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July 27, 2011

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Rosemary Chiavetta, Secretary  
Pennsylvania Public Utility Commission  
Commonwealth Keystone Building  
400 North Street, 2<sup>nd</sup> Floor  
Harrisburg, PA 17120PA PUBLIC UTILITY COMMISSION  
SECRETARY'S BUREAU

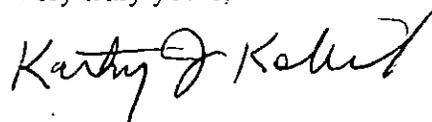
**Re: *Annual Progress Report of Metropolitan Edison Company, Pennsylvania Electric Company and Pennsylvania Power Company on Their Smart Meter Technology Procurement And Installation Plan***  
**Docket No. M-2009-2092655**

Dear Secretary Chiavetta:

Pursuant to the Commission's Implementation Order entered on June 24, 2009 in Docket No. M-2009-2092655, enclosed please find for filing an original and three (3) copies of Metropolitan Edison Company's, Pennsylvania Electric Company's and Pennsylvania Power Company's report on the annual progress made on their Smart Meter Technology Procurement and Installation Plan, that was approved by the Commission in a June 9, 2010 Order entered in Docket No. M-2009-2123950.

Please date stamp one copy and return it to me in the enclosed, postage-prepaid envelope. Please contact me if you have any questions regarding this matter.

Very truly yours,

kag  
Enclosurescc: All Parties of Record (via electronic service)  
ALJ Susan D. Colwell (via email)

**Annual Progress Report of  
Metropolitan Edison Company,  
Pennsylvania Electric Company and  
Pennsylvania Power Company on  
Their Smart Meter Technology  
Procurement And Installation Plan**

**(For the year ended June 30, 2011)**

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

**July 27, 2011**

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PA PUBLIC UTILITY COMMISSION  
SECRETARY'S BUREAU

**For Informational Purposes Only – Filed Pursuant to the Pennsylvania Public Utility  
Commission's Implementation Order Entered June 24, 2009 in Docket No. M-2009-2092655**

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## 1.0 Introduction and Background

On August 14, 2009, Metropolitan Edison Company (“Met Ed” or “ME”), Pennsylvania Electric Company (“Penelec” or “PN”) and Pennsylvania Power Company (“Penn Power” or “PP”) (collectively, “Companies”) filed their Smart Meter Technology Procurement and Installation Plan (“SMIP Plan”). This Plan provided both a short- and longer-term plan for compliance with Act 129 of 2008 (“Act 129”), which requires each electric distribution company (“EDC”) with more than 100,000 customers to develop a plan to fully deploy smart meters within fifteen years of Plan approval (June 2010-June 2025). The SMIP Plan as approved by the Pennsylvania Public Utility Commission (“Commission”), included a 30-month grace period during which the Companies indicated that they would assess their needs, select the necessary technology, secure vendors, train personnel, install and test support equipment and establish a detailed smart meter deployment schedule consistent with the statutory requirements -- including a deployment plan for: (i) the grace period; (ii) post grace period/pre-build out completion; and (iii) build out period. As indicated in the SMIP Plan, these tasks are being 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 SMIP Plan (“referred to herein as the “Deployment Plan”) that includes among other things: (i) a detailed long term time line, with key milestones; (ii) a potential smart meter solution; (iii) the projected costs of such 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.<sup>1</sup> The Companies have partnered with IBM and Black & Veatch Corporation to develop the SMIP Plan.

In a June 9, 2010 Order entered in Docket No. M-2009-2123950, the Commission approved the Companies’ SMIP Plan, directing them to submit an annual Smart Meter Progress Report (“Report”). Pursuant to this directive, the Companies submit this Report, which provides a status update on the activities surrounding the Assessment Period from the commencement of the project in July 2010, through June 30, 2011 (“Reporting Period”).

As more fully discussed below, the Companies are generally on track with the schedule set forth in the SMIP Plan. However, since the filing of the SMIP Plan, FirstEnergy Corp. (“FirstEnergy”), the Companies’ parent company, merged with Allegheny Energy, Inc. (“Allegheny Energy”). Allegheny Energy owned West Penn Power Company (“West Penn”), which submitted its own smart meter plan to the Commission in Docket No. M-2009-2123951. While the Companies intend to integrate the needs of West Penn into the Deployment Plan that will be submitted at the end of the Assessment Period and that will describe a comprehensive plan to provide smart meter services to every customer throughout the FirstEnergy Pennsylvania footprint (including West Penn) (“FirstEnergy PA Footprint”) by 2025, this Report focuses solely on the Companies’ SMIP Plan activities through June 30, 2011.<sup>2</sup>

<sup>1</sup> While the Companies anticipate providing this information to the degree possible, given the ever changing smart meter landscape, the Companies cannot guarantee that the Deployment Plan will include every detail for final implementation of the plan that will ultimately be approved.

<sup>2</sup> Inasmuch as the merger between FirstEnergy and Allegheny Energy was only recently consummated, and West Penn received a ruling on its proposed settlement submitted in their smart meter filing (Docket No. M-2009-2123951) on June 30, 2011, the Companies have only performed a preliminary review of West Penn’s work to date and a preliminary assessment of its needs. As of the date of this Report, these needs have not been integrated into the Assessment Phase strategy, but will be included in the Companies’ Deployment Plan that will be filed in June, 2012.

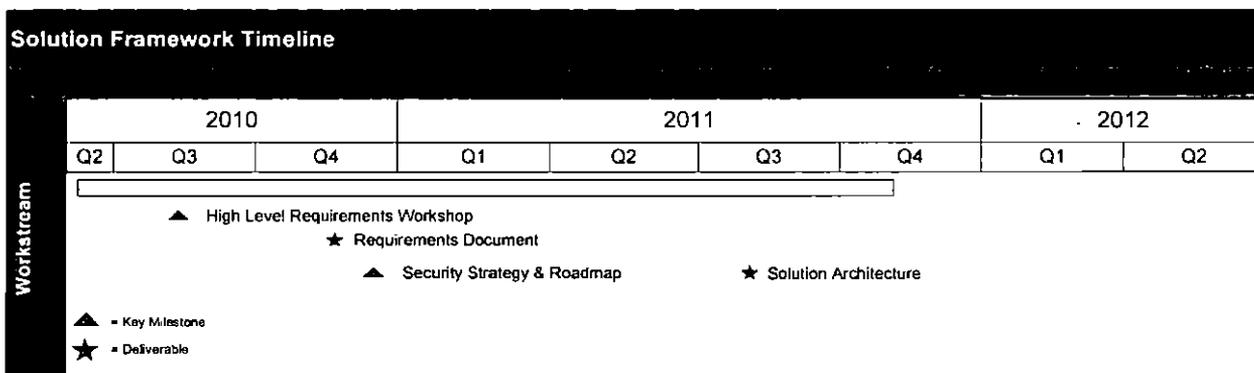
The Companies' SMIP project was subdivided into eight substantive subgroups, or workstreams: (i) Solution Framework; (ii) Current State; (iii) Vendor Strategy; (iv) Technology Evaluation and Test Lab; (v) Future State; (vi) Network Communications; (vii) External Communications and Consumer Awareness Strategies and (viii) Change Management and Training strategies. The major tasks performed during the Reporting Period and current status of each are discussed below.

## 2.0 Workstream Status Update

### 2.1 SOLUTION FRAMEWORK

**Purpose:** To provide strategic vision, technical subject matter expertise, and risk mitigation guidance using an end-to-end vision from the architecture, vendor, schedule, and business perspectives. The Solution Framework activities are focused on setting the overall framework for the Deployment Plan.

#### Solution Framework Timeline:



#### Key Workstream Activities to Date:

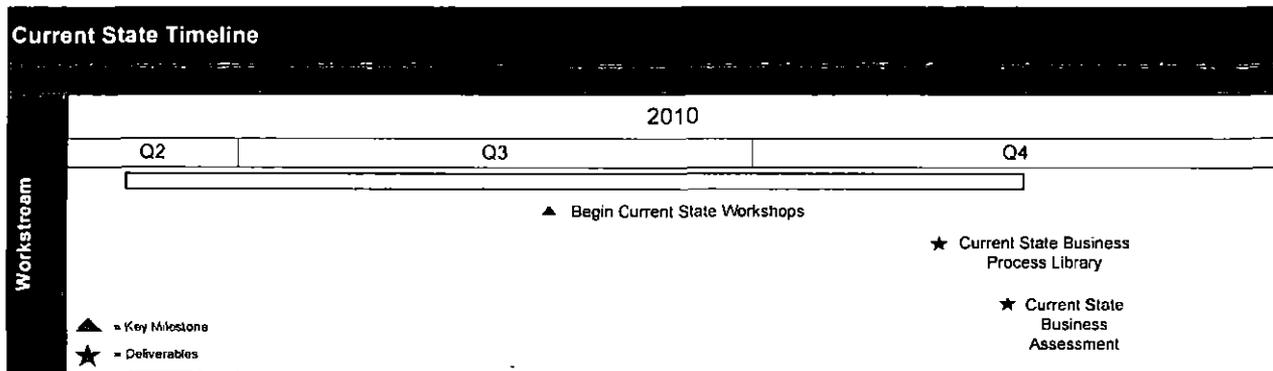
- Developed an overall system engineering and architectural view as related to the SMIP Plan.
- Validated the requirements for the Deployment Plan. Starting with Act 129 requirements, the team collected all known internal and external requirements into a single repository and then identified areas where more clarity was needed or potential gaps existed.
- Collected information regarding currently available options for customer facing and supplier portal solutions.
- Identified and evaluated existing methods and potential solutions for the collection of customer energy consumption data.
- Provided program-wide technical governance support in various areas, including design authority, establishment of program wide technical standards and guidelines, and quality assurance criteria.
- Collected and confirmed requirements for security and standards compliance for the smart meter solution.

**Current Status of Workstream:** All tasks to date have been completed on schedule. It is anticipated that the Solution Architecture associated with this workstream will be completed by the fourth quarter of 2011. Integration of security, telecom, privacy and network infrastructure are in progress.

## 2.2 CURRENT STATE

**Purpose:** To perform an initial discovery of the Companies' current state business activities across multiple business units that may potentially be impacted by the implementation of smart meters. The Current State Assessment activities involved identifying and confirming business units, functions, budgets, staffing, business processes, applications, contracts and other related data required for eventual inclusion in the end-state products of the business case and business planning.

### Current State Timeline:



### Key Workstream Activities to Date:

This workstream categorized its tasks into three major activities: (i) Data Gathering; (ii) Impact Analysis; and (iii) Validation of Data. Each is discussed below.

#### Data Gathering Activities:

- Identified the Companies' business units that may potentially be impacted by the deployment of smart metering.
- Created and distributed data request templates for internal use throughout FirstEnergy.
- Analyzed responses to internal data requests and held internal workshops for further discussion of potential impacts.

#### Impact Analysis:

- Created workshop agendas and materials based on existing business process documents, current business applications, and other pertinent information.
- Conducted data review and analysis workshops with FirstEnergy resources by business unit to identify and assess business processes, financial reporting structures, computer and other systems, and staffing.
- Identified and documented the current state architecture and technical design based on the solution architecture workshops with business units.
- Based on the above information, developed smart metering impact analysis documents to identify potential impacts to the Companies' business units.

**Validation**

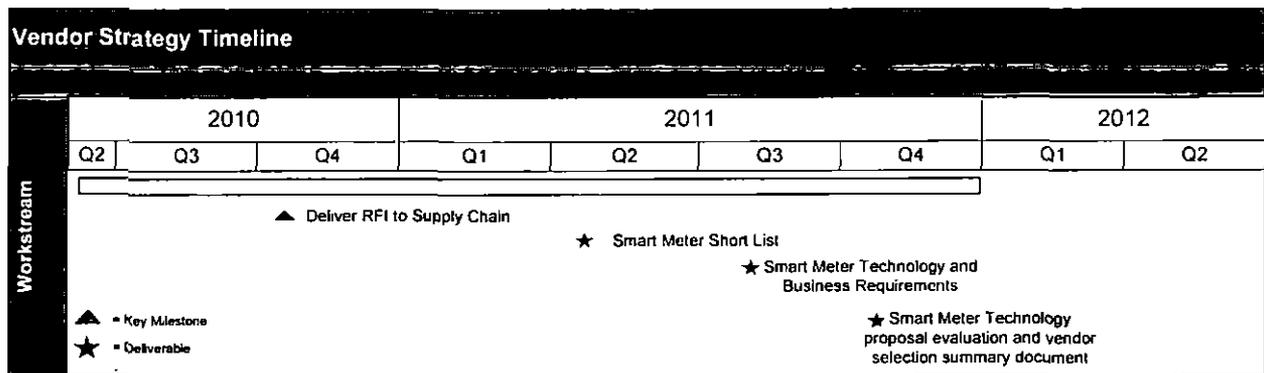
- Performed a detailed review of data provided by business units to ascertain accuracy, reasonableness and completeness of data provided. Compared results to benchmarked data from other jurisdictions.
- Held follow-up meetings with various business unit subject matter experts to validate findings.

**Current Status of Workstream:** All tasks have been completed.

**2.3 VENDOR STRATEGY**

**Purpose:** To identify various technologies and vendors that may be used in the final smart meter solution, narrowing the field to a manageable number for lab and field testing. This includes both a Request for Information (“RFI”) and Request for Proposal (“RFP”) process including “request instrument” development, and evaluation of the same components proposed by the vendors.

**Vendor Strategy Timeline:**



**Key Workstream Activities to Date:**

In the SMIP Plan (at page 37), the Companies indicated that they would start a ten month vendor and technology selection process in September, 2010. Since September, 2010, this workstream has accomplished the following:

- Identified six functional components of the smart meter project which are included within either Technology or Service Providers: (i) Technology – Head End; (ii) Technology - Meter Data Unification Synchronization System (“MDUS”); (iii) Technology - Smart Meter; (iv) Technology - Backhaul Communications; (v) Service Providers - Field/Device Installers; and (vi) Service Providers - System Integrator.
- Developed a multi-step vendor selection strategy:
  - Step 1: RFI for technology components (Head-End, MDUS, and smart meter) (Completed)
  - Step 2: RFP(s) for smart meter components (Head-End, MDUS, smart meter, Field Installation and Backhaul) (Preliminary work in progress)
  - Step 3: RFP(s) for a System Integrator (Preliminary work in progress)
- Defined functional requirements for Head-End, MDUS, and smart meter components.
- Defined NIST Security requirements for Head-End, MDUS, and smart meter components.

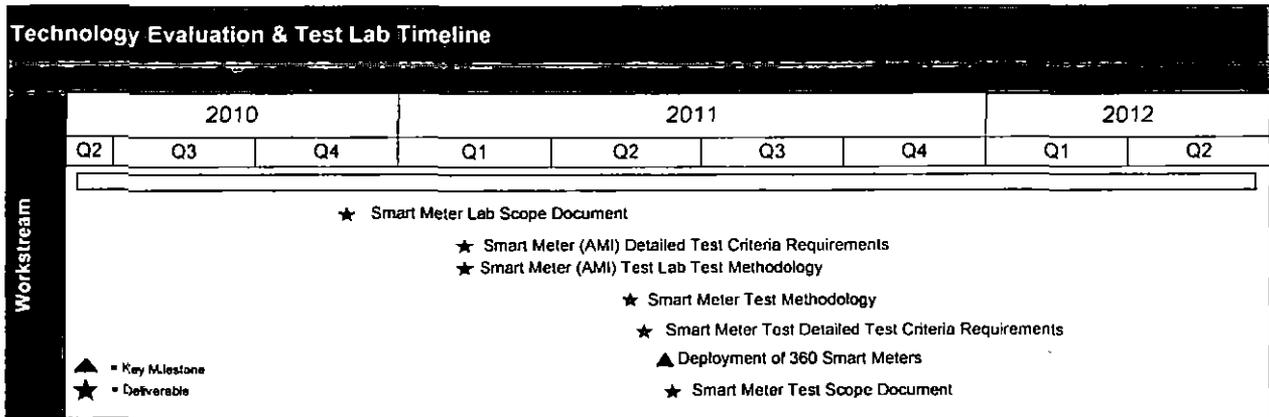
- Defined a price template for smart meter components.
- Completed Step 1 - RFI design, development, and distribution for Head-End, MDUS, and smart meter
  - Developed vendor evaluation criteria (by component)
  - Evaluated RFI response for each component (e.g. vendor, qualifications, requirements, price)

**Current Status of Workstream:** Steps 2 and 3 of the vendor selection began in June 2011 and will build upon the RFI effort completed in Step 1, refining requirements based on the RFI experience and the results from the testing (both in the lab and in the field). The RFP for smart meters, MDUS, and Head-End is planned to be released to the vendors in the fall of 2011 followed by evaluation of vendor proposals.

## 2.4 TECHNOLOGY EVALUATION & TEST LAB

**Purpose:** To test various smart meter technologies under both lab and field conditions.

### Technology Evaluation, Test Lab and Field Assessment Timeline:



### Key Workstream Activities to Date:

In the SMIP Plan, the Companies indicated that they would 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) a smart meter test lab; and 2) a field test.

### Smart Meter Test Lab:

- Developed a technology evaluation plan.
- Set up a test lab and obtained smart meter equipment from various vendors for evaluation in both the test lab and the field.
- Created test scenarios in the test lab based on Commission mandated functionality and FirstEnergy needs.
- To date, two MDUS vendors, three head-end vendors and three smart meter vendors (representing the landscape of viable technology solutions) have been tested under numerous scenarios, with defects reported to vendors and retests conducted as necessary.

- This workstream continues to evaluate the MDUS. Several options are being evaluated in the Smart Meter Test Lab. These systems have been in this environment since late 2010 and will continue to be tested through 2012 to ensure that they can meet the criteria listed in the SMIP Plan.
  - Each MDUS vendor has been fully integrated into a smart meter system to support end-to-end testing from the meter to the back-end CIS and SAP Enterprise Resource Planning (“ERP”) in preparation for field testing.
  - To support the billing determinant calculation testing, disconnect/reconnect functionality and other complex smart meter event management processes, FirstEnergy upgraded the SAP smart meter functionality to ERP Enhancement Package 5 (EhP5) and CRM (Ehp1) in the 1st quarter 2011. The SAP ERP and CRM systems are enabled to support ongoing business end to end process testing in the test lab and during the upcoming field assessment.

#### **Field Assessment:**

- Field deployment/ testing commenced in June, 2011:
  - 360 Met-Ed customers in two meter reading routes have been deployed for initial testing in the field.
  - Up to 5,000 smart meters will be deployed for additional field assessment before the end of 2013.
  - In addition to the Companies’ deployment testing activities, in its recently approved settlement, West Penn committed to deploy up to 25,000 smart meters during the West Penn grace period.<sup>3</sup> At this time the Companies expect to leverage information gathered through West Penn’s deployment, rather than expand their deployment beyond 5,000 smart meters.

#### **Electronic Data Interchange (EDI) Certification**

- In response to the Smart Meter Procurement and Installation Docket No. M-2009-2092655 (Implementation Order), FirstEnergy has been working with the Electronic Data Exchange Working Group (“EDEWG”) to develop Smart Meter Data Exchange Standards. The working group has focused on reviewing industry requirements and discussing data exchange standards for current and new business processes. Representatives from FirstEnergy participated in five EDEWG meetings that have been conducted prior to the end of the Reporting Period. This working group will be submitting a separate report to the Commission at a future date.

**Current Status of Workstream:** Smart meter test lab and field assessment activities are continuing as planned. During this field and lab testing, the Companies also evaluated their current EDI processes and procedures. The Companies concluded that their current EDI transactions effectively provide data at the account level. However, due to the volume of data, current EDI transactions are not effective at providing meter level data. The Companies will continue to work with the EDEWG Sub-Team to explore other methods to support the need for new historical interval usage data at the meter level and to resolve other outstanding issues surrounding business processes and data exchange standards.

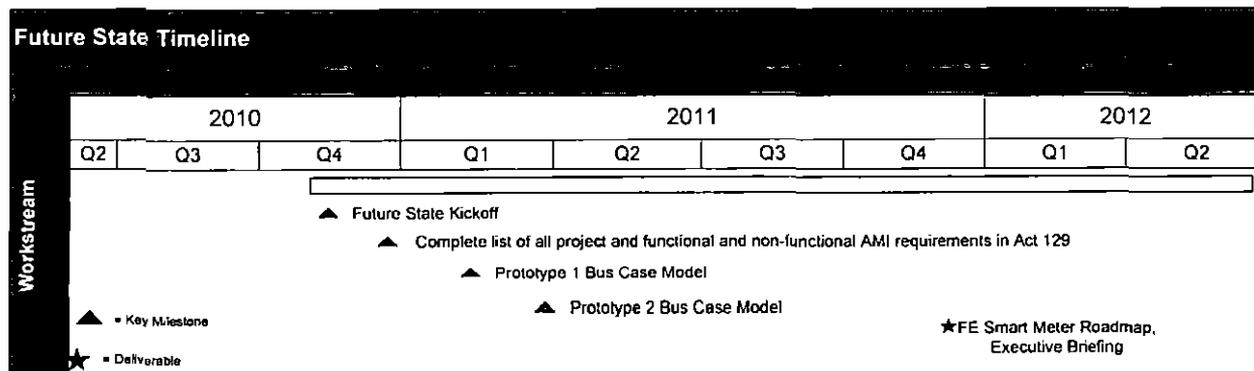
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<sup>3</sup> *Petition of West Penn Power Company d/b/a Allegheny Power for Expedited Approval of its Smart Meter Technology and Installation Plan, Docket No. M-2009-2123951, Appendix A (October 19, 2010).*

## 2.5 FUTURE STATE

**Purpose:** To develop a strategy to guide the full scale smart meter implementation by identifying the business and technical requirements for the various business departments, processes, procedures, equipment and infrastructure that may be affected by the implementation of a smart meter solution.

### Future State Timeline:



### Key Workstream Activities to Date:

- Facilitated twenty future state design workshops to ascertain the business unit impacts, risks, and business process transformation that would be needed as part of the smart meter deployment.
- Developed an impact analysis based on results of the design workshops, resulting in the identification of 300 unique impacts that would affect the Companies' business units post implementation.
- Developed a smart meter analysis based on the impact analysis and the solution architecture design. Developed a gap analysis between current state environment and smart meter requirements.
- Assessed privacy and security issues and solutions related to smart meter implementation programs.
- Identified future state data architecture.
- Created security tracking and reporting tools and metrics.
- Defined future state requirements, architecture and skills/capabilities to support the Companies' smart metering program.
- Identify smart meter implementation options and prioritize them based on planning level requirements. (In Progress)
- Develop an end-to-end recommended solution(s) for smart meters, in order to define the best solutions and protocols for the smart meter network, smart meters, software, hardware and cyber security. (In Progress)
- Develop a comprehensive plan detailing the proposed integrated solutions (Hardware, software, networks). (In Progress)
- Develop an overall implementation approach and a release plan for smart meter implementation. (In Progress)

- Develop detailed cost (capital and O&M) estimates to support future state requirements and architecture, including but not limited to hardware costs, software costs, maintenance costs, operational costs and licensing costs. (In Progress)
- Develop the Deployment Plan’s detailed business case and corresponding Commission filing. (In Progress)

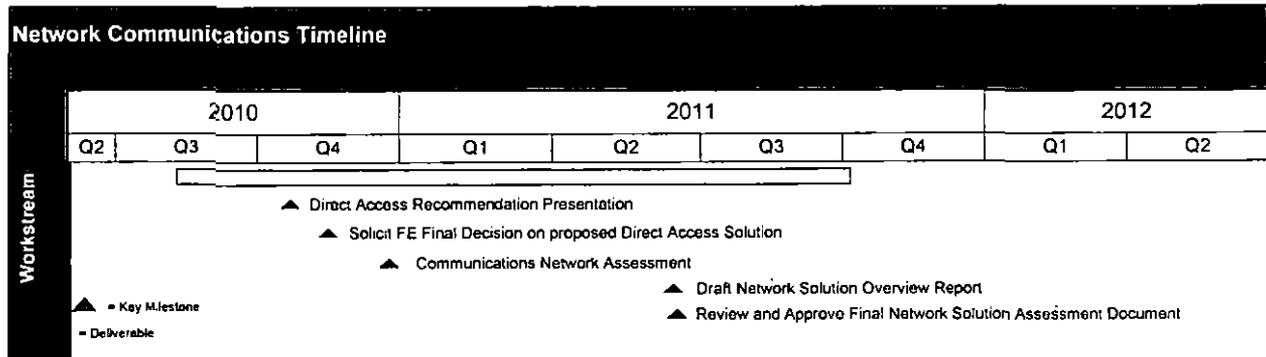
**Current Status of Workstream:**

The above tasks, as indicated, have either been completed or are in progress at this time.

**2.6 NETWORK COMMUNICATIONS**

**Purpose:** To identify the characteristics of each of the Companies’ service territories and match potential communication infrastructure that will accommodate such characteristics.

**Network Communications Timeline:**



**Key Workstream Activities to Date:**

The network communications workstream has completed a conceptual design of the communications backhaul network<sup>4</sup> for the entire pre-Allegheny FirstEnergy Pennsylvania footprint by looking at each of the three Companies individually and selecting sample areas in each of their respective service territories so as to obtain a varied sample of field conditions. Key activities involved in the development of this design include:

- Reviewing existing data, including various reports, technology roadmaps, vendor presentations and projects planned or in some stage of progress, and summarizing the results.
- Creating a master map profile of the Companies’ Pennsylvania footprint by:
  - Identifying FirstEnergy’s existing infrastructure assets (towers, substations, fiber networks, etc.) and potential third party assets and mapping them to determine viable options for potential locations to host smart meter backhaul equipment;
  - Selecting 24 sample areas based on topography variations within the various service territories and four meter density areas: (i) urban, (ii) suburban, (iii) rural and (iv) remote; and
  - Factoring in design guidelines and other information obtained through the RFI process.

<sup>4</sup> The communications backhaul network is the wide area network (WAN) that provides data transport between the AMI local area network (LAN) that will need to be constructed in each and every neighborhood of FirstEnergy’s Pennsylvania service territories, and the MDUS).

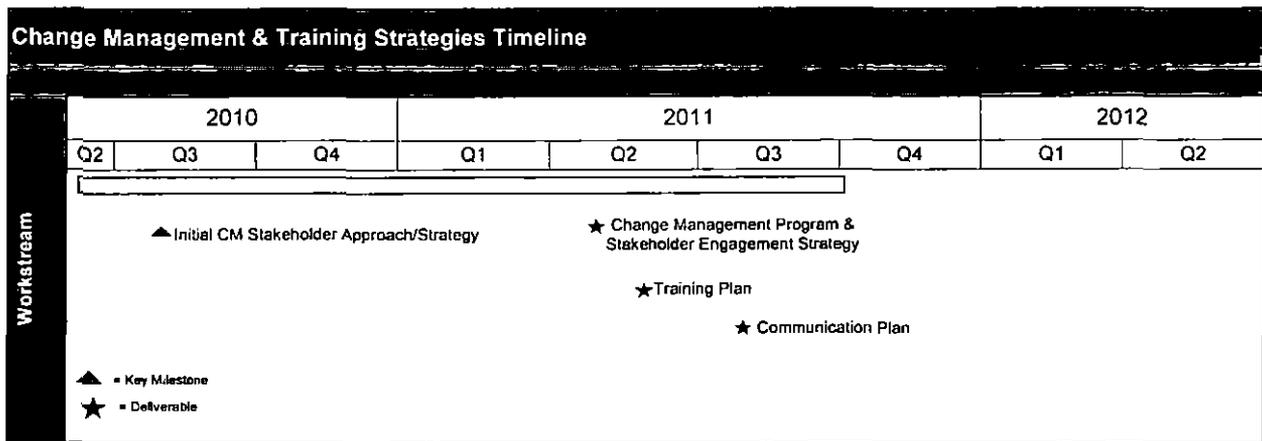


Deployment Plan/pre-Deployment approval phase communications plan, the implementation of internal FirstEnergy executive outreach workshops to update senior management on Deployment Plan progress, and the implementation of field assessment activities related to the smart meter assessment roll-out. The Companies also attempted to hold a stakeholder collaborative meeting on June 30, 2011, in which they were to address sub-hourly metering and provide an update to interested parties. Due to stakeholder schedule conflicts this meeting had to be postponed. The Companies have re-scheduled this collaborative meeting for August 17, 2011.

## 2.8 CHANGE MANAGEMENT & TRAINING STRATEGIES

**Purpose:** To develop a plan that bridges the current state of the Companies to the future state, including the identification of stakeholders, future state impacts training needs and communications needs.

### Change Management Timeline:



### Key Workstream Activities to Date:

The Companies indicated that an on-going change management assessment would commence in April, 2010. To date the following activities have occurred:

- Identified key stakeholders.
- Surveyed numerous FirstEnergy employees at all levels throughout the organization.
  - Survey addressed organizational readiness, communication needs, training needs and perceived customer attitudes.
  - Results are being used to develop an overall change management plan outline which includes topics such as the methodology, approach, key activities and timeline for managing the transition to smart meters.
  - Developed and defined the Companies' 'Strategy for Change.'
  - Completed a 'Change Characteristic' assessment of the Companies and key impacted business units.
  - Identified Companies' risks/challenges/ consequences if change is managed poorly.

- Developed a proposed Change Management Team structure to support the transition to smart meters.
- Developed a Change Management Roadmap.

**Current Status of Workstream:** All tasks are complete, except for the development of a training plan, which is in progress.

### 3.0 Deployment Status

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 status of each of these tasks is summarized below.

**During Grace Period** – The Companies are utilizing the MV-90 technology to offer smart metering to customers upon customer request and at the customer's cost. These meters have the capability to provide consumption data in 15 minute intervals and provide time of use information.

To date, no customer has requested a smart meter and thus no MV-90 meters have been required. The Companies have installed approximately 60 smart meters in their test lab and will be field testing approximately 300 meters on two preselected meter reading routes starting in June, 2011. During 2012 the scope of the field assessment will be expanded through the installation of approximately 3,000 smart meters. In 2013, the installation of approximately 2,000 smart meters is planned.

West Penn has committed to deploy up to 25,000 smart meters during the grace period.<sup>5</sup> Information obtained through this deployment will be incorporated into the work being performed during the Assessment Period.

**Full Deployment** – The Companies will be submitting a Deployment Plan in June, 2012 that will set forth their plan for full deployment of smart meters to all customers within the entire post-Allegheny FirstEnergy PA Footprint.

### 4.0 Budget and Cost Recovery

The SMIP Plan (at page 1) indicates that the total estimated cost of the project during the Assessment Period would be approximately \$29.5 million. However, this was a preliminary estimate provided from benchmark data prior to issuance and award of a Management Consulting RFP that yielded hourly rates that were higher than originally anticipated. This factor, as well as certain unexpected, but necessary additional tasks, has increased this estimate, which will be reflected in the Companies' next update to their respective SMT-C riders, which are discussed below.

The Companies each submitted a cost recovery mechanism as part of the SMIP Plan, which was approved by a Commission order entered June 9, 2010. Costs are currently being recovered through each Company's Smart Meter Technologies Charge ("SMT-C") Rider and rates billed to customers under the provisions of those cost recovery riders. Consistent with 66 Pa. C.S. § 1307(e), the Companies will file reconciliations of revenues billed and expenses incurred under their respective

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<sup>5</sup> *Petition of West Penn Power Company d/b/a Allegheny Power for Expedited Approval of its Smart Meter Technology and Installation Plan, Docket No. M-2009-2123951, Appendix A (October 19, 2010).*

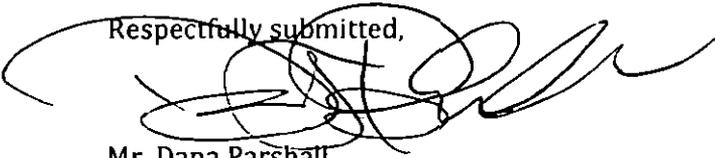
SMT-C Riders for the SMT-C Reconciliation Year ended June 30, 2011 by July 29, 2011, with tariff supplements (to be effective January 1, 2012) and support for such changes submitted by August 1, 2011.

## 5.0 Conclusion

The Companies thank the Commission for the opportunity to update it on the Companies progress towards the development of a smart meter solution for the Companies' Pennsylvania Footprint. Should the Commission have any questions about the content of this Report, or need any additional information, please contact:

Mr. Dana Parshall  
FirstEnergy Corp.  
Director, Smart Grid Technology  
76 South Main Street  
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Respectfully submitted,

  
Mr. Dana Parshall

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PA PUBLIC UTILITY COMMISSION  
SECRETARY'S BUREAU

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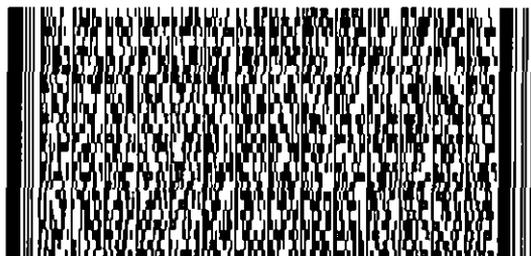
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