

**Legal Department**

Exelon Business Services Company  
2301 Market Street/S23-1  
P.O. Box 8699  
Philadelphia, PA 19101-8699

Telephone 215.841.4000  
Fax 215.568.3389  
www.exeloncorp.com

**RECEIVED**

OCT 20 2010

Direct Dial: 215.841.6863

October 20, 2010

Via FedEx

PA PUBLIC UTILITY COMMISSION  
SECRETARY'S BUREAU

Rosemary Chiavetta, Secretary  
Pennsylvania Public Utility Commission  
Commonwealth Keystone Building  
400 North Street, Second Floor  
Harrisburg, PA 17120

**Re: Letter of Notification of PECO Energy Company Pursuant to 52 Pa. Code Chapter 57 Subchapter G  
With Respect to the Reconductoring and Reconfiguration of the Master – North Philadelphia 230 kV  
Transmission Line, Docket No. A-\_\_\_\_\_**

Dear Ms. Chiavetta:

Enclosed for filing with the Commission are an original and six copies of the Letter of Notification of PECO Energy Company pursuant to 52 Pa. Code Chapter 57 Subchapter G With Respect to the Reconductoring and Reconfiguration of the Master – North Philadelphia 230 kV Transmission Line. Also enclosed is an extra copy of this letter, which I request that you date stamp and return to me in the envelope provided as proof of filing.

Based on prior practice, it is PECO's understanding that a Letter of Notification does not require a filing fee.

Please contact me if you have any questions.

Very truly yours,



Ward L. Smith  
Counsel for PECO Energy Company

WLS/zr

Enc.

**BEFORE THE  
PENNSYLVANIA PUBLIC UTILITY COMMISSION**

**Letter of Notification of PECO Energy** :  
**Company Pursuant to 52 Pa. Code** :  
**Chapter 57 Subchapter G With Respect** : **Docket No. A-\_\_\_\_\_**  
**to the Reconductoring and** :  
**Reconfiguration of the Master -- North** :  
**Philadelphia 230 kV Transmission Line** :

**RECEIVED**

OCT 20 2010

\_\_\_\_\_  
**LETTER OF NOTIFICATION**  
\_\_\_\_\_

PA PUBLIC UTILITY COMMISSION  
SECRETARY'S BUREAU

**I. INTRODUCTION AND OVERVIEW**

1. This Letter of Notification is filed pursuant to 52 Pa. Code §57.72(d)(1)(i) and (v) to request the approval of the Pennsylvania Public Utility Commission (“Commission”) to reconductor and reconfigure, build and modify, entirely on existing right-of-way and fee-owned or easement land, approximately 2.1 miles of 230kV transmission line located in the City of Philadelphia. As more fully described hereafter, this transmission line work is necessary to maintain and improve the reliability of the interstate transmission grid. The need for transmission line modifications was identified in the 2006 Baseline Regional Transmission Planning Report (the “2006 Baseline RTEP Report”) prepared by the PJM Interconnection LLC (“PJM”), and in subsequent interactions with PJM. PJM is the Independent System Operator (“ISO”) for the transmission system in the Mid-Atlantic region and NERC-registered Transmission Operator, Transmission Planner, Reliability Coordinator, Transmission Provider and Balancing Authority for the PECO transmission system. Subject to the Commission’s siting approval, construction of the proposed transmission line modifications described herein is scheduled to begin in the fall of 2010.

**II. THE APPLICANT AND ITS ATTORNEY(S)**  
**(52 Pa. Code § 52.72(c)(1) and (2))**

2. The applicant is PECO Energy Company (“PECO” or the “Company”), 2301 Market Street, Philadelphia, Pennsylvania 19101. PECO is a public utility that supplies light, heat and power to the public, by means of electricity, in all or portions of five counties in southeastern Pennsylvania. PECO is a “public utility” and an Electric Distribution Company (“EDC”), as those terms are defined in Sections 102 and 2803 of the Public Utility Code (66 Pa. C.S. §§102 and 2803), and it is subject to the regulatory jurisdiction of the Commission.

3. PECO’s attorney is:

Ward L. Smith  
Assistant General Counsel  
Exelon Business Services Company  
2301 Market Street, S23-1  
Philadelphia, PA 19101  
215 841-6863  
[ward.smith@exeloncorp.com](mailto:ward.smith@exeloncorp.com)

PECO’s attorney is authorized to receive all notices and communications regarding this Letter of Notification.

**III. THE NEED FOR THE PROPOSED TRANSMISSION  
LINE MODIFICATIONS  
52 Pa. Code § 52.72 (c)(5)**

4. In the course of its ongoing review of the interstate transmission system, PJM Interconnection, LLC has determined that, beginning in the summer of 2011, the Master – North Philadelphia 230 kV transmission line will be loaded at 112% of design capacity during normal (non-contingency) operations. The PJM 2006 Baseline Report (attached as Exhibit A) states (p. 5) that the “recommended solution is to reconductor the Master-North Philadelphia circuit by June 2011.” This statement in the PJM Baseline Report constitutes approval by PJM of the noted “recommended solution” as a reliability modification to the transmission system.

5. Pursuant to Schedule 6, Section 1.7 of PJM’s Operating Agreement, which was approved by, and is on file with, the Federal Energy Regulatory Commission (“FERC”), once PJM has approved reliability modifications to the transmission system, PECO is required to make those modifications.

**IV. GENERAL DESCRIPTION OF THE LINE MODIFICATIONS  
52 Pa. Code § 52.72 (c)(3)**

6. The Master-North Philadelphia line is an existing 230 kV circuit on an active Amtrak railroad right-of-way, primarily through an industrial and commercial area. A map showing the general location of the line is attached as Exhibit B. Photographs showing typical conditions along the corridor are attached as Exhibit C. The general line modification needed for this project is to reconductor the line with new conductors of higher capacity so that the

projected load may safely and reliably be transmitted over the line. Some of the existing towers will require modification in order to safely support the new, heavier, conductors. In addition, in a few places along the route, new intermediate structures will need to be erected to reduce the length of the span between structures.

7. In addition, if needed PECO will construct takeoff towers, dead-end towers, and other such facilities to bring the reconducted aerial transmission lines into the Master and North Philadelphia substations.

## **V. SAFETY CONSIDERATIONS**

### **52 Pa. Code § 52.72 (c)(6)**

8. The design criteria used for the transmission line work described herein is set forth in the PECO's standards for transmission line construction. These design criteria meet or exceed the requirements of the National Electrical Safety Code ("NESC"). Furthermore, PECO will construct, operate and maintain the transmission facilities in a manner that satisfies or surpasses NESC standards. The proposed project will not create an unreasonable risk of danger to the public health or safety.

9. PECO has generally evaluated the electric and magnetic fields associated with this project, but has not conducted computer modeling of the fields. PECO is not changing the configuration of the line, and therefore anticipates no change to magnetic fields due to line configuration changes. The reconductoring will allow the line to operate safely at a higher load, which is expected to be 112% of current capacity. Since magnetic fields increase in a linear

fashion with increases in load, PECO therefore expects that magnetic fields associated with the reconductoring will be approximately 12% higher after reconductoring. This line primarily is located in an industrial/commercial area, and is on an active railroad right-of-way. There are a few residential areas near small portions of the line, but only a limited number that do not directly abut the right-of-way. For these reasons, PECO does not expect this project to change the overall magnetic field environment experienced by members of the public.

## **VI. SITING AND ENVIRONMENTAL AND LAND USE IMPACTS**

10. The functional requirements of the project allow PECO to use existing rights-of-way and fee- or easement-owned land for all of the modifications for which approval is sought herein. In addition, and as explained in Section IV, this project involves reconductoring of an existing transmission line on an active railroad right-of-way. This transmission line work will take place on an existing transmission line right-of-way, which have been used as a power line corridor for many years. Before it performs construction work, PECO will conduct an analysis of the presence/absence of wetlands for the project. Where wetlands are identified and access is required, they will be surveyed, marked in the field, and designated on drawings. Where access over wetlands is necessary to perform the construction work, PECO will utilize temporary mats or other approved or permitted methods to avoid damage. As a consequence of all of these factors, the transmission line modifications proposed for approval herein will create minimal new environmental and land use impacts.

11. No communications towers, pipelines or other utilities will be affected by the proposed transmission line modifications. Because the project involves the reconfiguration and

reconductoring of existing transmission facilities, PECO has concluded that the proposed modifications will have no impact on any airports. However, if needed, PECO will perform all necessary notifications and obtain all necessary permits to comply with FAA and airport requirements.

12. The proposed transmission line modifications will have no significant environmental impacts. No unique geological, scenic or natural areas will be affected. All permits required for the construction and operation of this project will be obtained.

13. Because the project involves the reconfiguration and reconductoring of existing transmission facilities on an active railroad right-of-way, PECO has concluded that no historical or archeological sites will be affected.

**VII. COMMENCEMENT AND IN-SERVICE DATES**  
**52 Pa. Code § 52.72(d)(4)(ii)**

14. This project has a needed in-service date of June 1, 2011 in order to meet the requirements of the PJM 2006 Baseline Report. In order to meet this in-service date, PECO needs to commence construction in the fall of 2010.

**VIII. THE SIZE, CHARACTER, DESIGN AND CONFIGURATION OF  
THE TRANSMISSION LINE MODIFICATION WILL NOT  
SUBSTANTIALLY ALTER THE RIGHTS-OF-WAY  
52 Pa. Code §52.72(d)(4)(iii)**

15. This Letter of Notification is filed pursuant to 52 Pa. Code §57.72(d)(1)(i) and (v). As explained in Section IV, above: (1) this project is a reconfiguration and reconductoring of an existing transmission line along an active railroad right-of-way, primarily using the existing support structures; (2) the area through which this line traverses is primarily industrial and commercial, with the closest residences more than 300 feet away; and (3) PECO does not expect the magnetic fields experienced by the public to be altered. Therefore, none of these modifications will substantially alter the rights-of-way on which the lines are located.

**IX. FILING DATE AND PUC PROCEDURES  
52 Pa. Code § 52.72(d)(4)(iv)**

16. This Letter of Notification is being filed on the date shown next to the signature block below. As provided in 52 Pa. Code § 57.72(d)(5), the Commission will review and, by order, approve or disapprove this Letter of Notification. If the Commission approves this Letter of Notification, PECO will be approved to perform the proposed transmission line modifications as proposed herein without the formal application process set forth at 52 Pa. Code § 57.71 *et seq.* If the Commission does not approve this Letter of Notification, the Commission's Order shall direct PECO to file for approval to construct the proposed project pursuant to the Commission's certification regulations for a full application.

## **X. SERVICE AND PUBLICATION**

17. PECO will serve copies of this Letter of Notification on the only easement-holder – Amtrak – and on the entities for which service is required by regulation. Because this project involves only reconductoring and minor reconfiguration of an existing transmission line on an active rail corridor in a primarily industrial and commercial area, PECO does not believe that additional public notice is warranted. PECO therefore recommends that it should not engage in newspaper notice of this Letter. (Of course, if the Commission orders otherwise, then PECO will publish such notice as soon as practicable after the Commission so orders and formally assigns a docket number to this matter. If such newspaper publication is ordered and undertaken, it will be made in a newspaper of general circulation in the area of the proposed project. Such notice will contain: (a) the date this Letter of Notification was filed with the Commission; (b) a brief description of the project and its location; (c) area locations where the complete Letter of Notification may be reviewed by the public; and (d) an instruction that the interested parties should within 15 days contact Rosemary Chiavetta,, Secretary, at the Commission’s Harrisburg address. If such publication is made, a proof of publication will be provided to the Commission after the publication has been completed.)

18. Copies of the Letter of Notification or Notices of Filing of the Letter of Notification are being served in accordance with 52 Pa. Code § 57.72(d)(3), as evidenced by the Certificate of Service being filed along with this Letter of Notification.

19. Prior to filing this Letter of Notification, PECO had extensive discussions with Amtrak, which is the only easement holder and the only entity whose operations or facilities may be affected by this construction project. PECO and Amtrak have a long history of successfully working together on such construction projects.

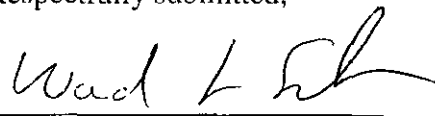
**WHEREFORE**, PECO Energy Company respectfully requests that the Commission approve the transmission line modifications as proposed and described herein and, for the reasons set forth above.

**RECEIVED**

OCT 20 2010

PA PUBLIC UTILITY COMMISSION  
SECRETARY'S BUREAU

Respectfully submitted,



Attorney for PECO Energy Company

Dated: October 20, 2010

**PECO Letter of Notification  
Master – North Philadelphia 230 kV Line**

**RECEIVED**

OCT 20 2010

**Exhibit A  
PJM 2006 Baseline Report**

PA PUBLIC UTILITY COMMISSION  
SECRETARY'S BUREAU

# 2006 BASELINE RTEP REPORT

For the 2007 - 2011 Period

**Table of Contents**

**INTRODUCTION** ..... 1

**EXECUTIVE SUMMARY** ..... 2

**KEY FINDINGS**..... 3

**OBJECTIVE AND SCOPE** ..... 7

**ANALYSIS METHODOLOGY** ..... 8

**RESULTS**..... 10

## INTRODUCTION

The PJM Regional Transmission Expansion Planning (RTEP) Process requires that cost responsibility for facility enhancements be established. There are three types of facility enhancements for which cost assignment must be made:

- Attachment Facilities required solely to interconnect a new generation or merchant transmission project,
- Network Facilities that are required to enhance the network solely or in part because of a proposed project, and
- Network Facilities required to support load growth.

In order to establish a starting point for development of Regional Transmission Expansion Plans and determine cost responsibility for expansion facilities, a 'baseline' analysis of system adequacy and security is necessary. The purpose of this analysis is threefold:

- to identify areas where the system, as planned, is not in compliance with the applicable reliability standards (for purposes of this report, "applicable reliability standards" will refer to NERC, MAAC, ECAR, SERC, MAIN, PJM and the individual transmission owner reliability standards). The baseline system will be analyzed using the same criteria and analysis methods that will be used for assessing the impact of proposed new interconnection projects. This will ensure that the need for system enhancement of the baseline system and enhancements due to interconnection projects are determined in a consistent and equitable manner.
- to bring those areas into compliance, develop and recommend facility expansion plans, including cost estimates and estimated in-service dates.
- to establish what will be included as baseline costs in the allocation of the costs of expansion for those generation and merchant transmission projects proposing to connect to the PJM system.

The system as planned is tested for its compliance with applicable reliability standards and PJM design standards to accommodate the forecast demand, committed resources, and commitments for firm transmission services for a specified time frame. Areas not in compliance with the standards are identified and enhancement plans are developed to achieve compliance.

The 'baseline' analysis and the resulting expansion plans serve as the base system for the conduct of Feasibility Studies and Impact Studies.

This report presents the results of the 'baseline' analysis from 2007 through 2011 for the PJM "footprint" as it existed in May 2006.

## EXECUTIVE SUMMARY

PJM has responsibility for the development of a Regional Transmission Expansion Plan (RTEP) for the PJM system that will meet the needs of the region in a reliable, economic and environmentally acceptable manner. PJM also is responsible for recommending the assignment of any transmission expansion costs to the appropriate parties. In order to carry out these responsibilities, it is necessary to establish a starting point or 'baseline' from which the need and responsibility for enhancements can be determined.

In order to establish that baseline, PJM has defined the five (5) year period from 2007 through 2011 as the 2006 "baseline" planning period. The existing system plus any planned modifications to the transmission system scheduled to be in service prior to the 2011 summer peak period was chosen as the base system. All new generation and merchant transmission projects in Queues A through O that executed a Facility Study Agreement were also included in this baseline system along with any associated transmission enhancements as identified in the Impact Studies. Any Transmission Owner identified transmission enhancements independent of those associated with new generation or merchant transmission projects were also included. Only firm transmission service currently committed for the period was represented.

PJM has conducted a comprehensive load flow analysis of the ability of the PJM system to meet all applicable reliability planning criteria which are listed below:

- NERC Planning Standards  
[ftp://www.nerc.com/pub/sys/all\\_updl/pc/pss/ps9709.pdf](ftp://www.nerc.com/pub/sys/all_updl/pc/pss/ps9709.pdf)
- MAAC Reliability Principles and Standards (<http://www.maac-rc.org/reference/princstandards.html>) will be applied for all facilities included in the MAAC Compliance Facility list ([http://www.maac-rc.org/reports/cia\\_ferc\\_nerc/downloads/comp-facil.pdf](http://www.maac-rc.org/reports/cia_ferc_nerc/downloads/comp-facil.pdf)).
- ECAR Reliability Criteria (Document No. 1) ([http://www.ecar.org/documents/document%201\\_6-98.pdf](http://www.ecar.org/documents/document%201_6-98.pdf)) will be applied to all ECAR networked transmission systems rated 100 kV or higher.
- MAIN Reliability Criteria (<http://www.maininc.org/bg/bgidx.htm>) will be applied to all MAIN networked transmission systems rated 100 kV or higher.
- SERC Reliability Criteria (<http://www.serc1.org/Pages/ComplianceContentPage.aspx?ID=25>) will be applied to all SERC networked transmission systems rated 100 kV and higher.
- PJM Reliability Planning Criteria as contained in Manual M14B Attachment G (<http://www.pjm.com/contributions/pjm-manuals/pdf/m14bv04.pdf>)
- Transmission Owner Reliability Planning Criteria as filed in their respective FERC 715 filing.

All conditions where the system was not in compliance with the applicable reliability standards were documented and system reinforcements required to bring the system into compliance were identified along with estimated cost and lead-time to implement them.

Those areas that were found to be non-compliant with applicable reliability standards establish the need for reinforcement in those areas independent of any future interconnection projects not included in the baseline analysis. This fact and the identified reinforcements to bring the system

into compliance will be used in evaluating the impact of the projects in Queues P & Q that qualify and elect to proceed with the impact studies. The extent to which reinforcements identified in the baseline analysis are advanced, deferred, modified or eliminated will be used in determining cost responsibility for the final plans in the RTEP.

It should be recognized that the reinforcements proposed in this baseline analysis might be modified or eliminated as a result of generation or merchant transmission projects being added to or removed from the system. The development of the RTEP for PJM is an ongoing process, which will include the conduct of impact studies and development of plans to accommodate the new interconnection projects in Queues P & Q. Upon completion of the impact studies some projects may elect not to proceed. When it is determined which projects will commit to proceed, a new baseline RTEP will be developed to meet the needs of the region, including the accommodation of all new projects committed to connect, during the next 5 year period. That RTEP will be recommended to the PJM Board of Directors for approval of proposed enhancements and will serve as the baseline for the next Queue of proposed projects.

The PJM Transmission Owners may identify the need to build additional system reinforcements that are not identified as required through the RTEP analysis.

### **KEY FINDINGS**

The following areas of the system as planned through 2011 were found to be non-compliant with applicable reliability standards without additional reinforcement. These areas are described below along with any identified reinforcements to achieve compliance. The detailed descriptions of the conditions that result in non-compliance are reported in the Results section of this report. The cost estimates below are based on the cost estimates provided at the May 23, 2006 TEAC meeting.

- 1) The Mackeys – Edenton 115 kV circuit is contingency overloaded at 175% for the loss of the Everetts 230/115 kV transformer and the Earleys – Cashie – Trowbridge 230 kV circuit. The recommended solution is to install a second Everetts 230/115 kV transformer by June 2011. The estimated cost is \$3 million.
- 2) The Remington – Brandywine 115 kV circuit is contingency overloaded at 259% for the loss of the Gordonsville – Hollymead – Charlottesville and South Anna – Louisa – North Anna 230 kV circuits. The recommended solution is to uprate/re-sag the Remington – Brandywine – Culpepper 115 kV circuit by June 2011. The estimated cost is \$2.2 million.
- 3) The Elmont – Mt. Road 230 kV circuit is contingency overloaded at 130% for the loss of the Southwest – Walmsley – Iron Bridge – Chesterfield 230 kV and Midlothian – Trabue – Winterpock 230 kV circuits. The recommended solution is to replace the wave trap at Elmont 230 kV substation on the #231 line by June 2011. The estimated cost is \$0.5 million.
- 4) The Halifax – Mt. Laurel 115 kV circuit is contingency overloaded at 135% for the loss of the Carson – Clover 500 kV and the Person – Halifax 230 kV circuits. The recommended solution is to build a new Chase City – Clarksville 115 kV circuit by June 2011. The estimated cost is \$6 million.
- 5) The Shell Bank – Whealton 115 kV circuit is contingency overloaded at 137% for the loss of the Shell Bank – Magruder – Peninsula 115 kV circuit and Shell Bank 230/115 kV transformer. The recommended solution is to upgrade/re-sag the Shell Bank – Whealton 115 kV circuit by June 2011. The estimated cost is \$0.5 million.

- 6) The Jetersville – Moran 115 kV circuit is contingency overloaded at 103% for the loss of a generation at Jetersville 115 kV substation. The recommended solution is to install a breaker at Crewe 115 kV substation and shift load from circuit 158 to circuit 98 by June 2011. The estimated cost is \$0.5 million.
- 7) The Chesapeake – Cradock 115 kV circuit is contingency overloaded at 100% for the loss of the Chesapeake – Reeves 115 kV circuit. The recommended solution is to uprate/re-sag the Chesapeake – Cradock 115 kV circuit by June 2011. The estimated cost is \$0.7 million.
- 8) The Chesapeake – Dozier 115 kV circuit is contingency overloaded at 108% for the loss of a generator at Thompsons Corner 115 kV substation. The recommended solution is to reconductor one span of the Chesapeake – Dozier 115 kV circuit by June 2011. The estimated cost is \$0.05 million.
- 9) The Gordonsville 230/115 kV transformer #1 is contingency overloaded at 108% for the loss of the Gordonsville 230/115 kV transformer #2. The recommended solution is to replace the Gordonsville 230/115 transformer #1 by June 2011. The estimated cost is \$3 million.
- 10) The Iron Bridge – Walmsley 230 kV circuit is contingency overloaded at 130% for the loss of the Midlothian – Trabue – Winterpock and Elmont – Mt. Road – North West 230 kV circuits. The recommended solution is to uprate/re-sag the Iron Bridge – Walmsley – Southwest 230 kV circuit by June 2011. The estimated cost is \$0.6 million.
- 11) The Dayton – Harrisonburg 230 kV circuit and the Valley 500/230 kV transformer are contingency overloaded at 135% and 140% respectively, for the loss of the Dooms – Valley 500 kV circuit and Dooms 500/230 kV transformer #2. The recommended solution is to install a breaker at Dooms 230 kV substation by June 2009. The estimated cost is \$1.0 million.
- 12) Voltage violation identified in the Norfolk/Virginia Beach area 230 kV buses and the Surry – Smithfield – Crittendon 230 kV circuit overloaded at 134% for N-2 contingency involving the loss of the Yadkin – Septa 500 kV circuit along with the Yadkin – Suffolk or Yadkin – Surry 500 kV circuit. The recommended solution is to build a new Carson – Suffolk 500 kV circuit, install second Suffolk 500/230 kV transformer and build new Suffolk – Fentress 230 kV circuit by June 2011. The estimated cost is \$160 million.
- 13) The Rolling Meadows – Gore Junction 115 kV circuit is pre-contingency overloaded at 102%. The recommended solution is to upgrade the Rolling Meadow – Gore Junction 115 kV circuit by June 2011. No cost associated with this project.
- 14) The Portland – Pequest 115 kV circuit is contingency overloaded at 101% for the loss of the Gilbert – Morris Park 230 kV circuit. The recommended solution is to implement an operating procedure to close the Glendon – Gilbert 115 kV circuit by June 2011. No cost associated with this project.
- 15) The Grays Ferry – Tunnel – Parrish 230 kV circuit is contingency overloaded at 110% for the loss of the Windsor – Alloway 500 kV circuit. The recommended solution is to reconductor the overloaded circuit by June 2011. The cost is estimated at \$4 million.
- 16) Either one of the Eddystone – Llanerch 138 kV circuit is contingency overloaded at 105% for the loss of the other Eddystone – Llanerch 138 kV circuit. The recommended solution is to install 2% reactor on both Eddystone – Llanerch 138 kV circuits and install a new 230/138 kV transformer at Plymouth Meeting by June 2011. The estimated cost is \$4 million.
- 17) The Eddystone – Island Road 230 kV circuit is contingency overloaded at 105% for the loss of the MacDade – Morton 230 kV circuit. The recommended solution is to upgrade terminal equipments by June 2011. The estimated cost is \$1.4 million.

- 18) The Portland – Greystone 230 kV circuit is contingency overloaded at 105% for tower outage involving the loss of the Gilbert – Morristown and Glen Gardner – West Wharton 230 kV circuits. The recommended solution is to upgrade terminal equipments by June 2011. The estimated cost is \$0.8 million.
- 19) The Buckingham – Pleasant Valley 230 kV circuit is contingency overloaded at 112% for N-2 contingency involving the loss of the Alburdis – Branchburg and Elroy – Branchburg 500 kV circuit. The recommended solution is to reconductor the Buckingham – Pleasant Valley 230 kV circuit by June 2011. The estimated cost is \$8 million.
- 20) The North Philadelphia – Waneeta 230 kV circuit is contingency overloaded at 126% for the loss of the Whitpain 230 kV bus #3 and Plymouth – Whitemarsh – Pulaski 230 kV circuit. The recommended solution is to reconductor the North Philadelphia – Waneeta 230 kV circuit by June 2011. The estimated cost is \$4.1 million.
- 21) The Master – North Philadelphia 230 kV circuit is pre-contingency overloaded at 112%. The recommended solution is to reconductor the Master – North Philadelphia 230 kV circuit by June 2011. The estimated cost is \$4.2 million.
- 22) A few thermal overloads identified in the Penelec region for numerous N-2 contingencies. The recommended solution is to change various tap settings in the Penelec region by June 2011. The estimated cost is \$0.1 million.
- 23) The Alburdis – Hosensack 230 kV is overloaded at 105% for the N-2 contingency involving the loss of the Alburdis – Branchburg and Elroy – Branchburg 500 kV circuits. The recommended solution is to replace a 3000A disconnect switch at the Alburdis 230 kV substation. The estimated cost is \$0.075 million.
- 24) The Oak Grove – Richie 230 kV is overloaded for N-2 contingency involving the loss of the Dickerson – Quince Orchard and Station H – Quince Orchard 230 kV circuits. The recommended solution is to install a 4<sup>th</sup> 230/69 kV transformer at Richie substation by June 2011. The estimated cost is \$11.5 million.
- 25) The Dickerson – Quince Orchard “23033” 230 kV circuit is overloaded for N-2 contingency involving the loss of the Dickerson – Quince Orchard and Station H – Quince Orchard 230 kV circuits. The recommended solution is to upgrade the Dickerson – Quince Orchard “23033” 230 kV circuit by June 2011. The estimated cost is \$3.75 million.
- 26) The Portland – Martins Creek 230 kV circuit is contingency overloaded at 102% for the loss of the Gilbert – Martins Creek 230 kV circuit. The recommended solution is to upgrade terminal equipment on Martins Creek and raise the operating temperature of the Portland – Martins Creek 230 kV circuit by June 2011. The estimated cost is \$0.26 million.
- 27) The Kittatiny – Newton 230 kV circuit is overloaded at 112% for tower contingency involving the loss of the Portland – Greystone and Kittatiny – Pogatcong 230 kV circuits. The recommended solution is to reconductor the overloaded portion of the Kittatiny – Newton 230 kV circuit by June 2011. The estimated cost is \$1.25 million.
- 28) The Gilbert – Glen Gardner 230 kV circuit is contingency overloaded at 110% for the Gilbert – Martins Creek 230 kV circuit. The recommended solution is to reconductor the 8 miles Gilbert – Glen Gardner 230 kV circuit by June 2011. The estimated cost is \$7 million.
- 29) The Tosco – G22\_MTX 230 kV circuit is contingency overloaded at 102% for the loss of the Deans – New Dover – Westfield 230 kV circuit. The recommended solution is to reconductor the Tosco – G22\_MTX 230 kV circuit with 1033 bundled ACSS conductor by June 2011. The estimated cost is \$0.62 million.
- 30) The Portland – Kittatiny 230 kV circuit is overloaded at 110% for tower contingency involving the loss of the Portland – Greystone and Gilbert – Morristown 230 kV

- circuits. The recommended solution is to replace terminal equipments on both Portland and Kittatiny 230 kV substations by 2011. The estimated cost is \$1.38 million.
- 31) Various voltage violations identified across Mid Atlantic region for loss of several 500 kV circuits and generators under the 2011 load deliverability test for Mid Atlantic region. The recommended solution is to install 500 MVAR reactive device at Airydale 500 kV substation by June 2011. The estimated cost is \$22 million.
  - 32) Various voltage violations identified across Mid Atlantic region for the loss of the Keystone - Airydale 500 kV circuit under the 2011 load deliverability test for Mid Atlantic region. The recommended solution is to install 300 MVAR capacitors at Conemaugh 500 kV substation by June 2011. The estimated cost is \$2 million.
  - 33) The Pleasant View – Dickerson 230 kV circuit is contingency overloaded for the loss of the Possum Point – Burches Hill 500 kV circuit. The recommended solution is to install 0.5% reactor at Dickerson 230 kV substation on the Pleasant View – Dickerson 230 kV circuit by June 2011. The estimated cost is \$5.0 million.
  - 34) The Dickerson – Quince Orchard “23035” 230 kV circuit is contingency overloaded at 104% for the loss of the Station H – Quince Orchard “23033” 230 kV circuit. The recommended solution is to upgrade the Dickerson – Quince Orchard “23035” 230 kV circuit by June 2011. The estimated cost is \$3.75 million.
  - 35) The Burches Hill 500/230 kV transformer is pre-contingency overloaded at 101%. The recommended solution is to add a second Burches Hill 500/230 kV 1000 MVA transformer by June 2011. The estimated cost is \$32 million.
  - 36) Voltage violation identified at Altoona 230kV substation for N-2 contingency involving the loss of the Conastone – Hunterstown 500 kV and Johnstown – Altoona 230 kV circuits. The recommended solution is to install two 50 MVAR capacitors at Altoona 230 kV substation by June 2011. The estimated cost is \$1.0 million.
  - 37) The Carroll 230/138 kV transformer #4 is contingency overloaded at 117% and numerous overloads were identified on the non PJM monitored facilities for the loss of the Doubs – Montgomery – Monocacy 230 kV circuit. The recommended solution is to extend 230 kV service to the existing Lime Kiln substation by December 2006 and to convert the Doubs – Monocacy 138 kV facilities to 230 kV operation by June 2011. The estimated cost is \$13.6 million.
  - 38) The North Shenandoah 138/115 kV transformer is contingency overloaded at 130% for the loss of the Meadow Brook – Greenland Gap 500 kV circuit and the Meadow Brook 500/138 kV transformers. The recommended solution is to replace the North Shenandoah 138/115 kV transformer by June 2011. The estimated cost is \$2.0 million.
  - 39) The Inwood – Stonewall 138 kV circuit is contingency overloaded at 103% for the loss of the Bedington – Black Oak 500 kV circuit and Bedington 500/138 kV transformers #1 and #3. The recommended solution is to upgrade the Inwood – Stonewall 138 kV circuit with 954 ACSR conductor by June 2011. The estimated cost is \$1.6 million.
  - 40) The Doubs 500/230 kV transformers #2, #3 and #4 are contingency overloaded for the loss of the Doubs – Brighton 500kV circuit under the 2011 load deliverability test for the Mid Atlantic region. The recommended solution is to replace the three overloaded Doubs transformers by June 2011. The estimated cost is \$15.7 million.
  - 41) Several voltage violations and thermal overloads identified across PJM system under the 2011 various tests. The recommended solution is to build a new 500 kV circuit from 502 Junction – Mt. Storm – Meadow Brook – Loudoun by June 2011. The estimated cost is \$850 million.

## OBJECTIVE AND SCOPE

The objectives of this study were as follows:

- To identify areas where the system as planned for the period 2007 through 2011 would not be in compliance with applicable reliability standards.
- To develop and recommend preliminary facility expansion plans, including cost estimates and estimated in service dates, to bring those areas into compliance.
- To establish what will be included as baseline expansion costs for the allocation of the costs of expansion for those projects included in Queues P & Q.

The scope of this study included analysis for the period 2007 through 2011 to determine compliance with the all applicable reliability planning criteria.

Other than as required for the PJM Reliability Planning Criteria or an individual transmission owner criteria, the system was not analyzed under non-peak load flow conditions on the basis that the system can and will be dispatched to remain within first contingency operating limits. Transmission constraints on market dispatch are economic constraints. Economic constraints are not considered violations of reliability criteria as long as the system can be adjusted to remain within reliability limits on a pre-contingency basis.

The necessity of all system reinforcements previously identified in the previous RTEP Baseline Reports and the Queue A through O Impact Studies were evaluated. Any previously identified reinforcements that are no longer required were documented and removed from the list of RTEP Reinforcements.

**ANALYSIS METHODOLOGY**

Load flow simulation was based on a representation of the 2011 forecast peak load, existing capacity resources, and all proposed interconnection projects in Queues A through O that executed a Facility Study Agreement. All firm transmission services committed for the 2011 period were represented in the base case (see below). In addition, any transmission reinforcements planned to be placed in service by 2011 summer were represented.

<b>RTEP 2010 – INTERCHANGE</b>		
<b>FROM</b>	<b>TO</b>	<b>MW</b>
PJM	AMRN	70
PJM	CIN	408
PJM	EKPC	0
PJM	FE	1676
PJM	IP	-1233
PJM	LGEE	-66
PJM	OVEC	-1853
PJM	ALTW	264
PJM	ALTE	155
PJM	CPLC	65
PJM	CPLW	0
PJM	DUK	263
PJM	MEC	1370
PJM	MECS	979
PJM	NIPS	400
PJM	NYIS	1342
PJM	WEC	1230
<b>Total</b>		<b>5070</b>

A load flow base case was developed for 2011 representing projected non diversified summer peak loads across the PJM Control Area. All in-service PJM capacity resources were dispatched at approximately 94% of the installed capacity value. All remaining Queue A through O generators were initially modeled at 0 MW.

Study of all voltage limits was completed using this base system. For analysis pertaining to thermal limits including Generator Deliverability and Load Deliverability a multitude of dispatch patterns were analyzed. A complete description of the Generator and Load Deliverability procedures is contained in Attachment E of PJM Manual M14B.

The 2011 base case was also used to analyze network transfer capability. To maintain reliability in a competitive capacity market, resources must contribute to the deliverability of electricity in the Control Area in two ways: 1) energy must be deliverable from the aggregate of resources available to the Control Area to load in portions of the Control Area experiencing a localized capacity emergency, or deficiency, 2) capacity resources within a given electrical area must, in aggregate, be able to be exported to other areas of the Control Area within some bounds that separate the reliability requirements of the Control Area from the reasonable economic function of the market place. PJM has developed two methods for evaluating the adequacy of network transfer capability for each of these deliverability requirements. These methods are described in

more detail in Attachment E of PJM Manual M14B.

The CETO/CETL method will be used to determine if the Capacity Emergency Transfer Limit (CETL) to each of the various electrical areas of PJM is sufficient to deliver each respective area's Capacity Emergency Transfer Objective (CETO).

The PJM Generation Deliverability procedure was used to determine if Network Transfer Capability was adequate to deliver all capacity resources out of defined areas to the network.

Finally, a short circuit analysis will be performed to determine if any of the 230 kV, 345 kV, or 500 kV breakers are overdutied. Calculated single phase to ground and three phase fault currents will be compared to breaker interrupting capability provided by the transmission owners for each breaker. All breakers having ratings less than the calculated fault currents will be identified.

## RESULTS

The results of the baseline analysis for the 2007 – 2011 period are presented below. The cost estimates below are based on the cost estimates provided at the May 23, 2006 TEAC meeting.

The PJM generator and load deliverability analysis were completed as defined in the procedures of Manual M14B. In general these tests involve n-0 (pre-contingency) and n-1 (single contingency) analysis to determine the sufficiency of transfer capability between generation resources and load within the PJM system. The Load Deliverability test assures that there is adequate import capability to serve load pockets experiencing a capacity emergency condition while the Generator Deliverability test assures that PJM capacity resources will not be bottled at peak load conditions.

The 2011 system was also tested for compliance with PJM, Transmission Owner, and Regional Reliability council application of all NERC category A & B contingencies. In addition, NERC Category C contingencies were examined. Where the physical design of connections or breaker arrangements resulted in the outage of more than the faulted facility when the fault was cleared, such additional facilities were also outaged in the load flow. For example, if a transformer is tapped off a line without a breaker, both the line and transformer were outaged as a single contingency event.

Facilities with pre-contingency flows equal to or higher than 100% of the normal rating and facilities with post contingency flows equal to or higher than 100% of the 4-hour emergency rating were identified. In addition, voltages were monitored based on the existing voltage limits used in PJM Operations.

**The following areas of the PJM system were found to not be in compliance for the 2007 – 2011 study period.**

- 1) The Mackeys – Edenton 115 kV circuit is contingency overloaded at 175% for the loss of the Everetts 230/115 kV transformer and the Earleys – Cashie – Trowbridge 230 kV circuit. The recommended solution is to install a second Everetts 230/115 kV transformer by June 2011. The estimated cost is \$3 million.
- 2) The Remington – Brandywine 115 kV circuit is contingency overloaded at 259% for the loss of the Gordonsville – Hollymead – Charlottesville and South Anna – Louisa – North Anna 230 kV circuits. The recommended solution is to uprate/re-sag the Remington – Brandywine – Culpepper 115 kV circuit by June 2011. The estimated cost is \$2.2 million.
- 3) The Elmont – Mt. Road 230 kV circuit is contingency overloaded at 130% for the loss of the Southwest – Walmsley – Iron Bridge – Chesterfield 230 kV and Midlothian – Trabue – Winterpock 230 kV circuits. The recommended solution is to replace the wave trap at Elmont 230 kV substation on the #231 line by June 2011. The estimated cost is \$0.5 million.
- 4) The Halifax – Mt. Laurel 115 kV circuit is contingency overloaded at 135% for the loss of the Carson – Clover 500 kV and the Person – Halifax 230 kV circuits. The recommended solution is to build a new Chase City – Clarksville 115 kV circuit by June 2011. The estimated cost is \$6 million.

- 5) The Shell Bank – Whealton 115 kV circuit is contingency overloaded at 137% for the loss of the Shell Bank – Magruder – Peninsula 115 kV circuit and Shell Bank 230/115 kV transformer. The recommended solution is to upgrade/re-sag the Shell Bank – Whealton 115 kV circuit by June 2011. The estimated cost is \$0.5 million.
- 6) The Jetersville – Moran 115 kV circuit is contingency overloaded at 103% for the loss of a generation at Jetersville 115 kV substation. The recommended solution is to install a breaker at Crewe 115 kV substation and shift load from circuit 158 to circuit 98 by June 2011. The estimated cost is \$0.5 million.
- 7) The Chesapeake – Cradock 115 kV circuit is contingency overloaded at 100% for the loss of the Chesapeake – Reeves 115 kV circuit. The recommended solution is to upgrade/re-sag the Chesapeake – Cradock 115 kV circuit by June 2011. The estimated cost is \$0.7 million.
- 8) The Chesapeake – Dozier 115 kV circuit is contingency overloaded at 108% for the loss of a generator at Thompsons Corner 115 kV substation. The recommended solution is to reconductor one span of the Chesapeake – Dozier 115 kV circuit by June 2011. The estimated cost is \$0.05 million.
- 9) The Gordonsville 230/115 kV transformer #1 is contingency overloaded at 108% for the loss of the Gordonsville 230/115 kV transformer #2. The recommended solution is to replace the Gordonsville 230/115 transformer #1 by June 2011. The estimated cost is \$3 million.
- 10) The Iron Bridge – Walmsley 230 kV circuit is contingency overloaded at 130% for the loss of the Midlothian – Trabue – Winterpock and Elmont – Mt. Road – North West 230 kV circuits. The recommended solution is to upgrade/re-sag the Iron Bridge – Walmsley – Southwest 230 kV circuit by June 2011. The estimated cost is \$0.6 million.
- 11) The Dayton – Harrisonburg 230 kV circuit and the Valley 500/230 kV transformer are contingency overloaded at 135% and 140% respectively, for the loss of the Dooms – Valley 500 kV circuit and Dooms 500/230 kV transformer #2. The recommended solution is to install a breaker at Dooms 230 kV substation by June 2009. The estimated cost is \$1.0 million.
- 12) Voltage violation identified in the Norfolk/Virginia Beach area 230 kV buses and the Surry – Smithfield – Crittendon 230 kV circuit overloaded at 134% for N-2 contingency involving the loss of the Yadkin – Septa 500 kV circuit along with the Yadkin – Suffolk or Yadkin – Surry 500 kV circuit. The recommended solution is to build a new Carson – Suffolk 500 kV circuit, install second Suffolk 500/230 kV transformer and build new Suffolk – Fentress 230 kV circuit by June 2011. The estimated cost is \$160 million.
- 13) The Rolling Meadows – Gore Junction 115 kV circuit is pre-contingency overloaded at 102%. The recommended solution is to upgrade the Rolling Meadow – Gore Junction 115 kV circuit by June 2011. No cost associated with this project.
- 14) The Portland – Pequest 115 kV circuit is contingency overloaded at 101% for the loss of the Gilbert – Morris Park 230 kV circuit. The recommended solution is to implement an operating procedure to close the Glendon – Gilbert 115 kV circuit by June 2011. No cost associated with this project.
- 15) The Grays Ferry – Tunnel – Parrish 230 kV circuit is contingency overloaded at 110% for the loss of the Windsor – Alloway 500 kV circuit. The recommended solution is to reconductor the overloaded circuit by June 2011. The cost is estimated at \$4 million.
- 16) Either one of the Eddystone – Llanerch 138 kV circuit is contingency overloaded at 105% for the loss of the other Eddystone – Llanerch 138 kV circuit. The recommended solution is to install 2% reactor on both Eddystone – Llanerch 138 kV circuits and install a new 230/138 kV transformer at Plymouth Meeting by June 2011. The estimated cost is \$4 million.

- 17) The Eddystone – Island Road 230 kV circuit is contingency overloaded at 105% for the loss of the MacDade – Morton 230 kV circuit. The recommended solution is to upgrade terminal equipments by June 2011. The estimated cost is \$1.4 million.
- 18) The Portland – Greystone 230 kV circuit is contingency overloaded at 105% for tower outage involving the loss of the Gilbert – Morristown and Glen Gardner – West Wharton 230 kV circuits. The recommended solution is to upgrade terminal equipments by June 2011. The estimated cost is \$0.8 million.
- 19) The Buckingham – Pleasant Valley 230 kV circuit is contingency overloaded at 112% for N-2 contingency involving the loss of the Alburdis – Branchburg and Elroy – Branchburg 500 kV circuit. The recommended solution is to reconductor the Buckingham – Pleasant Valley 230 kV circuit by June 2011. The estimated cost is \$8 million.
- 20) The North Philadelphia – Wanceta 230 kV circuit is contingency overloaded at 126% for the loss of the Whitpain 230 kV bus #3 and Plymouth – Whitemarsh – Pulaski 230 kV circuit. The recommended solution is to reconductor the North Philadelphia – Wanceta 230 kV circuit by June 2011. The estimated cost is \$4.1 million.
- 21) The Master – North Philadelphia 230 kV circuit is pre-contingency overloaded at 112%. The recommended solution is to reconductor the Master – North Philadelphia 230 kV circuit by June 2011. The estimated cost is \$4.2 million.
- 22) A few thermal overloads identified in the Penelec region for numerous N-2 contingencies. The recommended solution is to change various tap settings in the Penelec region by June 2011. The estimated cost is \$0.1 million.
- 23) The Alburdis – Hosensack 230 kV is overloaded at 105% for the N-2 contingency involving the loss of the Alburdis – Branchburg and Elroy – Branchburg 500 kV circuits. The recommended solution is to replace a 3000A disconnect switch at the Alburdis 230 kV substation. The estimated cost is \$0.075 million.
- 24) The Oak Grove – Richie 230 kV is overloaded for N-2 contingency involving the loss of the Dickerson – Quince Orchard and Station H – Quince Orchard 230 kV circuits. The recommended solution is to install a 4<sup>th</sup> 230/69 kV transformer at Richie substation by June 2011. The estimated cost is \$11.5 million.
- 25) The Dickerson – Quince Orchard “23033” 230 kV circuit is overloaded for N-2 contingency involving the loss of the Dickerson – Quince Orchard and Station H – Quince Orchard 230 kV circuits. The recommended solution is to upgrade the Dickerson – Quince Orchard “23033” 230 kV circuit by June 2011. The estimated cost is \$3.75 million.
- 26) The Portland – Martins Creek 230 kV circuit is contingency overloaded at 102% for the loss of the Gilbert – Martins Creek 230 kV circuit. The recommended solution is to upgrade terminal equipment on Martins Creek and raise the operating temperature of the Portland – Martins Creek 230 kV circuit by June 2011. The estimated cost is \$0.26 million.
- 27) The Kittatiny – Newton 230 kV circuit is overloaded at 112% for tower contingency involving the loss of the Portland – Greystone and Kittatiny – Pogatcong 230 kV circuits. The recommended solution is to reconductor the overloaded portion of the Kittatiny – Newton 230 kV circuit by June 2011. The estimated cost is \$1.25 million.
- 28) The Gilbert – Glen Gardner 230 kV circuit is contingency overloaded at 110% for the Gilbert – Martins Creek 230 kV circuit. The recommended solution is to reconductor the 8 miles Gilbert – Glen Gardner 230 kV circuit by June 2011. The estimated cost is \$7 million.
- 29) The Tosco – G22\_MTX 230 kV circuit is contingency overloaded at 102% for the loss of the Deans – New Dover – Westfield 230 kV circuit. The recommended solution is to

- reconductor the Tosco – G22\_MTX 230 kV circuit with 1033 bundled ACSS conductor by June 2011. The estimated cost is \$0.62 million.
- 30) The Portland – Kittatiny 230 kV circuit is overloaded at 110% for tower contingency involving the loss of the Portland – Greystone and Gilbert – Morristown 230 kV circuits. The recommended solution is to replace terminal equipments on both Portland and Kittatiny 230 kV substations by 2011. The estimated cost is \$1.38 million.
  - 31) Various voltage violations identified across Mid Atlantic region for loss of several 500 kV circuits and generators under the 2011 load deliverability test for Mid Atlantic region. The recommended solution is to install 500 MVAR reactive device at Airydale 500 kV substation by June 2011. The estimated cost is \$22 million.
  - 32) Various voltage violations identified across Mid Atlantic region for the loss of the Keystone - Airydale 500 kV circuit under the 2011 load deliverability test for Mid Atlantic region. The recommended solution is to install 300 MVAR capacitors at Conemaugh 500 kV substation by June 2011. The estimated cost is \$2 million.
  - 33) The Pleasant View – Dickerson 230 kV circuit is contingency overloaded for the loss of the Possum Point – Burches Hill 500 kV circuit. The recommended solution is to install 0.5% reactor at Dickerson 230 kV substation on the Pleasant View – Dickerson 230 kV circuit by June 2011. The estimated cost is \$5.0 million.
  - 34) The Dickerson – Quince Orchard “23035” 230 kV circuit is contingency overloaded at 104% for the loss of the Station H – Quince Orchard “23033” 230 kV circuit. The recommended solution is to upgrade the Dickerson – Quince Orchard “23035” 230 kV circuit by June 2011. The estimated cost is \$3.75 million.
  - 35) The Burches Hill 500/230 kV transformer is pre-contingency overloaded at 101%. The recommended solution is to add a second Burches Hill 500/230 kV 1000 MVA transformer by June 2011. The estimated cost is \$32 million.
  - 36) Voltage violation identified at Altoona 230kV substation for N-2 contingency involving the loss of the Conastone – Hunterstown 500 kV and Johnstown – Altoona 230 kV circuits. The recommended solution is to install two 50 MVAR capacitors at Altoona 230 kV substation by June 2011. The estimated cost is \$1.0 million.
  - 37) The Carroll 230/138 kV transformer #4 is contingency overloaded at 117% and numerous overloads were identified on the non PJM monitored facilities for the loss of the Doubs – Montgomery – Monocacy 230 kV circuit. The recommended solution is to extend 230 kV service to the existing Lime Kiln substation by December 2006 and to convert the Doubs – Monocacy 138 kV facilities to 230 kV operation by June 2011. The estimated cost is \$13.6 million.
  - 38) The North Shenandoah 138/115 kV transformer is contingency overloaded at 130% for the loss of the Meadow Brook – Greenland Gap 500 kV circuit and the Meadow Brook 500/138 kV transformers. The recommended solution is to replace the North Shenandoah 138/115 kV transformer by June 2011. The estimated cost is \$2.0 million.
  - 39) The Inwood – Stonewall 138 kV circuit is contingency overloaded at 103% for the loss of the Bedington – Black Oak 500 kV circuit and Bedington 500/138 kV transformers #1 and #3. The recommended solution is to upgrade the Inwood – Stonewall 138 kV circuit with 954 ACSR conductor by June 2011. The estimated cost is \$1.6 million.
  - 40) The Doubs 500/230 kV transformers #2, #3 and #4 are contingency overloaded for the loss of the Doubs – Brighton 500kV circuit under the 2011 load deliverability test for the Mid Atlantic region. The recommended solution is to replace the three overloaded Doubs transformers by June 2011. The estimated cost is \$15.7 million.
  - 41) Several voltage violations and thermal overloads identified across PJM system under the 2011 various tests. The recommended solution is to build a new 500 kV circuit from 502 Junction – Mt. Storm – Meadow Brook – Loudoun by June 2011. The estimated cost is \$850 million.

**With the addition of the above-mentioned network upgrades, all areas of the PJM system were found to be in compliance for the 2007 – 2011 study period.**

**PECO Letter of Notification  
Master – North Philadelphia 230 kV Line**

**RECEIVED**

OCT 20 2010

PA PUBLIC UTILITY COMMISSION  
SECRETARY'S BUREAU

**Exhibit B  
Map Showing General Location of the Line**

# Master/North Philadelphia 230kV Reconductoring Aerial Satellite View



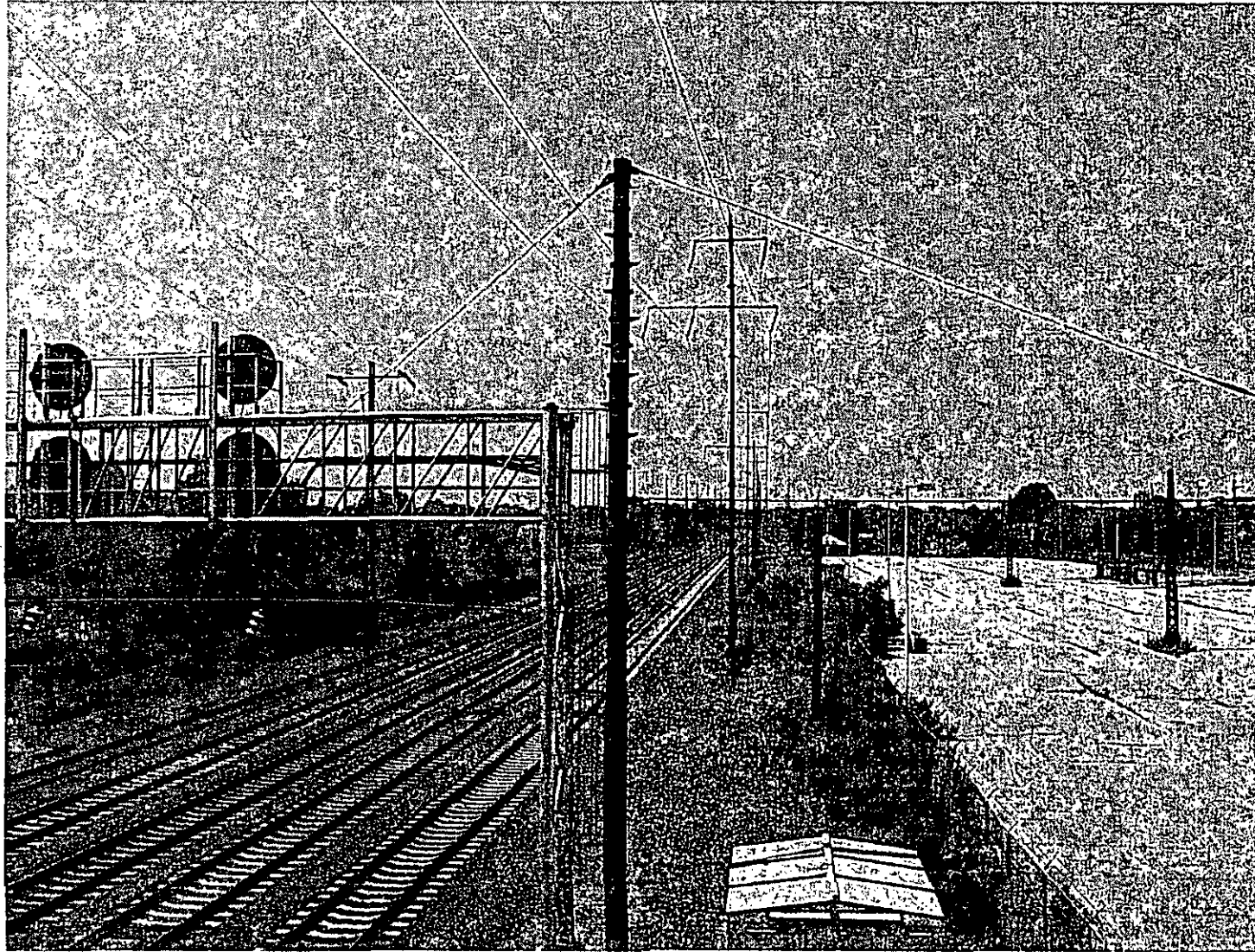
**PECO Letter of Notification  
Master – North Philadelphia 230 kV Line**

**Exhibit C**

**Photographs Showing Typical Conditions Along the Corridor**

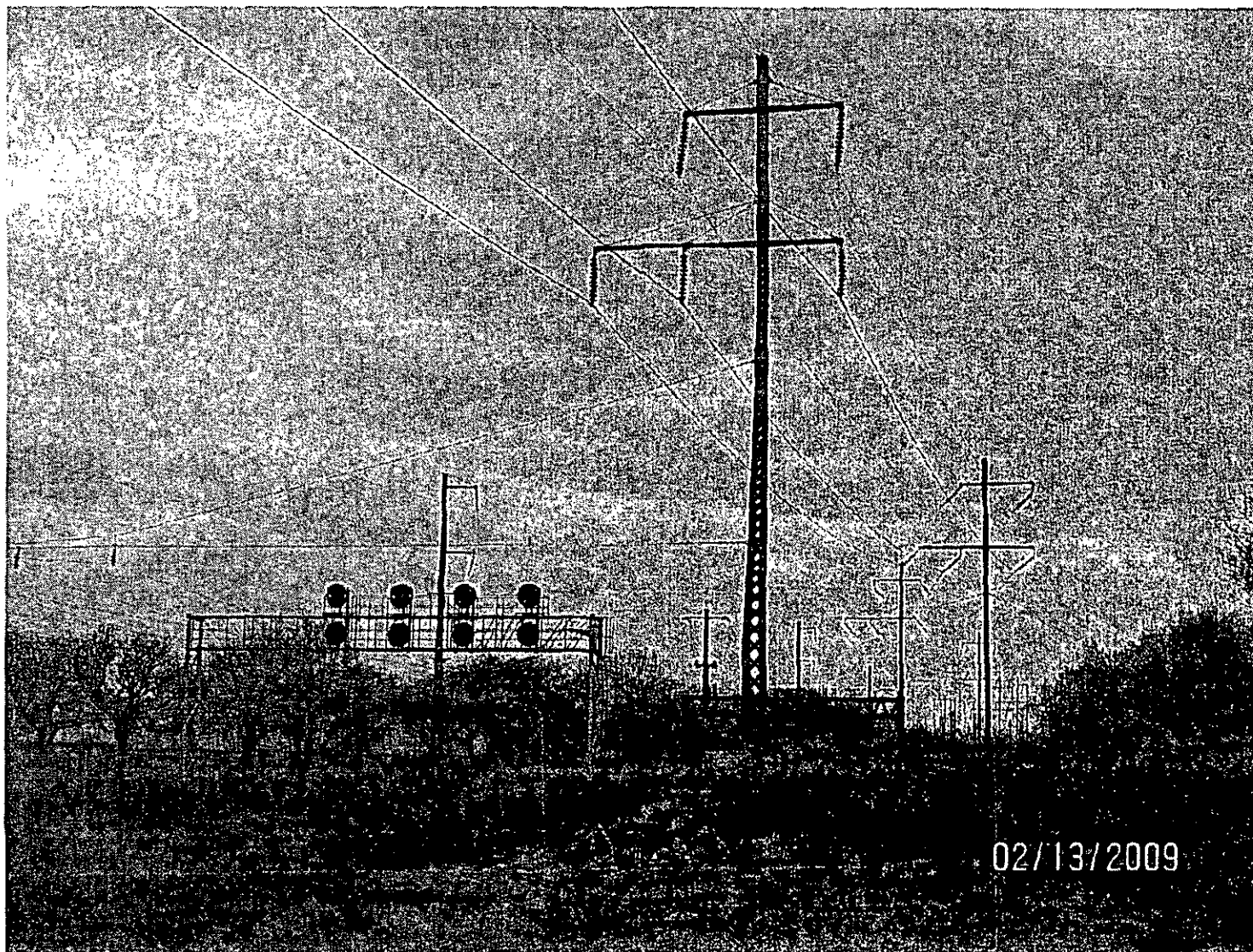
# Master/North Philadelphia 230kV Reconductoring View along Amtrak ROW

---



# Master/North Philadelphia 230kV Reconductoring View along Amtrak ROW

---



02/13/2009



RECEIVED

OCT 20 2010

PA PUBLIC UTILITY COMMISSION  
SECRETARY'S BUREAU

AFFIDAVIT

COMMONWEALTH OF PENNSYLVANIA )  
: )  
COUNTY OF PHILADELPHIA )

SS

Richard G. Webster, being duly sworn according to law, deposes and says that he is Director, Rates & Regulatory Affairs of PECO Energy Company; that he is authorized to and does make this affidavit for it; and that the facts set forth above are true and correct to the best of his knowledge, information and belief and he expects PECO Energy Company to be able to prove the same at hearing hereof.

*Richard G. Webster*

Sworn to and subscribed  
before me this 20<sup>th</sup> day  
of October 2010.

*Maryellen T. White*

COMMONWEALTH OF PENNSYLVANIA  
NOTARIAL SEAL  
MARYELLEN T. WHITE, Notary Public  
City of Philadelphia, Phila. County  
My Commission Expires December 2, 2012

**BEFORE THE  
PENNSYLVANIA PUBLIC UTILITY COMMISSION**

**Letter of Notification of PECO Energy  
Company Pursuant to 52 Pa. Code  
Chapter 57 Subchapter G With  
Respect to the Reconductoring and  
Reconfiguration of the Master --  
North Philadelphia 230 kV  
Transmission Line**

Docket No. A-

**RECEIVED**

OCT 20 2010

PA PUBLIC UTILITY COMMISSION  
SECRETARY'S BUREAU

**AFFIDAVIT OF SERVICE**

I hereby certify and affirm that I have this day served a copy of the above-named Letter of Notification on the following persons in the manner specified:

Via Registered or Certified Mail, Return Receipt Requested

The Department of Environmental Resources  
Attention: Bureau of Environmental Planning  
Post Office Box 2357, 101 S. Second Street  
Harrisburg, Pennsylvania 17120

The Secretary of the Department of Transportation  
Room 1200 Transportation and Safety Building  
Harrisburg, Pennsylvania 17120

The Chairman of the Historical and Museum Commission  
Post Office Box 1026  
Harrisburg, Pennsylvania 17120

Michael Fink, Deputy Commissioner, Licenses and Inspections  
City of Philadelphia  
Municipal Services Building  
1420 Arch Street  
Philadelphia, PA 19107

(Please distribute as needed to City of Philadelphia Land Use Planning Officer,  
Chief Executive Officer, and governing body.)

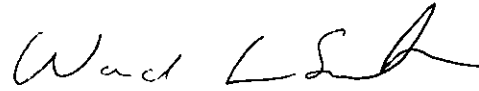
Earl Watson  
National Passenger Railroad Corporation (Amtrak)  
30<sup>th</sup> Street Station  
2955 Market Street  
Philadelphia, PA 19104

RECEIVED

OCT 20 2010

PA PUBLIC UTILITY COMMISSION  
SECRETARY'S BUREAU

Dated at Philadelphia, Pennsylvania, October 20, 2010



WARD L. SMITH  
Counsel for PECO Energy Company

From: Origin ID: REDA (215) 841-5604  
Zulma Rodriguez  
Exelon  
2301 Market Street  
Suite 23-1  
Philadelphia, PA 19103



J10301010040225

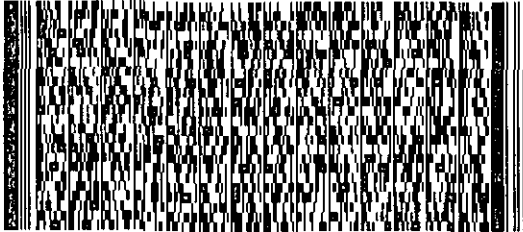
Ship Date: 20OCT10  
ActWgt: 2.0 LB  
CAD: 100431162/NET3090

Delivery Address Bar Code



Ref # Master  
Invoice #  
PO #  
Dept #

SHIP TO: (717) 772-7777 BILL SENDER  
**Rosemary Chiavetta, Secretary**  
**PA Public Utility Commission**  
**400 NORTH ST**  
**COMMONWEALTH KEYSTONE BLDG**  
**HARRISBURG, PA 17120**



TRK# 7940 3133 7203  
[0201]

THU - 21 OCT A1  
STANDARD OVERNIGHT

17120

PA-US

MDT

**ZN MDTA**



58AG12025/2780

**After printing this label:**

1. Use the 'Print' button on this page to print your label to your laser or inkjet printer.
2. Fold the printed page along the horizontal line.
3. Place label in shipping pouch and affix it to your shipment so that the barcode portion of the label can be read and scanned.

**Warning:** Use only the printed original label for shipping. Using a photocopy of this label for shipping purposes is fraudulent and could result in additional billing charges, along with the cancellation of your FedEx account number.

Use of this system constitutes your agreement to the service conditions in the current FedEx Service Guide, available on fedex.com. FedEx will not be responsible for any claim in excess of \$100 per package, whether the result of loss, damage, delay, non-delivery, misdelivery, or misinformation, unless you declare a higher value, pay an additional charge, document your actual loss and file a timely claim. Limitations found in the current FedEx Service Guide apply. Your right to recover from FedEx for any loss, including intrinsic value of the package, loss of sales, income interest, profit, attorney's fees, costs, and other forms of damage whether direct, incidental, consequential, or special is limited to the greater of \$100 or the authorized declared value. Recovery cannot exceed actual documented loss. Maximum for items of extraordinary value is \$500, e.g. jewelry, precious metals, negotiable instruments and other items listed in our Service Guide. Written claims must be filed within strict time limits, see current FedEx Service Guide.