimate for the initial 12 months of costs associated with the Assessment Period. Costs will be allocated to the Companies and to each customer class based on the number of metered customers.

34. The Companies are not proposing specific SMT-C rates at this time. The proposed tariff riders have placeholders for the applicable residential, commercial and industrial SMT-C rates that would be effective April 1, 2010, through March 31, 2011. These rates will not be calculated until after the Companies' Plan and costs associated with the Plan, including the recovery of the currently estimated \$29.5 million that will be incurred during the Assessment Period, have been reviewed and approved by the Commission. The computation of the Companies' initial SMT-C rates and tariff supplements to be effective April 1, 2010, through March 31, 2011, will be filed within 30 days of the Commission's final order approving the Companies' Plan.

35. Pursuant to the tariff rider, a Smart Meter Technologies Charge ("SMT-C") shall be applied as a monthly customer charge during a billing month to customers served under the tariff. Some of the highlights of the rider include:

- The SMT-C rates shall be calculated separately for each customer class according to the provisions of the rider;
- The SMT-C rates shall be effective April 1, 2010;
- The SMT-C rates shall be filed with the Commission by March 1 of each year and shall become effective the following April 1, and shall remain in effect for a period of one-year, unless revised on an interim basis subject to the approval of the Commission;

- The Companies may request Commission approval of interim revisions to the SMT-C rates to become effective 30 days from the date of filing, if it is determined that not changing the SMT-C rate would result in a material over-or-under-collection of all recoverable costs during the SMT-C Computational Year;
- The Companies shall file an annual report of collections under the rider within 30 days following the conclusion of each SMT-C reconciliation year; and
- Application of the SMT-C rates shall be subject to annual review and audit by the Commission.

36. To recover the capital costs associated with the future deployment of smart meter technologies, the Companies are proposing that the capital structure be based on Met-Ed's and Penelec's normalized capital structures of 51% long-term and 49% common equity as determined in Met-Ed's and Penelec's most recent distribution base rate case proceeding at Docket Nos. R-00061366 and R-00061367. These capital ratios are also proposed to be applicable to Penn Power. The Companies are proposing that a common equity rate of 10.1% representing the allowed return on common equity as specified in the proceedings cited above be utilized in the weighted average monthly return on smart meter related capital expenditures.

37. The Companies are proposing that the existing meters recovered in the Companies' current distribution rates that become obsolete due to replacements by smart meters would continue to be depreciated over the remaining lives per the respective Company's Annual Depreciation Reports as filed with and approved by the Commission pursuant to 52 Pa. Code §§ 73.1 -73.9. As part of subsequent distribution base rate case proceedings before the

Commission, each Company will explore the need for accelerated depreciation of the obsolete meters replaced under the Companies' Plan.

38. Following Commission approval, the Companies request that the Commission authorize the Companies to implement the proposed tariff riders for each Company to become effective on April 1, 2010, and to incorporate the respective riders into the retail electric service tariffs of Met-Ed, Penelec and Penn Power.

**C. Procedural Timeline:**

39. In accordance with the Commission's Implementation Order, the Companies anticipate the following procedural timeline to address the plan:

The Companies file Smart Meter Procurement and Installation Plan	August 14, 2009
Comments of Interested Parties	September 25, 2009
Technical Conference(s)	October 2009
Evidentiary Hearing(s), if necessary	November 2009
ALJ Initial Decision	By January 29, 2010
Exceptions	20 days after issuance of Initial Decision
Reply Exceptions	10 days after Exceptions are due

**D. Miscellaneous:**

40. As demonstrated in the attached Plan and testimony, the Companies' Plan is consistent with Act 129 and the Commission's Implementation Order and is in the public interest.

41. The Companies' have developed a Plan that will best meet the needs, demands and challenges unique to each of the Companies' service territories, while, at the same time, operate in a manner that is both cost and time effective.

42. The Companies' Plan will implement a deployment and installation schedule that best balances the overall efficiency and timeliness of the smart meter installations with the costs incurred.

43. The Joint Petitioner's attorneys in this matter are identified below. All correspondence, notices, documents, orders or other communications with respect to the above-captioned proceedings should be sent to Kathy J. Kolich, with a copy (electronic if possible) to Bradley A. Bingaman at the addresses provided below.

### **III. CONCLUSION**

WHEREFORE, the Companies respectfully request that the Commission issue an Order approving the attached Smart Meter Technology Procurement and Installation Plan submitted by Met-Ed, Penelec and Penn Power, and authorizing Met-Ed, Penelec and Penn Power to implement their respective Smart Meter Technologies Charge Riders and Smart Meter Technology rates, effective on April 1, 2010.

Respectfully submitted,

Dated: August 14, 2009



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Counsel for:  
Metropolitan Edison Company  
Pennsylvania Electric Company  
Pennsylvania Power Company

**BEFORE THE  
PENNSYLVANIA PUBLIC UTILITY COMMISSION**

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

**VERIFICATION**

I, John E. Paganie, hereby declare that I am Vice President, Customer Service and Energy Efficiency, FirstEnergy Service Company; that as such I am authorized to make this Verification on behalf of Metropolitan Edison Company, Pennsylvania Electric Company and Pennsylvania Power Company; that the facts set forth in the documents included herein are true and correct to the best of my knowledge, information and belief; and that I expect to be able to prove the same at a hearing held in this matter. I understand that the statements herein are made subject to the penalties of 18 Pa. C.S. § 4904, relating to unsworn falsifications to authorities.

Date: August 14, 2009

  
\_\_\_\_\_  
John E. Paganie

**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**  
:

**CERTIFICATE OF SERVICE**

I hereby certify that I have this day served a true and correct copy of the foregoing document upon the individuals listed below, in accordance with the requirements of 52 Pa. Code § 1.54 (relating to service by a participant).

Service via Personal Delivery, as follows:

James J. McNulty, Secretary  
Pennsylvania Public Utility Commission  
Commonwealth Keystone Building  
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Service via First Class Mail, as follows:

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Dated: August 14, 2009

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Docket No. M-2009-2123950

SMART METER TECHNOLOGY PROCUREMENT  
AND INSTALLATION PLAN

***August 14, 2009***

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## 1.0 Overview

### 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”). On June 24, 2009, the Commission entered an Implementation Order (“Order”) in which it provided general guidance as to the information to be included in the Plan. Pursuant to Act 129 and that Order, Metropolitan Edison (“Met-Ed”), Pennsylvania Electric Company (“Penelec”) and Pennsylvania Power Company (“Penn Power”) (collectively “Companies”) hereby submit their Plan.<sup>1</sup>

As discussed in Section II, the Plan consists of both a general long term time line and a more detailed short term plan. Consistent with the Order, the Companies are proposing a 30-month grace period in which they will assess their needs, select the necessary technology, secure vendors, train personnel, install and test support equipment and establish a detailed meter deployment schedule consistent with the statutory requirements -- including a deployment plan for the period (i) during the grace period; (ii) post grace period/pre-build out completion; and (iii) post build out. These tasks will be performed during the first 24 months of the grace period (Assessment Period.) At the end of the Assessment Period, the Companies will submit to the Commission a supplement to the Plan that includes among other things: (i) a detailed long term time line, with key milestones; (ii) a smart meter solution; (iii) the costs of such a solution, along with an assessment of benefits; (iv) a network design solution; (v) a communications architecture design solution; (vi) a training assessment and proposed curriculum; (vii) a cost recovery forecast; (viii) a transition plan including communication to employees and consumers; and (ix) a detailed tiered roll-out plan (“Deployment Plan.”) During the anticipated six month process for approval of the Deployment Plan, the Companies will prepare to implement their proposed plan for deployment of smart meters to new construction customers and others who request such meters, and will perform low cost tasks in preparation of the build out consistent with the Deployment Plan that is ultimately approved.<sup>2</sup>

Section III of the Plan addresses estimated costs both during and after the grace period, as well as proposes recovery of costs through an automatic adjustment clause. The Companies are asking the Commission to approve, as part of the approval of the Plan, both the proposed recovery mechanism, and the recovery of the Assessment Period costs (currently estimated at \$29.5 million) through such mechanism.<sup>3</sup>

### 1.2 About the Companies

Met-Ed, Penelec and Penn Power are part of FirstEnergy Corp. With its seven electric utility operating companies, FirstEnergy operates the fifth-largest investor-owned electric utility in the United States based on approximately 4.5 million customers served over a 36,100-square-mile area of Ohio, Pennsylvania and New Jersey.

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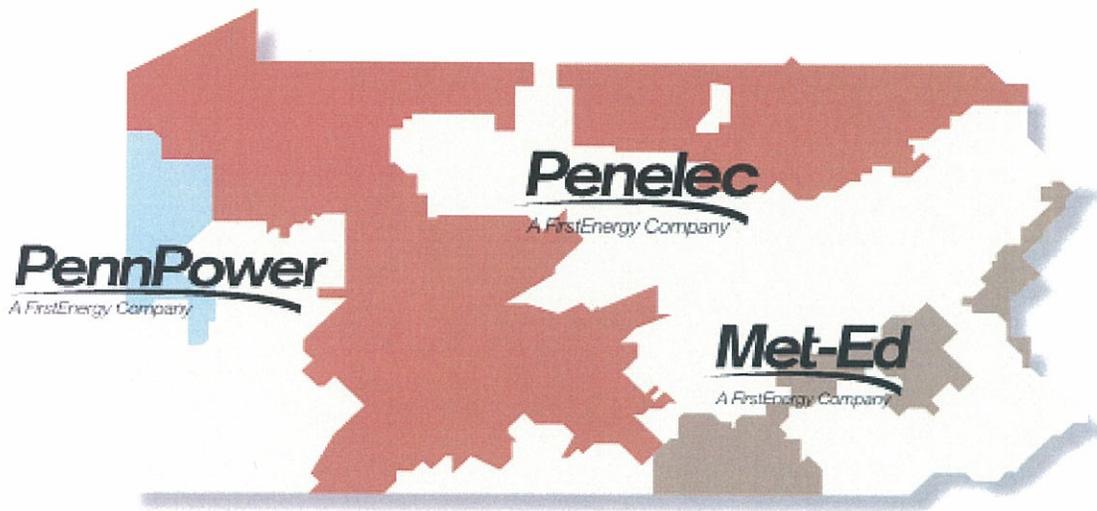
<sup>1</sup> Rather than submitting three separate plans, the Companies, given that they are part of an integrated distribution system, are submitting a single comprehensive plan that applies to all three Companies.

<sup>2</sup> Given the magnitude of costs associated with the implementation of this Plan (currently estimated at approximately \$330,000,000), approval of the Plan, as well as timely and total cost recovery, is a prerequisite to moving forward with each major task.

<sup>3</sup> Generally, these costs are comprised of test lab costs, equipment costs, computer hardware and software, professional consulting fees and other labor and expenses incurred during the Assessment Period.

In Pennsylvania, the Companies serve approximately 1.3 million customers over approximately 22,000 square miles – which equates to approximately half of the total area within the Commonwealth of Pennsylvania (Figure 1). The three combined service territories are unique, having diverse terrains with varying degrees of customer density. This diversity, along with the need to develop a smart meter solution that will transcend state boundaries<sup>4</sup>, creates significant challenges specific to the Companies. Equally challenging for all of Pennsylvania’s EDCs is the need to develop their respective plans in an environment that continues to change as technology improves, vendors merge, and standards are established on a regional and national level. These are just several of the many factors that were considered during the development of the Companies’ Plan.

**Figure 1: FirstEnergy Pennsylvania Operating Company Territories**



<sup>4</sup> The Companies are part of an integrated delivery system shared by FirstEnergy’s Ohio and New Jersey utilities.

## 2.0. The Smart Meter Plan

### 2.1 Factors Guiding the Plan Development

#### 2.1.1 Objectives

The development of the Plan is based on the following objectives:

The following objectives were considered during the development of the Plan:

1. Submit a plan that complies with Act 129 and the Commission's Implementation Order.
2. Minimize the likelihood of stranded investment created if the wrong technology is selected through robust evaluation and analysis and adherence to national smart metering/smart grid standards and policies.
3. Develop a strategic and cost effective deployment plan to maximize early benefits at the least cost to customers.
4. Present a plan that provides the Companies with full cost recovery, including fair returns for any capital employed, while allowing them sufficient financial flexibility to provide for their other not-insubstantial capital requirements and obligations to shareholders.

Customer benefit goals incorporated into the Plan include the following:

1. Providing customers with hourly energy data and pricing to enable rate options focusing on achieving Energy Efficiency and Demand Response.
2. Enabling improvements in both existing and new Customer Services programs.
3. Capturing any potential and economic operational benefits, including, for example, storm management and restoration services.

Technology characteristics incorporated into the Plan include:

1. Two-way communications supporting near real-time pricing, usage and other related information for customers, utilities, and third-parties including EGS and providers of conservation and load management service.
2. Equipment and processes that encourage AMI, Demand Response and Home Area Networking.

A number of other factors were considered during the development of the Plan, including:

- Act 129 legislation calls for 100% customer deployment of smart meters with an implementation timeline of up to 15 years from the date of approval of the Plan.
- Time-of-Use and Real-Time-Pricing rates will be in place consistent with Pennsylvania law and the Commission's Implementation Order.
- There is up to a 30-month grace period in which no smart meters are required to be deployed; such grace period starts upon the Commission's approval of the Companies' Plan.
- Full and timely cost recovery on all costs associated with the evaluation, development, deployment and operation of a smart metering system will be approved.

### 2.2 The Commission's Order

On June 18, 2009, the Commission issued its Implementation Order, which established the standards each plan must meet, established the minimum smart meter capability required, and

provided guidance on the Commission's expectations for deployment of smart meters. (Order, p. 1.) Specifically, the Plan must address (i) the Companies' current deployment of smart meter technology (Order, p. 3); (ii) a plan for future deployment, complete with dates for key milestones and measurable goals (Order, pp. 3-4); (iii) the Companies' plans for meeting certain specific milestones during the 30-month grace period, including a status reporting plan (Order, p. 8) and a plan to distribute interval data meters and access to interval data upon customer request (Order, p. 7); (iv) certain meter functionality (Order, pp. 15-24); (v) data access and EDI capabilities (Order, pp. 24-28); and (vi) costs and cost recovery (Order, pp. 28-33). Each of these areas is discussed below.

### 2.2.1. Current Deployment of Smart Meter Technologies

The Companies' currently deploy smart meter technology through MV-90 meters to over 1600 meters, which represents the majority of the Companies' largest commercial and industrial customers. These meters provide automated hourly consumption data to the Companies' information systems, with such data regularly available to customers at their facilities.

**Table 1: FirstEnergy Current Smart Meter Technologies**

2008 MV-90 Breakdown by Premise				
Category	Met-Ed	Penelec	Penn Power	PA Total
Total Billed Revenue	\$348,000,000	\$249,000,000	\$38,400,000	\$635,400,000
Accounts	691	730	191	1,612
Yearly Revenue Per Account	\$503,618	\$341,096	\$201,047	\$394,169
Avg Monthly Revenue	\$29,000,000	\$20,750,000	\$3,200,000	\$52,950,000
Avg Monthly Revenue Per Account	\$41,968	\$28,425	\$16,754	\$32,847

The Companies' MV-90 system is a proven, low-cost, solution for interval data collection, management and analysis and can be used as a data collection engine that interfaces to existing data management and analytical tools. It may also be used as an end-to-end interval data collection and management tool both today and in the interim during the comprehensive implementation of smart metering technology.

Both Met Ed and Penelec offer optional time-of-use ("TOU") rates to residential customers. Currently 48,868 customers participate in Met Ed's TOU program; 21,871 participate in Penelec's. Both of these companies have proposed a voluntary real time pricing rate option for default service customers on rate schedules GS-Small and GS-Medium, as well as a real-time default service rate for customers on rates GS-Large, GP and TP in their pending Default Service Proceeding at Docket Nos. P-2009-2093053 and P-2009-2093054. Both companies will continue to encourage customers to take advantage of these load shifting initiatives as a way to fully benefit from these special rates. Although rates are not described in this filing as programs, separate monitoring and verification protocols will be developed in order to assess the impacts associated with these rates so that the Companies may include their contributions toward the Act 129 energy efficiency/demand response targets.

Penn Power will propose a voluntary real time pricing rate option for default service customers on rate schedules GS-Small and GS-Medium in its next default service case. Penn Power has as a real-time default service rate for customers on rates GP and GT. Penn Power will continue to

encourage customers to take advantage of these load shifting initiatives as a way to fully benefit from these special rates.

### **2.2.2. Plan for Future Deployment**

In its Order, the Commission stated that “[e]ach smart meter plan shall include: a plan for future deployment [of smart meters], complete with dates for key milestones and measurable goals ....” (Order, pp. 3-4.) It further granted a grace period not to exceed 30 months and indicated that an EDC should include in its smart meter procurement and installation plan “a proposal for meeting specific milestones within this 30 month grace period.” (Id.) Consistent with these provisions, and as more fully discussed below, the Companies’ Plan includes both a general long term plan based on information currently available, and a more detailed plan that will be implemented during the 30 month grace period.

#### ***Long-Term Overview***

The Companies’ long term plan anticipates a 15 year full scale deployment of smart metering across the Companies’ total service territory. The full deployment will occur in a tiered roll out (presumably to high population areas first) to maximize the cost-to-benefit ratio and to minimize the overall cost to customers. In order to develop a plan to accomplish this, the Companies will utilize the 30 month grace period authorized by the Commission, the first 24 months of which will be used to develop a Deployment Plan that will be filed with the Commission as a supplement to this Plan. During the Assessment Period the Companies will assess their needs, select the necessary technology, secure vendors, train personnel, install and test support equipment, and establish a cost effective and strategic deployment schedule consistent with the statutory requirements. During the remaining six months of the grace period (which the Companies assume will be the period during which the Plan will be reviewed and approved) the Companies will continue to prepare for the delivery of smart meters to new construction customers and others who request such meters and will perform low cost tasks in further preparation for the implementation of the Plan as ultimately approved.

The Companies have developed a general long term time line, which is set forth below and is also depicted in more detail in a chart attached as Exhibit A. It should be noted that the target dates set forth below and in Exhibit A are based on information currently available and are subject to change based on various factors, including without limitation, the date on which the Plan is approved, timely and total cost recovery, and equipment availability. Starting in January, 2011, the Companies will commence testing and deploying 5,000 – 10,000 meters as part of a proof of concept phase. Once the selected technology is properly tested, the Companies will commence build out of the necessary infrastructure with a minimum of an additional 60,000 meters expected to be installed in order to “de-bug” the system prior to full deployment. At present, the Companies anticipate that the more densely populated areas within their respective service territories will receive partial to full scale smart meter deployment much earlier than the 15 year target completion date. A more detailed time line for deployment will be provided in the Companies’ Deployment Plan.

**Key Milestones**

<b>Key Milestones</b>	<b>Target Completion Date</b>
• Issue RFP and Hire Plan Development Consultant	June, 2009
• Submit Smart Metering Filing to PA Commission	August 14, 2009
• Submit EDI Proposal	December, 2009
• Obtain Approval of Plan	April, 2010
• Commence Phase I – Grace Period	April, 2010
• Submit Deployment Plan for Approval	April, 2012
• 30-month Grace Period Ends	October, 2012
○ Start Interim Installation of Meters	October, 2012
• Obtain Approval of Implementation Plan	October, 2012
• Commence Build Out of Necessary Infrastructure	Est. - April, 2013
• Test and Deploy 5000-10,000 Meters	Est. - December, 2013
• Complete Build Out of Infrastructure	Est. - March, 2016
• Start De-bug system with 60,000 meter deployment	Est. - April, 2016
• Full Scale Deployment Commences	Est. - April, 2017
• Full Scale Deployment Complete	Est. - March, 2022

**Thirty Month Grace Period***The Companies' Road Map and Work Plan*

The Smart Meter Project Roadmap (Table 2) depicts a summary view of the items that will be necessary during the Assessment Period. A Gant chart reflecting the time frame in which each of these tasks is performed is included on attached Exhibit A1. These high-level implementation plan outlines key project milestones which drive the development of the detailed work plan as discussed below. This effort is a significant and critical piece of the analysis and evaluation that is necessary to develop the transition plan for full scale deployment.

Table 2: 24 month Project Roadmap

**Phase 1 – Business Plan**

Smart Meter Project Roadmap				
Current State Evaluation	Future State Design	Procurement	Pilot & Production Design	Readiness Implementation
<ul style="list-style-type: none"> <li>&gt; Detailed Discovery</li> <li>&gt; Transactional Cost Model</li> <li>&gt; Benefit Analysis</li> <li>&gt; Preliminary Market Pricing</li> <li>&gt; Technology Fit Assessment</li> <li>&gt; Current State Business Process</li> <li>&gt; Deployment Impact Analysis</li> <li>&gt; Key Stakeholder Communications</li> </ul>	<ul style="list-style-type: none"> <li>&gt; Communications Infrastructure Design</li> <li>&gt; System Architecture</li> <li>&gt; Deployment Strategy Design</li> <li>&gt; Workforce Transition Design</li> <li>&gt; Future State Business Process &amp; Gap Analysis</li> <li>&gt; Software &amp; MDMS Requirements</li> <li>&gt; System &amp; Data Functionality Requirements</li> </ul>	<ul style="list-style-type: none"> <li>&gt; RFI &amp; RFP Design, Development and Distribution</li> <li>&gt; RFP Response Evaluation</li> <li>&gt; Vendor Selection Criteria</li> <li>&gt; Due Diligence &amp; Scoring</li> <li>&gt; Contract Negotiations</li> <li>&gt; Contract Award and Legal</li> </ul>	<ul style="list-style-type: none"> <li>&gt; Pilot Deployment Readiness Design</li> <li>&gt; Major Interfacing System Design</li> <li>&gt; Communications Infrastructure Readiness Build</li> <li>&gt; Collector, Meter and Installation Staging Design Pre-Deployment</li> <li>&gt; AMI Central, Governance and PMO Setup</li> <li>&gt; Media, Regulator and Consumer Awareness Campaign Launch</li> </ul>	<ul style="list-style-type: none"> <li>&gt; End Point Through System Integration Validation</li> <li>&gt; Communications Infrastructure Testing</li> <li>&gt; CIS Core Functions Integration Testing</li> <li>&gt; Asset Tracking, Tools and Inventory Control</li> <li>&gt; System Reporting, Alarms &amp; Control</li> <li>&gt; HAN Integration Readiness</li> <li>&gt; PMO Operational</li> <li>&gt; Sponsor Readiness and Go Live</li> </ul>

Source: Black& Veatch

The Companies have developed a detailed work plan, the major components of which are included in Table 3 below. The detailed steps necessary to accomplish some of these tasks is set forth in attached Exhibit B. Exhibit B is not intended to be all inclusive, but rather is included simply to demonstrate the numerous tasks that will need to be accomplished by the end of the Assessment Period. It is currently anticipated that the detailed work plan will include more than 600 specific tasks that will need to be performed in order to develop the Deployment Plan. While the work plan includes estimated hours to complete each task, again, these targets are subject to change should unanticipated events occur.

**Table 3: Phase I Work**

Task Name	Estimated Labor Hours
<b>Phase 1 - AMI Program</b>	<b>93,409</b>
Program Management	4,864
Regulatory Communications & Public Stakeholder Awareness	947
Consumer Awareness & Communications	730
Current State Evaluation	2,684
Future State Design	4,870
Procurement	3,693
AMI Test Meters / System	29,690
Back Office/Network Assessment, Integration Tests, & Upgrade	34,552
Back Office/Network Evaluation Design	7,944
Readiness Implementation	2,964
Pilot Through Full Production Deployment - Readiness	370
Post Production Support - Readiness	104

#### *Commission Specific Requirements During the Grace Period*

In the Implementation Order, the Commission indicated that an EDC's plan should specifically address the following activities during the grace period: (1) Needs assessment and technology solutions; (2) Selection of technology and vendors; (3) Network designs; (4) Training; (5) Testing; (6) EDI certification; and (7) Deployment of meters. (Order, p. p. 7-8.) While each of these activities is part of the Companies' comprehensive work plan discussed above, a brief discussion of each of these milestones is briefly discussed below. And while individually discussed, some of the steps to be performed in order to complete these tasks overlap one another.

#### **1) Needs and Technology Assessment**

In order to properly assess the Companies' needs, they must first evaluate their service territory characteristics. Only after this evaluation is complete can the Companies evaluate potential technological solutions.

##### ***Service Territory Assessment***

Pennsylvania comprises 46,058 square miles, of which the Companies serve 1.3 million customers over 22,000 square miles, or approximately half of the total area within Pennsylvania (Table 5). The Companies' service territory has several significant differences from other peer utilities. For example, this territory includes both metropolitan and rural areas in a terrain of mountains, valleys and plains. In some instances, there are fewer than 100 meters per 100 square miles, with almost half of the territory having no customers at all.

**Table 4: The Companies' Meter Statistics**

EDC	Penn Power	Met-Ed	Penelec	Totals
<b>Residential Customers</b>	<b>139,891</b>	<b>484,696</b>	<b>505,743</b>	<b>1,130,330</b>
<b>Commercial Customers</b>	<b>19,377</b>	<b>62,894</b>	<b>80,998</b>	<b>163,269</b>
<b>Industrial Customers</b>	<b>216</b>	<b>1,765</b>	<b>2,326</b>	<b>4,307</b>
<b>Totals</b>	<b>159,484</b>	<b>549,355</b>	<b>589,067</b>	<b>1,297,906</b>
<b>Square Miles</b>	<b>1,100</b>	<b>3,300</b>	<b>17,600</b>	<b>22,000</b>
<b>Meters</b>	<b>165,576</b>	<b>559,367</b>	<b>601,587</b>	<b>1,326,530</b>

- This data illustrates the wide variation in service area demographics, which include a combination of densely-populated urban areas, a mixed concentration of large-scale industrial development, and suburban and rural communities. Each of these “sub-categories” demands study in order to determine the most appropriate deployment to meet the stated objectives.
- It is expected that Companies will not be able to use a “one-size-fits-all” approach to best meet the objectives, and, as a result, they will need to perform a comprehensive and detailed analysis prior to selecting the proper smart metering technologies that will best meet the customers’ needs and the objectives outlined above. In order to accomplish this task, the Companies must evaluate the current distribution and metering systems and evaluate potential options for improvements thereto (Current State Evaluation), as well as design a system for the future (Future State Design). The Current State Evaluation is expected to be completed by September 1, 2010, with the Future State Design completed by mid-February, 2011. Both of these tasks are critical components within the Assessment Period and account for almost 10% of the necessary work performed during this time frame.

The Companies have commenced certain assessments and evaluations, the preliminary results of which are set forth below:

**Figure 2: Meter Density Distribution**

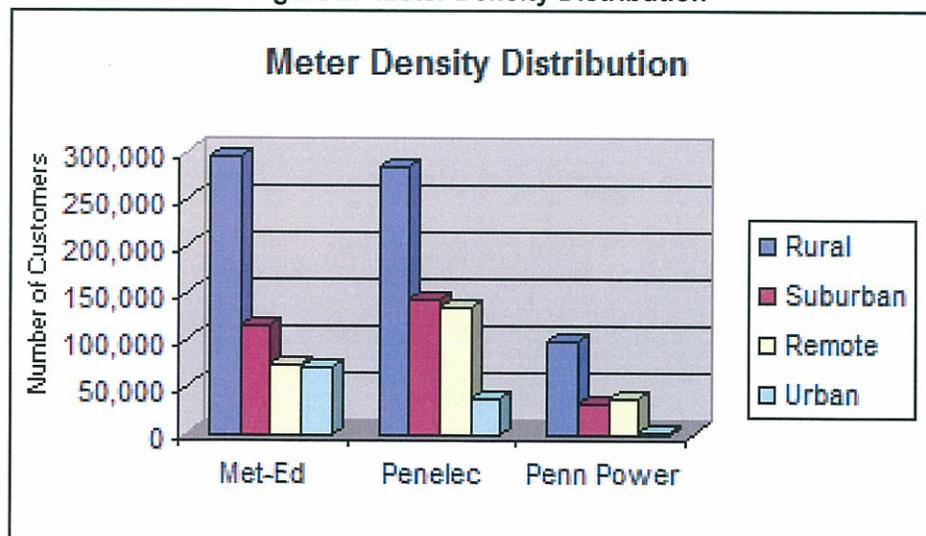
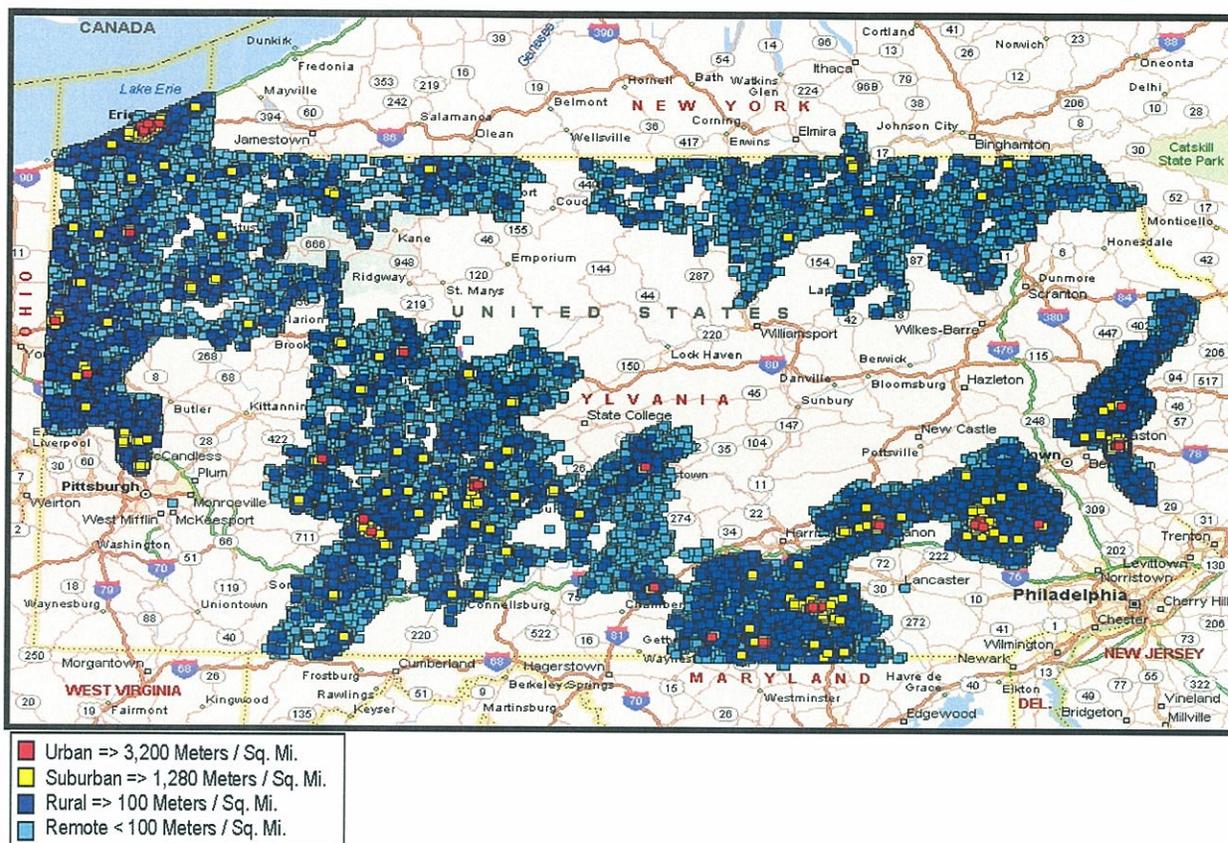


Figure 3: Meter Density Map



The urban and suburban service territory comprises approximately 180 square miles, which equates to less than 1% of the Companies' total service territory, yet comprises a significant percentage of the Companies' customer base. Customers are spread over an area with vastly different terrain which presents challenges for selecting the various smart meter solutions that will fit these diverse service territory characteristics. The Companies will focus a great deal of effort on technology evaluation to insure that each component of the various systems can meet all necessary functional requirements.

**Functionality Assessment**

Act 129 and the Commission's Implementation Order established the requisite smart meter functionality. Based on input from the Companies' consultant, Black & Veatch, it is anticipated that potential vendors offer equipment with various strengths and weaknesses, thus further supporting the belief that a single smart meter solution will not be feasible. Table 5 sets forth a preliminary evaluation form that the Companies intend to use when assessing all of the major AMI vendors. This form currently includes all functional requirements set forth in the Commission's Order. However, the Company may include additional criteria as more information becomes available.

**Table 5: Pa Act 129 Smart Meter Technology**

**RANKING:** ●Fully Meets Expectations; ●Mostly Meets Expectations; ○Partially Meets Expectations; ○Does Not Meet Expectations

Pa Act 129 Minimum Functionality Requirements	Power Line Carrier (PLC) Broadband over Power					Fixed, Mesh, Radio Wireless								
	VENDOR					VENDOR								
	1	2	3	4	5	1	2	3	4	5	6	7	8	9
2 way data communications														
Remote disconnection / reconnection														
15 minute or shorter interval data														
Record usage on an hourly basis per day (min.)														
Storage of data in the meter														
Compliance with Open standards and protocols for nationally recognized non-proprietary standards such as IEEE 802.15.4														
"Remote upgradeability"														
Monitor voltage at each meter and report data in a manner that allows the utility to react to the information														
Remote programming capability														
Communicate outages and restorations														
Support net metering														
Support automatic load control														
Support TOU and Real-Time Pricing Rates														
Information on hourly consumption														
Customer direct access to consumption and pricing information														
Time stamped interval data in one hour intervals														
On-Demand remotely read meters														
Send signals to customer equipment to trigger demand response functions and connect with HAN														
Security Standards														
Non-discriminatory access for retail supplier and curtailment service providers to meter data and demand response control functions														
AMI implemented for all customers														
Send price signals to customers														
Monitor Compliance with load management and DR programs														
Capability to allow customers to pre program response appliance upon notification of demand response or load control events														
Support applications that promote and enhance system operating efficiency and service														
Support customer education and energy management														

**2) Vendor Selection**

The selection of vendors will be based on the results of the above needs and technology assessments. Once such assessments are completed and internal recommendations are developed and approved, the Companies will start the Vendor/Technology selection process. It is expected that this selection process will start in mid-September, 2010 and continue for approximately 9.5 months. Some of the major steps that must be completed during this time period include:

- RFP design, development, and distribution
- RFP for Meter Data Management System ("MDMS") software/vendor

- RFP for communications infrastructure software/vendor
- Development of Selection Criteria/RFP Response Evaluation
- Due diligence for finalists
- Contract negotiations for each vendor

### **3) Network Design**

Similar to the Current State Evaluation that will be performed during the needs assessment, the Companies must evaluate current legacy systems, performing a gap analysis and assessing potential options that will fill the gaps. It is expected that the Companies will commence the network design task in January, 2011, expecting to complete it by the end of 2013. Some of the major steps to complete this task include:

- Develop an evaluation plan
- Evaluate legacy systems for functionality and interfacing capabilities
- Confirm future system capability requirements
- Perform a technical compliance review
- Create a high level design, followed by a detailed design
- Define system interface needs
- Cross team review of proposed solution

### **4) Training/Organizational Readiness**

Throughout the Plan, the Companies refer to training needs as “change management” or “change leadership” and view this as an on-going task throughout the implementation of this Plan. Notwithstanding this view, the Companies anticipate performing a formal assessment of employee skill sets during the grace period. This will commence in April, 2010, and continue to evolve as more information surrounding the necessary infrastructure and equipment becomes known. Some of the significant steps surrounding organizational readiness and the development of a training plan include:

- Document new or modified system functionalities
- Document existing and new or modified business processes
- Conduct an employee end user impact assessment
- Design and develop training solutions to meet the needs of impacted end users
- Perform necessary training
- Evaluate training effectiveness, modifying as necessary
- Provide on-going, post training technical assistance

These tasks are incorporated into the Roadmap set forth below:

**Table 6: Organizational Readiness Roadmap**

Organizational Readiness Approach			
Project Team Development	Change Leadership	Communications	End User Learning Programs
<ul style="list-style-type: none"> <li>&gt; Project Team Technical Training</li> <li>&gt; Project Team Training Logistics Planning</li> </ul>	<ul style="list-style-type: none"> <li>&gt; Can Stakeholders Clearly Explain Vision for the Future State</li> <li>&gt; Monitor Stakeholder Engagement</li> <li>&gt; Monitor Communication Effectiveness</li> <li>&gt; Does FirstEnergy Know What Changes to Expect</li> <li>&gt; Is Training Developed and Effective</li> <li>&gt; Is FirstEnergy Engaged and Ready for Implementation</li> </ul>	<ul style="list-style-type: none"> <li>&gt; Identify Stakeholders / Target Audience</li> <li>&gt; Create Message Points and Key Topics</li> <li>&gt; Establish Communications Principles, Consistent Messages</li> <li>&gt; Define Process Team Cascade Communications Plan</li> <li>&gt; Draft and Execute Communications Plan</li> <li>&gt; Communicate Successes</li> </ul>	<ul style="list-style-type: none"> <li>&gt; Map Job Roles to AMI Process Redesign</li> <li>&gt; Identify End Users</li> <li>&gt; EUP Development</li> <li>&gt; Curriculum Development</li> <li>&gt; Training Content Development</li> <li>&gt; Training Client Database</li> <li>&gt; Materials Production and Distribution</li> <li>&gt; Training Logistics Planning</li> <li>&gt; Train-the-Trainer</li> <li>&gt; Training Deployment Coordination</li> <li>&gt; Deliver Training</li> </ul>

**5) Installation, Testing and Rollout Plans**

The Commission’s Order requires that the Companies address the “establishment of plans for [,as well as actual] installation, testing and rollout of[,] support equipment and software.” (Order, p. 7). The specifics surrounding these tasks will be developed during the Assessment Period and included in the Deployment Plan. While not all details are known at this time, the Companies will perform a Technical Trial, which will involve between 5,000 and 10,000 meters<sup>5</sup> and consist of two major components: (i) an AMI test lab; and (ii) a pre-implementation assessment and upgrade. The purpose of the Technical Trial is to thoroughly assess and evaluate a variety of smart meter manufacturers, network components, and software application alternatives that will meet the desired business objectives for full-scale smart meter deployment. The knowledge gained throughout this exercise will be used to make decisions and to more fully develop the Deployment Plan.

**AMI Test Lab**

The AMI Test Lab will be used as a proving ground for various AMI hardware, software and communications components specific to application to the Companies’ service areas<sup>6</sup>. Within the AMI Test Lab environment, the Companies will install the meters along with various communications technologies that will be directly connected to the test lab data center. In the data center the Companies will deploy a selection of MDMS software and control systems. This will allow the Companies to not only adequately assess the efficiency of the communications network and software as applied in their service areas, but will also enable them to meet the objectives described in Act 129. The data center will contain a non-production path “Sandbox” copy of the Companies’ core applications. The “Sandbox” environment will be modeled after FirstEnergy’s existing production environment. Some scoping limitations, however, may be necessary depending on costs and feasibility.

<sup>5</sup> Some of these meters will be tested in the test lab, however the vast majority of them will be deployed and used by customers under actual field conditions.

<sup>6</sup> Vendors and peer utilities with experience in the full deployment of smart metering have indicated that controlled testing of systems specific to the Companies’ systems applications (e.g., meter, communication network, and back office) is the most critical component to the development of a successful integration and deployment plan.

The purpose of the AMI Test Lab is to:

- Identify proven suppliers to minimize risk. The Companies will select only those suppliers that have demonstrated competence in delivering sound and approved AMI solutions to other utilities.
- Mitigate technical risks by evaluating proven technologies. This includes extensive testing of the network infrastructure.
- Validate automated meter reading. By testing 5,000 – 10,000 smart meters, there will be a large enough population to provide valid measures of the productivity of automated meter reading. This will also include some level of stress-testing.
- Identify expandable technology. This provides insight into advanced metering functions and ensures that it will be compatible with AMI and future smart grid services, including the testing of an MDMS system.
- Produce quantitative measurements and comparisons of the costs and benefits of AMI that will support investment decisions.

**Table 7: Proposed Test Lab Work Plan**

Task Name	Estimated Labor Hours
<b>AMI Test Meters / System</b>	<b>29,690</b>
<b>High Level Scoping and Planning</b>	7,380
Site Selections	1,480
Design Assessment Center Lab	700
Proof of Concept Design	1,600
Re-design and Improve	3,600
<b>Build Test Lab</b>	21,470
Setup Software Testing Environment	6,640
Install Backhaul Network	250
Install Vendor 1 AMI Network	1,800
Install Vendor 2 AMI Network	1,800
Build and Test Scenarios	10,000
Infrastructure Design, Deploy	320
Architecture Design, Deploy	660
<b>System Tracking and Metrics</b>	840
System Tracking and Metrics Defined	280
Exception Management Defined	280
Reporting Design	260
AMI Test Lab Complete	20

As indicated in Table 7 above, High-Level Scoping and Planning will be completed during the grace period, however, much of the testing and analysis will continue beyond this period. The inclusion and utilization of the test system is a critical component for insuring integrity of the future designs and processes. Approximately 32% of the total labor support will be devoted to test lab activities.

### *Pre-Implementation Assessment and Upgrade*

The Companies have already identified two critical systems that will significantly impact network design and interfacing: (i) the Meter Data Management System ("MDMS"); and (ii) SAP. Due to the complexity surrounding these tasks and the importance of these systems to the overall smart meter solution, approximately 37% of the work performed during the Assessment Period will be directed to these two major systems.

#### *a. MDMS*

*MDMS is the central nervous system of the smart metering infrastructure turning significant amounts of raw data into useful information. Presently, the Companies read approximately 1.3 million meters each month, or 15.6 million meters annually. As smart metering is deployed, this volume of data will increase exponentially. Therefore, it is essential to select the appropriate MDMS.*

The MDMS will be designed to manage and retain the volumes of information that will be gathered from endpoints. Because smart metering is expected to provide more discrete and more frequent information from endpoints, requirements for storage and processing will exceed the current capacity of many of the Companies' existing back-office systems. The Companies will evaluate each potential MDMS against the following criteria:

- Data collection
- Command management (such as turn on/off)
- Validating and editing reads
- Exception management
- Event management (such as "last gasp" outage notification)
- Invalid or missing reads capabilities
- The ability to profile scalar meter reads
- Bill determinants calculation capabilities
- Aggregating meter read capabilities
- Meter inventory tracking capabilities
- The ability to provide data to downstream systems (such as CIS)
- The ability to provide information directly to end users
- The ability to support additional function (such as revenue protection analysis, distribution planning support, prepayment)
- Storage capabilities consistent with Commission data retention requirements

*b. SAP*

FirstEnergy uses SAP enterprise software for a significant portion of its data management in order to optimize the use of information and to assure consistency of information across its system. This results in maximum efficiencies to the Companies at the lowest cost to the consumer. The integration of smart metering, MDMS and FirstEnergy's core applications is a complex process in the development of the Companies' smart metering solution. It is important that the functionality employed by a smart meter solution be completely integrated into the SAP system in order to retain the efficiency and effectiveness objectives of information management.

- MDMS – Meter Data Management System
- MDUS – SAP's Meter Data Unification and Synchronization System
- SAP PI – SAP's Process Integration
- SAP For Utilities - SAP Enterprise Core Component (ECC 6.0) with SAP Customer Care System (CCS) and Customer Relationship Management (CRM)
- Other customer facing systems such as Internet & CTI/IVR

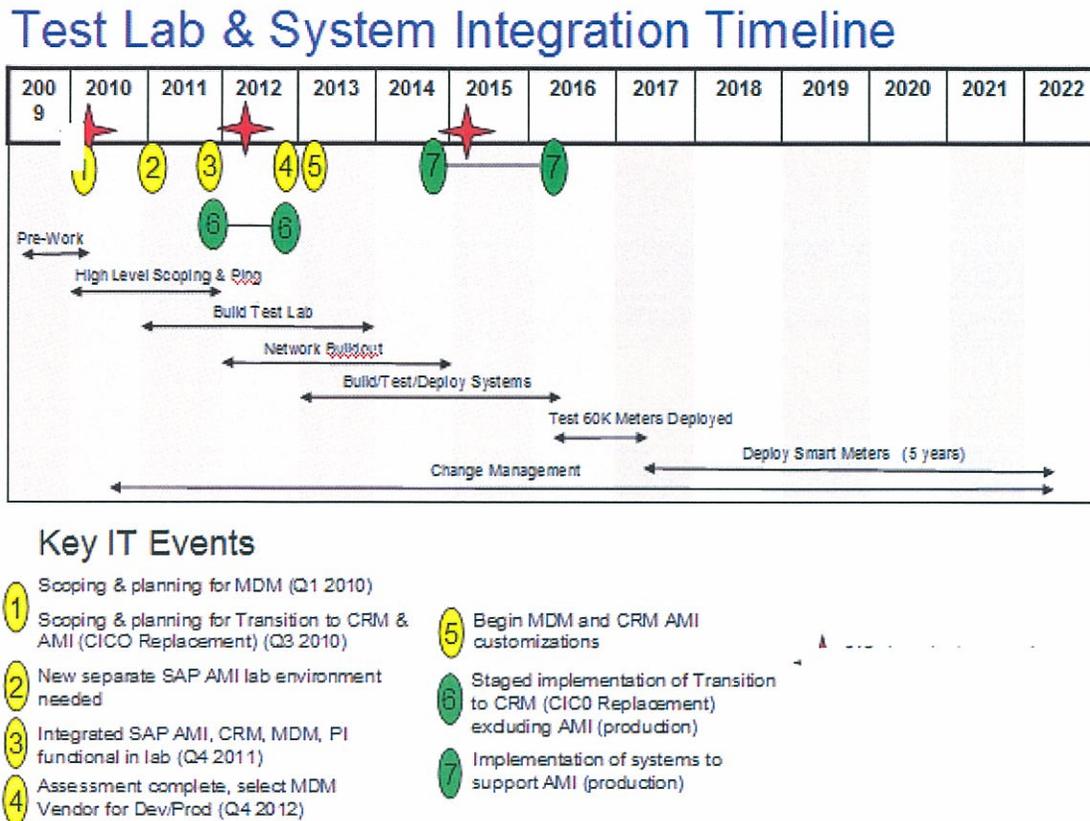
In order to adequately assess the impact of AMI integration to FirstEnergy's core production systems and to prepare those production systems in advance of a full smart metering deployment, it is necessary to upgrade FirstEnergy's infrastructure and apply software upgrades to the existing systems. This work will first need to be done in the AMI Test Lab. Once sufficiently tested, the Companies will begin such upgrades in the field in parallel with existing systems. This preparation of the production environment should allow for more flexibility and should eventually lead to accelerated phase-ins of smart metering functionality. As previously discussed, the SAP system is a critical support system in the customer care area. Based on preliminary discussions with vendor personnel, the following technical upgrades will be necessary in order to accommodate smart meter technology:

- SAP ERP/ECC6 Technical Upgrade
- SAP/AR/ERP/ECC6 EhP4 & CRM 7.0 Technical Upgrade
- SAP ERP/ECC6 EhP5 Technical Upgrade
- SAP CRM Functional Upgrade & CRM Integration (web development)

The Companies will work with the vendor to determine the optimal time line for such upgrades, which are currently planned for 2010, 2012 and 2015.

Proposed milestones related to the Technical Trial are set forth in Figure 4 below:

Figure 4: Proposed Test & System Integration Timeline



**6) EDI Certification**

Consistent with the Commission’s Implementation Order, the Companies will work with the Commission’s Electronic Data Exchange Working Group (“EDEWG”) and will submit no later than January 1, 2010 a proposal for EDI capabilities discussed in the Order at page 25, including planned target dates for testing and certification. When developing this proposal, the Companies will review current EDI processes and procedures, as well as applicable national standards, such as those developed by the North American Energy Standards Board.

**7) Deployment of Meters**

The Commission’s Order identified three distinct time frames for which the Companies were to design deployment plans: (i) during the grace period (Order, p. 7); (ii) post grace period/pre-build out completion (Order, pp. 10); and (iii) system-wide deployment (Order, p. 14.) The Companies deployment plans for each of these time periods are discussed below

*During the Grace Period*

In its Order, the Commission indicated that EDCs were to “provide interval data capable meters, ... and direct access to the customer’s interval data to third-parties, such as EGSs or CSPs, upon customer request.” (Order, p. 7)(footnote deleted.) As discussed in Section 2.2.1, the Companies currently deploy MV 90 for industrial and large commercial customers and intend to utilize this system for any requests made by such customers during the grace

period. The Companies will assess various options for residential customer needs during the Plan review and approval process, selecting a meter that provides the requisite data as identified in the Order, based on various criteria including customer costs.

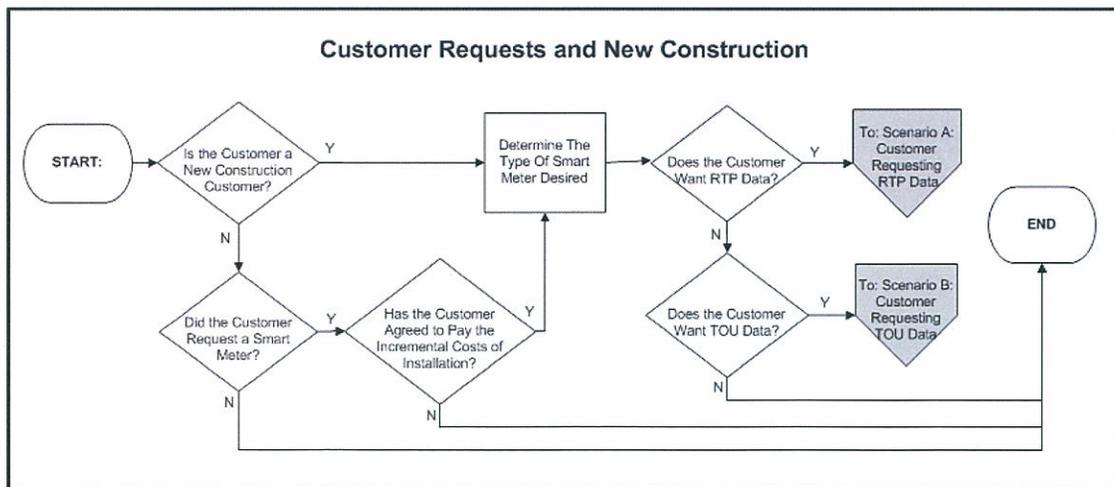
**Post Grace Period/Pre Build Out Completion:**

In its Order, the Commission has established certain requirements for smart meter deployment after the grace period and prior to the completion of network build out. (See Order, pp. 9-13.) Specifically, the Commission, consistent with Act 129, requires EDCs to develop a proposal to provide smart meters to all new construction customers after the grace period, (id. at 12) and to customers requesting such meters, provided that the latter pay the incremental cost of the smart meter. (Id. at 9.) As a result, EDCs are to also include the incremental costs with the proposal, if available, or to otherwise seek approval of such costs “prior to the expiration of the approved network grace period.” (Id. at 10.)<sup>7</sup> Below is the Companies’ proposal for deployment of smart meters consistent with the Commission’s requirements.

Generally, the Companies will install smart meters for all new construction commenced and upon customer requests received after the grace period. The type of meter will be determined based on the nature of information desired. If the customer desires price signals for purposes of real time pricing, the customer will receive a meter that includes a communication card that will enable the transmittal of Real Time Pricing (“RTP”) price signals. Meter reading can be done electronically. If, on the other hand, the customer desires to only receive pulse data for purposes of time of use (“TOU”) rates, the customer will receive a meter with a network card. These meters will be read manually.

Customers will have the capability to obtain un-validated data from the smart meter provided that they have some type of compatible HAN technology. Validated data will be made available the next day via the FirstEnergy Web site for all customers. Below (Figure 5) is a flow chart of the process that will be implemented. The details surrounding each of these steps will be further developed during the Assessment Period.

**Figure 5: Post Grace Period Customer Requests/New Construction Smart Meter Installs**



<sup>7</sup> The Commission also requires the proposal to include a plan to identify new developments and construction early enough to incorporate it into the system wide deployment proposal. (Order, pp. 12-13.) The Companies currently identify new construction at the time a request for service is made. Identification of all such requests post grace period will be part of the Companies’ business process evaluation and training assessment performed during the grace period. The results of such an evaluation and assessment will be incorporated into the proposal prior to the expiration of the grace period.

Figure 6: Smart Meter after Grace Period- Scenario A

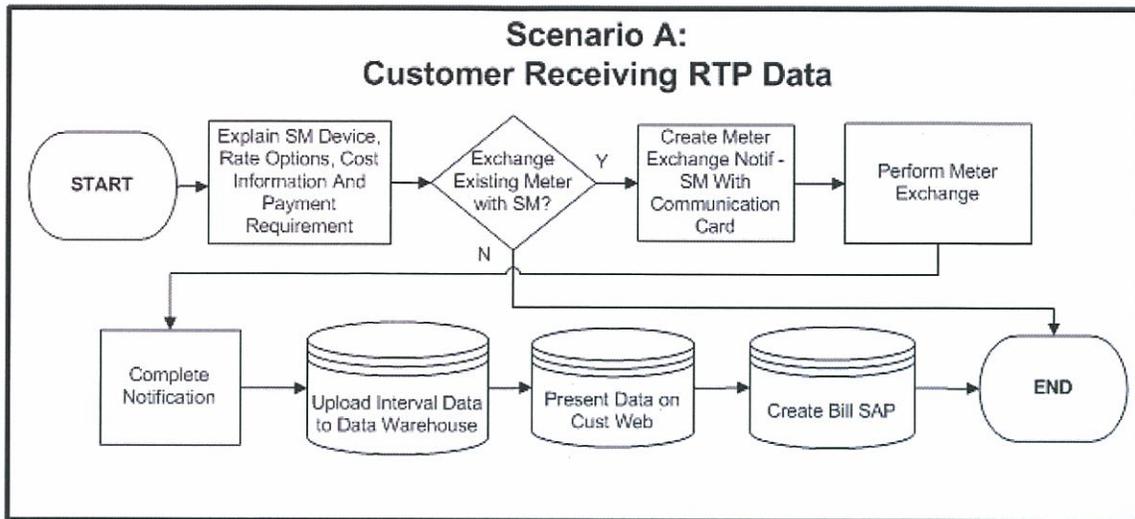
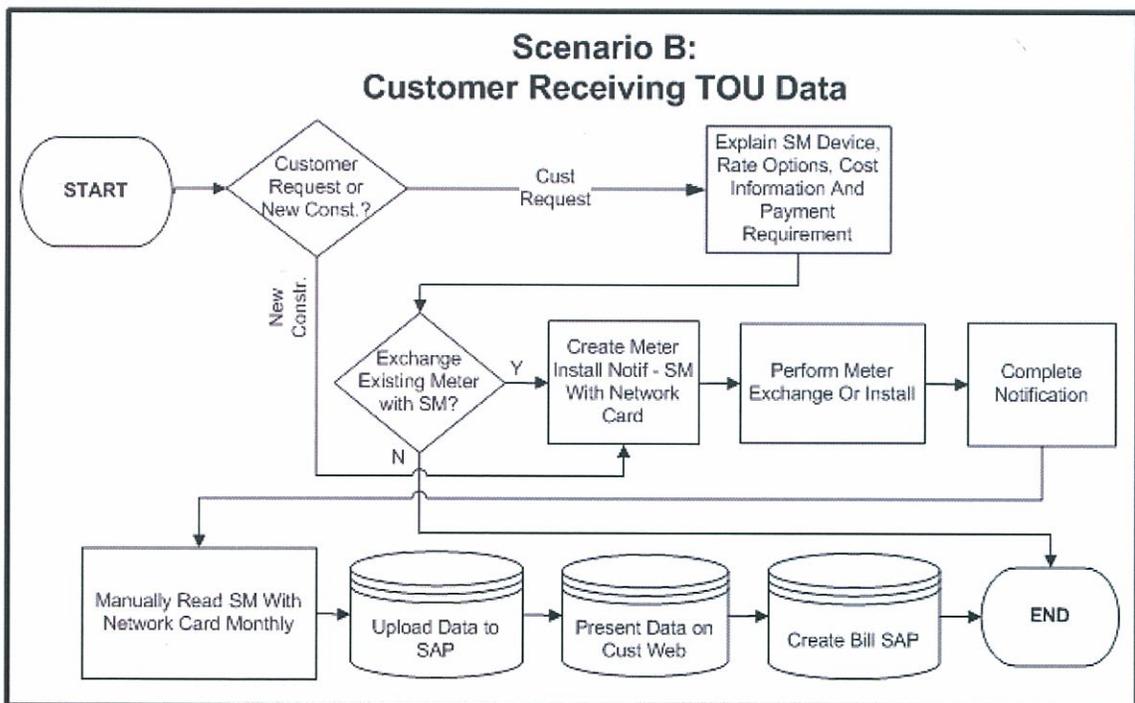


Figure 7: Smart Meter after Grace Period - Scenario B



**Incremental Costs**

In order to obtain a smart meter during the Post Grace Period time frame the customer must agree to pay the incremental costs of installing it. Inasmuch as the Companies have not yet selected their smart meter technology, any estimate of incremental costs is premature. Moreover, it is anticipated that smart meter costs will decrease as demand increases. Therefore, the Companies will provide the Commission with their incremental cost estimates at a later date, understanding that the level of these costs must be approved before the expiration of the approved network grace period.

**System Wide Deployment:**

The Companies must perform all of the tasks set forth in their work plan before they can develop a system wide deployment plan. Therefore, the Companies will include the details of deployment under this scenario in their Deployment Plan as a supplement to this filing.

**3.0 Costs and Cost Recovery****3.1.1 Preliminary Cost Estimates**

The Companies have performed preliminary research using a benchmark cost estimate of \$250 for each installed smart meter, resulting in a total deployment cost range of between \$330 million and \$400 million. This estimate does not include O&M costs, which can be substantial, and will be updated once data more specific to the Companies can be gathered during the studies, evaluations and assessments that will be performed during the Assessment Period.<sup>8</sup> Table 8 below illustrates publicly available benchmark data that was used for the preliminary cost analysis. The total capital cost per meter deployed range from \$227 per meter for Oncor to \$262 per meter for Centerpoint. The expenses range from \$6 per meter at Centerpoint to \$10 per meter at SDG&E. These costs vary greatly in capital and expenses and illustrate a need for diligence in arriving at the total project costs so as to minimize the customer impact while preserving the benefits.

**Table 8: Benchmark Cost Data**

	Oncor	Centerpoint	SCE	SDG&E
<b>No. of Meters</b>	3,000,000	2,400,000	5,300,000	2,300,000
<b>Capital Costs</b>				
Meters	\$534,538,231	\$355,800,000	\$722,600,000	\$364,007,000
Install	-	-	\$216,900,000	-
<b>Cost per Meter</b>	<b>\$178</b>	<b>\$148</b>	<b>\$136</b>	<b>\$158</b>
<b>Meters % of Capital Spend</b>	<b>78.41%</b>	<b>56.51%</b>	<b>55.91%</b>	<b>59.40%</b>
Communications	\$80,384,067	\$99,200,000	-	\$82,795,000
Cost per Meter	\$27	\$41	-	\$36
Communications per Meter	11.89%	15.87%	-	13.53%
AMI Head End	\$4,384,125	\$130,100,000	\$177,000,000	\$90,157,000
MDM	\$55,468,750	-	-	-
PM	\$2,211,000	-	\$8,100,000	\$22,555,000
Web Portal	\$5,000,000	\$6,000,000	-	-
Other IT Expense	-	\$1,900,000	\$5,200,000	-
Pre Deployment Funding	-	-	\$67,000,000	\$9,300,000
Pilot Project / Phase II	-	\$36,400,000	-	-
Contingency	-	-	\$97,000,000	\$38,589,000
Facilities	-	-	-	\$3,890,000
<b>Total Capital</b>	<b>\$681,986,380</b>	<b>\$629,400,190</b>	<b>\$1,293,800,138</b>	<b>\$611,293,205</b>
<b>Capital Cost per Meter</b>	<b>\$227</b>	<b>\$262</b>	<b>\$244</b>	<b>\$266</b>
<b>O&amp;M Costs</b>	<b>Annual</b>	<b>Total Project (11 years)</b>	<b>Deployment (4 years)</b>	<b>Total (30 years)</b>
Back Office	\$8,350,761	\$143,300,000	\$73,800,000	\$147,962,000
Field Operations	\$2,799,222	-	\$83,200,000	\$87,290,000
Web Portal	\$1,000,000	-	-	-
PM	-	-	\$37,500,000	\$4,850,000
Facilities	-	-	-	\$11,412,000
Customer Education	\$5,000,000	\$5,600,000	-	-
Low Income	\$5,000,000	\$7,500,000	-	-
Customer Service Operations	-	-	\$78,900,000	-
Tariffs and Modifications	-	-	\$112,100,000	-
Contingency	-	-	\$33,000,000	\$8,974,000
<b>Total O&amp;M</b>	<b>\$22,149,983</b>	<b>\$156,400,000</b>	<b>\$418,500,000</b>	<b>\$260,488,000</b>
<b>O&amp;M Cost per Meter</b>	<b>\$7</b>	<b>\$6</b>	<b>\$7</b>	<b>\$10</b>

<sup>8</sup> The time period between the passage of Act 129 and the filing deadline, as well as the point at which the Companies must start their smart metering project, did not allow sufficient time for the utilities to develop detailed specifications and issue requests for proposals so as to gain a better understanding of potential

### Grace Period Costs

The Companies anticipate that they will incur approximately \$29.5 million during the Assessment Period:

**Table 9: 24 Month Business Plan Expenses**

<b>Smart Meter Business &amp; Deployment Plan</b>	
<b>Labor &amp; Expenses</b>	<b>\$18.7M</b>
<b>Technical Trial Field Costs (Metering and Communications) - 10k End Points</b>	<b>\$ 2.5M</b>
<b>Information Technology Costs (Hardware, Software, Licensing)</b>	<b>\$ 8.3M</b>
<b>TOTAL</b>	<b>\$ 29.5M</b>

As discussed below, the Companies are seeking to recover these and future costs through an automatic adjustment clause.

### 3.1.2 Cost Recovery

The Companies propose to recover costs incurred during the development and implementation of the Plan on a current cost basis, as budgeted by each company, through an automatic adjustment Smart Meter Technologies ("SMT-C") rider as permitted by both Act 129 and 66 Pa. C.S. § 1307. The Companies propose to allocate the budgeted costs based on the existing metered customers of each company.

The SMT-C Riders consist of 4 pages. Copies of each rider are included in attached Exhibits C-1 (Met-Ed), C-2 (Penelec) and C-3 (Penn Power). Page 1 of each rider sets forth the SMT-C rates, while the remaining pages of each rider set forth the formula and description for developing the SMT-C rates and the reconciliation of revenues billed under the SMT-C Riders to actual costs as they are incurred. The SMT-C rates are expressed as a monthly customer charge and will be billed on that basis. The SMT-C rates will be calculated and stated separately for the residential, commercial, and industrial customer classes. The rate schedules that comprise the residential, commercial, and industrial customer classes are identified on page 1 of each company's rider.

For Met-Ed and Penelec, the rate schedules that comprise the residential customer class are the same (Rate Schedules RS, RT, and GS – Volunteer Fire Company and Non-Profit Ambulance Service, Rescue Squad and Senior Center Service Rate). For Penn Power, the residential class is comprised of Rate Schedules RS; RS Optional Controlled Service Rider; RH Water Heating Option; WH; and GS Special Provision for Volunteer Fire Companies, Non Profit Senior Citizen Centers, Non-Profit Rescue Squads, and Non-Profit Ambulance Services.

Met-Ed's commercial customer class is comprised of Rate Schedules GS-Small, GS-Medium, and MS. Penelec's commercial customer class consists of Rate Schedules GS-Small, GS-Medium while Penn Power's is comprised of Rate Schedules GS, GS Special Rule GSDS, GS Optional Controlled Service Rider, OH with Cooling Capabilities, OH without Cooling Capabilities, and WH Non-Residential.

Met-Ed's industrial customer class is comprised of Rate Schedules GS-Large, GP, and TP. Penelec's industrial customer class is made up of Rate Schedules GS-Large, GP, and LP. Penn Power's industrial customer class consists of Rate Schedules GP and GT.

Because Met-Ed's and Penelec's Borderline Service rate schedules are both only available to public utility companies for resale in adjacent service territories under reciprocal agreements between Met-Ed or Penelec and other public utilities, these public utilities are not eligible for the installation of Smart Meter Technologies applications that are being proposed in the Companies' SMT Plans. Therefore, no SMT-C rate will be applied to these Borderline Service customers.

Met-Ed's, Penelec's and Penn Power's street lighting and outdoor lighting schedules are provided on unmetered basis. Therefore, no SMT-C rate will be applied to these schedules.

The Companies are proposing that their SMT-C Riders become effective for service rendered on or after April 1, 2010. The first rate will include administrative costs incurred to date plus the budget estimate for the initial twelve months of the Assessment Period. Costs will be allocated to the Companies and to each class based on the number of metered customers.

The Companies are not proposing SMT-C rates at this time. Rather, rates will be calculated after the Companies' Plan and projected Assessment Period costs have been reviewed and approved by the Commission. The computation of the Companies' initial SMT-C rates and tariff supplements to be effective April 1, 2010 through March 31, 2011 will be filed within 30 days of the Commission's final order approving the Companies' Plan. The SMT-C Riders and applicable SMT-C rates will be applied to each customer served under the Rates Schedules identified as part of either the residential, commercial, or industrial classes.

To recover the capital costs associated with the future deployment of smart meter technologies, the Companies are proposing that the capital structure be based upon Met-Ed's and Penelec's normalized capital structures of 51% long-term debt and 49% common equity as determined in Met-Ed's and Penelec's most recent distribution base rate case proceeding by the Commission Order entered January 11, 2007 at Docket Nos. R-0061366 (Met-Ed) and R-00061367(Penelec). These capital ratios are also proposed to be applicable to Penn Power.

The Companies are proposing that a common equity rate of 10.1% representing the allowed return on common equity as specified for Met-Ed and Penelec in the above-mentioned Commission Order entered January 11, 2007 be utilized in the weighted average monthly return on SMT capital expenditures and that this debt rate component be updated annually each April 1 based on the most recent calendar year's weighted rate as presented by the Companies in their respective quarterly Financial Reports filed with the Commission pursuant to 52 Pa. Code §§ 71.1 - 71.9.

With the exception of the initial SMT-C rates for the twelve month period ending March 31, 2011, any subsequent changes in the SMT-C rates, under normal operation of the Companies' proposed SMT Riders, would be filed, with supporting details, by March 1 of each year to be effective the following April 1. However, upon determination that the SMT-C rates would result in material over- or under-collections of recoverable costs incurred or expected to be incurred during the then current SMT-C Computational Year, the Companies may request that the Commission approve interim revisions to the SMT-C rates to be effective thirty days from the date of filing.

The Companies are proposing that existing meters recovered in the Companies' current distribution rates that become obsolete due to replacements by smart meters would continue to be depreciated over the remaining lives per the respective Company's Annual Depreciation Reports as filed with

and approved by the Commission pursuant to 52 Pa. Code, §§ 73.1 - 73.9. As part of subsequent distribution base rate case proceedings before the Commission, each Company will explore the need for accelerated depreciation of the obsolete meters replaced under their SMT Programs.

Consistent with the Commission's Implementation Order and Act 129, the Companies' proposed SMT-C Riders will permit Met-Ed, Penelec, and Penn Power to bill annual, levelized SMT-C rates on a per customer basis to all residential, commercial, and industrial customers. The rates are calculated specifically for each customer class to recover the Companies' SMT Plan costs approved by the Commission in this proceeding consistent with Act 129 and the provisions included in 66 Pa. C.S. § 1307. When coupled with the reconciliation provisions included in the Riders, the SMT-C rates will provide full, equitable and timely cost recovery of actual SMT Plan costs incurred by each Company.

### **3.1.3 Reporting**

The Companies will submit within thirty days of each calendar year end both an annual report that sets forth the revenues billed and costs incurred under a 1307(e) reconciliation cost recovery mechanism and an annual Smart Meter Progress Report. The reconciliations will be provided by customer class in a format similar to that used for other similar recovery mechanisms and will be subject to annual review and audit by the Commission. The Progress Report will include information such as (i) the status of installation plans; (ii) the number of customers who received smart meters in the prior year; (iii) estimated number of customers to receive meters in the coming year, (iv) all costs associated with the meter plan incurred in previous year; and (v) other relevant data. During the grace period, the Progress Report will also provide a status of tasks and, where applicable, estimated times of completion.

## **4.0 Summary**

In sum, having complied with the requirements of both Act 129 and the Commission's Implementation Order, the Companies respectfully request that the Commission approve all aspects of this Plan as submitted, including the 30 month grace period, the proposed cost recovery mechanism, the proposed deployment plan during and after the grace period, and the level and recovery of the \$29.5 million projected to be spent during the Assessment Period.

**Exhibit A**

Step	Task Name	Start	Target Completion Date	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
1	Submit Smart Metering Filing to PA Commission	-	8-14-09	▲			▲										
2	Submit EDI Proposal	-	12-31-09	▲			▲										
3	Obtain Approval of Plan	-	4-1-10		▲		▲										
4	Commence Phase 1 – Grace Period	4-1-10	3-31-12		● \$7M	● \$9.4M	● \$2.3M										
5	Submit Deployment Plan for Approval	-	4-1-12			▲	▲										
6	30-month Grace Period Ends	-	10-1-12				▲										
7	Obtain Approval of Implementation Plan	-	10-1-12				▲										
8	Test and Deploy 5,000 - 10,000 Meters	1-2-11	12-31-13			● \$10.8M	▲										
9	Commence Build Out of Necessary Infrastructure	4-1-13	-					▲									
10	Complete Build Out of Infrastructure	-	3-31-16							▲							
11	Start De-bug System with 60,000 Meter Deployment	4-1-16	-							▲							
12	Full Scale Deployment Commences	4-1-17	-								▲						
13	Full Scale Deployment Complete	-	3-31-22														▲
				<b>Deployment Phase</b>													
				<b>Phase 1</b>													
				<b>Plan Approval - Key</b>													
				<b>Estimated Phase I Spend: \$29.5M</b>													
				<b>Total Estimated Remaining Benchmarked Spend: \$332M</b>													

**Exhibit A1**

Grace Period Milestones								
Step	Task Name	Start	Finish	2010	2011	2012	2013	2014
1	Program Management	4-1-10	3-31-12					
2	Pre-Implementation Assessment & Upgrade	4-1-10	8-15-11					
3	Regulatory Communications & Public Stakeholder Awareness	4-26-10	3-31-12					
4	Current State Evaluation	4-26-10	9-1-10					
5	Consumer Awareness & Communications	5-3-10	3-31-12					
6	Future State Design	7-1-10	2-18-11					
7	Procurement	9-13-10	6-30-11					
8	Test 5,000 - 10,000 Smart Meters / System	1-1-11	12-31-13					
9	Pre-Implementation Evaluation Design	10-3-11	3-31-12					
10	Pre-Implementation Design Complete	-	3-31-12					
				Estimated Phase 1 Spend \$29.5M				

## Exhibit B

Task Name	Work
- Phase 1 - AMI Program	93,409.37 hrs
+ Program Management	4,864 hrs
+ Regulatory Communications & Public Stakeholder Awareness	946.57 hrs
+ Consumer Awareness & Communications	729.6 hrs
- Current State Evaluation	2,683.6 hrs
+ Detailed Discovery - Planning	177.2 hrs
- Transactional Cost Model	246.4 hrs
Identify Cost Components	16 hrs
Gather Cost Components	48 hrs
Challenge Cost Components	32 hrs
Incorporate Cost Components into Approach	32 hrs
Review approach with stakeholders	16 hrs
Stakeholder approval	9.6 hrs
Develop Cost Model	92.8 hrs
- Benefit Analysis	240 hrs
Identify Areas for Benefits	16 hrs
Gather information on areas	48 hrs
Challenge areas for Benefits	32 hrs
Incorporate into Cost Model	32 hrs
Review approach with stakeholders	16 hrs
Create Cost/Benefit Model - Phase 1	80 hrs
Stakeholder review and approval	16 hrs
+ Preliminary Market Pricing	240 hrs
- Technology Fit Assessment	520 hrs
Current state architecture overview	88 hrs
Current state infrastructure analysis	88 hrs
internal technical standards definition	88 hrs
Define current risk areas and mitigation	88 hrs
Identify potential gaps	168 hrs
- Current State Business Processes	712 hrs
Define Business Processes	96 hrs
Group Business Processes into Logical Groupings	96 hrs
Define Process for Documenting & Gathering Info	96 hrs
Create Project Plan	40 hrs
conduct workshops for bus process review	288 hrs
Team review and approval	96 hrs
+ Deployment Impact Analysis	503.2 hrs
+ Key Stakeholder Communications	44.8 hrs
Current State Evaluation Complete	0 hrs
+ Future State Design	4,869.6 hrs
- Procurement	3,692.8 hrs
- RFP Design, Development, and Distribution	1,088 hrs
+ RFP - MDMS Software / Vendor	544 hrs
+ RFP - Communications Infrastructure Software / Vendor	544 hrs
+ RFP Response Evaluation	768 hrs
+ Vendor Selection Criteria	345.6 hrs
- Due Diligence & Scoring	243.2 hrs
+ Due Diligence - MDMS Software / Vendor	121.6 hrs
+ Due Diligence - Communications Infrastructure Software / Vendor	121.6 hrs
+ Contract Negotiations	960 hrs
+ Contract Award and Legal	288 hrs
Vendor Contract Finalized	0 hrs
- AMI Test Lab	29,689.6 hrs
- High Level Scoping and Planning	7,380 hrs
+ Site Selections	1,480 hrs
+ Design Assessment Center Lab	700 hrs
+ Proof of Concept Design	1,600 hrs
Re-design and Improve	3,600 hrs
+ Build Test Lab	21,476 hrs
+ System Tracking and Metrics	825.6 hrs
AMI Test Lab Complete	8 hrs
+ Pre-Implementation Assessment & Upgrade	34,552 hrs
+ Pre-Implementation Evaluation Design	7,944 hrs
Pre Implementation Environment Design Complete	0 hrs
- Readiness Implementation	2,964 hrs
+ End Point Through System Integration Validation	544 hrs
+ Communications Infrastructure Testing	544 hrs
+ CIS Core Functions Integration Testing	476 hrs
+ Asset Tracking, Tools, and Inventory Control	280 hrs
+ System Reporting, Alarms, & Controls	476 hrs
+ HAN Integration Readiness	476 hrs
+ PMO Operational	84 hrs
+ Sponsor Readiness and Go Live	84 hrs
First AMI Read	0 hrs

Metropolitan Edison Company

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RIDERS

RIDER XX

SMART METER TECHNOLOGIES CHARGE RIDER

A Smart Meter Technologies (“SMT”) Charge (“SMT-C”) shall be applied as a monthly Customer charge during each billing month to metered Customers served under this Tariff, with the exception of those served under Borderline Service rates, determined to the nearest cent. The SMT-C rates shall be calculated separately for each Customer Class according to the provisions of this rider.

For service rendered April 1, 2010 through March 31, 2011 the SMT-C rates billed by Customer Class are as follows:

Residential Customer Class (Rate RS, Rate RT, and Rate GS – Volunteer Fire Company, and Non-Profit Ambulance Service, Rescue Squad and Senior Center Service Rate):

\$X.XX per month.

Commercial Customer Class (Rate GS-Small, Rate GS-Medium, and Rate MS):

\$X.XX per month.

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

\$X.XX per month.

Metropolitan Edison Company

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The SMT-C rates by Customer Class shall be calculated in accordance with the formula set forth below:

$$\text{SMT-C} = [((\text{SMT}_C - E) / \text{ACCC}) / 12] \times [1 / (1 - T)]$$

$$\text{SMT}_C = \text{SMT}_{\text{Exp1}} + \text{SMT}_{\text{Exp2}}$$

Where:

SMT-C = The monthly charge by Customer Class as defined by this rider applied to each Customer billed under the Rate Schedules identified in this rider.

SMT<sub>C</sub> = The Smart Meter Technologies Costs by Customer Class projected to be incurred by the Company for the SMT-C Computational Year calculated in accordance with the formula shown above.

SMT<sub>Exp1</sub> = 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.

SMT<sub>Exp2</sub> = An allocated portion of incremental administrative start-up costs incurred by the Company through March 31, 2010 in connection with the development of the Company's Plan. These costs to design, create, and obtain Commission approval for the Company's Plan include, but are not limited to, consultant costs, legal fees, and other direct and indirect costs associated with the development and implementation of the Company's Plan in compliance with Commission directives. These costs shall be amortized over the 12-month period ending March 31, 2011. Interest will be calculated monthly on the average of the beginning and end of month cumulative balance of these costs as incurred and included in the determination of the monthly amortized amount. The interest shall be computed at the legal rate determined pursuant to 41 P.S. § 202.

Metropolitan Edison Company

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- E = The over or under-collection of SMT costs by Customer Class that results from the billing of the SMT-C rates during the SMT Reconciliation Year (an over-collection is denoted by a positive E and an under-collection by a negative E), including applicable interest. Interest shall be computed monthly at the legal rate determined pursuant to 41 P.S. § 202, from the month the over or under-collection occurs to the month that the over-collection is refunded or the under-collection is recovered from Customers in the specific Customer Class.
- ACCC= The Company's projected Average Customer Class Count for the specific Customer Class for the SMT-C Computational Year.
- T = The Pennsylvania gross receipts tax rate in effect during the billing month expressed in decimal form as reflected in the Company's base rates.

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

1. SMT-C Computational Year – The 12-month period from April 1 through the following March 31.
2. SMT-C Reconciliation Year – The 12-month period ending January 31 immediately preceding the SMT-C Computational Year.

The SMT-C rates shall be filed with the Commission by March 1 of each year. The SMT-C rates shall become effective the following April 1, unless otherwise ordered by the Commission, and shall remain in effect for a period of one year, unless revised on an interim basis subject to the approval of the Commission. Upon determination that the SMT-C rates, if left unchanged, would result in material over or under-collection of all recoverable costs incurred or expected to be incurred during the then-current SMT-C Computational Year, the Company may request that the Commission approve one or more interim revisions to the SMT-C rates to become effective thirty (30) days from the date of filing, unless otherwise ordered by the Commission.

The Company shall file an annual report of collections under this rider within thirty (30) days following the conclusion of each SMT-C Reconciliation Year.

Metropolitan Edison Company

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

Application of the SMT-C rates shall be subject to annual review and audit by the Commission.

Pennsylvania Electric Company

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RIDERS

RIDER XX

SMART METER TECHNOLOGIES CHARGE RIDER

A Smart Meter Technologies (“SMT”) Charge (“SMT-C”) shall be applied as a monthly Customer charge during each billing month to metered Customers served under this Tariff, with the exception of those served under Borderline Service rates, determined to the nearest cent. The SMT-C rates shall be calculated separately for each Customer Class according to the provisions of this rider.

For service rendered April 1, 2010 through March 31, 2011 the SMT-C rates billed by Customer Class are as follows:

Residential Customer Class (Rate RS, Rate RT, and Rate GS – Volunteer Fire Company, and Non-Profit Ambulance Service, Rescue Squad and Senior Center Service Rate):

\$X.XX per month.

Commercial Customer Class (Rate GS-Small, Rate GS-Medium, and Rate H<sub>1</sub>):

\$X.XX per month.

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

\$X.XX per month.

Pennsylvania Electric Company

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The SMT-C rates by Customer Class shall be calculated in accordance with the formula set forth below:

$$\text{SMT-C} = [((\text{SMT}_C - E) / \text{ACCC}) / 12] \times [1 / (1 - T)]$$

$$\text{SMT}_C = \text{SMT}_{\text{Exp1}} + \text{SMT}_{\text{Exp2}}$$

Where:

- SMT-C = The monthly charge by Customer Class as defined by this rider applied to each Customer billed under the Rate Schedules identified in this rider.
- $\text{SMT}_C$  = The Smart Meter Technologies Costs by Customer Class projected to be incurred by the Company for the SMT-C Computational Year calculated in accordance with the formula shown above.
- $\text{SMT}_{\text{Exp1}}$  = 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.
- $\text{SMT}_{\text{Exp2}}$  = An allocated portion of incremental administrative start-up costs incurred by the Company through March 31, 2010 in connection with the development of the Company's Plan. These costs to design, create, and obtain Commission approval for the Company's Plan include, but are not limited to, consultant costs, legal fees, and other direct and indirect costs associated with the development and implementation of the Company's Plan in compliance with Commission directives. These costs shall be amortized over the 12-month period ending March 31, 2011. Interest will be calculated monthly on the average of the beginning and end of month cumulative balance of these costs as incurred and included in the determination of the monthly amortized amount. The interest shall be computed at the legal rate determined pursuant to 41 P.S. § 202.

Pennsylvania Electric Company

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The Company shall file an annual report of collections under this rider within thirty (30) days following the conclusion of each SMT-C Reconciliation Year.

Pennsylvania Electric Company

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

Application of the SMT-C rates shall be subject to annual review and audit by the Commission.

Pennsylvania Power Company

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RIDERS

RIDER XX

SMART METER TECHNOLOGIES CHARGE RIDER

A Smart Meter Technologies (“SMT”) Charge (“SMT-C”) shall be applied as a monthly Customer charge during each billing month to metered Customers served under this Tariff determined to the nearest cent. The SMT-C rates shall be calculated separately for each Customer Class according to the provisions of this rider.

For service rendered April 1, 2010 through March 31, 2011 the SMT-C rates billed by Customer Class are as follows:

Residential Customer Class (Rate Schedules RS; RS Optional Controlled Service Rider; RH; RH Water Heating Option; WH; and GS Special Provision for Volunteer Fire Companies, Non-Profit Senior Citizen Centers, Non-Profit Rescue Squads, and Non-Profit Ambulance Services):

\$X.XX per month.

Commercial Customer Class (Rate Schedules GS, GS Special Provision GSDS, GS Optional Controlled Service Rider, PNP, GM, GM Optional Controlled Service Rider, OH with Cooling Capabilities, OH Without Cooling Capabilities, and WH Non-Residential):

\$X.XX per month.

Industrial Customer Class (Rate Schedules GP and GT):

\$X.XX per month.

Pennsylvania Power Company

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Pennsylvania Power Company

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Pennsylvania Power Company

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The Company shall file an annual report of collections under this rider within thirty (30) days following the conclusion of each SMT-C Reconciliation Year.

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

Application of the SMT-C rates shall be subject to annual review and audit by the Commission.

**BEFORE THE  
PENNSYLVANIA PUBLIC UTILITY COMMISSION**

**METROPOLITAN EDISON COMPANY  
PENNSYLVANIA ELECTRIC COMPANY  
PENNSYLVANIA POWER COMPANY  
Docket No. M-2009- 2123950**

**SMART METER TECHNOLOGY PROCUREMENT AND INSTALLATION PLAN**

**Testimony  
of  
John E. Paganie**

**List of Topics Addressed**

**Overview of Smart Meter Technology Procurement and Installation Plan**

1 **I. Introduction and Background**

2 **Q. Please state your name and business address.**

3 A. My name is John E. Paganie and my business address is FirstEnergy Corp., 76  
4 South Main Street, Akron, Ohio 44308.

5

6 **Q. Mr. Paganie, by whom are you employed and in what capacity?**

7 A. I am employed by FirstEnergy Service Company as Vice President, Customer  
8 Service and Energy Efficiency. I report to the Executive Vice President and  
9 President of FirstEnergy Utilities and, in addition to the oversight of the  
10 administration and performance of customer service functions, I am responsible  
11 for the development, coordination, preparation and implementation of customer  
12 programs that promote energy efficiency, conservation, demand-side management  
13 and emerging technologies such as smart metering.

14

15 **Q. What is your educational and professional background?**

16 A. I graduated from Gannon University with a Bachelor of Science degree in  
17 electrical engineering. I graduated from Case Western Reserve University with a  
18 Masters in Business Administration degree in Economics. I began my career with  
19 the Cleveland Electric Illuminating Company in 1969 and have served in a variety  
20 of engineering and management positions, including Vice President of the  
21 Western Region – Ohio, and regional President of Penelec. My work experience  
22 is more fully described in Appendix A which is attached to my testimony.

23

1 **Q. On whose behalf are you testifying in this proceeding?**

2 A. I am testifying on behalf of Metropolitan Edison Company (“Met-Ed”),  
3 Pennsylvania Electric Company (“Penelec”) and Pennsylvania Power Company  
4 (“Penn Power”) (collectively the “Companies”).

5  
6 **Q. What is the purpose of your testimony?**

7 A. My testimony is intended to provide an overview of the Companies and their  
8 Smart Meter Technology Procurement and Installation Plan (“Plan”). I also  
9 address the basis for our request to recover \$29.5 million expected to be incurred  
10 during the first 24 months of the Plan over the period April 1, 2010 through  
11 March 31, 2012.

12  
13 **Q. Have you or anyone under your direct supervision prepared any Exhibits to  
14 your testimony?**

15 A. Yes. A member of my staff prepared several charts that depict a general time line  
16 of events, which are attached to my testimony as Met-Ed/Penelec/Penn Power  
17 Exhibit JEP-1 and Met-Ed/Penelec/Penn Power Exhibit JEP-1a.

18  
19 **Q. Please identify other witnesses who will be providing testimony in support of  
20 the Companies’ Plan.**

21 A. Mr. Robert Mills, a consultant specializing in Advanced Metering Infrastructure  
22 (“AMI”)/Smart Metering at Black & Veatch Corp., in Met-Ed/Penelec/Penn  
23 Power Statement No. 2, will provide the details of the Companies’ Plan and how

1 it complies with the requirements set forth in Act 129 of 2008 (“Act 129”) and the  
2 Commission’s Smart Meter Procurement and Installation Implementation Order  
3 entered June 24, 2009, at Docket No. M-2009-2092655 (“Implementation  
4 Order”). Mr. Mills also discusses the projected costs that will be incurred during  
5 the first two years of the Plan for which the Companies are seeking recovery in  
6 this proceeding.

7  
8 Mr. Raymond Parrish, a senior business analyst in FirstEnergy Service’s  
9 Pennsylvania Rate Department, in Met-Ed/Penelec/Penn Power Statement No. 3,  
10 will discuss the Companies’ proposed cost recovery and reconciliation  
11 mechanism being submitted to the Commission for approval in this proceeding.  
12

13 **II. The Companies**

14 **Q. Please generally describe the FirstEnergy corporate structure and how the**  
15 **Companies fit within this structure.**

16 **A.** FirstEnergy Corp. (“FirstEnergy”) is a diversified energy company headquartered  
17 in Akron, Ohio. Among its many subsidiaries, are seven electric utility  
18 subsidiaries – three regulated electric utilities in Pennsylvania (Met-Ed, Penelec,  
19 and Penn Power), three regulated utilities in Ohio (Ohio Edison Company, The  
20 Cleveland Electric Illuminating Company and The Toledo Edison Company) and  
21 Jersey Central Power and Light Company in New Jersey. These seven electric  
22 utility operating companies comprise the nation's fifth largest investor-owned  
23 electric system, based on 4.5 million customers served within a 36,100 square-

1 mile area of Ohio, Pennsylvania and New Jersey. The Plan is being filed on  
2 behalf of each of the three Pennsylvania companies.

3

4 **Q. Please generally describe Met-Ed.**

5 A. Met-Ed, headquartered in Reading, Pennsylvania, is a wholly owned subsidiary of  
6 FirstEnergy Corp. It serves approximately 549,000 electric utility customers over  
7 approximately 3,300 square miles in southern and southeastern Pennsylvania.  
8 Geographically, the Met-Ed service territory is diverse, with hills, streams and  
9 valleys to the east and urban and suburban areas and farmland in its southern  
10 region. Approximately 88% of Met-Ed's customers are residential, with another  
11 11% being commercial customers.

12

13 **Q. Please generally describe Penelec.**

14 A. Penelec, based in Erie, Pennsylvania, is a wholly owned subsidiary of FirstEnergy  
15 Corp. It serves approximately 589,000 customers within a 17,600 square mile  
16 area in northern, northwest and central Pennsylvania. Of its total customer base,  
17 approximately 86% is residential; 13%, commercial. Penelec serves a diverse  
18 customer base including residents of urban areas such as Erie, Johnstown, and  
19 Altoona, as well as rural areas and small towns. Geographically, its service  
20 territory is largely rural, covering areas of mountains, forests and woodlands.

21

22 **Q. Please generally describe Penn Power.**

1 A. Penn Power, which is based in New Castle, Pennsylvania, is a wholly owned  
2 subsidiary of Ohio Edison Company which is a wholly owned subsidiary of  
3 FirstEnergy Corp. Penn Power serves approximately 159,000 electric utility  
4 customers over a 1,100 square mile area of western Pennsylvania. Eighty-seven  
5 percent of its customer base is residential, with another 12% being commercial.  
6 While predominantly rural, with rolling hills, river plains and farmland, Penn  
7 Power's service territory also includes the urban areas of New Castle, Sharon,  
8 Grove City and suburban Pittsburgh.

9  
10 **III. Smart Meter Plan**

11 **Q. Please generally describe the Companies' Plan development process and the**  
12 **basic components of the Plan.**

13 A. The Companies established a cross functional team comprised of representatives  
14 from Energy Efficiency, Meter Services, IT, Rates, Business Analytics,  
15 Performance and Process Improvements and Legal. The Companies, through an  
16 RFP process, selected Black & Veatch Corp. ("B&V") to lend expertise and  
17 assistance in the development of the Plan. As an initial step, the team identified  
18 key objectives and goals, which drove the development of the Plan. It then  
19 performed a preliminary assessment and developed a general work plan,  
20 identifying certain critical assessments and studies that must be completed before  
21 smart meter technology and vendors can be selected, full scale costs can be  
22 estimated, and infrastructure can be built. As a result, the Companies' Plan

1           contemplates the full 30-month grace period authorized by the Commission in its  
2           Implementation Order.

3  
4           During this grace period, the Companies will assess their needs, select the  
5           necessary technology, secure vendors, train personnel, install and test support  
6           equipment and establish a detailed meter deployment schedule consistent with the  
7           statutory requirements -- including a deployment plan for the period (i) during the  
8           grace period; (ii) post grace period/pre-build out completion; and (iii) post build  
9           out. These tasks will be performed during the first 24 months of the grace period  
10          ("Assessment Period").

11  
12          At the end of the Assessment Period, the Companies will submit to the  
13          Commission a supplement to the Plan that includes among other things (i) a  
14          detailed long term time line, with key milestones; (ii) a smart meter solution; (iii)  
15          the costs of such a solution, along with an assessment of benefits; (iv) a network  
16          design solution; (v) a communications architecture design solution; (vi) a training  
17          assessment and proposed curriculum; (vii) a cost recovery forecast; (viii) a  
18          transition plan including communications to employees and consumers; and (ix) a  
19          detailed tiered roll-out plan ("Deployment Plan"). During the anticipated six  
20          month process for approval of the Deployment Plan, the Companies will prepare  
21          to implement their proposed plan for deployment of smart meters to new  
22          construction customers and others who request such meters, and will perform low

1 cost tasks in preparation of the build out consistent with the Deployment Plan that  
2 is ultimately approved.

3

4 **Q. What were the objectives identified by the team?**

5 A. The key objectives underlying the Plan include:

6

7 1. Submit a plan that complies with Act 129 and the Commission's  
8 Implementation Order;

9 2. Minimize the likelihood of creating stranded investment as a result of  
10 selecting the wrong technology through robust evaluation and analysis  
11 and adherence to national smart metering/smart grid standards and  
12 policies;

13 3. Develop a strategic and cost effective deployment plan to maximize early  
14 benefits at the least cost to customers; and

15 4. Present a plan that provides the utility with full cost recovery, including  
16 fair returns for any capital employed, while allowing the utility sufficient  
17 financial flexibility to provide for its other not-insubstantial capital  
18 requirements and obligations to shareholders.

19

20 **Q. What are some of the customer benefits to be incorporated into the Plan?**

21 A. Customer benefits that were incorporated into the Plan include:

22 1. Providing customers with hourly energy data and pricing to enable rate  
23 options focusing on achieving Energy Efficiency and Demand Response;

- 1           2.     Enabling improvements in both existing and new Customer Services  
2                     programs;
- 3           3.     Capturing any potential and economic operational benefits, including, for  
4                     example, storm management and restoration services.

5

6   **Q.     You indicated that the Companies require a 30-month grace period during**  
7           **which time they will develop their Deployment Plan. Does that mean that the**  
8           **Companies have no long term plan included within the Plan?**

9   A.     Not at all. As I previously stated, the team performed a preliminary assessment  
10           and developed a general work plan. This work plan includes a general long term  
11           plan with key milestones and projected dates. This work plan is attached to my  
12           testimony as Met-Ed/Penelec/Penn Power Exhibit JEP-1 and Met-  
13           Ed/Penelec/Penn Power Exhibit JEP-1a. Met-Ed/Penelec/Penn Power Exhibit  
14           JEP-1 provides an overview of the timeframes in which key milestones will be  
15           addressed while Met-Ed/Penelec/Penn Power Exhibit JEP-1a provides the  
16           timeframes in which the major tasks to be completed during the grace period will  
17           be performed. Obviously, the Deployment Plan, which will supplement the Plan  
18           as filed, will include a much more detailed long term time line, once the  
19           preliminary assessments and evaluations are completed during the Assessment  
20           Period.

21

22   **Q.     Would you please generally describe the long term time line?**

1 A. The timeline starts with the filing of the Plan on August 14, 2009. The  
2 Companies anticipate that the Plan will be approved on or about April 1, 2010.  
3 According to the Commission’s Implementation Order, the 30-month grace period  
4 commences on the date the plan is approved and, if the Plan is approved when  
5 expected, will continue until October 1, 2012. During the Assessment Period, the  
6 Companies will perform all tasks necessary to develop their Deployment Plan,  
7 which they currently anticipate filing 24 months into the grace period. The  
8 Companies will request that the Deployment Plan be approved in approximately  
9 six months, or around October, 2012. A critical step in the development of the  
10 Deployment Plan will be to build a test center to test and deploy approximately  
11 5,000 – 10,000 meters and various supporting technology. Such testing and  
12 deployment will commence in 2011 and continue beyond the end of the 30-month  
13 grace period. Upon approval of the Deployment Plan, which is anticipated to  
14 occur in October, 2012 and which will include an estimate of the costs for full  
15 scale deployment, the Companies will commence build out of the necessary  
16 infrastructure. It is expected that such construction will start in April, 2013,  
17 assuming that contracts can be negotiated and equipment delivered in the  
18 preceding six months. The Companies anticipate that the infrastructure build out  
19 will be completed by March, 2016, at which time the Companies will deploy  
20 another 60,000 meters as part of the “de-bugging” process. Full scale deployment  
21 is expected to commence in April, 2017, with such deployment completed no later  
22 than March, 2022.

23

1 **Q. How did the Companies determine the length of the deployment schedule?**

2 A. The length of the deployment schedule is based on several factors. First, given  
3 where the Companies are in their assessment of smart meter technology,  
4 significant preliminary work over approximately 2 years must first be completed  
5 before the Companies can select their meter technology. The completion of this  
6 work is critical if the Companies are to minimize the potential for selecting the  
7 wrong solution. Second, the Companies' three service territories serve almost 1.3  
8 million customers over approximately half of the total area of Pennsylvania.  
9 Much of this area is rural with diverse terrain, including mountains, forests, hills  
10 and valleys. Therefore, one smart meter solution will not be likely, thus requiring  
11 the Companies to assess and test numerous technologies and find those that best  
12 fit various pockets within the Companies' total service territory. Because there  
13 will be various solutions in various areas throughout the Companies' service  
14 territories, additional work must be done in order to properly interface these  
15 multiple solutions. Third, almost half of the Companies' total service territory has  
16 no customers. Therefore, meter density in general is relatively low. As a result,  
17 there will be wide areas over which data will be carried, with no significant  
18 infrastructure currently in place. And fourth, the time line is somewhat deceptive.  
19 As indicated in Figure 3 included in the Plan, which shows meter densities  
20 throughout the Companies' total service territory, there are areas within this  
21 territory that have higher meter densities. The Companies fully expect to build  
22 out those sections of its territory first, thus providing a significant percentage of  
23 its customers with smart meter technology much earlier than the full scale

1 deployment completion date. However, because Act 129 requires 100%  
2 deployment and there is a large part of the Companies' territory with less than 100  
3 meters per 100 square miles, providing such service to customers in these remote  
4 areas will be time consuming. And finally, while the Companies cannot be  
5 certain at this time, the projected timeline for complete deployment may perhaps  
6 be shortened as the Companies obtain more information during the Assessment  
7 Period.

8

9 **Q. Does the Plan include any other components?**

10 A. Yes. Section 3 of the Plan includes a discussion of the currently estimated \$29.5  
11 million of projected costs that the Companies anticipate incurring during the  
12 Assessment Period, as well as a mechanism to recover these costs. Company  
13 Witness Mills will address how the costs were estimated while Company Witness  
14 Parish will address their recovery.

15

16 **IV. Cost Estimates**

17 **Q. Have the Companies estimated the cost to implement the Plan?**

18 A. Given that the Companies have not yet selected their smart meter solution or  
19 completed an infrastructure design and systems interface solution, the Companies  
20 are not in a position to provide an estimate of the total cost to implement the Plan.  
21 This will be included as part of the Deployment Plan that will be filed as a  
22 supplement to this Plan at the conclusion of the Assessment Period. While the  
23 Companies cannot provide a detailed cost estimate at this time, they have

1 performed a preliminary analysis of the costs incurred or projected to be incurred  
2 by other utilities throughout the country that are pursuing smart metering projects.  
3 A summary of these costs are included in Table 8 of the Plan and are incorporated  
4 into my testimony by reference. Based on this analysis, the Companies assumed  
5 an average meter cost (excluding O&M costs) of \$250 per meter. With the  
6 Companies' 1.3 million customers and a statutory requirement to provide smart  
7 meters to each and every customer within each of the Companies' service  
8 territories, a conservative estimate of the cost to implement the Plan is at least  
9 \$325,000,000.

10  
11 **Q. How did the Companies estimate the \$29.5 million of costs that will be**  
12 **incurred during the Assessment Period?**

13 A. Many of the components for this projection were provided by our consultant,  
14 Black & Veatch. Company Witness Mills will discuss how the cost estimate was  
15 derived.

16  
17 **Q. How are the Companies proposing to recover the \$29.5 million of costs that**  
18 **will be incurred during the Assessment Period?**

19 A. The Companies are proposing full and current cost recovery of the \$29.5 million  
20 of costs that will be incurred by the Companies during the Assessment Period to  
21 support the planning, development, and testing of technologies associated with the  
22 development of the Deployment Plan. This will allow the costs incurred to  
23 develop the Deployment Plan to be recovered over the same period in which the

1 Deployment Plan was developed.

2

3 **Q. What are the Companies asking the Commission to approve in this**  
4 **proceeding?**

5 A. The Companies are asking the Commission to approve (i) the Plan, including the  
6 30 month grace period; (ii) the proposed cost recovery mechanism described by  
7 Company Witness Parish; and (iii) the recovery of the Assessment Period costs  
8 calculated by Company Witness Mills consistent with the methodology that I  
9 described above.

10

11 **Q. Mr. Paganie, does this complete your direct testimony?**

12 A. Yes, it does.

John E. Paganie – Biography  
Vice President - Customer Service & Energy Efficiency

John E. Paganie is vice president of Customer Service & Energy Efficiency for FirstEnergy. He is responsible for all customer service functions for the company's Ohio, Pennsylvania and New Jersey service areas, and the development and implementation of customer programs that promote energy efficiency, conservation, demand-side management, and emerging technologies.

Mr. Paganie was previously regional president of Pennsylvania Electric Company (Penelec), a FirstEnergy electric utility operating company serving approximately 581,000 customers within a 17,600-square-mile area of western and central Pennsylvania. He was active in a variety of community activities, including the Erie Regional Chamber and Growth Partnership, United Way of Erie County, WQLN, the Hamot Board of Corporators, the Foundation for Free Enterprise Education, the Board of Directors of TEAM – Pennsylvania, and Gannon University Board of Trustees.

He began his career with The Cleveland Electric Illuminating Company (CEI) in 1969 and served in a variety of engineering and personnel positions until 1986, when he was named director of Union Relations. That same year, CEI merged with Toledo Edison to form the former Centerior Energy Corporation. In 1987, Mr. Paganie was named director of Personnel and Union Relations for CEI, followed by a promotion to general manager, Cleveland West operations, in 1991. In 1993, he was named director, Human Resources and Labor Relations for Centerior, and in 1995 was named Centerior regional vice president for its Western Region. After Ohio Edison merged with Centerior to form FirstEnergy in 1997, Mr. Paganie was named vice president for the company's Western Region – Ohio, based in Toledo. While in Toledo, he was active in a variety of community activities, including serving on the boards of trustees of the Toledo Regional Growth Partnership, WGTE Public Broadcasting, and the Toledo Northwest Foodbank. Mr. Paganie also served for five years as unit chair for the Greater Toledo United Way Campaign.

A native of Ellwood City, Pennsylvania, Mr. Paganie earned a Bachelor of Science degree in electrical engineering in 1969 from Gannon University in Erie, Pennsylvania, and a master's degree in economics in 1973 from Case Western Reserve University in Cleveland, Ohio.

Education and Experience of John E. Paganie

Education:

1969 Bachelor of Science Degree in Electrical Engineering - Gannon University  
1973 Master of Business Administration Degree in Economics – Case Western  
Reserve University

Experience:

9/69 - 1/87 Engineering and Personnel Positions at CEI  
1/87 - 1/91 Director of Personnel and Union Relations at CEI  
1/91 - 2/93 General Manager Cleveland West Operations at CEI  
2/93 - 1/95 Director Human Resources and Labor Relations at Centerior  
1/95 - 1/97 Regional Vice President Western Region at Centerior  
1/97 - 11/01 Regional Vice President Western Region at FirstEnergy  
11/01 - 2/09 Regional President at Penelec  
2/09 – Present Vice President – Customer Service & Energy Efficiency

Step	Task Name	Start	Target Completion Date	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
1	Submit Smart Metering Filing to PA Commission	-	8-14-09	▲			▲										
2	Submit EDI Proposal	-	12-31-09	▲			▲										
3	Obtain Approval of Plan	-	4-1-10		▲												
4	Commence Phase 1 – Grace Period	4-1-10	3-31-12		● \$7M	● \$9.4M	● \$2.3M										
5	Submit Deployment Plan for Approval	-	4-1-12				▲										
6	30-month Grace Period Ends	-	10-1-12				▲										
7	Obtain Approval of Implementation Plan	-	10-1-12				▲										
8	Test and Deploy 5,000 - 10,000 Meters	1-2-11	12-31-13			● \$10.8 M	▲										
9	Commence Build Out of Necessary Infrastructure	4-1-13	-					▲									
10	Complete Build Out of Infrastructure	-	3-31-16							▲							
11	Start De-bug System with 60,000 Meter Deployment	4-1-16	-							▲							
12	Full Scale Deployment Commences	4-1-17	-								▲						
13	Full Scale Deployment Complete	-	3-31-22									▲					
<b>Deployment Phase</b>																	
<b>Phase 1</b>																	
<b>Plan Approval - Key</b>																	
<b>Estimated Phase I Spend: \$29.5M</b>																	
<b>Total Estimated Remaining Benchmarked Spend: \$332M</b>																	

Grace Period Milestones								
Step	Task Name	Start	Finish	2010	2011	2012	2013	2014
1	Program Management	4-1-10	3-31-12					
2	Pre-Implementation Assessment & Upgrade	4-1-10	8-15-11					
3	Regulatory Communications & Public Stakeholder Awareness	4-26-10	3-31-12					
4	Current State Evaluation	4-26-10	9-1-10					
5	Consumer Awareness & Communications	5-3-10	3-31-12					
6	Future State Design	7-1-10	2-18-11					
7	Procurement	9-13-10	6-30-11					
8	Test 5,000 - 10,000 Smart Meters / System	1-1-11	12-31-13					
9	Pre-Implementation Evaluation Design	10-3-11	3-31-12					
10	Pre-Implementation Design Complete	-	3-31-12					
				<b>Estimated Phase 1 Spend \$29.5M</b>				

**BEFORE THE  
PENNSYLVANIA PUBLIC UTILITY COMMISSION**

**METROPOLITAN EDISON COMPANY  
PENNSYLVANIA ELECTRIC COMPANY  
PENNSYLVANIA POWER COMPANY  
Docket No. M-2009-2123950**

**SMART METER TECHNOLOGY PROCUREMENT  
AND INSTALLATION PLAN**

**Testimony  
of  
Robert A. Mills**

**List of Topics Addressed**

**Smart Meter Procurement and Installation Plan  
Plan Development and Compliance  
Estimated Costs of the Plan**

1 **I. Introduction and Background**

2 **Q. Please state your name and business address.**

3 A. My name is Robert A. Mills and my business address is 11401 Lamar Avenue, Overland  
4 Park, KS 66211.

5

6 **Q. Mr. Mills, by whom are you employed and in what capacity?**

7 A. I am a Principal Consultant within the Enterprise Management Solutions (“EMS”)  
8 division of Black & Veatch Corporation. My current responsibilities include leading the  
9 AMI domain practice within the Application Services consulting group. I am also  
10 designated as a Subject Matter Specialist in our Demand Side Management (“DSM”)  
11 areas related to our electric consulting practice.

12

13 **Q. Please describe your educational and professional background?**

14 A. My professional experience includes over 22 years of executive, management and  
15 consulting disciplines, 8 of which include direct utility experience in the areas of  
16 automated meter reading (“AMR”) and advanced meter infrastructure (“AMI”), IT,  
17 metering and Customer call centers. My areas of expertise include: (i) technical and  
18 financial analysis and implementation for AMR/AMI integrated solutions; (ii) complex  
19 program and project design and delivery; (iii) demand side management/energy  
20 efficiency (“DSM/EE”) assessment, program design, implementation and evaluation; and  
21 (iv) performance modeling and overall utility AMR/AMI investment prudence analyses.  
22 A more detailed description of my background is included in attached Appendix A.

23

24 **Q. On whose behalf are you testifying in this proceeding?**

1 A. I am testifying on behalf of Metropolitan Edison Company (“Met-Ed”), Pennsylvania  
2 Electric Company (“Penelec”), and Pennsylvania Power Company (“Penn Power”)  
3 (collectively, “the Companies”).  
4

5 **Q. What is the purpose of your direct testimony?**

6 A. The purpose of my testimony is to provide details of the Companies’ Smart Meter  
7 Technology Procurement and Installation Plan (“Plan”) and explain why the costs  
8 incurred during the Assessment Period are reasonable. During my testimony I may make  
9 references to specific sections within the Plan. Rather than reiterate in my testimony the  
10 details of the sections to which I refer, they should be considered as incorporated by  
11 reference.  
12

13 **II. The Companies’ Plan**

14 **Q. Were you involved in the development of the Plan?**

15 A. Yes, I was. The Companies hired Black & Veatch to provide technical expertise during  
16 the development of the Plan. I was assigned to the project as the lead Black & Veatch  
17 Project Manager / AMI Subject Matter Specialist. I worked closely with the Plan  
18 development team, providing guidance on among other things, the development of tasks  
19 and timelines, resource requirements and cost projections.  
20

21 **Q. Please generally explain the time lines included in the Plan.**

22 A. There are basically three time frames included in the Plan: (i) the Grace Period, which  
23 under the proposed Plan is 30 months; (ii) the Assessment Period, which is the first 24  
24 months of the Grace Period and represents the time period in which the Companies will

1 develop the comprehensive Business and Deployment Plans described in Section 2.2.2 of  
2 the Plan; and (iii) the Deployment Period, which commences at the end of the Grace  
3 Period and continues for 12.5 years.

4  
5 **Q. When does the Grace Period start in the Plan?**

6 A. The Companies are assuming a start date of April 1, 2010.

7  
8 **Q. How was this start date determined?**

9 A. The Companies filed the Plan on August 14, 2009. Given the procedural schedule set  
10 forth in the Commission's Implementation Order, and the fact that the Companies have  
11 indicated that they will not commence any major tasks prior to Plan and cost recovery  
12 approval, this time frame seems reasonable. I should also note that the Companies will  
13 continue to perform tasks during the estimated plan approval process, as well as the  
14 magnitude of effort and potential costs to implement the Plan while minimizing adverse  
15 impacts to the Companies day-to-day business operations, the Companies intend to select  
16 and engage external consulting resources for many of the tasks through a formal  
17 RFP/Procurement process. This will require the Companies to design, create, publish and  
18 issue the RFPs and then evaluate the responses, perform due diligence on the finalists,  
19 and negotiate contracts. The goal is to have the core implementation team in place at the  
20 time the Plan is ultimately approved. Given that the other two major time frames were  
21 established based on the start of the Grace Period, the timelines for both the Assessment  
22 and Deployment Periods would have to be adjusted consistent with the actual start of the  
23 Grace Period.

1 **Q. Would you please generally describe how the time lines included in the Plan were**  
2 **developed?**

3 A. First, the core development team gathered information on where the Companies are  
4 today. To do this the team interviewed personnel from various areas within the  
5 Companies that may be affected by the implementation of a smart metering project,  
6 including meter reading, billing, and IT, so as to gain a general understanding of current  
7 business practices in each area. They also performed preliminary studies of other major  
8 areas that could impact the Plan, including among other things, (i) the existing  
9 distribution system; (ii) service territory characteristics; and (iii) current communication  
10 and supporting computer systems. Based on this information, as well as my experience  
11 in designing and implementing AMI and other large scale utility related projects, Black &  
12 Veatch developed the 24 month detailed work-plan, leveraging the existing Black &  
13 Veatch road map set forth in Table 2 of the Plan which sets forth key phases and tasks  
14 that must be accomplished prior to commencing the deployment phase. The team then  
15 developed a work plan, an excerpt of which is included in the Plan as Exhibit B, which  
16 lists each step that must be performed in order to complete each major task. Presently,  
17 this detailed list includes more than 600 tasks that must be performed in order to develop  
18 the Business and Deployment Plans described in Section 2.2.2 of the Plan. It is estimated  
19 that 93,000 hours will be needed to complete these tasks within the Assessment Period.  
20 The team estimated that the remaining six months of the Grace Period are needed in order  
21 to prepare to implement the Deployment Plan by performing tasks necessary to obtain  
22 equipment, hire consultants, and implement the proposed process for deployment after  
23 the Grace Period of smart meters to new construction customers and other customers

1 requesting smart meters. The Deployment Period was generally created by Company  
2 personnel prior to me becoming a member of the plan development team and, as I  
3 understand it, this time frame was established based on the factors discussed by Company  
4 Witness Paganie.

5  
6 **Q. Please provide a general description of the Grace Period.**

7 A. In its June 24, 2009 Implementation Order, the Commission authorized a grace period of  
8 up to 30 months during which time utilities could perform the tasks contemplated in the  
9 Companies' Assessment Period. The 30 month Grace Period contemplated in the Plan is  
10 discussed in detail at pages 6 – 19 of the Plan.

11  
12 **Q. In your opinion, do you believe that the 30 month Grace Period contemplated in the  
13 Companies' Plan is reasonable?**

14 A. Given the number of tasks and the amount of hours necessary to complete these tasks,  
15 yes, I do.

16  
17 **Q. In your opinion, do you believe that the 30 month Grace Period contemplated in the  
18 Companies' Plan should be shortened?**

19 A. No, I do not. To do so will reduce the amount of due diligence that the Companies  
20 could perform, thus increasing the risk of making a huge error during the planning phase  
21 that could jeopardize the success of the Deployment Plan and could possibly increase  
22 the costs of such deployment significantly.

23

1 **Q. Are you aware of any such instances in which such results occurred?**

2 A. Yes, I am. An entity in Texas decided to accelerate the procurement and partial  
3 deployment of their smart metering plan prior to the functional requirements being  
4 finalized. The smart meter solution that was selected was not consistent with the final  
5 functional requirements established by the state's regulatory commission and the entity is  
6 facing potential losses that may not be recoverable to replace the portion of its system  
7 that was in non-compliance. There have been several utilities that assumed that one  
8 meter solution fits all potential scenarios on their distribution system. By not taking the  
9 time to properly test various combinations of solutions and communication architecture  
10 options, the smart meter solution selected by those utilities cannot serve all of their  
11 customers. This issue in particular presents great challenges to the Companies, given the  
12 diverse terrain and significant differences in meter density found in their service  
13 territories. As more fully discussed in Section 2.2.2 (1) of the Plan, the Companies'  
14 service territories account for almost half of the area of Pennsylvania, with large pockets  
15 of rural areas of farms, forests, mountains and hills. Because of the terrain, it will be  
16 difficult, and sometimes impossible for certain meter technology to send and receive  
17 signals over large areas. Therefore the Companies must evaluate numerous combinations  
18 of communication technologies, such as fixed wireless, mesh networked, licensed and  
19 unlicensed radio networks, cellular, Wi-Fi, Wimax and fiber optics. Certain of these  
20 technologies will be better suited for specific types of terrain. Once these technologies  
21 can be matched up with the various conditions within the Companies' total service  
22 territories, the Companies must determine how to interface each of them into a seamless  
23 enterprise system. Once the Companies develop this solution, they must then determine

1           how to interface it with new and legacy systems that will be used to support smart  
2           metering in areas such as billing. Without taking the time to gain a thorough  
3           understanding of the network issues and the strengths and weaknesses of the available  
4           technology options, the risks of selecting the wrong technology, at least for portions of  
5           the Companies' territories, are much greater. As they say in the construction industry,  
6           "measure twice, and cut once." Obviously you can measure once and cut once, but more  
7           times than not such an approach results in significantly more waste.

8  
9   **Q.    Is the 30 month Grace Period contemplated in the Plan within the timeframes used**  
10   **by other utilities when planning and deploying smart meter programs comparable**  
11   **to that of the Companies?**

12   A.    Yes, it is. I have personally led Smart Metering deployment assessment planning and  
13   initiative execution efforts that were similarly sized and that required a similar level of  
14   effort. Indeed, some North American utilities have taken significantly longer to execute.  
15   For example, Southern California Edison's AMI Rollout timeline extended seven and a  
16   half years through multiple phases and sub-phases of design and proof of concept,  
17   feasibility studies, conceptual process design, business process and systems impact  
18   assessments, business case development and application, communications network  
19   implementation and deployment initiation. Commonwealth Edison - Illinois has  
20   evaluated AMR/AMI several times over the last nine years, without awarding contracts.  
21   Like the Companies' Plan, Commonwealth Edison's assessment elements included  
22   technology, communications and vendor assessments, business case evaluations and  
23   technology fit assessment phases, with each iteration taking several months to a year to

1 complete. Unlike the Companies' Plan, however, subsequent assessment tasks that are  
2 contemplated by the Companies to be complete during the Assessment Period, such as  
3 business process impacts, training, communications infrastructure, and technical trials,  
4 were not conducted during Commonwealth Edison's assessment period, given their  
5 decision not to proceed.

6  
7 **Q. What deliverables are anticipated at the end of the Grace Period?**

8 A. The Companies expect to have successfully concluded their detailed Business and  
9 Deployment Plans, implemented the smart metering technical field trial and laboratory  
10 testing, and have in place a structure and process that can accommodate deployment.

11  
12 **Q. Please describe a technical field trial and laboratory test.**

13 A. In the Plan, this activity is generally referred to as either the "test lab" or the milestone  
14 "test and deploy 5,000 – 10,000 meters." This task is one of the most critical tasks  
15 undertaken during the Assessment Period. It entails the testing of various smart meter  
16 and communication solution options under as many different scenarios in the Companies'  
17 service territories as can be anticipated. In essence, the test lab creates real world  
18 conditions in both a controlled and field environment representative of the Companies'  
19 service territories.

20  
21 **Q. Why is such testing necessary?**

22 A. During the testing phase, the Companies will stress different small scale versions of many  
23 of the Companies' major computer systems. Absent this testing, there is a very good

1 possibility that unanticipated problems could arise that, if done through the Companies'  
2 fully integrated, enterprise systems, could adversely affect customer service and perhaps  
3 reliability.

4  
5 **Q. How many meters have the Companies budgeted for the field and lab testing?**

6 A. 10,000.

7  
8 **Q. Will all 10,000 meters be used in the test lab?**

9 A. No. The Companies anticipate using no more than 500 in the controlled portion - lab  
10 itself. Once lab tests are satisfactorily completed, the next step will be a proof of concept  
11 phase in which remaining meters will be installed under real world conditions, albeit on a  
12 relatively small scale.

13  
14 **Q. Will all meters be the same and installed under similar conditions?**

15 A. No. As I previously discussed, the terrain and meter density throughout the Companies'  
16 service territory is quite diverse. Because the Companies fully expect that several  
17 different smart meter solutions will be necessary to address specific issues caused by this  
18 diversity, the Companies will test various smart meter technologies against various  
19 communication systems, grading each under specific circumstances consistent with the  
20 score card included in Table 5 of the Plan.

21  
22 **Q. Can you provide examples of the circumstances under which the Companies**  
23 **anticipate testing?**

1 A. There are a multitude of scenarios and different combinations and permutations that will  
2 be developed as a component of the Business and Deployment Plans.

3

4 **Q. Will the meters used during the lab and field testing be the same as those used**  
5 **during the Deployment Phase?**

6 A. Absent unforeseen problems with a selected technology, it is expected that the meters  
7 tested in the lab and field will be those selected for deployment in areas similar to those  
8 under which they were tested.

9

10 **Q. The Plan also includes a long term timeline. Were you involved in the development**  
11 **of this long term timeline?**

12 A. Yes, I was. I helped develop the key milestones included in Section 2.2.2 and Exhibit B  
13 of the Plan.

14

15 **Q. Please describe the key milestones included in the long term timeline.**

16 A. The milestones included on the Companies' long term timeline are set forth in Exhibit B  
17 to the Plan. I have already discussed the first six milestones included on Exhibit B and  
18 therefore I will focus on those tasks that occur after the end of the Grace Period.

19 The Companies will submit their detailed Deployment Plan at the end of the Assessment  
20 Period, which is currently anticipated to be on April 1, 2012. The Companies assume a  
21 six month approval process for the Deployment Plan, which would occur on or about  
22 October 1, 2012. Within six months of the approval of the Deployment Plan, which will  
23 include an updated forecast of costs for recovery, the Companies will commence the

1 build out of the necessary communication and other distribution infrastructure. Given the  
2 expanse of the Companies' service territory, this build out is anticipated to take  
3 approximately three years. Once the infrastructure is in place, the Companies will install  
4 an additional 60,000 meters (beyond the approximate 10,000 installed during the field  
5 testing), using this deployment tier to "de-bug" the systems. They will also launch a  
6 comprehensive training and customer education program during this timeframe. The  
7 Companies anticipate the installation and debugging process taking approximately one  
8 year, with full scale deployment starting immediately after that with all meters being  
9 deployed to all of the Companies' customers no later than the end of the first quarter of  
10 2022.

11  
12 **Q. In your opinion, do you think the long term time line is reasonable?**

13 A. Based on information currently available, yes, I do. Please keep in mind, however, that  
14 the Plan anticipates the filing of a much more detailed time line when the Plan is  
15 supplemented in the Deployment Plan. As Company Witness Paganie indicated, this  
16 timeline could perhaps be accelerated once more information becomes available.

17  
18 **III. Costs and Cost Recovery**

19 **Q. Have you developed a budget for the development of the Deployment Plan?**

20 A. Yes. As noted in the Plan, Black & Veatch, in cooperation with the project team,  
21 developed an estimated budget for the development of the Deployment Plan during the  
22 Assessment Period which totals \$29.5 million.

1 **Q. Is this budget on an individual or total company basis?**

2 A. The budget is for all costs incurred by all three of the Companies during the Assessment  
3 Period.

4  
5 **Q. How will the \$29.5 million be spent?**

6 A. The table below shows the anticipated cost categories, as well as the timing of the  
7 budgeted spend during the Assessment Period. As indicated in the Table, \$18.7 million  
8 of the total budget is for labor, over \$13 million of which will be for consulting and  
9 subcontracting services. Another \$25 million is budgeted for the meters during the  
10 testing phase and an additional \$8.3 million is budgeted for hardware, software and  
11 related licenses needed for the test phase.

Act 129 Phs 1 Cost	2010				2011				2012	totals
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	
Labor		\$1.0	\$3.0	\$3.0	\$2.4	\$2.4	\$2.3	\$2.3	\$2.3	\$18.7
Meters		\$1.0	\$1.5							\$2.5
IT / MDMS		\$1.0	\$2.0	\$5.3						\$8.3
Totals		\$3.0	\$6.5	\$8.3	\$2.4	\$2.4	\$2.3	\$2.3	\$2.3	\$29.5

12

13

14 **Q. Will any of the budgeted costs incurred support First Energy's Operating  
15 Companies in Ohio or New Jersey?**

16 A. The costs identified above represent costs that are necessary to prepare the Deployment  
17 Plan for deploying smart meters in Pennsylvania in order to meet the Companies'  
18 statutory obligations under Act 129. It is therefore my opinion, that the costs are being  
19 incurred to support customers in Pennsylvania.

20

1 **Q. How much of the total budget is expected to be spent during the first 12 months of**  
2 **the Assessment Period?**

3 **A** Based on the above table, \$20.2 million of the budget will be spent during the first 12  
4 months of the Assessment Period.

5

6 **Q. Mr. Mills, does this complete your direct testimony?**

7 **A.** Yes, it does.

**Principal Consultant**


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*Program & Project  
Management  
Business Process  
Transformation  
Customer Information  
Systems - Customer  
Care & Marketing  
Services  
IVR, Web & QA  
AMI/AMR  
Business Planning*

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Robert Mills is a senior manager with over twenty-two years of proven experience in executive leadership, large-scale program and project management, operations, systems analysis, finance, cost accounting and budgeting.

He has significant experience with leading Six Sigma initiatives and has held several key project roles that have focused on AMI/AMR assessment & deployment, Customer Contact Self Service IVR & Web Portal enhancements, process improvement, engineering, and business transformation. Mr. Mills' key strengths include strategic planning, high complexity project leadership and delivery. Mr. Mills' leadership ability, strong work ethic, and a commitment to client are second to none and make him an asset to any team.

**Education**

Sir Pierre Van Ryneveld  
Matriculation Exemption 1980  
USA University Equivalent  
Comp. Sciences Degree  
Majors: Mathematics, Physics,  
Comp. Sciences

SCO UNIX – Advanced Certified  
– “ACE”

Six Sigma Black Belt -Villanova  
COPC R.C Certified

**Total Years Experience**

25

**Joined Black & Veatch**

2008

**Experience Summary***Arise Virtual Solutions*

*September 2007 – August 2008*

*Vice President Implementations & Process Excellence*

Equity executive leadership of Implementations & Process Excellence division, reporting directly to CEO. Responsible for design and implementation of global process engineering and design, management model hierarchy, complex technology project delivery and all Six Sigma initiatives. Additional responsibilities include business process transformation & COPC certification initiatives, PMO steering committee and large BPO executive sales participation.

*Exelon Energy Delivery– Customer & Marketing Services – Customer Care - Support Services*

*April 2004 – September 2007*

*Executive Key Manager Customer Care Support Services*

**Leadership management of Process Improvement, Program & Project Management, Quality Assurance and Communications divisions within Customer Care across Exelon's PECO (PA), and ComEd (IL) service territories ~ 5.5 million customer base. Responsible for large scale IVR, Web & Quality Assurance project implementations and enhancements, Management Model Hierarchy. Additional responsibilities included active participation on M&A teams, ACSI and First Touch Resolution Metrics Benchmarking & Business Case preparation/evaluation, Enterprise Energy Delivery Business planning**

*AMRA International*

*2004-2005*

*Chief Technology Officer Active board member & Trustee**Exelon Energy Delivery – ComEd – Exelon Energy Delivery - Customer & Marketing Services – Support Services*

*January 2003 – April 2004*

*Sr. Project Manager & Manager Business Process & Integration*

Actively managed entire Customer/1 CIS business support team(s), monitoring & analysis, regression testing, and help desk. Responsible Business Lead for Smartsynch two-way pager Interval Data Recorder (IDR) AMR implementation and Business Case development. National responsibility for Financial Audit, Revenue Maximization, Large Contract review, KPI's & Benchmarking – Business Steering committee for AMR sponsored remote disconnect technology-metering Pilot.

*Unicom – ComEd Information Technology**February 2000 – December 2002**Project Manager*

Actively managed entire Customer/1 meter information technology project/department. Responsible for staffing, budgeting and general day-to-day Project Management. Accountable for delivery integration of all inbound Meter Data prior to billing (approx. 200,000 reads/day) – Mission critical system. IT Lead on Automatic Meter Reading assessment & RFP – 1 year in-depth technical and financial analysis of AMR for ComEd's 3.6 Million Residential & Commercial Metering.

*Synergy Systems & Solutions Inc.**January 1991 – January 2000**President / Owner*

Actively owned/operated High End UNIX Accounting software Design/development Company. Extensive data conversion across multiple O/S platforms, custom programming, EDI X12 and wide area systems integration.

*Data Pro Accounting Software**April 1989 – December 1990**Director of Support Services*

Duties included: Management of National Accounting Software Manufacture's support department, staff of 8, across 40 accounting modules operating under XENIX, UNIX, AIX, Novell Netware and DOS. Full accountability for support and development and inter-departmental communications, client billing A/R, A/P and product testing.

*The Saudi British Bank (TSV) – HSBC Group**Hong Kong Shanghai Banking Group**January 1983 – January 1989**Manager Office Automation*

Full Managerial duties included: Software development and hardware maintenance team leadership. Designed and implemented high security software for automated signature verification – wide area nationwide. Active participation and key member in white-collar fraud unit (Internal Code Investigations) and Technical Services

steering committee. Successfully implemented electronics engineering department for in-house component level computer repair and maintenance. Directed and controlled all purchases, insurance, inventory and payments for all computer related equipment, software and hardware supplies. In depth research of proprietary software. Responsible for design and implementation of wide area national communication networking.

**BEFORE THE  
PENNSYLVANIA PUBLIC UTILITY COMMISSION**

**METROPOLITAN EDISON COMPANY  
PENNSYLVANIA ELECTRIC COMPANY  
PENNSYLVANIA POWER COMPANY**

**Docket No. M-2009-2123950**

**SMART METER TECHNOLOGY PROCUREMENT AND INSTALLATION PLAN**

**Testimony  
of  
Raymond I. Parrish**

**List of Topics Addressed**

**Cost Recovery and Reconciliation of Plan Costs**

1 **I. Introduction and Background**

2

3 **Q. Please state your name and business address.**

4 A. My name is Raymond I. Parrish and my business address is FirstEnergy, P.O. Box 16001,  
5 Reading, Pennsylvania 19612-6001.

6

7 **Q. Mr. Parrish, by whom are you employed and in what capacity?**

8 A. I am employed by FirstEnergy Service Company as a Senior Business Analyst in  
9 FirstEnergy Service Company’s Pennsylvania Rate Department. This department  
10 provides regulatory support for Metropolitan Edison Company (“Met-Ed”), Pennsylvania  
11 Electric Company (“Penelec”) and Pennsylvania Power Company (“Penn Power”)  
12 (collectively “ the Companies”). I report to the Manager of Rates and Regulatory Affairs  
13 – Pennsylvania and am responsible for the development and preparation of the  
14 Companies’ accounting and financial data in support of rate-related matters before the  
15 Pennsylvania Public Utility Commission (“PUC” or “Commission”).

16

17 **Q. Please describe your educational and professional background?**

18 A. I graduated from Indiana University of Pennsylvania with a Bachelor of Science degree  
19 in Business Administration/Accounting in 1978 and a Master of Business Administration  
20 degree in 1987. I am a licensed Certified Public Accountant in the Commonwealth of  
21 Pennsylvania and a member of the American Institute of Certified Public Accountants.  
22 Prior to the merger of GPU, Inc. into FirstEnergy Corp. in 2001, I spent more than twenty  
23 years working in various capacities within the GPU organization. My work experience is  
24 more fully described in Appendix A.

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**Q. On whose behalf are you testifying in this proceeding?**

A. I am testifying on behalf of Met-Ed, Penelec, and Penn Power.

**Q. What is the purpose of your direct testimony?**

A. The purpose of my testimony is to introduce and explain the Companies’ proposed cost recovery mechanisms that will be used to recover the costs incurred by the Companies during the planning and implementation of 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”).

**Q. Mr. Parrish, have you prepared exhibits to accompany your testimony?**

A. Yes. Met-Ed/Penelec/Penn Power Exhibits RIP-1 through RIP-3 were prepared by me or under my supervision and are described in detail later in my testimony.

**II. Rider Cost Recovery and Reconciliation**

**Q. Mr. Parrish, do the Companies’ current tariffs have in place rates that will recover the costs associated with the development and implementation of the Plan that is being proposed in this proceeding?**

A. No, they do not. The costs associated with the development and implementation of the Plan are not being recovered through existing base rates.

1 **Q. What recovery mechanism are the Companies proposing?**

2 A. As permitted by Act 129 and 66 Pa. C.S. § 1307, the Companies are proposing to  
3 implement a Smart Meter Technologies (“SMT-C”) Rider for Met-Ed, Penelec, and Penn  
4 Power which are included as Met-Ed/Penelec/Penn Power Exhibits RIP-1 through RIP-3,  
5 respectively.

6  
7 **Q. Please describe the SMT-C Riders.**

8 A. As previously indicated, Met-Ed/Penelec/Penn Power Exhibits RIP-1 through RIP-3 are  
9 copies of the Met-Ed, Penelec, and Penn Power SMT-C Riders, respectively. Page 1 of  
10 each rider sets forth the SMT-C rates, while the remaining pages of each rider set forth  
11 the formula and description for developing the SMT-C rates and the reconciliation of  
12 revenues billed under the SMT-C Riders to actual costs as they are incurred.

13  
14 The SMT-C rates are expressed as a monthly customer charge and will be billed on that  
15 basis to all metered customer accounts. The SMT-C rates will be calculated and stated  
16 separately for the residential, commercial, and industrial customer classes. The rate  
17 schedules that comprise the residential, commercial, and industrial customer classes are  
18 identified on Page 1 of each Company’s rider.

19  
20 For Met-Ed and Penelec, the rate schedules that comprise the residential customer class  
21 are the same (Rate Schedules RS, RT, and GS – Volunteer Fire Company and Non-Profit  
22 Ambulance Service, Rescue Squad and Senior Center Service Rate). For Penn Power,  
23 the residential class is comprised of Rate Schedules RS; RS Optional Controlled Service

1 Rider; RH, RH Water Heating Option; WH; and GS Special Provision for Volunteer Fire  
2 Companies, Non Profit Senior Citizen Centers, Non-Profit Rescue Squads, and Non-  
3 Profit Ambulance Services.

4  
5 Met-Ed's commercial customer class is comprised of Rate Schedules GS-Small, GS-  
6 Medium, and MS. Penelec's commercial customer class consists of Rate Schedules GS-  
7 Small, GS-Medium, and H. Penn Power's commercial customer class is comprised of  
8 Rate Schedules GS, GS Special Rule GSDS, GS Optional Controlled Service Rider, OH  
9 With Cooling Capabilities, OH Without Cooling Capabilities, and WH Non-Residential.

10  
11 Met-Ed's industrial customer class is comprised of Rate Schedules GS-Large, GP, and  
12 TP. Penelec's industrial customer class is made up of Rate Schedules GS-Large, GP, and  
13 LP. Penn Power's industrial customer class consists of Rate Schedules GP and GT.

14  
15 Because Met-Ed's and Penelec's Borderline Service rate schedules are both only  
16 available to public utility companies for resale in adjacent service territories under  
17 reciprocal agreements between Met-Ed or Penelec and other public utilities, these public  
18 utilities are not eligible for the installation of smart meter technologies that are being  
19 proposed in the Companies' Plan. Therefore, no SMT-C rate will be applied to these  
20 Companies' Borderline Service customers.

21  
22 **Q. Will the SMT-C rates be applicable to Met-Ed's, Penelec's, and Penn Power's street**  
23 **lighting and outdoor lighting rate schedules?**

1 A. No, they will not. Service provided under Met-Ed's (Rate Schedules Street Lighting  
2 Service, Ornamental Street Lighting, and Outdoor Lighting Service), Penelec's ( Rate  
3 Schedules High Pressure Sodium Vapor Street Lighting Service, Municipal Street  
4 Lighting Service, and Outdoor Lighting Service) and Penn Power's (Rate Schedules PLS,  
5 SV, SVD, and SM) street lighting and outdoor lighting schedules are provided on an  
6 unmetered basis. Therefore, it is not appropriate for an SMT-C rate to be billed to these  
7 customer accounts on a monthly basis.

8  
9 **Q. What was the basis for determining by Company the customer class into which each**  
10 **respective Rate Schedule was grouped?**

11 A. For Met-Ed and Penelec, the SMT-C Rate Schedule groupings by residential,  
12 commercial, and industrial customer classes are the same as those proposed by the  
13 Companies in their current Default Service Supply Plans Proceeding at Docket Nos. P-  
14 2009-2093053 (Met-Ed) and P-2009-2093054 (Penelec) for recovery of default service  
15 costs. Penn Power's SMT-C Rate Schedule groupings, with the exception of Rate  
16 Schedule GS Special Rule GSDS included as part of the commercial customer class,  
17 mirror those for default service cost recovery approved by the Commission in 2008 in  
18 Penn Power's Interim Default Service Supply Plan Proceeding at Docket No. P-  
19 00072305.

20  
21 **Q. When would the SMT-C Riders for each Company become effective?**

22 A. The Companies are proposing that their SMT-C Riders become effective for service  
23 rendered on or after April 1, 2010.

1

2 **Q. Are the Companies proposing specific SMT-C rates at this time?**

3 A. No. Page 1 of Met-Ed/Penelec/Penn Power Exhibits RIP-1, RIP-2, and RIP-3 have  
4 placeholders for the applicable residential, commercial, and industrial SMT-C rates that  
5 would be effective April 1, 2010 through March 31, 2011. These rates will be calculated  
6 when the Companies' Plan and forecasted costs have been reviewed and approved by the  
7 Commission in this proceeding. The computation of the Companies' initial SMT-C rates  
8 and tariff supplements to be effective April 1, 2010 through March 31, 2011 will be filed  
9 within 30 days of the Commission's final order approving the Companies' Plan.

10

11 **Q. Are the SMT-C Riders and the associated SMT-C rates by-passable for customers  
12 served under the Rate Schedules identified in the proposed SMT-C Riders?**

13 A. No. Except for the Borderline Service customers previously discussed for Met-Ed and  
14 Penelec, the SMT-C Riders and applicable SMT-C rates will be applied during each  
15 billing month to customers served under the Rates Schedules identified as part of either  
16 the residential, commercial, or industrial classes.

17

18 **Q. Are all three Companies' SMT-C Riders structured the same?**

19 A. Yes, they are.

20

21 **Q. How are the SMT-C Riders structured?**

1 A. The SMT-C rates to be billed to the residential, commercial and industrial classes consist  
2 of two principal components. The first is the  $SMT_C$ , or “current cost” component; the  
3 second, the reconciliation component, or “E” factor.  
4

5 **Q. Please describe the  $SMT_C$  component.**

6 A. The  $SMT_C$  component represents the recovery of projected costs to be incurred during the  
7 current twelve-month period ending March 31 or “Computational Year” that the SMT-C  
8 rates will be in effect for each customer class. As shown on pages 2 and 3 of Met-  
9 Ed/Penelec/Penn Power Exhibits RIP-1 (Met-Ed SMT-C Rider), RIP-2 (Penelec SMT-C  
10 Rider), and RIP-3 (Penn Power SMT-C Rider), the  $SMT_C$  component is customer class  
11 specific. The projected costs to be included in development of each customer class’  
12 SMT-C rate are identified as  $SMT_{Exp1}$  and  $SMT_{Exp2}$ .

13  
14  $SMT_{Exp1}$  represents a projection of customer class costs associated with the Plan as  
15 approved by the Commission for the SMT-C Computational Year. These costs will be  
16 allocated to each customer class based on the number of customers in each customer  
17 class. During the implementation phase, these costs would also include carrying charges  
18 on capital costs, depreciation expense, and operational and maintenance expenses  
19 projected for the Computational Year, along with an allocated portion of any projected  
20 indirect costs that benefit all the respective Companies’ Customer Classes during this  
21 same period.  
22

1 SMT<sub>Exp2</sub> represents an allocated portion of administrative start-up costs incurred by either  
2 Met-Ed, Penelec, or Penn Power through March 31, 2010 in connection with the  
3 development of each Company's Plan. These costs to design, create, and obtain  
4 Commission approval for Met-Ed's, Penelec's, and Penn Power's Plan would include  
5 consultant costs, legal fees, and other direct and indirect costs associated with the  
6 development and implementation of the Companies' Plan in compliance with  
7 Commission directives. The Companies are proposing that the SMT<sub>Exp2</sub> costs be  
8 amortized over the 12-month period ending March 31, 2011. Interest will be accrued  
9 monthly on the average of the beginning and ending of the month balance of these costs  
10 as they are incurred by either Met-Ed, Penelec, or Penn Power and included in the  
11 determination of the monthly amortized amount. The interest shall be computed at the  
12 legal rate determined pursuant to 41 P.S. §202.

13  
14 **Q. With respect to the capital expenditures that will comprise the SMT<sub>Exp1</sub> cost**  
15 **component, what capital structure and cost rates will be used to determine the**  
16 **weighted monthly return on these investments?**

17 A. The Companies are proposing that the capital structure be based upon Met-Ed's and  
18 Penelec's normalized capital structures of 51% long-term debt and 49% common equity  
19 as approved by Commission Order in Met-Ed's and Penelec's most recent distribution  
20 base rate case proceeding that was entered January 11, 2007 at Docket Nos. R-0061366  
21 (Met-Ed) and R-00061367 (Penelec). These capital ratios are also proposed to be  
22 applicable to Penn Power.

1 The Companies are proposing that a common equity rate of 10.1% representing the  
2 allowed return on common equity as specified for Met-Ed and Penelec in the above-  
3 mentioned Commission Order entered January 11, 2007 be utilized in the computation of  
4 the weighted average monthly return on smart meter technologies capital expenditures,  
5 including Penn Power. The Companies will update the long-term debt rate component of  
6 this monthly return calculation on smart meter capital expenditures each April 1 based on  
7 the most recent calendar year's weighted rate as presented by the Companies in their  
8 respective quarterly Financial Reports filed with the Commission pursuant to 52 Pa. Code  
9 §§ 71.1 - 71.9.

10  
11 **Q. Please explain how the E factor component of the SMT-C rates will work.**

12 The E factor component of each Company's residential, commercial, and industrial class  
13 specific SMT-C rates represents a reconciliation of actual SMT-C costs incurred by  
14 customer class to actual SMT-C revenues billed by customer class on a monthly basis.  
15 For each Company this monthly reconciliation by specific customer class will result in  
16 either an over-collection of costs by customer class (revenues billed, excluding  
17 Pennsylvania Gross Receipts Tax ("GRT"), above actual costs) or an under-collection by  
18 customer class (revenues billed, excluding Pennsylvania GRT, below actual costs). Each  
19 month, by specific customer class for each Company, interest will be calculated from the  
20 month the over- or under-collection occurs until the month that the over-collection is  
21 refunded or the under-collection is recovered from customers in each specific customer  
22 class. The interest will be calculated at the legal rate specified in 41 P.S. §202, which is  
23 currently a six percent annual rate. The cumulative net balance, including the above-

1 mentioned interest, by each Company's customer classes for the current Reconciliation  
2 Year ended January 31 (as well as any customer class specific reconciliation balances  
3 remaining to be recovered or refunded from previous Reconciliation Years) will then be  
4 included for recovery in the customer class specific SMT-C rates that would be  
5 calculated for the subsequent Computational Year of the SMT-C rates on a customer  
6 class specific basis.

7  
8 **Q. Will the initial SMT-C rates by customer class include a reconciliation or E factor**  
9 **component?**

10 A. No. The initial SMT-C rates will not include a reconciliation or E factor component.  
11 Because the SMT-C Riders are proposed to be effective on November 1, 2009, there will  
12 be no previous monthly over or under-collections of revenues collected to costs incurred.

13  
14 **Q. How often will changes to the SMT-C rates by customer class be filed with the**  
15 **Commission?**

16 A. With the exception of the initial SMT-C rates for the twelve month period ending March  
17 31, 2011 that I addressed earlier in my testimony, any subsequent changes in the SMT-C  
18 rates, under normal operation of the Companies' proposed SMT Riders, would be filed,  
19 with supporting details, by March 1 of each year to be effective the following April 1.  
20 However, upon determination that the SMT-C rates would result in material over- or  
21 under-collections of recoverable costs incurred or expected to be incurred during the then  
22 current SMT-C Computational Year, the Companies may request that the Commission

1 approve interim revisions to the SMT-C rates to be effective thirty days from the date of  
2 filing.

3  
4 **Q. How do the Companies propose to recover the remaining costs associated with  
5 meters replaced as a result of each Companies' Plan?**

6 A. The Companies are proposing that existing meters that become obsolete due to  
7 replacements by smart meters would continue to be depreciated over the remaining lives  
8 per the respective Company's Annual Depreciation Reports as filed with and approved by  
9 the Commission pursuant to 52 Pa. Code, §§ 73.1 - 73.9 and continue to be recovered  
10 through current rates. Each company will explore the need for accelerated depreciation  
11 of the obsolete meters replaced under the Plan in its next distribution rate case  
12 proceeding.

13  
14 **Q. In your opinion, do the Companies' proposed SMT-C Riders as described in your  
15 testimony meet the requirements for a reconcilable adjustment clause tariff  
16 mechanism as set forth in 66 Pa. C.S. § 1307?**

17 A. Yes, they do meet the requirements of 66 Pa. C.S. § 1307, as well as the provisions  
18 included in both the Commission's Implementation Order on Smart Meter Procurement  
19 and Installation entered June 24, 2009, at Docket No. M-2009-2092655 ("Implementation  
20 Order") and Act 129.

21  
22 **Q. Will the Companies file with the Commission any reports related to the SMT-C  
23 Riders?**

1 A. Yes. As stated in each Company's respective SMT-C Rider, an annual report that sets  
2 forth the revenues billed and costs incurred will be filed each year with the Commission  
3 within thirty days of the end of the Reconciliation Year ( twelve months ending January  
4 31). These reconciliations will be provided by customer class and will be subject to  
5 annual review and audit by the Commission.

6

7 **III. Summary of Benefits of SMT-C Riders**

8

9 **Q. Mr. Parrish please summarize the benefits of the Companies' proposed SMT-C**  
10 **Riders.**

11 A. Consistent with the Commission's Implementation Order and Act 129, the Companies'  
12 proposed SMT-C Riders will permit Met-Ed, Penelec, and Penn Power to bill annual,  
13 levelized SMT-C rates expressed as a monthly charge to all residential, commercial, and  
14 industrial customers. The rates are calculated specifically for each customer class to  
15 recover the Companies' Plan costs approved by the Commission in this proceeding  
16 consistent with Act 129 and the provisions included in 66 Pa. C.S. § 1307. When  
17 coupled with the reconciliation provisions included in the Riders, the SMT-C rates will  
18 provide full, equitable and timely cost recovery of actual Plan costs incurred by each  
19 Company.

20

21 **Q. Mr. Parrish, does this complete your direct testimony?**

22 A. Yes, it does.

Resume: Education and Experience of Raymond I. Parrish

Education:

- 1978 Bachelor of Science Degree in Business Administration/Accounting – Indiana University of Pennsylvania  
1987 Master of Business Administration Degree - Indiana University of Pennsylvania

Professional License:

Certified Public Accountant, Pennsylvania

Experience:

- 7/78 - 12/79 Staff Accountant – Barnes, Saly and Company, Certified Public Accountants  
12/79 - 8/84 Auditor – GPU Service Corporation  
8/84 – 6/87 Rate Analyst within the Rate Department – Pennsylvania Electric Company (“Penelec”)  
6/87 – 9/89 Senior Rate Analyst within the Rate Department (Penelec)  
9/89 – 4/92 Supervisor – Rate Revenue Requirements within the Rate Department (Penelec)  
4/92 – 3/95 Manager - Rate Revenue Requirements within the Rate Department (Penelec)  
3/95 - 8/96 Manager – Rate Revenue Requirement within the Regulatory Affairs and Pricing Department (Met-Ed/Penelec)  
8/96 – 2/99 Staff Analyst within the Rate Department (GPU Energy)  
2/99 – 1/02 Revenue Requirements Specialist within the Rate Department (GPU Energy)  
1/02– Present Senior Business Analyst within Rates and Regulatory Affairs - Pennsylvania (FirstEnergy)

Prepared and presented testimony in the following rate-related cases:

- Pa. P.U.C. Cases: Docket Nos. P-2009-2093053  
P-2009-2093054  
M-2008-2077883  
M-2008-2077886  
M-2008-2077888  
M-2008-2044167

M-2008-2041169  
P-00072305  
C-00945489  
P-00920567  
M-920312, et al.  
D-90E011  
I-900005  
M-FACE 9105  
M-FACE 9106  
M-FACE 9001  
M-FACE 9004  
M-FACE 8902  
M-FACE 8909

Assisted in development and preparation in the following rate-related cases:

Pa. P.U.C. Cases: Docket Nos. P-00062235  
R-00061366  
R-00061367  
P-00062213  
P-00062214  
P-00052149  
P-00052188  
R-00016851C0001  
R-00016852C0001  
R-00016853C0001  
A-110300F.0095  
A-110400F.0040  
P-00001860  
P-00001861  
P-00001837 (Phase 2)  
P-00001838 (Phase 2)  
R-00974008 (Phase 1)  
R-00974009 (Phase 1)  
P-00971215  
P-00971216  
P-00971217  
P-00971223  
P-00971278

Met-Ed/Penelec/Penn Power Statement No. 3  
Witness: R. I. Parrish  
Appendix A  
Page 3 of 3

P-00961015  
P-00950968  
C-902788 and C-902799  
R-860413  
R-842771  
M-870172  
C-860690  
A-110400F009  
M-FACE 8810  
M-FACE 8811

FERC Case:            Docket No. ER-86-204-000

Metropolitan Edison Company

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RIDERS

RIDER XX  
SMART METER TECHNOLOGIES CHARGE RIDER

A Smart Meter Technologies (“SMT”) Charge (“SMT-C”) shall be applied as a monthly Customer charge during each billing month to metered Customers served under this Tariff, with the exception of those served under Borderline Service rates, determined to the nearest cent. The SMT-C rates shall be calculated separately for each Customer Class according to the provisions of this rider.

For service rendered April 1, 2010 through March 31, 2011 the SMT-C rates billed by Customer Class are as follows:

Residential Customer Class (Rate RS, Rate RT, and Rate GS – Volunteer Fire Company, and Non-Profit Ambulance Service, Rescue Squad and Senior Center Service Rate):

\$X.XX per month.

Commercial Customer Class (Rate GS-Small, Rate GS-Medium, and Rate MS):

\$X.XX per month.

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

\$X.XX per month.

Metropolitan Edison Company

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The SMT-C rates by Customer Class shall be calculated in accordance with the formula set forth below:

$$\text{SMT-C} = [((\text{SMT}_C - E) / \text{ACCC}) / 12] \times [1 / (1 - T)]$$

$$\text{SMT}_C = \text{SMT}_{\text{Exp1}} + \text{SMT}_{\text{Exp2}}$$

Where:

- SMT-C = The monthly charge by Customer Class as defined by this rider applied to each Customer billed under the Rate Schedules identified in this rider.
- $\text{SMT}_C$  = The Smart Meter Technologies Costs by Customer Class projected to be incurred by the Company for the SMT-C Computational Year calculated in accordance with the formula shown above.
- $\text{SMT}_{\text{Exp1}}$  = 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.
- $\text{SMT}_{\text{Exp2}}$  = An allocated portion of incremental administrative start-up costs incurred by the Company through March 31, 2010 in connection with the development of the Company's Plan. These costs to design, create, and obtain Commission approval for the Company's Plan include, but are not limited to, consultant costs, legal fees, and other direct and indirect costs associated with the development and implementation of the Company's Plan in compliance with Commission directives. These costs shall be amortized over the 12-month period ending March 31, 2011. Interest will be calculated monthly on the average of the beginning and end of month cumulative balance of these costs as incurred and included in the determination of the monthly amortized amount. The interest shall be computed at the legal rate determined pursuant to 41 P.S. § 202.

Metropolitan Edison Company

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- E = The over or under-collection of SMT costs by Customer Class that results from the billing of the SMT-C rates during the SMT Reconciliation Year (an over-collection is denoted by a positive E and an under-collection by a negative E), including applicable interest. Interest shall be computed monthly at the legal rate determined pursuant to 41 P.S. § 202, from the month the over or under-collection occurs to the month that the over-collection is refunded or the under-collection is recovered from Customers in the specific Customer Class.
- ACCC= The Company's projected Average Customer Class Count for the specific Customer Class for the SMT-C Computational Year.
- T = The Pennsylvania gross receipts tax rate in effect during the billing month expressed in decimal form as reflected in the Company's base rates.

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

1. SMT-C Computational Year – The 12-month period from April 1 through the following March 31.
2. SMT-C Reconciliation Year – The 12-month period ending January 31 immediately preceding the SMT-C Computational Year.

The SMT-C rates shall be filed with the Commission by March 1 of each year. The SMT-C rates shall become effective the following April 1, unless otherwise ordered by the Commission, and shall remain in effect for a period of one year, unless revised on an interim basis subject to the approval of the Commission. Upon determination that the SMT-C rates, if left unchanged, would result in material over or under-collection of all recoverable costs incurred or expected to be incurred during the then-current SMT-C Computational Year, the Company may request that the Commission approve one or more interim revisions to the SMT-C rates to become effective thirty (30) days from the date of filing, unless otherwise ordered by the Commission.

The Company shall file an annual report of collections under this rider within thirty (30) days following the conclusion of each SMT-C Reconciliation Year.

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

Metropolitan Edison Company

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Application of the SMT-C rates shall be subject to annual review and audit by the Commission.

Pennsylvania Electric Company

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RIDERS

RIDER XX  
SMART METER TECHNOLOGIES CHARGE RIDER

A Smart Meter Technologies (“SMT”) Charge (“SMT-C”) shall be applied as a monthly Customer charge during each billing month to metered Customers served under this Tariff, with the exception of those served under Borderline Service rates, determined to the nearest cent. The SMT-C rates shall be calculated separately for each Customer Class according to the provisions of this rider.

For service rendered April 1, 2010 through March 31, 2011 the SMT-C rates billed by Customer Class are as follows:

Residential Customer Class (Rate RS, Rate RT, and Rate GS – Volunteer Fire Company, and Non-Profit Ambulance Service, Rescue Squad and Senior Center Service Rate):

\$X.XX per month.

Commercial Customer Class (Rate GS-Small, Rate GS-Medium, and Rate H.):

\$X.XX per month.

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

\$X.XX per month.

Pennsylvania Electric Company

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The SMT-C rates by Customer Class shall be calculated in accordance with the formula set forth below:

$$\text{SMT-C} = [((\text{SMT}_C - E) / \text{ACCC}) / 12] \times [1 / (1 - T)]$$

$$\text{SMT}_C = \text{SMT}_{\text{Exp1}} + \text{SMT}_{\text{Exp2}}$$

Where:

- SMT-C = The monthly charge by Customer Class as defined by this rider applied to each Customer billed under the Rate Schedules identified in this rider.
- $\text{SMT}_C$  = The Smart Meter Technologies Costs by Customer Class projected to be incurred by the Company for the SMT-C Computational Year calculated in accordance with the formula shown above.
- $\text{SMT}_{\text{Exp1}}$  = 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.
- $\text{SMT}_{\text{Exp2}}$  = An allocated portion of incremental administrative start-up costs incurred by the Company through March 31, 2010 in connection with the development of the Company's Plan. These costs to design, create, and obtain Commission approval for the Company's Plan include, but are not limited to, consultant costs, legal fees, and other direct and indirect costs associated with the development and implementation of the Company's Plan in compliance with Commission directives. These costs shall be amortized over the 12-month period ending March 31, 2011. Interest will be calculated monthly on the average of the beginning and end of month cumulative balance of these costs as incurred and included in the determination of the monthly amortized amount. The interest shall be computed at the legal rate determined pursuant to 41 P.S. § 202.

Pennsylvania Electric Company

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- E = The over or under-collection of SMT costs by Customer Class that results from the billing of the SMT-C rates during the SMT Reconciliation Year (an over-collection is denoted by a positive E and an under-collection by a negative E), including applicable interest. Interest shall be computed monthly at the legal rate determined pursuant to 41 P.S. § 202, from the month the over or under-collection occurs to the month that the over-collection is refunded or the under-collection is recovered from Customers in the specific Customer Class.
- ACCC = The Company's projected Average Customer Class Count for the specific Customer Class for the SMT-C Computational Year.
- T = The Pennsylvania gross receipts tax rate in effect during the billing month expressed in decimal form as reflected in the Company's base rates.

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

1. SMT-C Computational Year – The 12-month period from April 1 through the following March 31.
2. SMT-C Reconciliation Year – The 12-month period ending January 31 immediately preceding the SMT-C Computational Year.

The SMT-C rates shall be filed with the Commission by March 1 of each year. The SMT-C rates shall become effective the following April 1, unless otherwise ordered by the Commission, and shall remain in effect for a period of one year, unless revised on an interim basis subject to the approval of the Commission. Upon determination that the SMT-C rates, if left unchanged, would result in material over or under-collection of all recoverable costs incurred or expected to be incurred during the then-current SMT-C Computational Year, the Company may request that the Commission approve one or more interim revisions to the SMT-C rates to become effective thirty (30) days from the date of filing, unless otherwise ordered by the Commission.

The Company shall file an annual report of collections under this rider within thirty (30) days following the conclusion of each SMT-C Reconciliation Year.

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

Pennsylvania Electric Company

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Application of the SMT-C rates shall be subject to annual review and audit by the Commission.

Pennsylvania Power Company

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RIDERS

RIDER XX  
SMART METER TECHNOLOGIES CHARGE RIDER

A Smart Meter Technologies (“SMT”) Charge (“SMT-C”) shall be applied as a monthly Customer charge during each billing month to metered Customers served under this Tariff determined to the nearest cent. The SMT-C rates shall be calculated separately for each Customer Class according to the provisions of this rider.

For service rendered April 1, 2010 through March 31, 2011 the SMT-C rates billed by Customer Class are as follows:

Residential Customer Class (Rate Schedules RS; RS Optional Controlled Service Rider; RH; RH Water Heating Option; WH; and GS Special Provision for Volunteer Fire Companies, Non-Profit Senior Citizen Centers, Non-Profit Rescue Squads, and Non-Profit Ambulance Services):

\$X.XX per month.

Commercial Customer Class (Rate Schedules GS, GS Special Provision GSDS, GS Optional Controlled Service Rider, PNP, GM, GM Optional Controlled Service Rider, OH with Cooling Capabilities, OH Without Cooling Capabilities, and WH Non-Residential):

\$X.XX per month.

Industrial Customer Class (Rate Schedules GP and GT):

\$X.XX per month.

Pennsylvania Power Company

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The SMT-C rates by Customer Class shall be calculated in accordance with the formula set forth below:

$$\text{SMT-C} = [((\text{SMT}_C - E) / \text{ACCC}) / 12] \times [1 / (1 - T)]$$

$$\text{SMT}_C = \text{SMT}_{\text{Exp1}} + \text{SMT}_{\text{Exp2}}$$

Where:

- SMT-C = The monthly charge by Customer Class as defined by this rider applied to each Customer billed under the Rate Schedules identified in this rider.
- SMT<sub>C</sub> = The Smart Meter Technologies Costs by Customer Class projected to be incurred by the Company for the SMT-C Computational Year calculated in accordance with the formula shown above.
- SMT<sub>Exp1</sub> = 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.
- SMT<sub>Exp2</sub> = An allocated portion of incremental administrative start-up costs incurred by the Company through March 31, 2010 in connection with the development of the Company's Plan. These costs to design, create, and obtain Commission approval for the Company's Plan include, but are not limited to, consultant costs, legal fees, and other direct and indirect costs associated with the development and implementation of the Company's Plan in compliance with Commission directives. These costs shall be amortized over the 12-month period ending March 31, 2011. Interest will be calculated monthly on the average of the beginning and end of month cumulative balance of these costs as incurred and included in the determination of the monthly amortized amount. The interest shall be computed at the legal rate determined pursuant to 41 P.S. § 202.

Pennsylvania Power Company

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- E = The over or under-collection of SMT costs by Customer Class that results from the billing of the SMT-C rates during the SMT Reconciliation Year (an over-collection is denoted by a positive E and an under-collection by a negative E), including applicable interest. Interest shall be computed monthly at the legal rate determined pursuant to 41 P.S. § 202, from the month the over or under-collection occurs to the month that the over-collection is refunded or the under-collection is recovered from Customers in the specific Customer Class.
- ACCC = The Company's projected Average Customer Class Count for the specific Customer Class for the SMT-C Computational Year.
- T = The Pennsylvania gross receipts tax rate in effect during the billing month expressed in decimal form as reflected in the Company's base rates.

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

1. SMT-C Computational Year – The 12-month period from April 1 through the following March 31.
2. SMT-C Reconciliation Year – The 12-month period ending January 31 immediately preceding the SMT-C Computational Year.

The SMT-C rates shall be filed with the Commission by March 1 of each year. The SMT-C rates shall become effective the following April 1, unless otherwise ordered by the Commission, and shall remain in effect for a period of one year, unless revised on an interim basis subject to the approval of the Commission. Upon determination that the SMT-C rates, if left unchanged, would result in material over or under-collection of all recoverable costs incurred or expected to be incurred during the then-current SMT-C Computational Year, the Company may request that the Commission approve one or more interim revisions to the SMT-C rates to become effective thirty (30) days from the date of filing, unless otherwise ordered by the Commission.

The Company shall file an annual report of collections under this rider within thirty (30) days following the conclusion of each SMT-C Reconciliation Year.

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

Pennsylvania Power Company

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Application of the SMT-C rates shall be subject to annual review and audit by the Commission.