

3-26-08  
P. Hozburgh  
JK

TrAILCo Statement No. 2  
Witness: Lawrence A. Hozempa

BEFORE THE  
PENNSYLVANIA PUBLIC UTILITY COMMISSION

DOCUMENT  
FOLDER

IN RE: APPLICATION OF TRANS-ALLEGHENY :  
INTERSTATE LINE COMPANY FOR :  
(I) A CERTIFICATE OF PUBLIC CONVENIENCE :  
TO OFFER, RENDER, FURNISH AND/OR :  
SUPPLY TRANSMISSION SERVICE IN THE :  
COMMONWEALTH OF PENNSYLVANIA; :  
(II) AUTHORIZATION AND CERTIFICATION :  
TO LOCATE, CONSTRUCT, OPERATE AND :  
MAINTAIN CERTAIN HIGH VOLTAGE ELECTRIC :  
TRANSMISSION LINES AND RELATED ELECTRIC :  
SUBSTATION FACILITIES; (III) AUTHORITY :  
TO EXERCISE THE POWER OF EMINENT :  
DOMAIN FOR THE CONSTRUCTION AND :  
INSTALLATION OF AERIAL ELECTRIC :  
TRANSMISSION FACILITIES ALONG THE :  
PROPOSED TRANSMISSION LINE ROUTES :  
IN PENNSYLVANIA; (IV) APPROVAL OF AN :  
EXEMPTION FROM MUNICIPAL ZONING :  
REGULATION WITH RESPECT TO THE :  
CONSTRUCTION OF BUILDINGS; AND :  
(V) APPROVAL OF CERTAIN RELATED :  
AFFILIATED INTEREST ARRANGEMENTS :

Docket Nos. A-110172  
A-110172F0002  
A-110172F0003  
A-110172F0004  
G-00071229

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DIRECT TESTIMONY OF  
LAWRENCE A. HOZEMPA

Re: Description of TrAIL, the Electrical Need Therefor, Relationship  
between Allegheny Power's Transmission Facilities and PJM, and  
the Planning Process for TrAIL

April 13, 2007

1 Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

2 A. My name is Lawrence A. Hozempa and my business address is 800 Cabin Hill  
3 Drive, Greensburg, Pennsylvania 15601.

4  
5 RESPONSIBILITIES, EXPERIENCE AND EDUCATION

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

7 A. I am employed by Allegheny Energy Service Corporation as a Senior Engineer in  
8 the Transmission Planning Department assigned to perform certain tasks for  
9 Trans-Allegheny Interstate Line Company (“TrAILCo”) and Allegheny Power.

10 Q. PLEASE DESCRIBE YOUR PROFESSIONAL EXPERIENCE AND  
11 EDUCATIONAL BACKGROUND.

12 A. I received a Bachelors of Science Degree in Electrical Engineering from The  
13 Pennsylvania State University. I am a registered Professional Engineer in the  
14 Commonwealth of Pennsylvania and in the State of West Virginia. I have been  
15 employed by Allegheny Energy Service Corporation for 20 years. My current  
16 duties and responsibilities include analyzing Allegheny Power’s transmission  
17 system, identifying potential reliability or stability violations of the transmission  
18 system, reviewing alternatives and recommending solutions to correct potential  
19 violations. My duties and responsibilities also include working with PJM  
20 Interconnection, L.L.C. (“PJM”) and neighboring transmission owners in  
21 analyzing the transmission system from a regional perspective. More recently my  
22 duties and responsibilities have been expanded to include analysis and planning  
23 for TrAILCo projects, such as the Trans-Allegheny Interstate Line (“TrAIL”).

PURPOSE OF TESTIMONY

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Q. PLEASE DESCRIBE THE PURPOSE OF YOUR TESTIMONY?

A. On behalf of TrAILCo, I will:

- Describe TrAIL,
- Explain Allegheny Power’s perspective on the electrical need for TrAIL,
- Describe Allegheny Power’s involvement in the planning process that resulted in a determination that the Prexy Facilities and 502 Junction Segments of TrAIL and the Loudoun Segments are needed to assure the electric reliability of Allegheny Power’s transmission facilities and the PJM transmission system, and
- Explain the relationship of Allegheny Power’s transmission facilities to the PJM transmission system.

In their direct testimony, Mr. Herling and Mr. Gass also address the electrical need for these transmission line segments and the planning process that resulted in the determination of that need. Although I will describe the general route of TrAIL, the details of the specific route proposed by TrAILCo for the line are described and supported by TrAILCo witness Halpern in his direct testimony.

Q. WILL THE USE OF VARIOUS TERMS IN YOUR TESTIMONY BE CONSISTENT WITH THE DEFINITIONS ASSIGNED TO THOSE TERMS IN THE TABLE OF NOMENCLATURE ATTACHED TO TrAILCo WITNESS FLITMAN’S TESTIMONY AS TrAILCo EXHIBIT DEF-1?

A. Yes. In addition, I may define other specific terms in my direct testimony.

1 EXHIBITS

2 Q. PLEASE IDENTIFY AND DESCRIBE THE EXHIBITS TO YOUR  
3 TESTIMONY AND SUMMARIZE THE CONTENTS OF THOSE EXHIBITS.

4 A. I am sponsoring five exhibits with my direct testimony:

- 5 • TrAILCo Exhibit LAH-1 presents the general route of TrAIL for  
6 illustrative purposes;  
7
- 8 • TrAILCo Exhibit LAH-2 presents the PJM transmission zones  
9 based on Attachment J to the PJM Open Access Transmission  
10 Tariff;  
11
- 12 • TrAILCo Exhibit LAH-3 presents the electric reliability problems  
13 that will occur if the Prexy Facilities are not constructed;  
14
- 15 • TrAILCo Exhibit LAH-4 presents the North American Electric  
16 Reliability Corporation ("NERC") transmission reliability standard  
17 TPL-003-0; and  
18
- 19 • TrAILCo Exhibit LAH-5 presents a map showing the location and  
20 voltages of the existing Allegheny Power transmission facilities in  
21 Pennsylvania and the location and voltages of proposed TrAILCo  
22 transmission facilities in Pennsylvania.  
23

24 ELECTRICAL PERSPECTIVE OF TRAIL

25 Q. WHAT IS TRAIL FROM AN ELECTRICAL PERSPECTIVE?

26 A. TrAIL is a proposed electric reliability transmission enhancement to the PJM  
27 transmission system consisting of a new 500 kV transmission line, two new  
28 transmission substations, the expansion of an existing transmission substation  
29 and three new 138 kV transmission lines to be constructed by TrAILCo. The 500  
30 kV transmission line is required to connect certain electrical points, *i.e.*,  
31 transmission substations. Specifically, the line will connect the proposed Prexy  
32 Substation in Washington County, Pennsylvania, the proposed 502 Junction

1 Substation in Greene County, Pennsylvania, the existing Mt. Storm Substation  
2 owned by Virginia Electric and Power Company (“Dominion Virginia Power”)  
3 in Grant County, West Virginia, and Allegheny Power’s existing Meadow Brook  
4 Substation in Frederick County, Virginia. From the Meadow Brook Substation,  
5 TrAIL will continue east and connect with the continuation of the 500 kV line to  
6 be constructed by Dominion Virginia Power in its PJM transmission zone to its  
7 Loudoun Substation in Loudoun County, Virginia. TrAIL includes the new  
8 Prexy and 502 Junction Substations, the expansion of the Meadow Brook  
9 Substation to accommodate the new 500 kV line (“Meadow Brook Expansion”)  
10 and three 138 kV lines originating at Prexy Substation and connecting with  
11 existing Allegheny Power transmission facilities in Pennsylvania. The three new  
12 138 kV lines will be constructed in three separate corridors. All of the corridors  
13 will have double circuit construction; however, one corridor will be operated as a  
14 single bifurcated 138 kV circuit. TrAIL does not include any modifications or  
15 expansions to be constructed by Dominion Virginia Power at the Mt. Storm and  
16 Loudoun Substations or the continuation of the line in the Dominion Virginia  
17 Power transmission zone of PJM to the Loudoun Substation. The general route  
18 of TrAIL and locations of these substations, including the continuation of the line  
19 in the Dominion Virginia Power transmission zone, is shown for illustrative  
20 purposes on TrAILCo Exhibit LAH-1. TrAILCo witnesses Halpern and  
21 Fleissner provide greater detail regarding TrAILCo’s proposed route for this line.  
22 All of the TrAIL facilities will be located within the Allegheny Power  
23 transmission zone of PJM (“Allegheny Power Zone”) as shown on TrAILCo

1 Exhibit LAH-2, which shows all of the PJM transmission zones based on  
2 Attachment J of the PJM Open Access Transmission Tariff on file with FERC.

3  
4 ELECTRICAL NEED FOR THE PREXY FACILITIES OF TRAIL

5 Q. WHAT IS THE ELECTRICAL NEED FOR THE PREXY FACILITIES OF  
6 TRAIL?

7 A. Based on system studies, PJM and Allegheny Power concluded that there are four  
8 electric reliability problems that will occur beginning in 2009 if the Prexy  
9 Facilities are not constructed. These problems are described in TrAILCo Exhibit  
10 LAH-3 attached to my testimony. Initially, the new 138 kV lines will be  
11 terminated at the new Prexy Substation and a 138 kV capacitor installed at Prexy  
12 Substation by November 2009 to mitigate the immediate reliability concerns.  
13 Then, the 500 kV line and the 500/138 kV transformer at Prexy Substation will be  
14 completed by November 2010. The prevailing flow of power on the Prexy  
15 Facilities will be from the 502 Junction Substation to the Prexy Substation and out  
16 into the surrounding 138 kV network.

17 Q. HAS ALLEGHENY POWER PERFORMED ANY REVIEWS OR STUDIES  
18 OF THE ELECTRICAL NEED FOR THE PREXY SEGMENT INCLUDING  
19 ANY REVIEWS OF THE PJM STUDIES TO VALIDATE THEIR RESULTS?

20 A. Yes. On behalf of Allegheny Power and TrAILCo, I have reviewed the PJM  
21 RTEP studies that identified the reliability violations described previously and  
22 have worked closely with PJM's planning department in determining the best  
23 solution to address the reliability problems identified by the studies.

1 Furthermore, I agree with PJM's analysis and recommendation regarding the  
2 transmission system reinforcements comprised of the Prexy Facilities in the  
3 Eighty Four, Pennsylvania area, and I concur that system reliability for the  
4 Allegheny Power Zone as part of the interconnected PJM transmission system  
5 will benefit from the construction of those facilities.

6 Q. BASED ON YOUR REVIEWS AND ASSESSMENTS, HAVE YOU FORMED  
7 AN OPINION REGARDING THE NEED FOR THE PREXY FACILITIES?

8 A. Yes. After reviewing the system studies and assessment with regard to the Prexy  
9 Facilities, it is my opinion that these facilities provide the most cost effective  
10 solution to the four reliability problems identified on TrAILCo Exhibit LAH-3  
11 that are expected to begin occurring in 2009 if these facilities are not constructed.  
12 The overloads projected to occur on the Union Junction 138 kV line and the  
13 Wylie Ridge-Smith 138 kV line and the risk of voltage collapse on the 138 kV  
14 system indicate a 500/138 kV substation, such as the proposed Prexy Substation,  
15 is necessary. The Prexy Segment will provide the 500 kV line to the Prexy  
16 Substation where the 500 kV will be transformed to 138 kV. The new 138 kV  
17 lines will then tie into the surrounding 138 kV system to provide the needed  
18 support. These 138 kV lines will be constructed on three routes with two routes  
19 providing for a double circuit configuration of the lines.

20 Q. HAVE YOU REVIEWED MR. GASS'S DIRECT TESTIMONY IN THIS  
21 PROCEEDING WITH REGARD TO THE PREXY FACILITIES?

22 A. Yes. I agree with his conclusions regarding the electrical need for the Prexy  
23 Facilities.

1 Q. HOW WILL ELECTRIC SERVICE CUSTOMERS WITHIN ALLEGHENY  
2 POWER'S PENNSYLVANIA RETAIL SERVICE TERRITORY BE  
3 AFFECTED IF THE PREXY FACILITIES ARE NOT CONSTRUCTED?

4 A. Specifically, the retail customers served by Allegheny Power in southwestern  
5 Pennsylvania, particularly the southern Allegheny, Washington, and northern  
6 Greene Counties, will be at risk for a voltage collapse in the area if there is a  
7 simultaneous outage of any two of the 138 kV lines identified in TrAILCo  
8 Exhibit LAH-3. In addition, customers in this area will also be at risk for a  
9 localized 'brown-out' or low-voltage condition in the event of simultaneous  
10 outages of the Union Junction 138 kV line and the Gordon-Manifold 138 kV line.

11

12 ELECTRICAL NEED FOR THE PENNSYLVANIA 502 JUNCTION FACILITIES

13 Q. WHAT IS THE ELECTRICAL NEED FOR THE PENNSYLVANIA 502  
14 JUNCTION FACILITIES?

15 A. As described in detail in the direct testimony of TrAILCo witness Gass, TrAIL is  
16 needed for electrical reliability purposes. As indicated by Mr. Gass, the need for  
17 the Pennsylvania 502 Junction Facilities of TrAIL is the same as the need for the  
18 remainder of the 502 Junction Segments, the Mt. Storm Expansion, the Meadow  
19 Brook Expansion, the Loudoun Segment and the Loudoun Expansion.  
20 Specifically, these facilities are needed to address 12 potential electric reliability  
21 problems that are expected to occur beginning in 2011 if the 502 Junction  
22 Segments and the Loudoun Segment are not constructed. Mr. Gass addresses this  
23 need in further detail.



1 Q. HAS ALLEGHENY POWER PERFORMED ANY REVIEWS OR STUDIES  
2 OF THE ELECTRICAL NEED FOR THE PENNSYLVANIA 502 JUNCTION  
3 FACILITIES, INCLUDING ANY REVIEWS OF THE PJM STUDIES TO  
4 VALIDATE THEIR RESULTS?

5 A. Yes. On behalf of Allegheny Power and TrAILCo, I have reviewed the PJM  
6 Load Deliverability and Generation Deliverability studies as defined in Mr.  
7 Gass's testimony that identified the reliability violations described by Mr. Gass  
8 and have worked closely with PJM's planning department in determining the best  
9 solution to address the reliability problems identified by those studies. In  
10 addition, I have validated their independent system assessments that demonstrate  
11 the need for system reinforcements in the Meadow Brook Substation area and the  
12 reliability benefits that will result from the construction of the Pennsylvania 502  
13 Junction Facilities and the remaining 502 Junction Segments into that substation.

14 Q. BASED ON YOUR REVIEWS AND ASSESSMENTS, HAVE YOU FORMED  
15 AN OPINION REGARDING THE NEED FOR THE PENNSYLVANIA 502  
16 JUNCTION FACILITIES?

17 A. Yes. After reviewing the studies performed by PJM with regard to the Meadow  
18 Brook Substation, it is my opinion that the Pennsylvania 502 Junction Facilities,  
19 the remaining 502 Junction Segments and the Meadow Brook Expansion, when  
20 combined with the Mt. Storm Expansion, the Loudoun Segment and the Loudoun  
21 Expansion provide the best solution to the reliability violations that are expected  
22 to begin occurring in 2011 if these segments are not constructed. The overloads  
23 projected to occur on the Mt. Storm-Doubs 500 kV and Pruntytown-Mt. Storm

1           500 kV lines (each of which is located substantially in West Virginia) indicate an  
2           additional extra-high voltage (“EHV”) path is necessary. This EHV line needs to  
3           start west of the Pruntytown Substation and end east of the Doubs Substation.  
4           These facilities will provide this additional EHV path.

5    Q.    HAVE YOU REVIEWED MR. GASS’S DIRECT TESTIMONY IN THIS  
6           PROCEEDING WITH REGARD TO THE PENNSYLVANIA 502 JUNCTION  
7           FACILITIES, THE REMAINING 502 JUNCTION SEGMENTS AND THE  
8           MEADOW BROOK EXPANSION?

9    A.    Yes. I agree with his conclusions regarding the electrical need for these facilities.

10   Q.    HOW WILL ELECTRIC SERVICE CUSTOMERS WITHIN ALLEGHENY  
11           POWER’S RETAIL SERVICE TERRITORY BE AFFECTED IF THE  
12           PENNSYLVANIA 502 JUNCTION FACILITIES ARE NOT CONSTRUCTED?

13   A.    Even though the proposal to construct the Pennsylvania 502 Junction Facilities,  
14           the remaining 502 Junction Segments, the Mt. Storm Expansion, the Meadow  
15           Brook Expansion, the Loudoun Segment and the Loudoun Expansion was  
16           prompted by PJM’s mid-Atlantic Load Deliverability test as described in Mr.  
17           Gass’s testimony, customers outside of the mid-Atlantic area will be affected if  
18           these facilities are not constructed. An overload of the Mt. Storm-Doubs 500 kV  
19           line or the Pruntytown-Mt. Storm 500 kV line could have far-reaching effects –  
20           effects similar to those experienced in the August 2003 blackout that affected  
21           over 50 million people. Specifically, the retail customers served by Allegheny  
22           Power in south central Pennsylvania will be at risk if these facilities are not  
23           constructed.

1 An outage of the Greenland Gap-Meadow Brook line would cause the Mt. Storm-  
2 Doubs 500 kV line to exceed its emergency rating and overload. The overload  
3 could cause the line to fail, which would result in an automatic disconnection of  
4 the line from the rest of the system. With the outage of both the Greenland Gap-  
5 Meadow Brook line and the Mt. Storm-Doubs line, there would be two critical  
6 west-to-east pathways open or disconnected from the transmission system. Once  
7 these two lines are disconnected, it is very likely that other west-to-east pathways  
8 such as the Hatfield-Black Oak line or the Black Oak-Bedington line will  
9 overload and disconnect, causing the underlying transmission system which  
10 serves local load on the east side of the Allegheny Mountains, including south  
11 central Pennsylvania, to begin to collapse due to inadequate EHV support. Once  
12 the transmission system begins to separate or disconnect at the mountains, the  
13 pocket of generation on the west side of the Allegheny Mountains, particularly in  
14 southwestern Pennsylvania and northwestern West Virginia, is trapped. Under  
15 this condition, the generating units can become unstable and trip off-line, causing  
16 more lines to overload and disconnect, especially the lines nearer the tripped  
17 generating units. This type of event can spread rapidly, causing widespread  
18 outages throughout the Eastern Interconnection, including other areas of  
19 Pennsylvania. The Eastern Interconnection is the interconnected power grid that  
20 encompasses central Canada eastward to the Atlantic coast, South to Florida, and  
21 west to the foot of the Rockies, excluding most of Texas and Quebec. Such an  
22 event would be similar to the event that occurred in Ohio in August 2003 and led  
23 to a massive blackout in much of the eastern United States and eastern Canada.

1 Q. IS THE NEED FOR THE 502 JUNCTION SUBSTATION DRIVEN BY THE  
2 NEED FOR THE 502 JUNCTION SEGMENTS OR THE PREXY FACILITIES?

3 A. The need for the 502 Junction Substation is driven by the need for the 502  
4 Junction Segments.

5 THE PLANNING PROCESS

6 Q. HOW HAS ALLEGHENY POWER'S TRANSMISSION PLANNING  
7 PROCESS CHANGED SINCE JOINING PJM?

8 A. Prior to joining PJM in April 2002, Allegheny Power was solely responsible for  
9 analyzing its transmission system, identifying any reliability violations and  
10 *formulating solutions to those violations. The planning process consisted of*  
11 *compiling and updating the electrical transmission network model, system loads,*  
12 *generator information, and firm contracted transfer information. This*  
13 *information was then modeled in the North American Electric Reliability Council*  
14 *Multi-Regional Modeling Group load flow case. This was the case used by*  
15 *Allegheny Power at that time to conduct its analyses. As a member of East*  
16 *Central Area Reliability Council ("ECAR"), Allegheny Power was required to*  
17 *report its findings to ECAR. Allegheny Power also participated in joint*  
18 *committees and study groups through ECAR that performed larger system*  
19 *studies that included multiple transmission zones and reached beyond ECAR*  
20 *boundaries.*

21 Since joining PJM, Allegheny Power has continued to conduct its own internal  
22 system planning analyses, but reports its findings to PJM and works with PJM to  
23 provide modeling data used for PJM analyses. However, the most significant

1 change to the Allegheny Power planning process since becoming a PJM member  
2 is that more of the potential reliability violations involving Allegheny Power's  
3 transmission facilities are discovered through the regional planning analyses  
4 conducted by PJM. This permits these potential problems to be addressed,  
5 including the assignment of cost responsibility, on a regional, rather than local or  
6 zonal basis. In addition, transmission upgrades recommended by Allegheny  
7 Power are reviewed by PJM to evaluate the impact on neighboring transmission  
8 owners and the regional transmission network. In essence PJM, as the regional  
9 planning authority, is intimately involved throughout the planning process at  
10 Allegheny Power and ultimately has the responsibility for assuring the Allegheny  
11 Power transmission facilities, as a part of the regional transmission grid, meet  
12 reliability standards.

13 ECAR has merged with other regional reliability councils to form ReliabilityFirst  
14 Corporation ("RFC") as a regional reliability council and RFC became the  
15 reliability council for Allegheny Power transmission facilities effective January  
16 1, 2006. Allegheny Power continues to work with RFC in the same way it  
17 worked with ECAR and submits reports as required by RFC.

18 Q. DOES PJM'S ROLE IN TRANSMISSION PLANNING INCLUDE  
19 IDENTIFYING SPECIFIC TRANSMISSION UPGRADES AND  
20 EXPANSIONS NEEDED WITHIN THE ALLEGHENY POWER ZONE?

21 A. Yes. When Allegheny Power joined PJM in April 2002, it transferred  
22 "functional control" of its transmission system to PJM. Functional control  
23 includes planning transmission upgrades and expansions not only within the

1 Allegheny Power Zone but also from a regional perspective. As required by  
2 Schedule 6 of the PJM Amended and Restated Operating Agreement (“Operating  
3 Agreement”) on file with the Federal Energy Regulatory Commission (“FERC”),  
4 PJM periodically issues a Regional Transmission Expansion Plan (“RTEP”). Mr.  
5 Herling discusses Schedule 6 and the regional planning process in detail in his  
6 testimony.

7 Q. WHAT ARE THE BENEFITS OF REGIONAL PLANNING BY PJM TO  
8 ALLEGHENY POWER AND CUSTOMERS IN THE ALLEGHENY POWER  
9 ZONE?

10 A. The benefits of regional planning to Allegheny Power and customers within the  
11 Allegheny Power Zone are increased reliability and operational efficiency. Prior  
12 to joining PJM, Allegheny Power analyzed its transmission system based on  
13 historic transfer data and assumed generation dispatch in the transmission zones  
14 surrounding the Allegheny Power Zone. The loading on Allegheny Power’s  
15 transmission facilities was often different in real-time than the internal analyses  
16 showed. This was attributable to variations in generation dispatch and point-to-  
17 point transfers taking place on transmission systems outside of the Allegheny  
18 Power Zone that affected the loading on Allegheny Power’s transmission system.  
19 PJM’s regional planning process dispatches generation and models transfers  
20 across the entire region, a significantly broader area than the area covered by the  
21 Allegheny Power transmission planning process. Since it is being compiled at a  
22 regional level, this larger model more accurately depicts the loading on  
23 Allegheny Power’s transmission facilities. This provides Allegheny Power and

1 PJM better information in determining where potential reliability violations may  
2 occur. In addition, the system operators also have better information to manage  
3 the flows on the system to operate the system efficiently.

4 Q. PLEASE DESCRIBE ALLEGHENY POWER'S INVOLVEMENT IN THE  
5 PLANNING PROCESS THAT RESULTED IN A DETERMINATION THAT  
6 THE PREXY FACILITIES ARE NEEDED TO ASSURE THE ELECTRIC  
7 RELIABILITY OF ALLEGHENY POWER'S TRANSMISSION FACILITIES?

8 A. PJM developed the cases used in the 2006 RTEP process for the analyses based  
9 on information received from the transmission owners like Allegheny Power,  
10 such as system topology changes and load forecasts. The transmission owners  
11 were also responsible for providing the contingency analysis files for the various  
12 NERC standards. PJM performed the analyses for all of the NERC contingency  
13 categories, except for Category C3 as defined in TrAILCo Exhibit LAH-4, Table  
14 I, on facilities below 345 kV. Each transmission owner was responsible for  
15 performing the Category C3 analysis on facilities below 345 kV and notifying  
16 PJM of any violations. Allegheny Power was aware of the Category C3  
17 violations in the Prexy area on the 138 kV system and had previously proposed  
18 controlled load shedding as a solution to the violations, which is permissible in  
19 the NERC Standard. However, Allegheny Power was concerned about the  
20 increased risk of controlled load shedding in this area and therefore proposed  
21 construction of the Prexy Segment and Prexy Substation as a solution. PJM  
22 considered Allegheny Power's recommendation as a possible solution and after a

1 thorough review incorporated this solution into the RTEP to address the  
2 reliability violations.

3 Q. PLEASE DESCRIBE ALLEGHENY POWER'S INVOLVEMENT IN THE  
4 PLANNING PROCESS THAT RESULTED IN A DETERMINATION THAT  
5 THE PENNSYLVANIA 502 JUNCTION FACILITIES, ALONG WITH THE  
6 RELATED FACILITIES IN WEST VIRGINIA AND VIRGINIA, ARE  
7 NEEDED TO ASSURE THE ELECTRIC RELIABILITY OF ALLEGHENY  
8 POWER'S TRANSMISSION FACILITIES AND THE PJM TRANSMISSION  
9 SYSTEM?

10 A. In testimony provided to FERC at a technical conference on May 13, 2005 in  
11 Charleston, West Virginia, PJM announced the Project Mountaineer transmission  
12 line concept. *Project Mountaineer did not identify specific transmission line*  
13 *routes, but rather an approach through which PJM's independent regional*  
14 *planning combined with its stakeholder process could identify a comprehensive*  
15 *transmission plan to increase transfer capability from west to east within the area*  
16 *served by PJM ("PJM Region"). After the announcement, Allegheny Power*  
17 *began a comprehensive review of possible system upgrades within the Allegheny*  
18 *Power Zone that would help to achieve the Project Mountaineer objectives.*  
19 *Allegheny Power shared with PJM and several PJM transmission owners its*  
20 *analyses and results in October 2005. In November 2005, Allegheny Power,*  
21 *American Electric Power Corporation ("AEP"), FirstEnergy Corp.*  
22 *("FirstEnergy"), and Dominion Virginia Power began an effort to consolidate*  
23 *their independently conducted historic transfer studies into one study proposal to*



1 be submitted to PJM for consideration as solutions for the Project Mountaineer  
2 concept. In February 2006, this joint report was submitted to PJM.  
3 Later in February 2006, Allegheny Power submitted its original TrAIL proposal  
4 to PJM as a possible solution to achieve the Project Mountaineer objectives. The  
5 original TrAIL consisted of a 330-mile, 500 kV line stretching from Allegheny  
6 Power's Wylie Ridge Substation in the western panhandle of West Virginia near  
7 Weirton, West Virginia to a new substation near Kempton, Maryland in  
8 Frederick County, Maryland. As PJM proceeded in 2006 with the development  
9 of its five-year RTEP analyses for 2011, projected reliability violations in 2011  
10 were discovered on the Mt. Storm-Doubs 500 kV line for the mid-Atlantic Load  
11 Deliverability test. PJM notified Allegheny Power and Dominion Virginia Power  
12 in March 2006 of these projected violations and asked for solution proposals.  
13 PJM also notified Allegheny Power of a projected reliability violation on the  
14 Pruntytown-Mt. Storm 500 kV line for a Generator Deliverability test (as defined  
15 in TrAILCo witness Mr. Gass' testimony) in 2014. At this time, Allegheny  
16 Power recommended to PJM that the original TrAIL proposal be considered as a  
17 solution to the reliability violations on the Pruntytown-Mt. Storm 500 kV line  
18 and the Mt. Storm-Doubs 500 kV line. After reviewing the solution alternatives  
19 submitted by Allegheny Power and others, PJM notified Allegheny Power and  
20 Dominion Virginia Power that its recommended solution was the 502 Junction  
21 Segments and the Loudoun Segment without the tie in at Meadow Brook  
22 Substation. Allegheny Power asked PJM to consider tying in at Meadow Brook

1 Substation as a possible solution to the projected Category C3 (loss of two lines)  
2 reliability violations in the Meadow Brook Substation area and PJM agreed.

3 Q. WHEN DID PJM ANNOUNCE THAT THE PREXY FACILITIES, THE 502  
4 JUNCTION SUBSTATION, THE 502 JUNCTION SEGMENTS AND THE  
5 LOUDOUN SEGMENT NEEDED TO BE CONSTRUCTED?

6 A. In May 2006, at a PJM Transmission Expansion Advisory Committee meeting,  
7 PJM presented a proposed RTEP that included all of these facilities. The  
8 proposed RTEP designated Allegheny Power as the transmission owner  
9 responsible for financing, constructing, owning, operating and maintaining the  
10 Prexy Facilities, the Pennsylvania 502 Junction Facilities, the remaining 502  
11 Junction Segments and the Meadow Brook Expansion and Dominion Virginia  
12 Power as the transmission owner with those responsibilities for the Mt. Storm  
13 Expansion, the Loudoun Segment and the Loudoun Expansion. On June 23,  
14 2006, the PJM Board of Managers approved the RTEP that included these  
15 facilities and, on July 21, 2006, PJM filed cost allocations for the RTEP with  
16 FERC.

17 Q. WHY DID PJM DESIGNATE ALLEGHENY POWER AS THE  
18 TRANSMISSION OWNER RESPONSIBLE FOR FINANCING,  
19 CONSTRUCTING, OWNING AND OPERATING THE PREXY FACILITIES,  
20 THE PENNSYLVANIA 502 JUNCTION FACILITIES, THE REMAINING 502  
21 JUNCTION SEGMENTS AND THE MEADOW BROOK EXPANSION?

22 A. As a PJM member, Allegheny Power is a party to the Operating Agreement.  
23 Schedule 6 of that agreement sets forth the "Regional Transmission Expansion

1 Planning Protocol” that governs the process by which PJM prepares a plan for the  
2 enhancement and expansion of the PJM transmission system in order to meet the  
3 demands for firm transmission service and to support competition in the PJM  
4 Region. The Allegheny Power transmission facilities over which PJM exercises  
5 functional control are part of the PJM transmission system.

6 The designation of Allegheny Power to construct, own and/or finance these  
7 facilities arises under two sections of Schedule 6 and one section of the  
8 Consolidated Transmission Owners Agreement. Section 1.7 of Schedule 6 sets  
9 forth the “obligation to build” of transmission owners. Subsection (a) of Section  
10 1.7 states:

11 Subject to the requirements of applicable law, government  
12 regulations and approvals, including, without limitation,  
13 requirements to obtain any necessary state or local siting,  
14 construction and operating permits, to the availability of required  
15 financing, to the ability to acquire necessary right-of-way, and to  
16 the right to recover, pursuant to appropriate financial arrangements  
17 and tariffs or contracts, all reasonably incurred costs, plus a  
18 reasonable return on investment, Transmission Owners designated  
19 as the appropriate entities to construct, own and/or finance  
20 enhancements or expansions specified in the Regional  
21 Transmission Expansion Plan shall construct, own and/or finance  
22 such facilities or enter into appropriate contracts to fulfill such  
23 obligations. However, nothing herein shall require any  
24 Transmission Owner to construct, finance or own any  
25 enhancements or expansions specified in the Regional  
26 Transmission Expansion Plan for which the plan designates an  
27 entity other than a Transmission Owner as the appropriate entity to  
28 construct, own and/or finance such enhancements or expansions.  
29

30 The “obligation to build” of transmission owners is also set forth in  
31 Section 4.2 of the Consolidated Transmission Owners Agreement and provides  
32 that a transmission owner designated to construct and own or finance transmission

1 enhancements or expansions may enter into appropriate contracts to fulfill those  
2 obligations. Mr. Flitman describes how Allegheny Energy, Inc. determined that  
3 Allegheny Power's obligation under Section 1.7 to construct the Prexy Facilities,  
4 the Pennsylvania 502 Junction Facilities, the remaining 502 Junction Segments  
5 and the Meadow Brook Expansion would be performed by TrAILCo.

6 Section 1.5.6(f) of Schedule 6 describes how PJM determines which of the  
7 transmission owners has the "obligation to build" and states that PJM must  
8 designate the transmission owner that owns transmission facilities located in the  
9 transmission zone where the particular enhancement or expansion is to be located.

10 ALLEGHENY POWER TRANSMISSION FACILITIES  
11 AND THE PJM TRANSMISSION SYSTEM

12  
13 Q. WHERE ARE ALLEGHENY POWER'S TRANSMISSION FACILITIES IN  
14 PENNSYLVANIA LOCATED IN RELATIONSHIP TO THE  
15 TRANSMISSION FACILITIES THAT TRAILCO HAS PROPOSED IN THIS  
16 PROCEEDING TO CONSTRUCT IN PENNSYLVANIA?

17 A. The locational relationship of these existing and proposed facilities are shown on  
18 TrAILCo Exhibit LAH-5, which is a system map indicating the location and  
19 voltages of existing Allegheny Power transmission facilities in Pennsylvania and  
20 the location and voltages of proposed TrAILCo transmission facilities in  
21 Pennsylvania.

22 Q. PLEASE DESCRIBE THE RELATIONSHIP OF ALLEGHENY POWER  
23 TRANSMISSION FACILITIES TO THE PJM TRANSMISSION SYSTEM.

1 A. Allegheny Power's transmission facilities consist of approximately 4,600 circuit  
2 miles of transmission lines, including 1,600 circuit miles in Pennsylvania. Those  
3 lines operate with nominal operating voltages of 115 kV, 138 kV, 230 kV, 345  
4 kV and 500 kV within the Allegheny Power Zone. Allegheny Power provides  
5 retail electric service to approximately three million people in Pennsylvania,  
6 Maryland, Virginia and West Virginia and its combined service territory in these  
7 states lies entirely within the PJM Region.

8 The Allegheny Power transmission facilities are located in southwestern, north  
9 central, and south central Pennsylvania; northern and eastern West Virginia;  
10 western and central Maryland; and northwestern Virginia. These facilities extend  
11 approximately 200 miles from the Ohio River in West Virginia to the Potomac  
12 River in Maryland. Allegheny Power's transmission facilities are interconnected  
13 through 48 tie lines to the transmission facilities of five neighboring transmission  
14 owners. These include 15 ties to the operating companies of American Electric  
15 Power, four ties to Duquesne Light Company, 19 ties to the operating companies  
16 of First Energy, three ties to Potomac Electric Power Company, and seven ties to  
17 Dominion Virginia Power. All of these interconnections are within the PJM  
18 footprint, except one of the First Energy interconnections, which provides a tie to  
19 the Midwest Independent Transmission System Operator ("MISO"). Simply  
20 stated, Allegheny Power's transmission facilities are centrally located  
21 geographically in the PJM footprint and play a pivotal role in enabling the  
22 efficient operation of the PJM market and the transfer of power from western  
23 PJM and MISO to the eastern PJM load centers. Allegheny Power's transmission

1 facilities are a major transmission interconnection between the heavily populated,  
2 developed areas in eastern PJM and the low cost generating facilities in western  
3 PJM and serve as a key path from generation to load within the PJM region and  
4 beyond. Allegheny Power's transmission interconnections serve as an electric  
5 pathway to provide access to off system resources, as well as a delivery  
6 mechanism to adjacent companies.

7 Q. IS IT IMPORTANT THAT TRANSMISSION PLANNING FOR ALLEGHENY  
8 POWER TRANSMISSION FACILITIES BE INTEGRATED WITH PJM'S  
9 REGIONAL PLANNING?

10 A. Yes. Because PJM operates Allegheny Power's transmission facilities as part of a  
11 regional transmission system, the planning process needs to incorporate that  
12 operating practice into the transmission planning process. While the causes that  
13 are driving the electrical need for the Pennsylvania 502 Junction Facilities (*i.e.*,  
14 load growth in the mid-Atlantic and northern Virginia areas) are not within  
15 Allegheny Power's Pennsylvania service area, the consequences of not  
16 constructing these facilities to address these causes, as I discussed earlier in this  
17 testimony, could severely affect Allegheny Power customers in Pennsylvania. If  
18 PJM did not conduct its planning process from a regional perspective and only  
19 reviewed the effect of Allegheny Power's zonal load on Allegheny Power's  
20 transmission facilities, the potential reliability violations that necessitate the  
21 Pennsylvania 502 Junction Facilities and the remainder of the 502 Junction  
22 Segments as well as the Loudoun Segment may not have been discovered. The  
23 risk of overloading the Mt. Storm-Doubs 500 kV line and the Pruntytown-Mt.

1 Storm 500 kV line would still have been as likely, but the resolution of the  
2 reliability violations would most probably have been an operating procedure such  
3 as controlled load shedding or curtailment of transfers once the violation occurred  
4 in real-time. Controlled load shedding under this condition is based on the load  
5 that has the most impact on the overloaded facility, which is usually the load  
6 closest to the overloaded facility. In the case of the Mt. Storm-Doubs 500 kV line  
7 load in south central Pennsylvania may be at risk. Additionally, this is not an  
8 adequate solution since under certain system conditions customers in the mid-  
9 Atlantic and northern Virginia area will be at risk for controlled, rotating  
10 blackouts. This situation would be similar to the controlled, rotating blackouts  
11 experienced by California residents during the summer of 2001.

12 Q. DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?

13 A. Yes, it does. However, I reserve the right to file such additional testimony as  
14 may be necessary or appropriate.

# PROPRIETARY INFORMATION

Docket Number A-110172

Name of Document Trail Co Exhibit LAH-1

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Date Document Received 3-26-2008

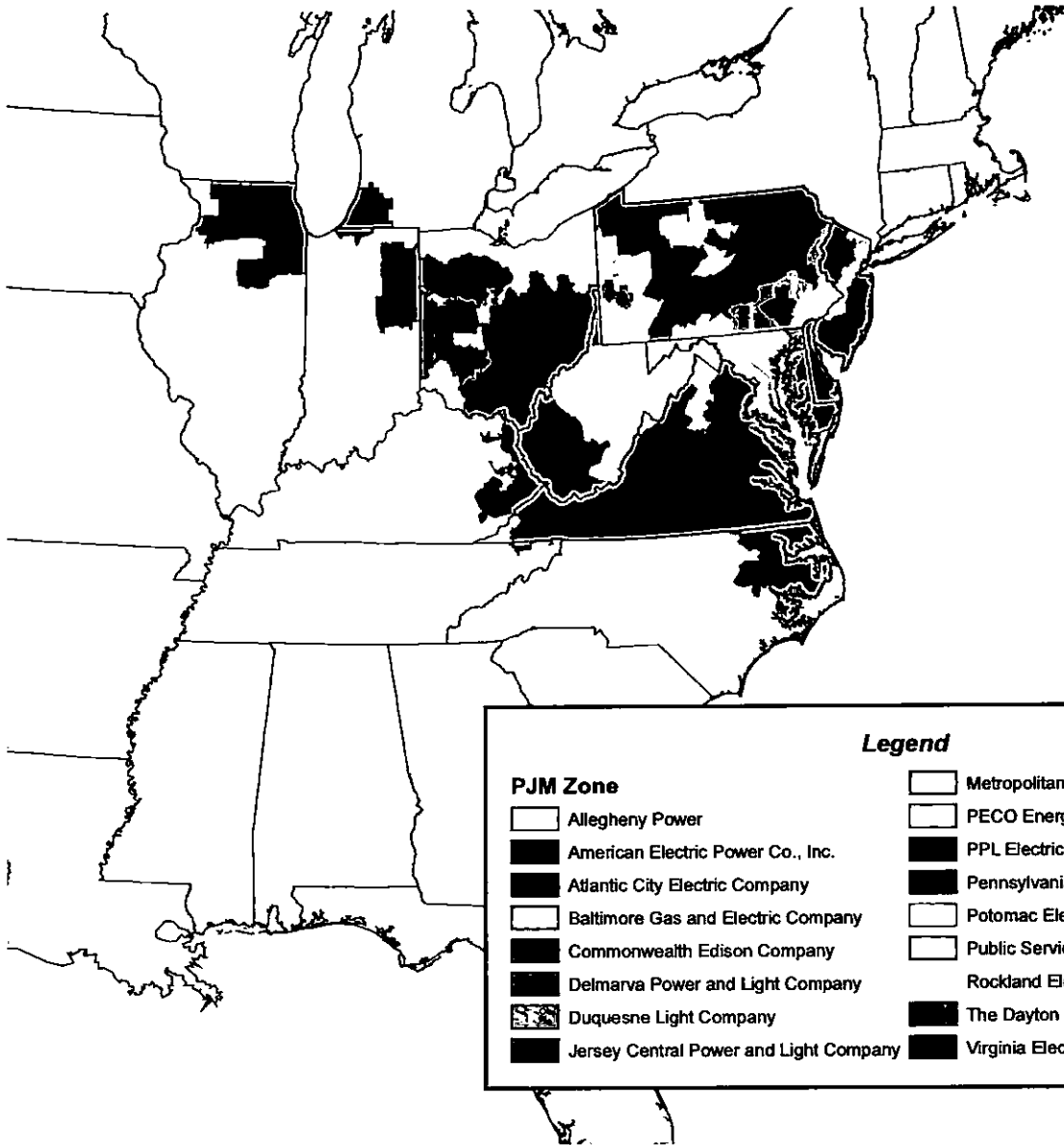
**DOCUMENT CONTAINS**

**PROPRIETARY INFORMATION**



3-26-08  
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JK

# TrAILCo Exhibit LAH-2



Legend	
<b>PJM Zone</b>	
Allegheny Power	Metropolitan Edison Company
American Electric Power Co., Inc.	PECO Energy Company
Atlantic City Electric Company	PPL Electric Utilities Corporation
Baltimore Gas and Electric Company	Pennsylvania Electric Company
Commonwealth Edison Company	Potomac Electric Power Company
Delmarva Power and Light Company	Public Service Electric and Gas Company
Duquesne Light Company	Rockland Electric Company
Jersey Central Power and Light Company	The Dayton Power and Light Co.
	Virginia Electric and Power Co.



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TrAILCo Exhibit LAH-3

**TrAIL – Prexy Facilities  
Electric Reliability Problems**

	<b>Electrical Occurrence</b>	<b>Electrical Result</b>
1	Outage of Buffalo Junction and Wylie Ridge-Smith 138 kV lines.	The Union Junction 138 kV line exceeds its emergency rating and overloads.
2	Outage of Buffalo Junction and Union Junction 138 kV lines.	The Wylie Ridge-Smith 138 kV line exceeds its emergency rating and overloads. Also, the 138 kV voltage at 11 substations drops below acceptable limits and could lead to a voltage collapse in the area.
3	Outage of Union Junction and Wylie Ridge-Smith 138 kV lines.	The Gordon-Manifold 138 kV line exceeds its emergency rating and overloads. Also, the 138 kV voltage at 15 substations drops below acceptable limits and could lead to a voltage collapse in the area.
4	Outage of Union Junction and Gordon-Manifold 138 kV lines.	The 138 kV voltage at 10 substations drops below acceptable limits and could lead to a voltage collapse in the area.

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**Standard TPL-003-0 — System Performance Following Loss of Two or More BES Elements**

**A. Introduction**

- 1. **Title:** System Performance Following Loss of Two or More Bulk Electric System Elements (Category C)
- 2. **Number:** TPL-003-0
- 3. **Purpose:** System simulations and associated assessments are needed periodically to ensure that reliable systems are developed that meet specified performance requirements, with sufficient lead time and continue to be modified or upgraded as necessary to meet present and future System needs.
- 4. **Applicability:**
  - 4.1. Planning Authority
  - 4.2. Transmission Planner
- 5. **Effective Date:** April 1, 2005

**B. Requirements**

- R1. The Planning Authority and Transmission Planner shall each demonstrate through a valid assessment that its portion of the interconnected transmission systems is planned such that the network can be operated to supply projected customer demands and projected Firm (non-recallable reserved) Transmission Services, at all demand Levels over the range of forecast system demands, under the contingency conditions as defined in Category C of Table I (attached). The controlled interruption of customer Demand, the planned removal of generators, or the Curtailment of firm (non-recallable reserved) power transfers may be necessary to meet this standard. To be valid, the Planning Authority and Transmission Planner assessments shall:
  - R1.1. Be made annually.
  - R1.2. Be conducted for near-term (years one through five) and longer-term (years six through ten) planning horizons.
  - R1.3. Be supported by a current or past study and/or system simulation testing that addresses each of the following categories, showing system performance following Category C of Table 1 (multiple contingencies). The specific elements selected (from each of the following categories) for inclusion in these studies and simulations shall be acceptable to the associated Regional Reliability Organization(s).
    - R1.3.1. Be performed and evaluated only for those Category C contingencies that would produce the more severe system results or impacts. The rationale for the contingencies selected for evaluation shall be available as supporting information. An explanation of why the remaining simulations would produce less severe system results shall be available as supporting information.
    - R1.3.2. Cover critical system conditions and study years as deemed appropriate by the responsible entity.
    - R1.3.3. Be conducted annually unless changes to system conditions do not warrant such analyses.
    - R1.3.4. Be conducted beyond the five-year horizon only as needed to address identified marginal conditions that may have longer lead-time solutions.

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**Standard TPL-003-0 — System Performance Following Loss of Two or More BES Elements**

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- R1.3.5. Have all projected firm transfers modeled.
- R1.3.6. Be performed and evaluated for selected demand levels over the range of forecast system demands.
- R1.3.7. Demonstrate that System performance meets Table 1 for Category C contingencies.
- R1.3.8. Include existing and planned facilities.
- R1.3.9. Include Reactive Power resources to ensure that adequate reactive resources are available to meet System performance.
- R1.3.10. Include the effects of existing and planned protection systems, including any backup or redundant systems.
- R1.3.11. Include the effects of existing and planned control devices.
- R1.3.12. Include the planned (including maintenance) outage of any bulk electric equipment (including protection systems or their components) at those Demand levels for which planned (including maintenance) outages are performed.
- R1.4. Address any planned upgrades needed to meet the performance requirements of Category C.
- R1.5. Consider all contingencies applicable to Category C.
- R2. When system simulations indicate an inability of the systems to respond as prescribed in Reliability Standard TPL-003-0\_R1, the Planning Authority and Transmission Planner shall each:
  - R2.1. Provide a written summary of its plans to achieve the required system performance as described above throughout the planning horizon:
    - R2.1.1. Including a schedule for implementation.
    - R2.1.2. Including a discussion of expected required in-service dates of facilities.
    - R2.1.3. Consider lead times necessary to implement plans.
  - R2.2. Review, in subsequent annual assessments, (where sufficient lead time exists), the continuing need for identified system facilities. Detailed implementation plans are not needed.
- R3. The Planning Authority and Transmission Planner shall each document the results of these Reliability Assessments and corrective plans and shall annually provide these to its respective NERC Regional Reliability Organization(s), as required by the Regional Reliability Organization.

**C. Measures**

- M1. The Planning Authority and Transmission Planner shall have a valid assessment and corrective plans as specified in Reliability Standard TPL-003-0\_R1 and TPL-003-0\_R2.
- M2. The Planning Authority and Transmission Planner shall have evidence it reported documentation of results of its reliability assessments and corrective plans per Reliability Standard TPL-003-0\_R3.

**Standard TPL-003-0 — System Performance Following Loss of Two or More BES Elements**

**D. Compliance**

**1. Compliance Monitoring Process**

**1.1. Compliance Monitoring Responsibility**

Compliance Monitor: Regional Reliability Organizations.

**1.2. Compliance Monitoring Period and Reset Timeframe**

Annually.

**1.3. Data Retention**

None specified.

**1.4. Additional Compliance Information**

None.

**2. Levels of Non-Compliance**

**2.1. Level 1:** Not applicable.

**2.2. Level 2:** A valid assessment and corrective plan for the longer-term planning horizon is not available.

**2.3. Level 3:** Not applicable.

**2.4. Level 4:** A valid assessment and corrective plan for the near-term planning horizon is not available.

**E. Regional Differences**

1. None identified.

**Version History**

Version	Date	Action	Change Tracking
0	April 1, 2005	Effective Date	New
0	April 1, 2005	Add parenthesis to item "e" on page 8.	Errata

Standard TPL-003-0 — System Performance Following Loss of Two or More BES Elements

Table I. Transmission System Standards – Normal and Emergency Conditions

Category	Contingencies	System Limits or Impacts		
	Initiating Event(s) and Contingency Element(s)	System Stable and both Thermal and Voltage Limits within Applicable Rating <sup>a</sup>	Loss of Demand or Curtailed Firm Transfers	Cascading <sup>c</sup> Outages
<b>A</b> No Contingencies	All Facilities in Service	Yes	No	No
<b>B</b> Event resulting in the loss of a single element.	Single Line Ground (SLG) or 3-Phase (3Ø) Fault, with Normal Clearing: 1. Generator 2. Transmission Circuit 3. Transformer Loss of an Element without a Fault.	Yes Yes Yes Yes	No <sup>b</sup> No <sup>b</sup> No <sup>b</sup> No <sup>b</sup>	No No No No
	Single Pole Block, Normal Clearing <sup>e</sup> : 4. Single Pole (dc) Line	Yes	No <sup>b</sup>	No
<b>C</b> Event(s) resulting in the loss of two or more (multiple) elements.	SLG Fault, with Normal Clearing <sup>e</sup> : 1. Bus Section	Yes	Planned/ Controlled <sup>d</sup>	No
	2. Breaker (failure or internal Fault)	Yes	Planned/ Controlled <sup>d</sup>	No
	SLG or 3Ø Fault, with Normal Clearing <sup>e</sup> , Manual System Adjustments, followed by another SLG or 3Ø Fault, with Normal Clearing <sup>e</sup> : 3. Category B (B1, B2, B3, or B4) contingency, manual system adjustments, followed by another Category B (B1, B2, B3, or B4) contingency	Yes	Planned/ Controlled <sup>d</sup>	No
	Bipolar Block, with Normal Clearing <sup>e</sup> : 4. Bipolar (dc) Line Fault (non 3Ø), with Normal Clearing <sup>e</sup> :	Yes	Planned/ Controlled <sup>d</sup>	No
	5. Any two circuits of a multiple circuit towerline <sup>f</sup>	Yes	Planned/ Controlled <sup>d</sup>	No
	SLG Fault, with Delayed Clearing <sup>e</sup> (stuck breaker or protection system failure): 6. Generator	Yes	Planned/ Controlled <sup>d</sup>	No
7. Transformer	Yes	Planned/ Controlled <sup>d</sup>	No	
8. Transmission Circuit	Yes	Planned/ Controlled <sup>d</sup>	No	
9. Bus Section	Yes	Planned/ Controlled <sup>d</sup>	No	

**Standard TPL-003-0 — System Performance Following Loss of Two or More BES Elements**

<p><b>D<sup>d</sup></b> Extreme event resulting in two or more (multiple) elements removed or Cascading out of service</p>	<p>3Ø Fault, with Delayed Clearing<sup>c</sup> (stuck breaker or protection system failure):</p> <table border="0"> <tr> <td>1. Generator</td> <td>3. Transformer</td> </tr> <tr> <td>2. Transmission Circuit</td> <td>4. Bus Section</td> </tr> </table> <hr/> <p>3Ø Fault, with Normal Clearing<sup>c</sup>:</p> <hr/> <ol style="list-style-type: none"> <li>5. Breaker (failure or internal Fault)</li> <li>6. Loss of towerline with three or more circuits</li> <li>7. All transmission lines on a common right-of way</li> <li>8. Loss of a substation (one voltage level plus transformers)</li> <li>9. Loss of a switching station (one voltage level plus transformers)</li> <li>10. Loss of all generating units at a station</li> <li>11. Loss of a large Load or major Load center</li> <li>12. Failure of a fully redundant Special Protection System (or remedial action scheme) to operate when required</li> <li>13. Operation, partial operation, or misoperation of a fully redundant Special Protection System (or Remedial Action Scheme) in response to an event or abnormal system condition for which it was not intended to operate</li> <li>14. Impact of severe power swings or oscillations from Disturbances in another Regional Reliability Organization.</li> </ol>	1. Generator	3. Transformer	2. Transmission Circuit	4. Bus Section	<p>Evaluate for risks and consequences.</p> <ul style="list-style-type: none"> <li>▪ May involve substantial loss of customer Demand and generation in a widespread area or areas.</li> <li>▪ Portions or all of the interconnected systems may or may not achieve a new, stable operating point.</li> <li>▪ Evaluation of these events may require joint studies with neighboring systems.</li> </ul>
1. Generator	3. Transformer					
2. Transmission Circuit	4. Bus Section					

- a) Applicable rating refers to the applicable Normal and Emergency facility thermal Rating or system voltage limit as determined and consistently applied by the system or facility owner. Applicable Ratings may include Emergency Ratings applicable for short durations as required to permit operating steps necessary to maintain system control. All Ratings must be established consistent with applicable NERC Reliability Standards addressing Facility Ratings.
- b) Planned or controlled interruption of electric supply to radial customers or some local Network customers, connected to or supplied by the Faulted element or by the affected area, may occur in certain areas without impacting the overall reliability of the interconnected transmission systems. To prepare for the next contingency, system adjustments are permitted, including curtailments of contracted Firm (non-recallable reserved) electric power Transfers.
- c) Depending on system design and expected system impacts, the controlled interruption of electric supply to customers (load shedding), the planned removal from service of certain generators, and/or the curtailment of contracted Firm (non-recallable reserved) electric power transfers may be necessary to maintain the overall reliability of the interconnected transmission systems.
- d) A number of extreme contingencies that are listed under Category D and judged to be critical by the transmission planning entity(ies) will be selected for evaluation. It is not expected that all possible facility outages under each listed contingency of Category D will be evaluated.
- e) Normal clearing is when the protection system operates as designed and the Fault is cleared in the time normally expected with proper functioning of the installed protection systems. Delayed clearing of a Fault is due to failure of any protection system component such as a relay, circuit breaker, or current transformer, and not because of an intentional design delay.
- f) System assessments may exclude these events where multiple circuit towers are used over short distances (e.g., station entrance, river crossings) in accordance with Regional exemption criteria.

# PROPRIETARY INFORMATION

Docket Number A-110172

Name of Document Trailco Exhibit LAH 5

Date Document Received 3-26-2008

**DOCUMENT CONTAINS**

**PROPRIETARY INFORMATION**



3-26-08  
Pittsburgh  
JK

TrAILCo Rebuttal Statement No. 2-R  
Witness: Lawrence A. Hozempa

BEFORE THE  
PENNSYLVANIA PUBLIC UTILITY COMMISSION

IN RE: APPLICATION OF TRANS-ALLEGHENY :  
INTERSTATE LINE COMPANY FOR :  
(I) A CERTIFICATE OF PUBLIC CONVENIENCE :  
TO OFFER, RENDER, FURNISH AND/OR :  
SUPPLY TRANSMISSION SERVICE IN THE :  
COMMONWEALTH OF PENNSYLVANIA; :  
(II) AUTHORIZATION AND CERTIFICATION :  
TO LOCATE, CONSTRUCT, OPERATE AND :  
MAINTAIN CERTAIN HIGH VOLTAGE ELECTRIC :  
TRANSMISSION LINES AND RELATED ELECTRIC :  
SUBSTATION FACILITIES; (III) AUTHORITY :  
TO EXERCISE THE POWER OF EMINENT :  
DOMAIN FOR THE CONSTRUCTION AND :  
INSTALLATION OF AERIAL ELECTRIC :  
TRANSMISSION FACILITIES ALONG THE :  
PROPOSED TRANSMISSION LINE ROUTES :  
IN PENNSYLVANIA; (IV) APPROVAL OF AN :  
EXEMPTION FROM MUNICIPAL ZONING :  
REGULATION WITH RESPECT TO THE :  
CONSTRUCTION OF BUILDINGS; AND :  
(V) APPROVAL OF CERTAIN RELATED :  
AFFILIATED INTEREST ARRANGEMENTS :

Docket Nos. A-110172  
A-110172F0002  
A-110172F0003  
A-110172F0004  
G-00071229

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REBUTTAL TESTIMONY OF LAWRENCE A. HOZEMPA

Re: Reliability Standards, Reliability Need for Prexy Facilities and the Pennsylvania  
502 Junction Facilities, and the Planning Process for TrAIL

December 10, 2007

REBUTTAL TESTIMONY OF LAWRENCE A. HOZEMPA

1 Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

2 A. My name is Lawrence A. Hozempa and my business address is 800 Cabin Hill  
3 Drive, Greensburg, Pennsylvania.  
4

5 Q. HAVE YOU PREVIOUSLY FILED TESTIMONY IN THIS PROCEEDING?

6 A. Yes. I have filed written Direct Testimony on behalf of Trans-Allegheny  
7 Interstate Line Company ("TrAILCo"), which has been designated as TrAILCo  
8 Statement No. 2.  
9

10 Q. PLEASE DESCRIBE THE PURPOSE OF YOUR REBUTTAL TESTIMONY.

11 A. This Rebuttal Testimony addresses various assertions contained in testimony from  
12 opponents, concerning the reliability need for the Prexy Facilities and the 502  
13 Junction Facilities, and TrAILCo's planning process. Specifically, my rebuttal  
14 addresses testimony filed by Office of Trial Staff ("OTS") witness Gary Yocca in  
15 OTS Statement No. 1, Office of Consumer Advocate ("OCA") witness Peter  
16 Lanzalotta in OCA Statement No.1, Energy Conservation Council ("ECC")  
17 witness George Loehr in ECC Statement No. 1, and testimony by members of the  
18 public during public input hearings.

1 Q. WILL THE USE OF VARIOUS TERMS IN YOUR REBUTTAL TESTIMONY  
2 BE CONSISTENT WITH THE DEFINITIONS ASSIGNED TO THOSE TERMS  
3 IN THE TABLE OF NOMENCLATURE ATTACHED TO TRAILCO  
4 WITNESS FLITMAN'S DIRECT TESTIMONY AS TRAILCO EXHIBIT DEF-  
5 1?

6 A. Yes. In addition, I may define other specific terms in my rebuttal.  
7

8 OVERVIEW AND PERSPECTIVE

9 Q. BY WAY OF REBUTTAL, DO YOU HAVE ANY GENERAL  
10 OBSERVATIONS CONCERNING THE TESTIMONY OPPOSING TRAIL?

11 A. Yes, I do. The tone of the opposing testimony is that this project is being driven  
12 by an evil profit motivated entity simply looking to make a profit from  
13 transmission facilities. What is totally lost in such opposition's rhetoric is the  
14 fundamental basis upon which this project rests, which is the public service  
15 obligation of the public utility subsidiaries of Allegheny Energy, Inc. ("Allegheny  
16 Energy") to provide sufficient resources to supply adequate and reliable power to  
17 their customers. The planned transmission investment will receive a return – a  
18 regulated return, by the way – which must be provided if needed capital is to be  
19 obtained. TrAILCo witness Mader addresses the rate aspects of this project in  
20 more detail.

21

22 There is a troubling and fallacious underlying assumption implicit in the  
23 opposition's arguments that Allegheny Energy, Allegheny Power and TrAILCo

1           somehow control the universe. To the contrary, they cannot dictate where or what  
2           types of generation will be built from the Mississippi to the Atlantic; they cannot  
3           require customers to buy efficient appliances; they cannot force customers to use  
4           less power at peak times. However, what they must do is to react to the world in  
5           which they find themselves. They cannot as a matter of law hide behind good  
6           intentions, including promises of future facilities. They cannot ignore directives  
7           from PJM to step up and make the investments required to maintain a reliable  
8           transmission system. A shortfall in meeting reliability requirements places  
9           Allegheny Power customers in jeopardy of an inadequate amount of quality  
10          power, and places Allegheny Power in the cross-hairs of penalties and fines from  
11          regulators.

12  
13          We do not want to put western Pennsylvania at risk of inadequate service in just a  
14          couple of years because a project opponent objects to coal fired generation a state  
15          or two away, or the likelihood of a carbon tax that might make gas fired  
16          generation a bit more favorable in a contest with coal fired generation or the hope  
17          that generation might be built in eastern PJM. Hope is nice but Allegheny Energy  
18          along with Allegheny Power and TrAILCo and their regulators are faced with the  
19          world as it is.

20  
21          Furthermore, this proceeding should not be an indirect way to manipulate or pre-  
22          judge what generation resources might or might not be certificated for approval in  
23          the years to come.

1 Q. OTS WITNESS YOCCA AND ECC WITNESS LOEHR EACH QUESTION  
2 WHETHER VARIOUS ALTERNATIVES TO TRAIL WERE ADEQUATELY  
3 EXPLORED. DO YOU HAVE REBUTTAL TO THESE POINTS?

4 A. Yes. These witnesses question whether options to TrAIL might include demand  
5 side management ("DSM") resources, more power in eastern PJM, static VAR  
6 compensator equipment, phase angle regulators ("PAR"s), and/or the installation  
7 of a DC line. In my further rebuttal below I address these alternatives. But an  
8 overall point I want to make in rebuttal is that all of these various "work-arounds"  
9 are not, either alone or in combination, a lasting solution to the *fundamental* need  
10 to add the transmission capability that will be provided by TrAIL. Furthermore, a  
11 DC line is not the best solution for this type or scope of project. DC lines are  
12 more viable options for point-to-point power transfers or asynchronous  
13 interconnections, and the primary driver for TrAIL is the reliability of the  
14 interconnected, AC, EHV bulk power supply facilities.

15

16 Q. ARE YOU AWARE OF THE PIEDMONT ENVIRONMENTAL COUNCIL'S  
17 REPORT TITLED "HOW DOMINION AND ALLEGHENY POWER GOT IT  
18 WRONG"?

19 A. Yes.

20

21 Q. HAVE YOU READ THIS REPORT?

22 A. Yes I have.

1 Q. DO YOU AGREE WITH THE REPORT'S CONCLUSIONS?

2 A. No.

3

4 Q. PLEASE EXPLAIN WHY YOU DISAGREE.

5 A. Primarily I disagree with the recommendation that the Virginia State Corporation  
6 Commission should reject TrAILCo's application to construct the 500 kV  
7 facilities in Virginia. I also find it very interesting that the report claims PJM,  
8 Dominion, and Allegheny Power exaggerated the situation and the problem  
9 doesn't really exist. Then it goes on to propose options to a purported non-  
10 existent problem.

11

12 Furthermore, I disagree with the report's 'alternative solutions'. First, it proposes  
13 *more power plants in eastern PJM*. Neither PJM, Dominion, Allegheny Power  
14 nor TrAILCo can force a generator to build in a specific location. Secondly, it  
15 proposes aggressive demand side management. The amount of load and the wide  
16 geographic area crossing jurisdictional and state boundaries that need to be  
17 managed, in addition to the short time frame to operate within, makes this option  
18 impossible. The report also proposes installation of a PAR on the Mt. Storm-  
19 Doubs 500 kV line and construction of the Amos-Bedington-Kempton EHV  
20 line. The PAR will control the power flowing on the Mt. Storm-Doubs 500 kV  
21 line, but a PAR forces the power to flow elsewhere on the system. The power  
22 does not just go away. In short, the report obviously agrees that a line needs to be  
23 built. The Piedmont Council just does not want the line in Virginia.

1 Q. IS THERE ANYTHING YOU AGREE WITH IN THE REPORT?

2 A. Yes. I agree with the report's recommendation that an SVC at Meadow Brook  
3 Substation will work to alleviate the voltage violations in the Meadow Brook  
4 Substation area in the case of conditions modeled in PJM's 2006 RTEP loadflow,  
5 but future cases may determine that an SVC will not be enough for a long term  
6 solution. Possibly both an SVC and the TrAIL project will be needed to resolve  
7 future constraints. An SVC was part of the original TrAIL proposal and  
8 Allegheny Power's initial response to PJM regarding the voltage violations  
9 discovered through the 2006 RTEP process. An SVC is more expensive than  
10 tapping the 500 kV line into the substation, but it would work for the conditions  
11 modeled in PJM's 2006 RTEP case.

12

13 DEMAND SIDE MANAGEMENT RESOURCES

14 Q. WITH RESPECT TO DSM RESOURCES, DID YOU PROVIDE ANY  
15 UNDERLYING ANALYSIS FOR PURPOSES OF TRAILCO REBUTTAL  
16 TESTIMONY BEING OFFERED BY DR. ZARNIKAU?

17 A. Yes, I did. I completed a review of the Prexy area for loading conditions in 2009  
18 and 2011. My results are summarized below.

19 2009:

20 The load in Washington and Greene Counties in the case which is directly related  
21 to the facilities in question is 576.9 MW and 191.4 MVAR.

1           The worst conductor loading occurs on the Union Junction 138 kV line for loss of  
2           the Buffalo Junction 138 kV line followed by the loss of the Wylie Ridge-Smith  
3           138 kV line. In order to reduce the loading on this line to 100%, the load in  
4           Washington and Greene Counties needs to be reduced 4% (23.1 MW and 7.6  
5           MVA<sub>r</sub>).

6

7           The worst voltage violations in the Prexy area occur with the loss of the Union  
8           Junction 138 kV line followed by the loss of the Wylie Ridge-Smith 138 kV line.  
9           I tried to reduce load in Washington and Greene Counties to bring the voltages to  
10          acceptable levels but was unsuccessful. I reduced the load 20% (115.4 MW and  
11          38.3 MVA<sub>r</sub>) and still had 11 substations with unacceptable voltage. Based on the  
12          2011 analysis, discussed below, I think the load in Washington and Greene  
13          Counties needs to be less than 400 MW, which is about a 31% reduction.

14

15          2011:

16          The load in Washington and Greene Counties in the case which is directly related  
17          to the facilities in question is 597.2 MW and 161.8 MVA<sub>r</sub>.

18          The worst conductor loading occurs on the Union Junction 138 kV line for loss of  
19          the Buffalo Junction 138 kV line followed by the loss of the Wylie Ridge-Smith  
20          138 kV line. In order to reduce the loading on this line to 100%, the load in



1 Washington and Greene Counties needs to be reduced 13% (77.6 MW and 21  
2 MVar).

3

4 The worst voltage violations in the Prexy area occur with the loss of the Union  
5 Junction 138 kV line followed by the loss of the Wylie Ridge-Smith 138 kV line.  
6 I tried to reduce load in Washington and Greene Counties to bring the voltages to  
7 acceptable levels but was unsuccessful. I reduced the load 25% (149.3 MW and  
8 40.4 MVar) and still had 11 substations with unacceptable voltage. I reduced the  
9 load to 400 MW and 108.4 MVar (33%) and only had one substation with  
10 unacceptable voltage.

11

12 It is interesting to note that at 400 MW almost all of the system voltages are  
13 acceptable, except for one substation, under the various North American Electric  
14 Reliability Corporation ("NERC") Category C3 contingencies. The load in  
15 Washington and Greene Counties is over 400 MW for more than 6000 hours each  
16 year. That means the area is at risk over two-thirds of the year, not just a couple  
17 of hours on a hot summer day.

18

19 I performed a similar analysis on the load reduction that will be necessary to  
20 relieve the overload on the Mt. Storm-Doubs 500 kV line and the results are  
21 below.

1        2011:

2        The load in the Allegheny Power Zone in the case which is directly related to the  
3        loading on the Mt. Storm-Doubs 500 kV line is 2303.9 MW and 461.9 MVA<sub>r</sub>.

4

5        The worst conductor loading on the Mt. Storm-Doubs 500 kV line occurs for loss  
6        of the Mt. Storm-Greenland Gap 500 kV line. In order to reduce the loading on  
7        this line to 100%, the load in the Allegheny Power Zone needs to be reduced 36%  
8        (829.4 MW and 166.3 MVA<sub>r</sub>). This is approximately one-third of the Potomac  
9        Edison load, plus some load from Pennsylvania.

10

11        RELIABILITY STANDARDS

12        Q.     HAVE YOU REVIEWED OTS WITNESS YOCCA'S DIRECT TESTIMONY  
13        CONCERNING ELECTRIC DISTRIBUTION RELIABILITY STANDARDS  
14        IMPOSED BY THIS COMMISSION ("PAPUC"), AND NERC STANDARDS?

15        A.     Yes.

16

17        Q.     WHAT IS THE RELATIONSHIP BETWEEN THE PAPUC'S RELIABILITY  
18        STANDARDS AND THE NERC STANDARDS?

19        A.     The PAPUC has reliability standards that are directly related to the reliability of  
20        the electric distribution service customers receive. The vast majority of the  
21        customers served by Allegheny Power in Pennsylvania are connected directly to  
22        the distribution system. There are also some customers served by Allegheny  
23        Power in Pennsylvania that are served directly from the subtransmission and the

1 transmission system. As noted by Mr. Yocca, these reliability standards which  
2 apply to the distribution system include the System Average Interruption  
3 Frequency Index (SAIFI), Customer Average Interruption Duration Index  
4 (CAIDI), and System Average Interruption Duration Index (SAIDI). All of these  
5 indices are calculated values. One factor used in these calculations is the number  
6 of electric distribution customers affected by the interruption in service.

7  
8 NERC reliability standards only apply to bulk electric transmission facilities;  
9 namely, facilities operated at voltages over 100 kV. NERC standards focus on  
10 how the contingency of a bulk electric transmission facility affects the rest of the  
11 system, especially other bulk electric transmission facilities.

12  
13 The relationship between these two standards is that violating the NERC  
14 standards may impact the PAPUC reliability indices. For example, loss of a  
15 transmission facility may interrupt distribution customers and will have a direct  
16 impact on the PAPUC reliability indices. However, the converse is not true. In  
17 other words, poor distribution system reliability does not cause poor transmission  
18 system reliability; but, poor transmission system reliability can contribute to poor  
19 reliability on the distribution system.

1 Q. HAVE YOU REVIEWED ECC WITNESS LOEHR'S DIRECT TESTIMONY,  
2 ASSERTING THAT TRAILCO HAS MISAPPLIED NERC'S STANDARDS?

3 A. Yes, I did review that testimony.  
4

5 Q. DID TRAILCO MISAPPLY THE NERC STANDARDS IN DETERMINING  
6 THE NEED FOR THE PREXY FACILITIES, AS ASSERTED BY ECC  
7 WITNESS LOEHR?

8 A. No. Mr. Loehr is wrong. Our analysis was not based on simultaneous  
9 contingencies as he asserts.  
10

11 There is very little room for interpretation in the language of the NERC standards.  
12 For example, in NERC Standard TPL-002-0 Requirement R1.3.2 it states the  
13 assessment should "cover critical system conditions and study years as deemed  
14 appropriate by the responsible entity." What system conditions are critical is  
15 determined by the responsible entity. Also, the critical system condition modeled  
16 must be based on reasonable assumptions.  
17

18 In the analysis conducted which identified the reliability problems in Washington,  
19 Greene and southern Allegheny Counties, the applicable NERC Standard, TPL-  
20 003-0, was applied correctly. For example, Electrical Occurrence 1 in TrAILCo  
21 Exhibit LAH-3 is the contingency of the Buffalo Junction 138 kV line followed  
22 by the loss of the Wylie Ridge-Smith 138 kV line. The analysis of this event  
23 shows an overload on the Union Junction 138 kV line. Any manual system

1 adjustments available to alleviate the overload are considered prior to proposing  
2 any solution. In this case, there are no manual system adjustments available to  
3 alleviate the overload other than interrupting customers.

4

5 Q. WHAT ALTERNATIVES ARE PERMITTED FOR NERC CATEGORY C  
6 CONTINGENCIES?

7 A. As shown in footnote (c) of Table I in TrAIL Exhibit LAH-4,  
8 “Depending on system design and expected system impacts, the controlled  
9 interruption of electric supply to customers (load shedding), the planned removal  
10 from service of certain generators, and/or the curtailment of contracted Firm  
11 (nonrecallable reserved) electric power transfers may be necessary to maintain the  
12 overall reliability of the interconnected transmission systems.”

13

14 These options are not listed in a preferential order. The priority is to “maintain  
15 the overall reliability of the interconnected transmission systems.” These options  
16 may or may not be available in every, or in any circumstance. For example in the  
17 Prexy area, there is no generation in the area of concern that will alleviate the  
18 reliability violations so re-dispatching generation resources is not an option.  
19 Also, this part of the transmission system is not significantly impacted by  
20 transfers so curtailing transfers will not resolve the reliability violations,  
21 especially since the contingencies that cause the violations are those that isolate  
22 this area from the system.

1 Q: IS OTS WITNESS YOCCA'S OBSERVATION CORRECT, THAT  
2 ALLEGHENY POWER CONSIDERED MANUAL LOAD SHEDDING AS AN  
3 OPTION TO THE NERC CATEGORY C3 VIOLATIONS IN GREENE AND  
4 WASHINGTON COUNTIES IN PREVIOUS ANALYSES?

5 A: Yes.

6

7 Q: WHY DOES ALLEGHENY POWER NO LONGER CONSIDER MANUAL  
8 LOAD SHEDDING AS AN OPTION TO THE NERC CATEGORY C3  
9 VIOLATIONS IN GREENE, WASHINGTON AND SOUTHERN  
10 ALLEGHENY COUNTIES?

11 A. Under certain contingencies 15 substations will have unacceptable voltage, i.e.  
12 voltages below 90% of nominal or 0.90 per unit after the second contingency  
13 occurs. In order to maintain acceptable voltage in the area after the second  
14 contingency nearly one-third of the load will have to be shed since there is no  
15 generation redispatch or curtailment of transfers that will mitigate the problems in  
16 the Prexy area. That will impact approximately one-third of the customers in the  
17 area; residential, commercial and industrial. The NERC standard allows for  
18 controlled loss of load in order to mitigate the effects of a NERC Category C3  
19 contingency, however, uncontrolled loss of load is a violation of the standard.  
20 Since the second contingency may cause uncontrolled loss of load, controlled  
21 interruption of customer load may have to commence after the first contingency in  
22 anticipation of the second contingency. This is why Allegheny Power no longer

1           considers manual load shedding as an acceptable solution to the NERC Category  
2           C3 violations in Greene, Washington and southern Allegheny Counties.

3

4           RELIABILITY NEED FOR PREXY FACILITIES

5           Q.     DO WASHINGTON AND GREENE COUNTIES NEED THE POWER THE  
6           PREXY FACILITIES WILL PROVIDE?

7           A.     Yes. The Prexy Facilities will provide power under normal conditions to  
8           Washington, Greene, and southern Allegheny Counties. However, the need for  
9           the Prexy Facilities is really driven by reasonable planning for loss-of-power  
10          contingencies that would result in the loss of transmission facilities in the area and  
11          render the existing transmission infrastructure incapable of supporting the  
12          electrical demand in this area. Outages in the area will occur. That is when  
13          Washington and Greene Counties will really need the power the Prexy Facilities  
14          will provide.

15

16          This type of contingency loss analysis is not done in a vacuum. Portions of  
17          Washington County, in particular, are experiencing significant growth and  
18          development, which is projected to continue into the foreseeable future.  
19          Allegheny Power's load forecasts for this area reflect above-average growth over  
20          the next several years. Significant expansion in the Washington County area was  
21          readily observable while traveling through the area for the public input hearings in  
22          this proceeding. Some examples of this expansion are the commercial  
23          development along the I-70 corridor such as Strabane Square, Trinity Point and

1           The Foundry as well as the residential development in Peters and South Strabane  
2           Townships.

3  
4           Certain public input witnesses cited generic population statistics for areas  
5           encompassing Washington and Greene Counties to question why area power  
6           reliability should be of concern. Such general statistics are not a reliable resource  
7           for purposes of maintaining system reliability because they do not capture  
8           demand characteristics for the use of electricity in the area. Utility load and  
9           capacity forecasts are based on foreseeable increases in customer demand, which  
10          include increases in commercial development as well as increases in the general  
11          population and new residential developments. A few projects that are causing  
12          increases in demand are the expansions at Southpointe and The Meadows; growth  
13          at the California Technology Park; and the new Tanger Outlets.

14

15    Q.    HOW CAN THE ELECTRICAL DEMAND IN THIS AREA BE INCREASING  
16           FASTER THAN THE POPULATION?

17    A.    Even though there is a relationship between population and electrical demand,  
18           they are not directly linked. The commercial development in the area adds  
19           electrical demand without necessarily increasing the population. Some of the  
20           people who work at these commercial establishments commute from outside the  
21           area. Also, people who live in the area may build an addition on their home,  
22           install central air conditioning, or purchase a second or third television, DVD



1           player, or computer. This also increases the electrical demand without an increase  
2           in population.

3

4   Q.   HAVE YOU ANY RESPONSE TO THE ASSERTION BY SOME  
5        OPPONENTS THAT YOU DID NOT CONDUCT A PROBABILITY  
6        ANALYSIS TO DETERMINE THE LIKELIHOOD OF THE EVENTS  
7        IDENTIFIED IN TRAILCO EXHIBIT LAH-3?

8   A.   Yes. The events identified in TrAILCo Exhibit LAH-3 are NERC Category C3  
9        contingencies. NERC Category C3 is a set of deterministic criteria and, as such,  
10       requires the evaluation of all combinations of one NERC Category B contingency  
11       followed by (after manual system adjustment) a second NERC Category B  
12       contingency. The calculation of a probability associated with any specific event,  
13       such as those identified in TrAILCo Exhibit LAH-3, is not applicable.

14

15   Q.   ARE YOU AWARE OF ANY INFORMATION THAT SUPPORTS YOUR  
16        ANALYSIS INDICATING THERE ARE IMMINENT RELIABILITY  
17        PROBLEMS?

18        Low voltages on the transmission system have occurred in Greene, Washington,  
19        and southern Allegheny Counties during the high load periods of the past three  
20        summers even with all of the transmission facilities in-service. The transmission  
21        system voltages will be much worse if a transmission line contingency were to  
22        occur during these periods.

1 Q. IS THE 500 KV LINE TRAILCO IS PROPOSING TO CONSTRUCT AS PART  
2 OF THE PREXY FACILITIES LARGER THAN NECESSARY TO MEET  
3 RELIABILITY CONCERNS?

4 A. No. First, to address a point of clarification, the 500 kV line TrAILCo is  
5 proposing to construct is TrAILCo's standard 500 kV design. Our engineering  
6 witness, John Bodenschatz, has described the design details as part of his  
7 testimony, and has filed rebuttal testimony to respond to certain additional  
8 concerns raised by other witnesses.

9  
10 In terms of why facilities are installed that are larger than the immediate need may  
11 require, it simply would not be practical for TrAILCo to construct a line that will  
12 need to be upgraded, rebuilt, or require additional transmission facilities just a few  
13 years into the future. Twenty years ago, the capacity of the existing transmission  
14 system in this area was adequate to serve the load under normal and contingency  
15 conditions with some additional capacity to allow for future load growth. As the  
16 load grew, the extra or additional capacity in the existing system got used up.  
17 Today under heavy load conditions with all facilities in-service, the voltage on the  
18 transmission buses in this area are reaching critical levels, and from our analysis  
19 we know that the voltage in this area will collapse under certain contingencies.  
20 We expect the proposed line to be adequate to serve this area for many years  
21 under normal and contingency conditions. The Prexy Facilities will help maintain  
22 acceptable voltage levels and reduce loading on other transmission lines in the  
23 area.

1 Q. WOULD SMALLER CAPACITY LINES BE A PRUDENT ALTERNATIVE  
2 TO THE CURRENT TRAILCO PROPOSAL, TO ADDRESS THE CATEGORY  
3 C VIOLATIONS CITED IN TRAILCO EXHIBIT LAH-3 FILED WITH YOUR  
4 DIRECT TESTIMONY?

5 A. No. A key consideration buried in such a question is how many smaller capacity  
6 lines would be required to address the Category C violations for the same time  
7 frame as the proposed solution. Although it may be possible to build enough 138  
8 kV lines to address the reliability concerns, I do not believe that is a practical or  
9 prudent approach. Power engineers often use a water system analogy to explain  
10 how a power system operates. Let me try to use this analogy to describe the  
11 situation we are dealing with in this area.

12

13 We have two pumps feeding into the system right now; one at Wylie Ridge  
14 Substation near Weirton, WV and one at Yukon Substation near Smithton, PA.  
15 From these pumps there are pipes that serve into the area. When one of these  
16 pipes fails followed by another pipe failure, the pressure in this area drops below  
17 acceptable limits. Customers can no longer use water. This occurs at 15  
18 substations spread over a wide area. TrAILCo's proposal is to bring in a main  
19 line and put a new pump (Prexy Substation) centered in the transmission system  
20 of the Prexy area. It would take quite a few 138 kV lines to do the same thing. It  
21 may not require as many 138 kV lines in 2009 or 2010, but eventually there will  
22 be a significant number of 138 kV lines in the area.

1 Q. EVEN IF ADDITIONAL SMALLER LINES WERE NEEDED, WOULDN'T  
2 THIS BE A LESS COSTLY AND LESS INTRUSIVE ALTERNATIVE TO THE  
3 PROPOSED PREXY FACILITIES?

4 A. No. For each smaller capacity 138 kV line that is constructed, substations will  
5 have to be expanded to accommodate these new lines. Also, the 'pumps', i.e. the  
6 transformers, at Wylie Ridge and Yukon will need to have additional capacity.  
7 Furthermore, it certainly will not be less intrusive. Building numerous 138 kV  
8 lines will impact far more customers than building the proposed Prexy Facilities.

9  
10 Q. COULD THE ELIMINATION OF "T" JUNCTIONS REDUCE RELIABILITY  
11 PROBLEMS JUST BY CONSTRUCTING SMALL SUBSTATIONS AT THE  
12 JUNCTIONS?

13 A. No. The junctions referred to are Buffalo Junction which is located in Brooke  
14 County, West Virginia, just east of Windsor Substation and Union Junction which  
15 is located in Washington County, Pennsylvania just south of Mitchell Substation.  
16 These junctions are too far outside the area with the reliability violations. By  
17 building a substation at the junctions you will not resolve the reliability problems  
18 resolved by the Prexy Facilities.

19  
20 Q. COULD TRAILCO USE CAPACITORS TO CORRECT THE VOLTAGE  
21 PROBLEMS IDENTIFIED IN TRAILCO EXHIBIT LAH-3 INSTEAD OF  
22 BUILDING THE PREXY FACILITIES?

1 A. No. The problems listed in TrAILCo Exhibit LAH-3 are only the potential  
2 problems that TrAILCo anticipates in 2009. As I stated earlier, the system  
3 assessment completed in November 2006 shows the number of transmission  
4 system reliability problems that are anticipated in 2011 if the Prexy Facilities are  
5 not constructed. Capacitors and other types of reactive devices can support  
6 voltage to a limited degree, but they can only marginally reduce the loading on  
7 facilities such as transmission lines and transformers. In reviewing the  
8 Washington, Greene, and southern Allegheny County areas, the number of  
9 contingencies that cause reliability violations and the number of substations and  
10 lines impacted indicates a major reinforcement is required. The Prexy Facilities  
11 are the effective, long-term reinforcement that is required to address all of the  
12 reliability violations identified.

13

14 Q. WILL THE CLOSING OF CONSOL'S 84 MINE ELIMINATE THE NEED FOR  
15 THE PREXY FACILITIES?

16 A. No. First, all of the load at CONSOL's 84 Mine will not be eliminated. There  
17 will still be some demand for ventilation and mine-water treatment facilities at the  
18 mine. Furthermore, the mine owners may decide just as quickly to re-open the  
19 mine and the load will come right back on the system. Even so, the loss of the  
20 demand at CONSOL's 84 Mine will not significantly decrease the load in  
21 Washington and Greene Counties; it will only serve to decrease the growth rate  
22 since there are so many other customers adding load and moving into the area that  
23 will quickly replace their demand reduction.

1 RELIABILITY NEED FOR PENNSYLVANIA 502 JUNCTION FACILITIES

2 Q. DO YOU AGREE WITH OCA WITNESS LANZALOTTA'S ASSESSMENT  
3 THAT PJM'S DELIVERABILITY TESTS ARE MORE RIGOROUS THAN  
4 NERC STANDARDS REQUIRE, AND ARE TOO CONSERVATIVE?

5 A. No. PJM's deliverability tests are in place to ensure that the NERC Standards are  
6 met. As stated in TPL-002-0, the assessment should:  
7 "cover critical system conditions and study years as deemed appropriate by the  
8 entity performing the study."

9  
10 The deliverability tests are designed to model critical system conditions such as  
11 capacity emergencies as defined in their planning standards. Obviously PJM  
12 conducts planning analyses for many transmission zones in numerous states and  
13 the criteria have been applied consistently throughout their entire footprint.

14  
15 Q. DO PJM'S DELIVERABILITY TESTS PROMOTE THE DEVELOPMENT OF  
16 TRANSMISSION BEYOND WHAT IS NEEDED?

17 A. No. PJM's deliverability tests insure the necessary transmission infrastructure is  
18 in place to meet reliability standards. The system model incorporates the  
19 generation resources, transmission infrastructure, and electrical demand forecast  
20 to be available for the year under study. PJM as the Regional Transmission  
21 Organization ("RTO") has the exclusive authority for maintaining the reliability  
22 of the transmission system. If the transmission system has a reliability violation  
23 due to the location of generation resources or electrical demand, the reliability of

1 the system must be maintained even if that requires construction of transmission  
2 facilities. PJM cannot require a generator to locate in a specific area any more  
3 than it can require an end use customer to locate in a specific area.

4

5 PLANNING PROCESS FOR TRAIL

6 Q. CERTAIN TRAILCO OPPONENTS HAVE ASSERTED THAT THE PROJECT  
7 IS DRIVEN BY ECONOMICS, NOT RELIABILITY. HAVE YOU ANY  
8 RESPONSE?

9 A. Yes, I do. The TrAIL project was prompted by reliability considerations. It was  
10 not planned in response to economic drivers.

11

12 First, consider the Prexy Facilities. There are studies going back several years  
13 that validate the reliability concerns that will be addressed by those facilities. The  
14 current version of the Prexy Facilities proposal was issued in December 2001 with  
15 an in-service date of July 2011. This reliability reinforcement project has been  
16 planned for over five years. In fact, the load in the area to be served by the Prexy  
17 Facilities has increased faster than anticipated, so the project has been advanced  
18 to insure reliable service in the area.

19

20 Secondly, the Pennsylvania 502 Junction Facilities portion of the TrAIL project is  
21 a solution to a reliability violation that was identified by PJM. PJM is an  
22 independent, not-for-profit, revenue neutral organization responsible for the  
23 reliability of the transmission system within the PJM RTO footprint. PJM will

1 not 'profit' or financially benefit from the construction of this line. PJM is  
2 mandated by FERC to maintain the reliability of the transmission system. PJM is  
3 only concerned that the line gets built so the transmission system continues to be  
4 reliable.

5  
6 As I note below, other independent organizations have also determined there are  
7 reliability concerns in this area, and have included the TrAIL project as a solution.

8  
9 Allegheny Power has been designated by PJM under the PJM Operating  
10 Agreement and the PJM Consolidated Transmission Owners Agreement as the  
11 appropriate entity responsible to assure the construction of TrAIL, as specified in  
12 the RTEP. Allegheny Energy designated TrAILCo as the entity to carry out  
13 Allegheny Power's responsibility.

14  
15 To state that the TrAIL project is being built just for profit, and not for any  
16 reliability purpose, is incorrect.

17  
18 Q. HAVE YOU ANY COMMENT WITH RESPECT TO ECC WITNESS  
19 HANHAM'S ASSERTIONS OF "UNEVEN ECONOMIC DEVELOPMENT"  
20 WITH RESPECT TO THE PENNSYLVANIA PORTIONS OF THE TRAIL  
21 PROJECT?

22 A. Except for the 1.2 mile piece of the TrAIL project from 502 Junction to the West  
23 Virginia state line, TrAIL in Pennsylvania is intended to solely address local



1 reliability needs. Thus, any assertions about "uneven economic development"  
2 between Greene/Washington Counties in Pennsylvania and Loudoun County in  
3 Virginia are not germane to this proceeding. There is no relationship between  
4 Loudoun County and the primary facilities proposed by TrAIL in Pennsylvania.

5

6 Q. WILL THE CONSTRUCTION OF TRAIL ENCOURAGE MORE COAL  
7 FIRED GENERATION, AND THEREFORE INCREASED CO2 EMISSIONS?

8 A. I cannot determine what types of additional generation resources, if any, will be  
9 constructed due to the construction of TrAIL. Nor can I determine if existing coal  
10 fired generation resources will be utilized more, or less. The PJM generation  
11 interconnection queue has numerous generation projects identified in addition to  
12 coal. In the Pennsylvania and West Virginia area there are also wind, natural gas,  
13 and methane generation projects proposed.

14

15 Q. WHY DOESN'T PJM OR TRAILCO ENCOURAGE MORE GENERATION IN  
16 EASTERN PJM?

17 A. Neither PJM nor TrAILCo has the authority to direct construction of generation  
18 resources.

19

20 Q. IS ECC WITNESS LOEHR'S ASSERTION CORRECT, THAT MORE  
21 TRANSMISSION LINES DO NOT MEAN THE TRANSMISSION SYSTEM  
22 HAS MORE RELIABILITY?

1 A. No. Think of transmission lines as spokes in a wheel or threads in a spider's web.  
2 The more spokes or threads, the stronger or more stable the wheel or the web  
3 becomes. If we cut a thread of a web with a lesser amount of threads, the web  
4 becomes weaker and distorted, especially near where the thread was cut. If we  
5 cut a thread of a web with a greater amount of threads, the web is only slightly  
6 weaker and the distortion is less. This is also true of a more highly connected  
7 transmission system. Loss of a transmission line has less of an impact on  
8 reliability in a highly connected transmission system.

9  
10 Q. IS ECC WITNESS LOEHR'S ASSERTION CORRECT, THAT TRAIL HAS  
11 NOT BEEN REVIEWED IN COORDINATION WITH OTHER PROPOSED  
12 TRANSMISSION LINES?

13 A. No. First, let me state again that TrAIL is the best solution to address the specific  
14 reliability violations cited in TrAILCo Exhibit SWG-1. PJM has been reviewing  
15 and continues to review proposals to address reliability, market efficiency, and  
16 operating concerns. They have recently announced the Amos-Bedington-  
17 Kemptown Potomac Appalachian Transmission Highline (PATH) project. PATH  
18 is also a project to address a specific reliability violation, and the loadflow model  
19 used to determine its need had TrAIL modeled in it. It would be imprudent for  
20 anyone to conduct a study on a major proposed transmission line project without  
21 considering the effects of other major transmission line projects.

1 Q. HAS THE TRAIL PROJECT BEEN STUDIED BY INTER-REGIONAL  
2 GROUPS?

3 A. ~ Yes. TrAIL was modeled in the ReliabilityFirst Corporation ("RFC")  
4 Transmission System Performance ("TSP") study completed in November 2006.  
5 This assessment studied 148 different transfer scenarios involving nine study  
6 clusters within RFC based on geographic area and eight study clusters outside of  
7 RFC.

8  
9 RFC recently completed another TSP study in October/November 2007 for the  
10 years 2008 and 2013. The 2013 study also included TrAIL.

11

12 Q. DOES THIS CONCLUDE YOUR REBUTTAL TESTIMONY?

13 A. Yes. However, I reserve the right to file such additional testimony as may be  
14 necessary or appropriate, and to supplement my rebuttal after reviewing responses  
15 to discovery.

3-26-08  
AHSbrgh  
JK

TrAILCo Supplemental Rebuttal Statement No. 2-R-1  
Witness: Lawrence A. Hozempa

BEFORE THE  
PENNSYLVANIA PUBLIC UTILITY COMMISSION

IN RE: APPLICATION OF TRANS-ALLEGHENY :  
INTERSTATE LINE COMPANY FOR :  
(I) A CERTIFICATE OF PUBLIC CONVENIENCE :  
TO OFFER, RENDER, FURNISH AND/OR :  
SUPPLY TRANSMISSION SERVICE IN THE :  
COMMONWEALTH OF PENNSYLVANIA; :  
(II) AUTHORIZATION AND CERTIFICATION :  
TO LOCATE, CONSTRUCT, OPERATE AND :  
MAINTAIN CERTAIN HIGH VOLTAGE ELECTRIC :  
TRANSMISSION LINES AND RELATED ELECTRIC :  
SUBSTATION FACILITIES; (III) AUTHORITY :  
TO EXERCISE THE POWER OF EMINENT :  
DOMAIN FOR THE CONSTRUCTION AND :  
INSTALLATION OF AERIAL ELECTRIC :  
TRANSMISSION FACILITIES ALONG THE :  
PROPOSED TRANSMISSION LINE ROUTES :  
IN PENNSYLVANIA; (IV) APPROVAL OF AN :  
EXEMPTION FROM MUNICIPAL ZONING :  
REGULATION WITH RESPECT TO THE :  
CONSTRUCTION OF BUILDINGS; AND :  
(V) APPROVAL OF CERTAIN RELATED :  
AFFILIATED INTEREST ARRANGEMENTS :

Docket Nos. A-110172  
A-110172F0002  
A-110172F0003  
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SUPPLEMENTAL REBUTTAL TESTIMONY  
OF LAWRENCE A. HOZEMPA

Re: Reliability Need for Prexy Facilities

December 11, 2007

SUPPLEMENTAL REBUTTAL TESTIMONY OF LAWRENCE A. HOZEMPA

1 Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

2 A. My name is Lawrence A. Hozempa and my business address is 800 Cabin Hill  
3 Drive, Greensburg, Pennsylvania.

4

5 Q. HAVE YOU PREVIOUSLY FILED TESTIMONY IN THIS PROCEEDING?

6 A. Yes. I have filed written Direct Testimony on behalf of Trans-Allegheny  
7 Interstate Line Company ("TrAILCo"), which has been designated as TrAILCo  
8 Statement No. 2, and Rebuttal Testimony which has been designated as TrAILCo  
9 Statement No. 2-R.

10

11 Q. PLEASE DESCRIBE THE PURPOSE OF YOUR SUPPLEMENTAL  
12 REBUTTAL TESTIMONY.

13 A. This Supplemental Rebuttal Testimony addresses Office of Consumer Advocate  
14 ("OCA") witness Peter Lanzalotta's Prexy Facilities need analysis in OCA  
15 Statement No.1.

16

17 Q. WILL THE USE OF VARIOUS TERMS IN YOUR REBUTTAL TESTIMONY  
18 BE CONSISTENT WITH THE DEFINITIONS ASSIGNED TO THOSE TERMS  
19 IN THE TABLE OF NOMENCLATURE ATTACHED TO TRAILCO  
20 WITNESS FLITMAN'S DIRECT TESTIMONY AS TRAILCO EXHIBIT DEF-  
21 1?

1 A. Yes. In addition, I may define other specific terms in my rebuttal.

2

3 Q. DO YOU HAVE ANY COMMENTS WITH RESPECT TO MR.  
4 LANZALOTTA'S TESTIMONY THAT FOUR 138 KV LINES AND TWO  
5 CAPACITORS WILL BE SUFFICIENT TO RESOLVE THE PROJECTED  
6 RELIABILITY VIOLATIONS CITED IN TRAILCO EXHIBIT LAH-3?

7 A. Yes, I do. Let me emphasize that the reliability violations cited in TrAILCo  
8 Exhibit LAH-3 are specific to the local 138 kV lines and substations in Greene,  
9 Washington, and southern Allegheny Counties. They are the violations that are  
10 the most severe, most localized to the Prexy Facilities, and will be most  
11 effectively mitigated by the Prexy Facilities. There is an immediate need in the  
12 Prexy area for reinforcement. As I have previously stated, low voltages have  
13 been reported in this area for the past three summers without any contingencies in  
14 the area.

15

16 An important point is that the Prexy Facilities will not only address the reliability  
17 violations cited in TrAILCo Exhibit LAH-3, they will also have an impact on the  
18 interconnected transmission system beyond the local area. Mr. Lanzalotta's  
19 proposal lacks this quality, as manifested in shortcomings identified when  
20 compared to the Prexy Facilities.

1 Q. WILL YOU CITE SOME EXAMPLES OF THE SHORTCOMINGS OF MR.  
2 LANZALOTTA'S PROPOSAL IN COMPARISON TO THE PREXY  
3 FACILITIES?

4 A. Yes. In 2005, Allegheny Power completed an East Central Area Reliability  
5 Coordination Agreement ("ECAR") peer review assessment for the year 2009. In  
6 this assessment several NERC Category C contingencies on the 138 kV system in  
7 northern West Virginia caused voltage violations. Mr. Lanzalotta's proposal  
8 improved the voltage in this area slightly less than 1%, not enough to mitigate the  
9 violations. The Prexy Facilities improve the voltage in this area over 4%,  
10 eliminating the violation.

11  
12 In response to WPPH Interrogatory Set I, No. 6, TrAILCo provided the '2011  
13 Summer Mid-Term Assessment of Transmission System Performance & 2016  
14 Summer Long-Term High Level Overview' performed by Transmission Planning  
15 at Allegheny Power in November 2006. The 2011 load flow model used in the  
16 assessment did not have the Prexy Facilities in the model. The 2016 load flow  
17 model used in the assessment did have the Prexy Facilities in the model. The  
18 number of reliability violations resolved by installation of the Prexy Facilities is  
19 significant, including overloads of 500/138 kV transformers.

20  
21 In this assessment there are several NERC Category C contingencies that caused  
22 reliability violations in 2011 that the Prexy Facilities will resolve. I reviewed  
23 three of these contingencies comparing Mr. Lanzalotta's proposal against the

1           Prexy Facilities. Mr. Lanzalotta's proposal reduced loading on the lines and  
2           500/138 kV transformers of concern about 1% and improved the voltage at  
3           transmission buses of concern slightly less than 1%. On the other hand, the Prexy  
4           Facilities reduced loading on lines of concern about 3%, loading on 500/138 kV  
5           transformers of concern almost 15%, and improved the voltage at transmission  
6           buses of concern between 2-5%.

7

8           Mr. Lanzalotta's proposal does marginally resolve the local reliability violations  
9           in 2009, but his proposal is not as robust as the Prexy Facilities in resolving other  
10          reliability violations in the years beyond 2009, and those outside the local area. It  
11          does not seem prudent to spend a significant amount of resources on a short-term  
12          fix just to delay what is the best overall solution to a myriad of problems looming  
13          several years in the future.

14

15    Q.    ARE THERE ANY OTHER SHORTCOMINGS TO MR. LANZALOTTA'S  
16          PROPOSAL?

17    A.    The solution itself is acceptable, but it is a narrow view. We approach our system  
18          assessments from a wider view. As we determine reliability violations and  
19          constraints on the system, we also determine an initial "fix" or solution for each  
20          problem. However, once all of the violations and constraints are determined, all  
21          of the initial solutions are reviewed from a more global perspective to evaluate if  
22          there is a more efficient single solution to address multiple violations. Using this



1 approach we are often able to determine a solution that is more robust and will  
2 provide more enduring results.

3

4 This is the case with Mr. Lanzalotta's proposal. His proposal will require the  
5 construction of multiple 138 kV lines over long distances in several different  
6 areas and the installation of multiple capacitor banks at multiple substations just  
7 to address the immediate local needs.

8

9 The Prexy Facilities will provide a solution that will not only address the  
10 immediate local needs, but will meet the local needs for years to come and will  
11 also mitigate transmission reliability violations outside the local area.

12

13 Q. WILL YOU DESCRIBE THE FACILITIES PROPOSED BY MR.  
14 LANZALOTTA?

15 A. Yes. Mr. Lanzalotta proposes construction of four 138 kV lines and installation  
16 of two 44 MVAR capacitors. The installation of capacitors at Bethel Park and  
17 Smith Substation are feasible, however, the lines present some other challenges.

18

19 The first line will need to be constructed from the Wylie Ridge Substation in  
20 Weirton, WV to Cecil Substation in Hendersonville, PA. This line will be  
21 approximately 28 miles in length. This line will require rebuilding nearly 26  
22 miles of single-circuit 138 kV line. Also, approximately 2.5 miles will require  
23 construction on new right-of-way.

1       The second line will need to be constructed from the Cecil Substation in  
2       Hendersonville, PA to Peters Substation in McMurray, PA. This line will require  
3       rebuilding nearly 5 miles of single-circuit 138 kV line. Also, approximately 2.0  
4       miles will require construction on new right-of-way.

5  
6       The third line will need to be constructed from the Peters Substation in  
7       McMurray, PA to the Charleroi Substation in Fallowfield Township, Pa. This  
8       line will require rebuilding nearly 11 miles of single-circuit 138 kV line. Also,  
9       approximately 2.0 miles will require construction on new right-of-way and  
10      approximately 2.0 miles of construction on the same right-of-way acquired for the  
11      second line.

12  
13      The fourth line will need to be constructed from Cecil Substation in  
14      Hendersonville, PA to Gordon Substation in Wolfdale, PA. This line will require  
15      rebuilding nearly 14 miles of single-circuit 138 kV line.

16  
17      All together, over 63 miles of 138 kV line will need to be constructed and nearly  
18      seven miles will require new right-of-way. Mr. Lanzalotta makes it sound rather  
19      simple, but the construction of these lines will require reconstruction of over 55  
20      miles of 138 kV line. In addition, taking these lines out-of-service for  
21      reconstruction will cause operational difficulties and will most likely be limited to  
22      off-peak times of the year, extending the construction time.

1 Q. DOES THIS CONCLUDE YOUR SUPPLEMENTAL REBUTTAL  
2 TESTIMONY?

3 A. Yes. However, I reserve the right to file such additional testimony as may be  
4 necessary or appropriate.

326-08  
Pittsburgh  
JK

TrAILCo Rejoinder Statement No. 2-RJ  
Witness: Lawrence A. Hozempa

BEFORE THE  
PENNSYLVANIA PUBLIC UTILITY COMMISSION

IN RE: APPLICATION OF TRANS-ALLEGHENY :  
INTERSTATE LINE COMPANY FOR :  
(I) A CERTIFICATE OF PUBLIC CONVENIENCE :  
TO OFFER, RENDER, FURNISH AND/OR :  
SUPPLY TRANSMISSION SERVICE IN THE :  
COMMONWEALTH OF PENNSYLVANIA; :  
(II) AUTHORIZATION AND CERTIFICATION :  
TO LOCATE, CONSTRUCT, OPERATE AND :  
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TRANSMISSION LINES AND RELATED ELECTRIC :  
SUBSTATION FACILITIES; (III) AUTHORITY :  
TO EXERCISE THE POWER OF EMINENT :  
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REJOINDER TESTIMONY OF LAWRENCE A. HOZEMPA

Re: Reliability Needs and TrAILCo Planning Process

March 19, 2008

REJOINDER TESTIMONY OF LAWRENCE A. HOZEMPA

1 Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

2 A. My name is Lawrence A. Hozempa and my business address is 800 Cabin Hill  
3 Drive, Greensburg, Pennsylvania.  
4

5 Q. HAVE YOU PREVIOUSLY FILED TESTIMONY IN THIS PROCEEDING?

6 A. Yes. I have filed written Direct Testimony on behalf of Trans-Allegheny  
7 Interstate Line Company ("TrAILCo"), which has been designated as TrAILCo  
8 Statement No. 2. I also filed written Rebuttal Testimony on behalf of TrAILCo,  
9 which has been designated as TrAILCo Statement Nos. 2-R and 2-R-1.  
10

11 Q. PLEASE DESCRIBE THE PURPOSE OF YOUR REJOINDER TESTIMONY.

12 A. This Rejoinder Testimony addresses various assertions contained in surrebuttal  
13 testimony from opponents, concerning the reliability need for the Prexy Facilities  
14 and the 502 Junction Facilities, and TrAILCo's planning process. Specifically,  
15 my rejoinder addresses surrebuttal filed by Office of Consumer Advocate  
16 ("OCA") witness Peter Lanzalotta in OCA Statement No.1-SR and Energy  
17 Conservation Council ("ECC") witness George Loehr in ECC Statement SR-1.

1 Q. WILL THE USE OF VARIOUS TERMS IN YOUR REJOINDER TESTIMONY  
2 BE CONSISTENT WITH THE DEFINITIONS ASSIGNED TO THOSE TERMS  
3 IN THE TABLE OF NOMENCLATURE ATTACHED TO TRAILCO  
4 WITNESS FLITMAN'S DIRECT TESTIMONY AS TRAILCO EXHIBIT DEF-  
5 1?

6 A. Yes. In addition, I may define other specific terms in my rejoinder.  
7

8 Q. ECC AND OCA SURREBUTTAL SUGGEST THAT TRAILCO'S REBUTTAL  
9 WITH RESPECT TO POST-2009 REQUIREMENTS, IF IMPORTANT,  
10 COULD HAVE BEEN ADDRESSED EARLIER. DO YOU HAVE A  
11 RESPONSE?

12 A. Yes. I mentioned these other reliability violations in my rebuttal testimony  
13 because the transmission models being used for future analyses, years beyond  
14 2009, include the Prexy Facilities. The only way I could thoroughly test Mr.  
15 Lanzalotta's proposal from his rebuttal was to remove the Prexy Facilities from  
16 these future models and insert Mr. Lanzalotta's proposed facilities in the model.  
17 My rebuttal testimony is simply a summarization of my findings.  
18

19 I believe this information is relevant because as we conduct transmission planning  
20 studies, planned solutions become part of the loadflow model. The current  
21 version of the Prexy Facilities proposal was planned in 2001, with an in-service  
22 date of July 2011. Since 2001, the Prexy Facilities have been incorporated into  
23 our long-range planning model. As we perform our transmission assessments,

1 sensitivity analyses are also conducted on planned solutions to determine if the in-  
2 service date is acceptable, needs advanced, or can be delayed as the planning  
3 model is updated from year-to-year.

4  
5 As more analyses were conducted, it became apparent that the Prexy Facilities  
6 will provide significant reliability improvements not only to the transmission  
7 system in the Prexy area but also to the surrounding area in future years.  
8 However, that does not change or invalidate that the primary reason for the Prexy  
9 Facilities is the thermal and voltage reliability violations in the Prexy area. While  
10 the proposed solution has reliability benefits beyond the Prexy area, they are  
11 secondary benefits and not the primary driver.

12  
13 Furthermore, this is not new information. In a response to the first set of  
14 interrogatories from the West Penn Power Industrial Intervenors regarding future  
15 transmission constraints in the West Penn Power service territory, TrAILCo  
16 provided Allegheny Power's 2006 Assessment of Transmission System  
17 Performance as supporting data. This response was available to the intervenors in  
18 this proceeding in August 2007. The number of reliability violations that will be  
19 corrected by the Prexy Facilities in this assessment is far more than the four  
20 primary violations in TrAILCo Exhibit LAH-3 that are driving the immediate  
21 need.

1 For example, if I need to replace the tires on my car because my existing tires are  
2 worn, I will replace my tires. Once I replace my tires, it is likely my gas mileage  
3 will improve and my car will handle better. That doesn't mean I am primarily  
4 replacing my tires to get better gas mileage or better handling; those are  
5 secondary benefits.

6

7 Q. MR. LANZALOTTA ASSERTS THAT, IF A KEY FACTOR WHEN  
8 CONSIDERING THE PROJECT'S 138 KV LINES IS THE NUMBER NEEDED  
9 TO ADDRESS THE RELIABILITY VIOLATIONS, TRAILCO'S PROPOSED  
10 SOLUTION INVOLVES FIVE 138 KV LINES AS OPPOSED TO MR.  
11 LANZALOTTA'S FOUR NEW 138 KV LINES. DO YOU HAVE ANY  
12 COMMENT?

13 A. Yes. I agree there will be five 138kV lines or circuits constructed from the Prexy  
14 substation under the TrAIL proposal. Four of these lines will be constructed on  
15 double circuit poles, which means they will only take the same amount of right-  
16 of-way as two circuits. Also, the total line mileage of the TrAILCo 138kV lines  
17 is approximately 15 miles as opposed to over 63 miles of 138kV lines for Mr.  
18 Lanzalotta's proposal, which will also require nearly seven miles of new right-of-  
19 way.



1 Q. MR. LANZALOTTA CLAIMS THAT HIS LOAD FLOW STUDIES CONFIRM  
2 THAT "T" JUNCTIONS ARE IN FACT THE CAUSE OF MANY  
3 RELIABILITY ISSUES. MR. LOEHR CLAIMS THAT ELIMINATING THE  
4 "T" JUNCTIONS WILL ADDRESS THE RELIABILITY ISSUES FOR THE  
5 COST OF ONLY SIX 138 KV CIRCUIT BREAKERS. DO YOU HAVE A  
6 RESPONSE?

7 A. Yes. First of all, let's make the assumption that there are substations at the "T"  
8 junctions. For this discussion I'll call the new "T" junction substations Union Jct  
9 SS for the substation at Union Junction and Buffalo Jct SS for the substation at  
10 Buffalo Junction. I have shown this assumed network configuration on a single-  
11 line sketch (TrAILCo Exhibit LAH-6) to show what the Prexy area would look  
12 like with these assumed substations at the "T" junctions. Note I grouped the  
13 substations in the immediate Prexy area together in the circle titled "Prexy area  
14 substations."

15  
16 Using this assumed network configuration, the description of the electrical  
17 occurrences shown in TrAILCo Exhibit LAH-3 would be slightly different due to  
18 the new line names; however, the electrical result would be the same. A modified  
19 version of TrAILCo Exhibit LAH-3 is included as TrAILCo Exhibit LAH-7.

20  
21 Another way to look at this situation is to picture the Prexy area substations, as  
22 shown in TrAILCo Exhibit LAH-6 as a bowl suspended from the ceiling by four  
23 bungee cords. The bungee cords represent the four lines shown in TrAILCo

1 Exhibit LAH-6. Load in the Prexy area would be represented by adding weight to  
2 the bowl. Voltage problems would be analogous to the bowl sagging to the floor;  
3 and thermal loading problems would be analogous to a bungee cord breaking.

4  
5 Allow me to use this analogy to describe the Electrical Occurrence 2 in TrAILCo  
6 Exhibit LAH-6. Someone comes along and cuts the bungee cord between Buffalo  
7 Jct SS and Cecil SS. The bowl will sag a little closer to the ground as the weight  
8 shifts to the remaining three bungee cords and they stretch a little more. Then  
9 someone else comes along and cuts the bungee cord between Union Jct SS and  
10 Peters SS. At this point the bungee cord between Wylie Ridge SS and Smith SS  
11 is stretched to the point of breaking and 11 substations in the bowl are touching  
12 the floor.

13  
14 This argument about installing substations at the "T" junctions is simply a 'straw  
15 man' to detract from the magnitude of the reliability violations in the Prexy area.  
16 If the reliability violations could be addressed by constructing substations at the  
17 "T" junctions, TrAILCo would be proposing that as a solution; however, that  
18 solution is no solution at all.

19  
20 Q. MR. LANZALOTTA AND MR. LOEHR ARGUE THAT THE PREXY  
21 FACILITIES WILL PROVIDE TOO MUCH SYSTEM CAPACITY. DO YOU  
22 HAVE A RESPONSE?

23 A. Yes. I addressed this issue in my Rebuttal on page 17. However, in view of the

1 continuing challenge to this point by these witnesses, I want to add to what was  
2 already stated. The expected life of these facilities is over 40 years. It would not  
3 be prudent from a transmission planning perspective to fail to provide adequate  
4 capacity for the expected life of the facilities. It is likely that the 500 kV line  
5 from 502 Junction to Prexy will be extended some time in the future. Once the  
6 line is extended, it will become part of the EHV backbone of the transmission  
7 system and will require the same capacity as other EHV backbone facilities.

8  
9 Q. MR. LANZALOTTA CONTENDS THAT THE 2009 AND BEYOND  
10 OVERLOADING COULD BE ADDRESSED BY ADDING ADDITIONAL 138  
11 KV TRANSFORMERS AT THE WYLIE RIDGE SUBSTATION. DO YOU  
12 HAVE A RESPONSE?

13 A. Yes. Adding additional transformers at Wylie Ridge Substation will alleviate any  
14 capacity problems at Wylie Ridge Substation. It will not, however, address the  
15 problems in the Prexy area unless that additional capacity can be made available  
16 through the transmission lines into the Prexy area.

17  
18 The Prexy area is approximately midway between the 500/138 kV substations  
19 Wylie Ridge and Yukon. Since the load in the Prexy area has developed to the  
20 level where the existing transmission system is no longer able to serve the area  
21 reliably, it is more efficient to install the additional capacity closer to where it is  
22 needed, the Prexy area, than to install the capacity at substations further away.

1 Q. MR. LOEHR'S SURREBUTTAL ASSERTS THAT HIS SUGGESTED  
2 ALTERNATIVES WOULD SOLVE THE CLAIMED RELIABILITY  
3 PROBLEMS AT CONSIDERABLY LOWER COST THAN THE TRAILCO  
4 PROJECT. DO YOU HAVE A RESPONSE TO THIS ASSERTION?

5 A. Yes. Several specifics of the weaknesses and failures in Mr. Loehr's suggestions  
6 are set forth below. It is very difficult for me to evaluate his suggestions since he  
7 has provided literally no details or supporting analysis for his claims. Mr. Loehr  
8 has admitted, in response to TrAILCo's Set Seven Interrogatory addressed to him  
9 that he did not conduct any load flow studies to establish that any of his  
10 alternatives should be considered. He admitted, further, that he did not attempt to  
11 calculate either a cost estimate or any construction schedule for any of his  
12 alternatives, and that he is not an expert in either area.

13

14 Q. MR. LOEHR ARGUES THAT THE SOLUTION FOR ANY VOLTAGE  
15 PROBLEMS IN THE PREXY AREA IS TO INSTALL REACTIVE POWER  
16 SOURCES SUCH AS SHUNT CAPACITORS - NOT TO BUILD A 500 KV  
17 LINE WHICH, IN MR. LOEHR'S VIEW, IS OVERKILL. DO YOU HAVE A  
18 RESPONSE?

19 A. Yes. Mr. Loehr continues to ignore the totality of problems addressed by the  
20 proposed facilities. As clearly stated in TrAILCo Exhibit LAH-3, the problems  
21 being addressed are related to more than voltage. They also include thermal  
22 loading of the 138 kV lines. Three of the four 138 kV lines serving the Prexy area  
23 exceed their emergency ratings and overload under certain contingencies. Mr.

1           Loehr's suggested capacitor bank band-aid would not alleviate the overloads on  
2           the 138 kV transmission lines at all, which are NERC reliability criteria  
3           violations.

4  
5    Q.    MR. LOEHR REJECTS YOUR TESTIMONY THAT THE PREXY  
6           FACILITIES WERE DRIVEN BY RELIABILITY CONSIDERATIONS. MR.  
7           LOEHR CLAIMS THAT THE PROJECT IS PURELY ABOUT ECONOMICS  
8           AND BRINGING LOW-COST COAL SOURCES TO MARKET. HE ALSO  
9           CONTENDS THAT ANY CONGESTION CONCERN IS "ECONOMIC  
10          CONGESTION", AND HAS NOTHING TO DO WITH RELIABILITY, AND  
11          THAT "TRANSMISSION CONSTRAINED DISPATCH" IS A WAY OF  
12          ELIMINATING THE NEED FOR NEW TRANSMISSION LINES WITHOUT  
13          VIOLATING RELIABILITY STANDARDS. DO YOU HAVE A RESPONSE?

14   A.    Yes. It is clear that Mr. Loehr has not sufficiently reviewed the facts relating to  
15          this project. If he had, he would know there are not any "trapped" low-cost coal  
16          generating facilities in the area that will be served by the Prexy Facilities.  
17          Furthermore, "economic congestion" has not been claimed or alluded to by any  
18          TrAILCo witness as a reason justifying the construction of the Prexy Facilities. If  
19          the problem was economic congestion then transmission constrained dispatch  
20          would only be a solution to relieve the problem if there was generation in the area  
21          available for dispatch. Mr. Loehr's incorrect conclusions are based upon flawed  
22          assumptions.

1 Q. MR. LOEHR CONTINUES TO CLAIM THAT YOU FAIL TO UNDERSTAND  
2 THAT RELIABILITY DEPENDS ON THE RELIABILITY STANDARDS  
3 USED AND NOT ON THE *AMOUNT OF TRANSMISSION*. HE  
4 CHALLENGES YOUR "WHEEL AND SPOKES" ANALOGY BY  
5 SUGGESTING THAT EVEN THOUGH YOU MAKE THE WHEEL  
6 STRONGER, IT COULD LEAD TO DRIVING FASTER AND RESULTING IN  
7 A MORE DEADLY ACCIDENT. DO YOU HAVE A RESPONSE?

8 A. Yes. Mr. Loehr is making a faulty assumption that PJM and TrAILCo will  
9 always push the existing transmission system to its reliability limits. If this was  
10 true, the transmission system would constantly need reinforcement; however, the  
11 transmission system has been relatively unchanged for nearly 30 years.

12  
13 TrAILCo and PJM are planning to the applicable NERC standards. It is now  
14 mandatory, not voluntary, that the transmission system meets the NERC  
15 reliability standards. Historic data indicates the system is reaching its limits. The  
16 transmission system modeling also shows the future reliability of the transmission  
17 system cannot be maintained without reinforcement.

18  
19 Q. MR. LOEHR DISPUTES THAT THERE ARE NO GENERATORS IN THE  
20 AREA WHERE THE VIOLATIONS OCCUR TO RE-DISPATCH, CLAIMS  
21 THAT THERE ARE MANY OPTIONS FOR MANUAL SYSTEM  
22 ADJUSTMENTS, AND CONTENDS THAT ONCE REDISPATCH WAS  
23 REJECTED, NO ONE CONSIDERED ANY MANUAL SYSTEM

1           ADJUSTMENTS OTHER THAN LOAD SHEDDING. MR. LOEHR ALSO  
2           CONTINUES TO ARGUE THAT THE LOADING PROBLEMS CITED  
3           AREN'T REAL, BUT RESULT SOLELY FROM THE MISAPPLICATION OF  
4           THE NERC STANDARDS. DO YOU HAVE ANY FURTHER RESPONSE?

5    A.    Yes. Mr. Loehr refers to our response to ECC Interrogatory VII-28 in arguing  
6           that generation in the area where violations occur can be re-dispatched. However,  
7           only two generators among those listed in the response to Interrogatory ECC-VII-  
8           28 are connected to the 138 kV transmission system. Furthermore, those two  
9           generators (Elrama Power Station and Mitchell Power Station) are on the other  
10          side of Union Junction from the area where the reliability criteria violations are  
11          occurring. Electrical Occurrences 2, 3 and 4 are contingencies of the Union  
12          Junction line and isolate those two generators from the area.

13  
14          It is apparent that Mr. Loehr has not even reviewed a single-line diagram of the  
15          transmission system. Otherwise, he would not continue to consider redispatch of  
16          these generators a viable option, even though it is not a viable option to alleviate  
17          any of the reliability criteria violations.

18  
19          It is interesting to note that OCA's witness, Mr. Lanzalotta, who actually  
20          conducted a load-flow analysis, proposed construction of four 138 kV lines to  
21          resolve the reliability criteria violations. He did not propose manual system  
22          adjustments, including any generator redispatch, as a solution to the reliability  
23          criteria violations.

1 Q. DO YOU AGREE WITH MR. LOEHR'S ASSERTION THAT IF THE  
2 GROUND CLEARANCE ISSUES ON THE MT. STORM-DOUBS LINE  
3 WERE CORRECTABLE BY RETENSIONING THE CONDUCTORS, THE  
4 INCREASED RATING OF THE LINE WOULD OBVIATE THE NEED FOR  
5 THE 502 JUNCTION-LOUDOUN LINE?

6 A. No. I would first point out that the rejoinder testimony of Mr. Allen shows that  
7 retensioning the conductors is not feasible. Additionally, even if the ground  
8 clearance issues on this line could be resolved, the reliability issues on this line  
9 that have been identified in the transmission planning studies would still exist.

10

11 Mr. Allen's rejoinder testimony indicates the maximum operating temperature of  
12 this line, if the line was retensioned, is 90° which would make the emergency  
13 rating of the line 2910 MVA. PJM recently completed an analysis incorporating  
14 the most recent and up-to-date information in the load flow analysis as ordered by  
15 the Virginia State Corporation Commission Hearing Examiner. This analysis  
16 indicates the loading on the Mt. Storm-Doubs line under contingency is 3144  
17 MVA. This is 121% of the current emergency rating and would be 108% of the  
18 emergency rating if the line could be retensioned. The Mt. Storm-Doubs line will  
19 continue to be overloaded even if the line could be retensioned. PJM's study also  
20 concluded that additional EHV backbone lines will overload as well. This is  
21 consistent with the findings in the 2006 and 2007 RTEPs.



1           The overall conclusion is undeniable. The EHV backbone system is critically  
2           lacking capacity. A marginal increase on a single line is not the solution. New  
3           EHV transmission capacity needs to be constructed to avoid compromising the  
4           reliability of the transmission system in the region.

5

6    Q.    DOES THIS CONCLUDE YOUR REJOINDER TESTIMONY?

7    A.    Yes. However, I reserve the right to provide such additional testimony as may be  
8           necessary or appropriate.

Wylie Ridge SS

Union Jct SS



Smith SS

Peters SS



Prexy Area  
Substations

Cecil SS

Manifold SS



Buffalo Jct SS

Gordon SS



**TrAIL – Prexy Facilities  
Electric Reliability Problems**

	<b>Electrical Occurrence</b>	<b>Electrical Result</b>
1	Outage of Buffalo Junction-Cecil and Wylie Ridge-Smith 138 kV lines.	The Union Junction-Peters 138 kV line exceeds its emergency rating and overloads.
2	Outage of Buffalo Junction-Cecil and Union Junction-Peters 138 kV lines.	The Wylie Ridge-Smith 138 kV line exceeds its emergency rating and overloads. Also, the 138 kV voltage at 11 substations drops below acceptable limits and could lead to a voltage collapse in the area.
3	Outage of Union Junction-Peters and Wylie Ridge-Smith 138 kV lines.	The Gordon-Manifold 138 kV line exceeds its emergency rating and overloads. Also, the 138 kV voltage at 15 substations drops below acceptable limits and could lead to a voltage collapse in the area.
4	Outage of Union Junction-Peters and Gordon-Manifold 138 kV lines.	The 138 kV voltage at 10 substations drops below acceptable limits and could lead to a voltage collapse in the area.

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Pg 17C

PUBLIC SERVICE COMMISSION  
OF WEST VIRGINIA  
CHARLESTON

CASE NO. 07-0508-E-CN

TRANS-ALLEGHENY INTERSTATE  
LINE COMPANY

Application of Trans-Allegheny Interstate Line Company for a certificate of public convenience and necessity under W. Va. Code § 24-2-11a authorizing the construction and operation of the West Virginia segments of a 500 kV electric transmission line and related facilities in Monongalia, Preston, Tucker, Grant, Hardy, and Hampshire Counties, and for related relief

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TRANS-ALLEGHENY INTERSTATE LINE COMPANY'S REPLY BRIEF

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March 21, 2008

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would have the incentive “to secure an ISA at least five years before commercial operation in order to secure [their] place in the transmission queue.” CPV Order at 51.

These challenges show CPV’s desire to be insulated from the outcomes of PJM’s RTEP process and the realities of the PJM market. In the first instance, CPV’s complaint relates to the scope of the PJM region, a wholesale market in which CPV has elected to participate. One can certainly understand why CPV, with two proposed generators in close proximity to the “load pockets” of northern Virginia, would want to perpetuate the transmission constraints that isolate that area and drive up locational prices; what wholesale generator wouldn’t relish the chance to corner the market? Yet CPV’s profit motives are an insufficient basis for shrinking the PJM footprint or, analogously, for criticizing a transmission planning process because the relevant market expressly assumes the need for inter-zonal transfers. On this point, CPV and Staff cannot expect to enjoy the market benefits of participation in the PJM region but be insulated from the effects of regional transmission planning. As for CPV’s assertion that a bias against gas-fired generation is inherent in the RTEP process, CPV’s argument drips with irony: while a coal-fired generator might be expected, CPV contends, to obtain an ISA five years before commercial operation “to secure its place in the transmission queue,” it was CPV Warren’s *unwillingness* to secure those same rights that resulted in its *not* being considered as a solution to reliability problems in the 2006 and 2007 RTEPs, *even though* the project was fully permitted in early 2004.<sup>12</sup>

---

<sup>12</sup> The irony does not end there. Through Mr. Bouford’s testimony, CPV challenged the integrity of PJM’s 2006 RTEP process by asserting that PJM had improperly included two western *coal-fired* generators excluded as potential solutions to reliability problems when it had excluded the CPV projects, which he suggested were similarly situated. As Mr. Gass’ uncontroverted rebuttal testimony explained, these western coal-fired generators were included *only* to contribute to the existence of reliability problems; they were not considered to resolve reliability problems because *they had not obtained* executed ISAs. See TrAILCo Brief at 25.

The fact is that CPV's sale of the Warren facility, together with Dominion's recent representation to the Virginia Commission that the Warren facility is not expected to be placed in service until 2014,<sup>13</sup> validate PJM's insistence on the execution of an ISA before a project is considered to be available to resolve reliability problems. In other words, whatever reliability benefit the Warren facility might eventually provide, that benefit will not be available until years after the reliability violations are projected to arise in 2011.

B. TrAILCo's Evidentiary Presentation Was Timely and Comprehensive

CPV's allegations of impropriety extended not only to the substance of the evidence TrAILCo presented, but also the timing and sufficiency of that evidence. In its proposed order, CPV variously asserted that PJM and TrAILCo (i) obscured evidence from the Commission and other parties (such as on the Mt. Storm-Doubs line rating issue); (ii) provided insufficient, superficial evidence on important elements of TrAILCo's case; and (iii) either failed to sponsor the right witness or sponsored a witness who was not immediately familiar with each and every detail arising on CPV's cross-examination. The common thread in these charges should not escape the Commission: CPV and its adherents do not seriously challenge the *substance* of

---

<sup>13</sup> On March 5, 2008, CPV advised the Commission that it had sold the CPV Warren facility's development rights to Dominion Virginia Power. In the joint press release attached to CPV's filing, Dominion indicated that "the construction and operation timetable will be determined by future load growth and market conditions." Dominion's generation business has since been more definite in its plans for this facility. In the pending TrAIL proceedings in Virginia, Dominion has advised that it does not expect to place the Warren facility in service until 2014. Among the reasons for a projected in-service date that is much later than CPV's 2011 projection to this Commission were the unavailability of equipment, particularly gas turbines, by 2011 (a problem CPV itself would have faced, Dominion's witness asserted), the need for Dominion to obtain a certificate of public convenience and necessity for the facility, and the time necessary to obtain an ISA for the facility. See hearing testimony on this issue of Dominion witness James K. Martin on March 3, 2008 in *Virginia Electric and Power Company and Trans-Allegheny Interstate Line Company*, and *Trans-Allegheny Interstate Line Company*, Case Nos. PUE-2007-0031 and PUE-2007-0033 (Virginia State Corporation Commission) ("*Virginia TrAIL Proceeding*"), at 2994-3026, and specifically at 2999-3000 and 3016-3017 (expected 2014 in-service date; delay in obtaining turbines), at 3015 (Dominion's need for a CPCN), and at 3016-3017 (current lack of executed ISA). A copy of these transcript excerpts is attached as Exhibit 1 to this reply brief.

## COMMONWEALTH OF VIRGINIA

## STATE CORPORATION COMMISSION

JOINT APPLICATION OF VIRGINIA ELECTRIC AND POWER COMPANY D/B/A DOMINION VIRGINIA POWER,  
CASE NO. PUE-2007-00031  
an

TRANS-ALLEGHENY INTERSTATE LINE COMPANY

For certificates of public convenience and necessity to construct facilities:  
500 kV Transmission Line from Transmission Line #580 to Loudoun Substation

APPLICATION OF TRANS-ALLEGHENY INTERSTATE LINE COMPANY  
CASE NO. PUE-2007-00033

For certificates of public convenience and necessity to construct facilities:  
500 kV Transmission Line from Virginia-West Virginia Boundary to Virginia Electric and Power Company Transmission Line #580

## VOLUME XV

The complete transcript of the testimony and other incidents of the above-captioned matter when heard on March 3, 2008, having been continued from February 29, 2008, before the Honorable Alexander F. Skirpan, Jr., Hearing Examiner for the State Corporation Commission, Richmond, Virginia.

Reported and transcribed by:

Scott D. Gregg, RPR



Page 2992	Page 2993
<p>1 MR. DIMITRI: Your Honor, for this 2 session we'd like to reiterate just a couple of 3 points, and that is first that there are -- there are 4 certain information that may come out here that even 5 after there is a closing on the business activity 6 that's part of this issue, that the need for 7 confidentiality will remain with regard to matters 8 that -- that are discussed here. 9 In particular, the confidentiality 10 agreement involved here requires the parties to 11 continue on with maintaining that confidentiality, so 12 we'd ask that everyone be reminded that it does, in 13 fact, continue on as we move forward. 14 And with that, Your Honor, we have asked 15 Mr. James K. Martin to appear today on behalf of 16 Dominion Virginia Power. I'm prepared to do that and 17 ask him the questions that, I believe, were identified 18 several days ago in closed session and then make him 19 available to you for any questions you may have. 20 THE HEARING EXAMINER: And for 21 cross-examination? 22 MR. DIMITRI: Your Honor, that's entirely 23 up to you. 24 THE HEARING EXAMINER: Okay. All right. 25 MR. DIMITRI: Shall we proceed in that</p>	<p>1 manner? 2 THE HEARING EXAMINER: Yes. 3 MR. DIMITRI: Dominion Virginia Power 4 calls James K. Martin to the stand. 5 Your Honor, I have a background and 6 qualifications of James K. Martin, a document that 7 I'll pass out just for the information of the 8 Commission and the parties. And it is just 9 Mr. Martin's background instead of having him go 10 through it here. 11 THE HEARING EXAMINER: Okay. That will 12 not be confidential, and I can mark this as an 13 exhibit? 14 MR. DIMITRI: It's fine if you want to 15 mark it, Your Honor. 16 THE HEARING EXAMINER: Yes. 17 We'll mark Mr. Martin's background as 18 Exhibit 56, and it will be admitted. 19 (The exhibit was marked for 20 identification and was admitted into evidence.) 21 MR. DIMITRI: And one other preliminary 22 matter; that is I may at times need to defer to my 23 colleague, Mr. Watts, on issues of confidentiality 24 because he's the person most knowledgeable about it 25 here.</p>

Page 2994	Page 2995
<p>1 THE HEARING EXAMINER: Okay. 2 MR. DIMITRI: Thank you. 3 JAMES K. MARTIN, called as a witness, 4 having been first duly sworn, was examined and 5 testified as follows: 6 DIRECT EXAMINATION 7 BY MR. DIMITRI: 8 Q. Good afternoon, Mr. Martin. Will you, 9 please, state your full name and position with 10 Dominion Virginia Power? 11 A. My name is James K. Martin. I'm the 12 senior vice president of business development and 13 generation construction at Dominion. 14 Q. Mr. Martin, are you familiar with the 15 current plans for capacity expansion at Dominion 16 Virginia Power? 17 A. Yes, I am. 18 Q. And did you recently testify before the 19 Commission in the southwest coal plant case, case 20 Number PUE-2007-00066? 21 A. Yes, I did. 22 Q. And that began in early February 2008; is 23 that correct? 24 A. That's correct. 25 Q. And you testified on capacity expansion</p>	<p>1 issues, the Company's building plans, among other 2 topics, correct? 3 A. Yes, I did. 4 Q. All right. Now, are you familiar with 5 Dominion Virginia Power's pending acquisition of CPV 6 Warren? 7 A. Yes, I am.</p> <p style="text-align: center;"><b>CONFIDENTIAL</b></p> <p>20 Q. Can you explain why Dominion Virginia 21 Power is making this purchase? 22 A. As I testified in the Virginia City case, 23 we have pretty severe demand needs going forward by 24 the year 2017; we forecast 4,000 megawatts of new 25 growth. In addition to our efforts on the demand and</p>

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1 conservation side, we have a plan to meet our needs  
 2 through generation construction. The first of those  
 3 plans is Ladysmith 3, 4, and 5 which is pending before  
 4 you-all; Virginia City is next on that list; then we  
 5 have pending -- we expect to bring to the Commission  
 6 very shortly in 2011 a combined cycle to be built in  
 7 Buckingham County; and then we have plans in 2014 to  
 8 build another combined cycle. Then North Anna 3 is  
 9 also a potential asset in the future.

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1 Q. Do you remember when that was?  
 2 A. Approximately 2003.

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**CONFIDENTIAL**

18 Q. And has CPV been issued a certificate of  
 19 public convenience and necessity for the site?  
 20 A. Yes, they have.  
 21 Q. And do you know when that was?  
 22 A. June of 2007.  
 23 Q. And did they also apply for and receive a  
 24 certificate at an earlier date?  
 25 A. Yes, they did.

19 Q. And as I believe you've testified, the  
 20 Company's plans presented in the southwest coal plant  
 21 case envisioned a combined cycle unit in the year  
 22 2014 -- in the 2014 time frame, correct?  
 23 A. That's correct.  
 24 Q. The -- and that was discussed on the  
 25 record in several places in the coal plant case.

Page 2998

1 correct?  
 2 A. Yes, it was.  
 3 Q. And also in the exhibits; I believe you  
 4 referred to one of those exhibits here. That  
 5 timetable was set forth in exhibits in the case?  
 6 A. Yes, it was.  
 7 Q. I want to show you one exhibit from that  
 8 case.  
 9 MR. DIMITRI: Your Honor, if I may come  
 10 around to use the screen?  
 11 THE HEARING EXAMINER: Sure.  
 12 BY MR. DIMITRI:  
 13 Q. And, Mr. Martin, this is going to be  
 14 Exhibit 60C from the southwest coal plant case.  
 15 And can you identify what this document  
 16 is?  
 17 A. This is a monthly review that we have  
 18 with the CEO of the generation business, Mark  
 19 McGettrick.  
 20 Q. All right, sir. And I want to take you  
 21 to page 21 of that presentation, under the category of  
 22 business development and direct your attention to the  
 23 category, the fourth bullet down, combined cycle.  
 24 And the first bullet there, that refers  
 25 to the target for the Buckingham County site that you

Page 2999

1 referred to; is that correct?  
 2 A. That's correct.  
 3 Q. With a commercial operation date of 2011?  
 4 A. That's correct.  
 5 Q. Can you, please, read the next line for  
 6 the record?  
 7 A. Signing MOU by 11/30 with CPV regarding  
 8 site for a 2014 COD.  
 9 Q. And just so the record is clear, MOU  
 10 refers to memorandum of understanding?  
 11 A. Yes, it does.  
 12 Q. And the 11/30 date is 11/30/2007?  
 13 A. That's correct.  
 14 Q. And the 2014 -- the COD is commercial  
 15 operation date?  
 16 A. That is correct.  
 17 MR. DIMITRI: Thank you, sir.  
 18 That's all, Your Honor.  
 19 THE HEARING EXAMINER: Let me ask one  
 20 question. Currently my understanding is if you look  
 21 at the PJM queues for this project that's scheduled  
 22 for sometime in 2010 or 2011 -- I forget without going  
 23 back and checking, but can you give me -- explain why  
 24 there -- you would buy this and push the development  
 25 back to 2014?

Page 3000

1 THE WITNESS: Sure. We have a site  
 2 already in hand from Tenaska, in Buckingham County,  
 3 that has all of its PJM worked out; we have the ISA  
 4 done, we have the air permit done; of course, we have  
 5 to come back for a CPCN. But pending that CPCN, it's  
 6 ready to go.  
 7 We are receiving bids today from  
 8 contractors for the EPC bid, so we will be ready to  
 9 make that 2011 time frame for that project.  
 10 The CPV Warren site has several issues  
 11 with it that whether we build it or CPV tried to build  
 12 it would not be done by 2011. You have the issue with  
 13 PJM queue. They have just filed for their impact  
 14 study. So at a minimum we're talking about six months  
 15 on that. And then beyond that, you have to get the  
 16 facility study and get the various agreements done  
 17 with PJM. So that's one issue that we see in not  
 18 being able to make 2011.  
 19 The other issue is the fact that there is  
 20 no equipment. And with the marketplace being where it  
 21 is right now, the cancellation of coal plants in  
 22 various parts of the country, the demand for gas  
 23 turbines is very large right now. And getting a slot  
 24 for gas turbines is -- it's not available to make a  
 25 2011 time frame.

Page 3001

1 THE HEARING EXAMINER: Okay. Do you have  
 2 an anticipated date of when this will close? I mean,  
 3 the transaction with CPV that this will close?  
 4 THE WITNESS: I do. We actually have a  
 5 meeting with the Warren County Board of Supervisors  
 6 tomorrow on the conditional use permit. We expect a  
 7 public announcement tomorrow and a closing on  
 8 March 5th.  
 9 THE HEARING EXAMINER: And when would  
 10 you -- are you anticipating any filings with the  
 11 Commission in regards to the transaction?  
 12 THE WITNESS: Yes, we will have to come  
 13 to the Commission for CPCN, yes, sir.  
 14 THE HEARING EXAMINER: Do you know when  
 15 that would happen?  
 16 THE WITNESS: The projected date would be  
 17 sometime around 2010.  
 18 MR. DIMITRI: Your Honor, if I may, there  
 19 was one other issue that I believed you raised that I  
 20 didn't ask Mr. Martin, and that concerned whether  
 21 there would be an asset transfer approval required at  
 22 the Commission. And I believe Mr. Martin can confirm  
 23 that there are no utility facilities to be transferred  
 24 and, therefore, we don't anticipate a need for  
 25 approval under the transfers act.

Page 3002

1 THE HEARING EXAMINER: Okay.  
 2 MR. DIMITRI: Is that your understanding,  
 3 Mr. Martin?  
 4 THE WITNESS: That is correct.  
 5 MR. DIMITRI: Thanks.  
 6 THE HEARING EXAMINER: When I say "okay,"  
 7 I understand what you're saying.  
 8 MR. DIMITRI: And I understand that, Your  
 9 Honor.  
 10 THE HEARING EXAMINER: Does any counsel  
 11 have any questions?  
 12 MR. WATKISS: Just briefly, Your Honor.  
 13 CROSS-EXAMINATION  
 14 BY MR. WATKISS:  
 15 Q. Good morning, Mr. Martin. My name is Dan  
 16 Watkiss. I'm counsel for Piedmont Environmental  
 17 Council.  
 18 Exactly within Dominion who is buying CPV  
 19 Warren's assets that you've spelled out for us?  
 20 A. Virginia Dominion Power.  
 21 Q. The utility?  
 22 A. That's correct.  
 23 Q. And it will be held within the utility --  
 24 A. That's correct.  
 25 Q. -- is that your understanding?

Page 3003

1 And when it comes online, will it be  
 2 added to the public utilities rate base?  
 3 A. That's correct.  
 4 Q. And the cost will be recovered from your  
 5 ratepayers in the Commonwealth?  
 6 A. That's correct.  
 7 Q. When you were enumerating what was  
 8 acquired, you didn't indicate that you had acquired  
 9 the contracts that CPV had with its expert witnesses  
 10 in this case, did you?  
 11 A. I did not.  
 12 Q. And is it your understanding that you did  
 13 not acquire those contracts?  
 14 A. We did not acquire those contracts.  
 15 Q. And it's your understanding that you do  
 16 not currently control those expert witnesses?  
 17 A. I don't even know what contracts you're  
 18 talking about, so, no, we don't control anything of  
 19 the sort.  
 20 Q. Would you know -- in other words, did you  
 21 negotiate the contracts so you would know what was  
 22 acquired and what was not?  
 23 A. I directed the negotiation of the  
 24 contract; I wasn't sitting at the table for all of the  
 25 negotiations.

Page 3004

1 Q. But you would know, would you not, what  
 2 was and was not acquired?  
 3 A. That's correct.  
 4 Q. Is this the same project technically --  
 5 it was represented in prefiled testimony that has been  
 6 withdrawn in this proceeding -- as a nominally rated  
 7 590 megawatt combined cycle natural gas-fired  
 8 generation station in associated facilities in Warren  
 9 County, Virginia? Is that still the project?  
 10 A. That's my understanding, yes.  
 11 Q. And was it your understanding that this  
 12 is one of two -- I believe it was described in that  
 13 same prefiled testimony as something like companion or  
 14 sister projects and there was another one that was  
 15 approximately the same size and the same technology in  
 16 St. Charles County, Maryland?  
 17 A. I'm not aware of what prefiled testimony  
 18 you're talking about.  
 19 Q. Were you aware that CPV was developing  
 20 the Warren County facility in conjunction with another  
 21 facility in Maryland?  
 22 A. I had heard discussions about some  
 23 project in Maryland, but we didn't have any  
 24 discussions about that project.  
 25 Q. And you didn't acquire that project as

Page 3005

1 well?  
 2 A. We did not.  
 3 Q. The same witness, Ms. Sharon Segner, did  
 4 you acquire her or any of her time or efforts in  
 5 connection with this acquisition?  
 6 A. No. I don't know who you're talking  
 7 about.  
 8 Q. So you acquired none of CPV's personnel?  
 9 A. We did not.  
 10 Q. And it was Ms. Segner's testimony as well  
 11 that they had in bids from --  
 12 MR. DIMITRI: Your Honor, I'm going to  
 13 object. I mean, he's reading testimony that is not a  
 14 part of this record and will not be a part of this  
 15 record. It's beyond the scope of what the witness was  
 16 asked to come here and testify about.  
 17 THE HEARING EXAMINER: I think he's  
 18 already indicated that he doesn't know the person.  
 19 MR. WATKISS: The -- what I'm getting at,  
 20 Your Honor, is something, I think, you actually asked  
 21 questions about, was why is it that a project that was  
 22 slated to come online in 2010 or 2011 is now bumped  
 23 back to 2014. And if I can just ask this one  
 24 question, I think it bears directly on what his answer  
 25 to Your Honor was.

Page 3006

1 MR. DIMITRI: That question was asked and  
 2 answered, I believe.

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Page 3007

**CONFIDENTIAL**

18  
 19 BY MR. WATKISS:  
 20 Q. In the withdrawn testimony Ms. Segner  
 21 also said CPV Warren --  
 22 MR. WATTS: Your Honor, we'll do it in  
 23 stereo; we won't hear this --  
 24 MR. WATKISS: As a capacity resource --  
 25 THE HEARING EXAMINER: Wait a minute.

Page 3008	Page 3009
<p>1 Stop. Ask questions. Do not read from her testimony.  2 MR. WATKISS: Okay.  3 BY MR. WATKISS:  4 Q. Do you still plan on connecting when you  5 connect as a capacity resource to either DVP or the  6 Allegheny systems?  7 A. We have the option to intertie to either  8 one. It will depend on what comes out of the impact  9 study.</p>	<p>1 Q. To whom does Virginia -- excuse me --  2 Dominion Virginia Power plan to sell the output of the  3 CPV Warren plant -- now, I guess it's the Dominion  4 Warren plant when it comes online?  5 A. We intend to use it for our customers.  6 Q. And you don't plan on marketing any of  7 it?  8 A. We intend to use it for our customers.  9 Q. Only for your customers, the</p>
<p><b>CONFIDENTIAL</b></p>	<p>10 ratepayers --  11 A. I did not say that. We're currently a  12 net importer. There's no telling in the future what  13 would happen with the power, but currently we're a net  14 importer of power; we need the power for our  15 customers.  16 Q. Will any of the power be offered into the  17 PJM wholesale markets on a competitive basis?  18 MR. DIMITRI: Your Honor, I object. This  19 is beyond the purpose that the witness came here to  20 testify about. Whether the power is going to enter  21 the wholesale market or not has no relevance to his  22 case and certainly not to his testimony.  23 MR. WATKISS: I believe it will have  24 direct bearing on whether there is demand for that  25 power or for a transmission line in eastern PJM, Your</p>
<p>1 Honor.  2 THE HEARING EXAMINER: I'll sustain the  3 objection.  4 BY MR. WATKISS:  5 Q. Is there plans to bid the capacity of the  6 Dominion Warren plant into the RPM capacity payments  7 market?  8 MR. DIMITRI: Same objection, Your Honor.  9 THE HEARING EXAMINER: He can answer that  10 question.  11 THE WITNESS: I'm sorry. I can't answer  12 that. That's not my area of expertise within the  13 Company.  14 BY MR. WATKISS:  15 Q. Doing so, therefore, I'd be correct in  16 understanding there was not a reason why you bought  17 this facility?  18 A. As I've testified, not my area of  19 expertise. Can't answer your question.  20 Q. But you negotiated this contract and said  21 it was under your people --  22 MR. DIMITRI: Your Honor, he's arguing  23 with the witness.  24 MR. WATKISS: I'm not arguing with him.  25 THE HEARING EXAMINER: I think he's</p>	<p>1 answered that question. Go to the next.  2 BY MR. WATKISS:  3 Q. In connection with the acquisition as  4 part of -- you conducted some due diligence as to the  5 value of the property, correct?  6 MR. DIMITRI: Your Honor, we object to  7 this area. This came up with -- when Mr. Smatlak was  8 on the stand and, Your Honor --  9 MR. WATKISS: Mr. Smatlak said he  10 couldn't answer.  11 MR. DIMITRI: If you'll give me one  12 moment, I believe I have the transcript here, Your  13 Honor.  14 Yes, Mr. Watkiss happened to be asking  15 the question at the time and he asked about the  16 consideration involved for the CPV acquisition. It  17 was objected to as not being relevant, and, Your  18 Honor, you concluded that you did not see the  19 relevance of that question.  20 MR. WATKISS: But that's not the question  21 I'm asking now, Your Honor.  22 THE HEARING EXAMINER: I believe that the  23 question that you were talking about was how much was  24 paid.  25 MR. WATKISS: And I assure Your Honor</p>

Page 3012	Page 3013
<p>1 that's not what I'm asking.  2 THE HEARING EXAMINER: This question --  3 as I understand it is asking for was due diligence  4 conducted in relation to the purchase? I'll allow  5 that one.  6 BY MR. WATKISS:  7 Q. Was there?  8 A. Can you ask the question again, please?  9 Q. Did you or those working underneath you  10 in connection with the acquisition of this facility  11 conduct due diligence as to the value of the property?  12 A. Yes, we did.  13 Q. And you projected that, I take it, out  14 into the future?  15 A. The value of the property?  16 Q. Yes, when it comes online in 2014 and  17 beyond.  18 A. The value of the property is only  19 relevant in --  20 Q. I didn't mean -- the value of the  21 capacity that this would bring to Dominion Virginia  22 Power.  23 A. I've told you I don't -- that's not my  24 area of expertise. You asked me whether I valued the  25 property, and I did.</p>	<p>1 Q. You did value the property?  2 A. The property.  3 Q. And did you value the project?  4 A. Yes.  5 MR. DIMITRI: Your Honor --  6 BY MR. WATKISS:  7 Q. And was the value of the project affected  8 by whether or not the 500 kV line is built?  9 MR. DIMITRI: I object, Your Honor. He's  10 asking him about what the Company paid, why it paid,  11 and so forth. He's going directly to the  12 consideration issues that were found irrelevant  13 before, so I object on the grounds that it's not  14 relevant.  15 THE HEARING EXAMINER: I'm going to allow  16 this one.  17 THE WITNESS: Can you ask it again?  18 MR. WATKISS: Would the reporter, please,  19 repeat the question.  20 (The reporter read back as requested.)  21 THE WITNESS: I did not assess that  22 impact.  23 BY MR. WATKISS:  24 Q. And you saw no assessments by others  25 within the Company of that?</p>

Page 3014	Page 3015
<p>1 A. No, I did not.  2 Q. And it was your testimony, I believe, in  3 response to Mr. Dimitri that no filings are going to  4 be made with this Commission in connection with this  5 acquisition because I believe Mr. Dimitri suggested to  6 you in his examination no utility facilities are being  7 transferred? Was that your testimony?  8 A. No, that was not.  9 Q. In what way is that testimony incorrect?  10 Or my --  11 A. I testified that we would file for a CPCN  12 in front of this Commission.  13 Q. How about a filing in connection with the  14 acquisition itself?  15 A. No, there will be none.  16 Q. So there will be no filing under the  17 Utility Facilities Act?  18 A. No, there will not.  19 Q. And let me just --  20 MR. DIMITRI: Your Honor --  21 BY MR. WATKISS:  22 Q. Did you --  23 THE HEARING EXAMINER: Wait a second.  24 MR. WATKISS: I'm sorry.  25 MR. DIMITRI: Just a point of</p>	<p>1 clarification. Under the Utility Facilities Act,  2 there is a component for a certificate of public  3 convenience and necessity talking specifically about  4 transfers act filing, just to clarify the record on  5 that.  6 MR. WATKISS: That was my question, Your  7 Honor.  8 BY MR. WATKISS:  9 Q. In connection with the transfer and the  10 acquisition of that certificate, will there be a  11 filing under the Utility Facilities Act?  12 A. We will file for a CPCN.  13 Q. I thought you already acquired the CPCN,  14 or did I misunderstand that? Wasn't that part of the  15 acquisition?  16 A. They have a CPCN. We still have to come  17 in front of the Commission to get a CPCN.  18 Q. And when do you plan to do that?  19 A. I think I told His Honor around 2010.  20 MR. WATKISS: I have no further  21 questions, Your Honor.  22 Thank you, Mr. Martin.  23 CROSS-EXAMINATION  24 BY MR. GERRARD:  25 Q. Mr. Martin, my name is Michael Gerrard,</p>

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1 and I represent Virginia's Commitment.  
 2 A. Good afternoon.  
 3 Q. Do I understand correctly that it's the  
 4 time it takes to acquire turbines that's going to push  
 5 back the operational date of this facility to 2014?  
 6 A. No. That is simply one component of what  
 7 I talked about. The PJM Interconnect is the critical  
 8 path of the project.  
 9 Q. Didn't you say that one of the things  
 10 that you're acquiring from CPV is the queue position?  
 11 A. That's correct.  
 12 Q. So is the queue such that a generating  
 13 unit that was already in the queue cannot begin  
 14 operating until 2014 because of the PJM delays?  
 15 A. No, I did not say that it can't be  
 16 operated until 2014. It will not make a 2011 date  
 17 though.  
 18 Q. So what date will it make?  
 19 A. It could make a 2013 date.  
 20 Q. Why can't it make a 2011 date?  
 21 A. It can't make a 2011 date because of  
 22 where they sit in the PJM queue right now. They have  
 23 just filed for their impact study. As I mentioned,  
 24 that will take six-plus months. We've certainly seen  
 25 PJM have some delays in their queue positions

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1 recently. And after that, they have to get the  
 2 facility study done, the interconnect agreement has to  
 3 be done, so there are many steps in the process to go  
 4 before you can be done with PJM. You have to have  
 5 that done before you can start construction. You also  
 6 have to acquire the turbines, as I mentioned. The  
 7 turbine queue position right now is very full.  
 8 There's a lot of demands for turbines. In addition,  
 9 we'd have to come before this body to get a CPCN,  
 10 which after filing we're looking at nine months to a  
 11 year before we would receive permission to move  
 12 forward. So all of those pieces would cause this  
 13 project to not be able to make a 2011 time frame.  
 14 Q. And how much of that is affected by  
 15 Dominion's acquisition of CPV versus how much of that  
 16 would have been a delay that would have been faced  
 17 even without this transaction?  
 18 A. Only the CPCN piece is pertinent to  
 19 Dominion versus CPV. CPV would have still experienced  
 20 the same issues with PJM and with the acquisition of  
 21 turbines.  
 22 Q. Okay. Earlier Mr. Dimitri was asking you  
 23 about the Southwestern Virginia proceeding and  
 24 displayed a chart.  
 25 Was that chart confidential in that

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1 proceeding?  
 2 A. Yes, it was.  
 3 MR. GERRARD: All right. May I see it  
 4 again?  
 5 MR. WATKISS: You identified it as 60C, I  
 6 believe.  
 7 MR. DIMITRI: Give me a minute, Your  
 8 Honor.  
 9 Do you want the page I referred to?  
 10 MR. GERRARD: Yes.  
 11 BY MR. GERRARD:  
 12 Q. All right. This is the page that you  
 13 were referring to?  
 14 A. Yes, it is.  
 15 Q. What will be the -- the bottom you have  
 16 the combined cycle and two facilities. The first one  
 17 is a Buckingham County site, is that right?  
 18 A. That's correct.  
 19 Q. And what would be the megawatt output of  
 20 that facility?  
 21 A. 590 megawatts.  
 22 Q. How about Ladysmith 5, what would be its  
 23 megawatts?  
 24 A. 150 megawatts, simple cycle.  
 25 Q. How about the Virginia City Hybrid Energy

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1 Center?  
 2 A. 585 megawatts.  
 3 Q. And what about North Anna 3?  
 4 A. Approximately 1,400 megawatts.  
 5 MR. GERRARD: Your Honor, may I have this  
 6 page marked for identification?  
 7 THE HEARING EXAMINER: We'll mark it as  
 8 57C -- I'm sorry. Make it 57P.  
 9 MR. GERRARD: 57P?  
 10 MR. WATKISS: Is that P, as in Paul?  
 11 THE HEARING EXAMINER: Yes, for  
 12 proprietary.  
 13 (The exhibit was marked for  
 14 identification.)  
 15 MR. GERRARD: I would like to offer it  
 16 into evidence as a confidential exhibit subject to the  
 17 same protections as the other confidential portions of  
 18 this proceeding.  
 19 THE HEARING EXAMINER: It's in -- well,  
 20 it's subject to the confidential of this -- it's the  
 21 heightened one for this.  
 22 (The exhibit was admitted into evidence.)  
 23 THE HEARING EXAMINER: Let me read you  
 24 the number to 57C to make sure that it's the  
 25 heightened confidentiality that we have for this just

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1 to be sure rather than the run-of-the-mill.  
 2 Okay.  
 3 MR. GERRARD: Mr. Dimitri, I'll return  
 4 this to you, but I'll ask that you make copies for us.  
 5 MR. DIMITRI: We can do that.  
 6 BY MR. GERRARD:  
 7 Q. Mr. Martin, I think you said there's  
 8 going to be an announcement tomorrow?  
 9 A. That's the current plan.  
 10 Q. And what will be announced tomorrow?  
 11 A. It will be announced that we had acquired  
 12 the project from CPV.  
 13 Q. So that fact will no longer be  
 14 confidential at that time?  
 15 A. You will be able to look at the press  
 16 release. As Mr. Dimitri said, there's a pretty strict  
 17 confidentiality around this project that lasts for  
 18 three years, so obviously something we put in a press  
 19 release will be no longer confidential.  
 20 MR. GERRARD: Okay. Thank you.  
 21 THE HEARING EXAMINER: Staff.  
 22 CROSS-EXAMINATION  
 23 BY MR. OCHSENHIRT:  
 24 Q. Good afternoon, Mr. Martin. I'm Fred  
 25 Ochsenhirt, for Commission Staff.

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1 MR. OCHSENHIRT: With Your Honor's  
 2 indulgence, I'd like to just put something in the  
 3 record. It's not really a question. Just to say that  
 4 Staff doesn't necessarily agree with Mr. Dimitri about  
 5 how clear-cut it is that approval of the transaction  
 6 would be required by the Commission. I just want to  
 7 make it clear that Staff doesn't agree with that. It  
 8 may or may not be required and we haven't put forth a  
 9 position on that. I just wanted to make sure that was  
 10 in the record.  
 11 THE HEARING EXAMINER: That's fine.  
 12 MR. OCHSENHIRT: Okay.  
 13 MR. DIMITRI: If I may, Your Honor, just  
 14 for a point of clarification.  
 15 What specifically are you referring to?  
 16 MR. OCHSENHIRT: The approval under the  
 17 and -- approval of the transaction under the Utility  
 18 Facilities Act is what we were talking about earlier.  
 19 MR. DIMITRI: So you're not referring to  
 20 transfers act? You're referring to the certificate  
 21 statute?  
 22 MR. OCHSENHIRT: Both. I just -- you  
 23 know, it came up here and I don't want it to be taken  
 24 that Staff is taking the position on what you have to  
 25 get approval for.

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1 MR. DIMITRI: That's fine.  
 2 MR. OCHSENHIRT: I didn't want to leave  
 3 that open and make it look like we were agreeing with  
 4 the statements that had been made before.  
 5 THE HEARING EXAMINER: I understand your  
 6 concern.  
 7 MR. OCHSENHIRT: Okay. Just trying to  
 8 clarify that. That's all.  
 9 THE HEARING EXAMINER: I don't think  
 10 anybody could read anything into this as far as  
 11 Commission approval or Staff's agreement.  
 12 MR. OCHSENHIRT: All right. I don't  
 13 like -- I didn't want it to be fake.  
 14 THE HEARING EXAMINER: Okay.  
 15 BY MR. OCHSENHIRT:  
 16 Q. Just a couple of questions. The first  
 17 with reference to the exhibit that was just up here --  
 18 and I won't ask your counsel to dig it back out again.  
 19 There was a statement on there dealing  
 20 with the CPV acquisition. There is nothing in -- on  
 21 that exhibit or in that record that you were  
 22 specifically talking about the CPV Warren site? I  
 23 mean, I know that's what we're talking about today,  
 24 but the exhibit doesn't specify that?  
 25 A. That's what we were talking about.

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1 Q. Right. Okay. And then one question  
 2 about the permit -- permits, I guess, that you have  
 3 acquired as part of the transaction.  
 4 My understanding is that the PSD permit  
 5 would have been based on the specific plans for the  
 6 project, the turbine to be used, the output of the  
 7 project?  
 8 A. That's correct.  
 9 Q. Now, is there a restriction in that  
 10 permit that you would have to get a new one if you  
 11 don't use that same turbine, those same technical  
 12 specifications?  
 13 A. There are several turbines that would fit  
 14 the description of the air permit. But you are  
 15 correct, if you don't use those turbines that are  
 16 allowed, you're going to have to go back and ask for a  
 17 new one or modifications to the existing one.  
 18 Q. Now, given that, why didn't you talk to  
 19 CPV about the turbine or any equipment?  
 20 A. Because we were looking at a 2014 time  
 21 frame, which we were going to have plenty of time to  
 22 get equipment, and we'd prefer to go out and bid the  
 23 equipment of several different vendors.  
 24 MR. OCHSENHIRT: That's all, Your Honor.  
 25 THE HEARING EXAMINER: Any redirect?



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1 MR. DIMITRI: Very briefly, Your Honor.  
 2 REDIRECT EXAMINATION  
 3 BY MR. DIMITRI:  
 4 Q. Mr. Martin, the document I showed you  
 5 before and that has been marked Exhibit 57P --  
 6 THE HEARING EXAMINER: C.  
 7 MR. DIMITRI: I'm sorry.  
 8 THE HEARING EXAMINER: Not to confuse  
 9 things.  
 10 MR. DIMITRI: I put down proprietary.  
 11 THE HEARING EXAMINER: Well, we  
 12 decided --  
 13 MR. WATKISS: Protect, how about that?  
 14 THE HEARING EXAMINER: Just to make sure  
 15 that everything was clear, I wanted to designate it  
 16 differently than the normal --  
 17 MR. DIMITRI: We appreciate that. So  
 18 it's a "P."  
 19 MR. WATKISS: P, as in Paul.  
 20 BY MR. DIMITRI:  
 21 Q. Exhibit 57P, as in Paul --  
 22 THE HEARING EXAMINER: C. Everything  
 23 else will be P.  
 24 MR. WATKISS: We'll work with him and get  
 25 this straight.

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1 MR. WATKISS: CP, then we'll remember  
 2 where it came from.  
 3 MR. WATKISS: We'll get him straight.  
 4 BY MR. DIMITRI:  
 5 Q. All right. Exhibit 57C mentioned North  
 6 Anna 3. And just briefly to make it clear, the status  
 7 of that project, the first bullet on this exhibit  
 8 says, ESP expected to be issued on or about 22nd.  
 9 What is much ESP?  
 10 A. That's early site permit. And we have  
 11 received the early site permit from NERC.  
 12 Q. And the next bullet is COL application  
 13 filing November 27?  
 14 A. Yes.  
 15 Q. And that's 2007, correct?  
 16 A. That's correct.  
 17 Q. And was the COL application filed?  
 18 A. We have filed.  
 19 Q. And then it says, ongoing EPC discussions  
 20 with GE. Is that currently underway?  
 21 A. We are in discussions with GE.  
 22 Q. And has the Commission made a decision  
 23 yet on -- I'm sorry -- has the Company -- has the  
 24 Company made a decision on whether to proceed with  
 25 North Anna 3 at this point?

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1 A. No. We hope to be able to proceed with  
 2 it, but we are still in discussions with vendors and  
 3 others to make sure we can preserve that option.  
 4 Q. And the projected time frame for that  
 5 would be?  
 6 A. We have stated publicly 2015 as the  
 7 commercial operation date.  
 8 MR. DIMITRI: That's all I have, Your  
 9 Honor. Thank you.  
 10 THE HEARING EXAMINER: Thank you. You  
 11 may be excused.  
 12 MR. DIMITRI: That's all, Your Honor.  
 13 THE HEARING EXAMINER: I guess the only  
 14 other thing we have left today is to talk a little bit  
 15 about the additional runs and studies or wherever we  
 16 are on that. I was wondering if we can -- we can do  
 17 that on the record or off the record. Is there any  
 18 preference?  
 19 MR. WATKISS: Your Honor, we'd prefer to  
 20 talk about it on the record.  
 21 MR. DIMITRI: What additional studies are  
 22 you referring to, Your Honor?  
 23 THE HEARING EXAMINER: Runs that PJM was  
 24 going to be making on --  
 25 MR. WATKISS: I've stated on the record

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1 before that we will have those on Wednesday.  
 2 THE HEARING EXAMINER: That we've  
 3 requested so far?  
 4 MR. WATKISS: The one that's been  
 5 requested, yes, with respect to Amos-Kempton and 502  
 6 junction to Loudoun, yes, that will be -- I've been  
 7 told by PJM it will be ready on Wednesday and be  
 8 available on Wednesday.  
 9 THE HEARING EXAMINER: I think there was  
 10 some discussion also about any additional ones that we  
 11 would discuss about today.  
 12 MR. MONTGOMERY: Your Honor, I hate to  
 13 interrupt, but I guess a point of order, I don't  
 14 believe any of this is confidential, and I would  
 15 suggest that we go back.  
 16 THE HEARING EXAMINER: Let's go back to  
 17 the open -- to the open record at this time to discuss  
 18 this.  
 19  
 20  
 21 (Confidential session concluded.)  
 22  
 23  
 24  
 25

TrAILCo Response to ECC  
 Interrogatory Set III, No. 21  
 Sponsor: Scott Gass  
 Response Date: December 4, 2007

**IN RE: APPLICATION OF TRANS-ALLEGHENY INTERSTATE LINE COMPANY**  
**PaPUC Docket No. A-110172 et al.**

**ENERGY CONSERVATION COUNCIL OF PENNSYLVANIA Set III, No. 21:**

ECC-III-21. For the load flow cases used in determining the alleged "reliability criteria violations":

- a. What new generating units were assumed to be in service in the PJM area?
- b. Where is each in the PJM queue?
- c. Where is each in the approval/construction process?
- d. Provide the expected summer maximum capacity (MW) of each.
- e. Provide the MW output of each in the "criteria violation" load flow cases.
- f. Describe the geographical location of each.
- g. Describe where and how each is connected to the transmission system.

**RESPONSE:**

The November 9, 2007 "Rulings on Motion to Compel" directed TrAILCo to "answer ECC-III-20, ECC-III-21 (much of which is a rehash of ECC-III-3 and ECC-III-4) and ECC-III-22."

- a. See the table below for the new generation that was modeled in the 2011 RTEP base case. The PJM baseline models include all active generation projects with an executed Facility Study Agreement and/or an executed Interconnection Service Agreement ("ISA"). However, for purposes of resolving system reliability problems, PJM only includes capacity resources with an executed ISA. PJM's experience demonstrates that projects have a high probability of cancellation prior to execution of the ISA. Therefore, prior to the signing of an ISA, PJM does not include the generation in its analysis to determine resolution of system reliability problems.

Queue Name	Projected In-Service Date	Location	MW - Capacity	MW - Energy
A54		PA	45	0
C01	5/1/2006	NJ	436	0
C02	1/1/2007	PA	47	0
G06	12/1/2007	PA	30	0
G07		PA	100	0
G30_W51	6/1/2008	WV	600	0
G51_W60	12/31/2008	PA	525	0
G51_W62	6/30/2010	MD	640	0

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Queue Name	Projected In-Service Date	Location	MW - Capacity	MW - Energy
I13	9/1/2007	PA	0	36
J07	11/1/2006	WV	0	155
K02	11/1/2007	PA	0	70
K07_CE20	12/31/2007	IL	31.6	158
K11	9/30/2007	WV	60	300
K13	9/1/2007	PA	6.8	0
K25	11/15/2007	MD	8	0
K26	11/1/2006	WV	31	0
K28	11/6/2006	MD	19.8	0
L05_CE22	9/1/2006	IL	30	150
L12_CE23	1/1/2007	IL	4	20
L13_CE26	10/30/2006	IL	35	175
L13	12/31/2007	PA	8	40
L19	6/30/2008	PA	290	0
M11	7/1/2008	PA	111	0
M12	7/1/2007	PA	107	0
M22	2/1/2008	PA	125	0
M23	12/1/2006	WV	30	150
M24	11/1/2007	WV	37.2	186
M26	5/31/2008	PA	272	0
M28	1/1/2008	IL	600	0
N07	9/1/2008	VA	7.6	38
N09	3/31/2008	WV	90	0
N12	1/1/2008	OH	75	75
N14	6/1/2006	PA	4.8	24
N15	5/1/2008	IL	30	150
N27	7/1/2006	NJ	4	0
N29	12/31/2008	MD	8	40
N30	12/31/2006	PA	0	5
N31	7/31/2007	PA	0	5
N32	12/1/2006	PA	12	60
N33	12/1/2008	WV	12	60
N36	11/1/2008	PA	10	50
N39	11/1/2006	PA	16	80
N47	12/15/2008	WV	27	135

- b. See response to subpart a.
- c. The approval/construction process status of each generator project listed in response to subpart a. is shown on the interactive table available via the following URL: <https://www.pjm.com/planning/project-queues/queue-gen-active.jsp>
- d. See response to subpart a.

- e. The MW output of each new generating unit in the “criteria violation” load flow cases is contained in the power flow case files provided in Attachment ECC-I-35-E. The file names are:
- MAAC\_2011\_LoadDeliv\_MeanCase.raw, and
  - RTEP2011s\_final\_nondiversified\_MtStorm-Doubs\_8020.raw.
- f. The geographical location of each generator listed in the table above can be obtained in the study results for queued generator interconnection requests available via the following URL: <https://www.pjm.com/planning/project-queues/queue-gen-active.jsp>
- g. Information relating to where and how such new generating units will be interconnected to the transmission system can be found in the study results for queued generator interconnection requests available via the following URL: <https://www.pjm.com/planning/project-queues/queue-gen-active.jsp>

# PROPRIETARY INFORMATION

Docket Number A-110172

Name of Document ECC Cross Exam Ex. 31

Date Document Received 3-26-2008

**DOCUMENT CONTAINS**

**PROPRIETARY INFORMATION**

TRANS-ALLEGHENY INTERSTATE LINE COMPANY  
CASE NO. 07-0508-E-CN  
CONSUMER ADVOCATE DIVISION'S FIRST DATA REQUEST

Prepared by: Scott Gass

Responsible Case Witness for this material: Scott Gass

Response Date: October 24, 2007

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Questions Related to Direct Testimony of Scott Gass:

CAD-1-2:

In response to Staff Data Request 3-10(e) concerning reconductoring of the Mt. Storm-Doubs 500 kV line, Mr. Gass stated that no further consideration was given to this option because the expected length of the outage required to reconductor this circuit. Please answer the following questions concerning the reconductoring of the Mt. Storm-Doubs 500 kV line:

- a. Aside from consideration of the outage required to reconductor the line (i.e. feasibility), is it technically **possible** to reconductor the Mt. Storm-Doubs 500 kV line?
- b. Please describe the work that would be required to reconductor the Mt. Storm-Doubs 500 kV line.
- c. What is the estimated cost to reconductor the Mt. Storm-Doubs 500 kV line?
- d. If the Mt. Storm-Doubs 500 kV line was reconducted, what would be the voltage and the transfer capability in MW of the reconducted line?
- e. If the Mt. Storm-Doubs 500 kV line was reconducted, would any additional right-of-way be required? Would new towers be required?
- f. Would the reconductoring of the Mt. Storm-Doubs 500 kV line work equally well as the proposed Mt. Storm-Meadowbrook 500 kV line in resolving identified reliability and load flow problems?

RESPONSE:

- a. Dominion Virginia Power owns 98% of the Mt. Storm - Doubs 500 kV line and Allegheny Power owns 2% of the line. No studies have been completed to determine the technical feasibility of reconductoring the Allegheny Power portion of this line. TrAILCo is not aware if it is technically feasible or if any studies were completed by

Dominion Virginia Power to determine the technical feasibility of reconductoring the Dominion Virginia Power portion of the Mt. Storm – Doubs 500 kV circuit.

- b. No studies have been completed to determine what work would be required to reductor the Allegheny Power portion of this line.
- c. No studies have been completed to estimate the cost to reductor the Allegheny Power portion of this line. TrAILCo does not know the estimated cost to reductor the Dominion Virginia Power portion of the Mt. Storm – Doubs 500 kV circuit.
- d. No studies have been completed to determine the voltage and transfer capability if the Mt. Storm – Doubs 500 kV circuit was reducted.
- e. See response to b.
- f. No studies have been completed to compare the proposed reductoring of the Mt. Storm – Doubs 500 kV line to the proposed Mt. Storm – Meadowbrook 500 kV line.

TrAILCo Response to  
ECC Interrogatory Set VII, No. 28  
Sponsor: Lawrence Hozempa; Scott Gass  
Response Date: December 28, 2007

**IN RE: APPLICATION OF TRANS-ALLEGHENY INTERSTATE LINE COMPANY**  
**PaPUC Docket No. A-110172 et al.**

**ENERGY CONSERVATION COUNCIL OF PENNSYLVANIA Set VII, No. 28:**

ECC-VII-28. Ref. Hozempa 2-R: p.12, 1.16-22. What generating units are physically located in Washington & Greene counties? What is the max. summer MW capability of each? What were they each scheduled at in the 2011 and 2012 base cases?

**RESPONSE:**

See response to ECC-I-42 for a list of generating units physically located in Washington and Greene Counties, including the maximum summer MW capability of each.

In the 2011 RTEP Base Case the units were dispatched as follows:

Elrama Power Station  
Unit #1 – 93.1 MW  
Unit #2 – 93.1 MW  
Unit #3 – 104.6 MW  
Unit #4 – 164.1 MW  
Mitchell Power Station  
Unit #2 – 78.7 MW  
Unit #3 – 265.8 MW  
Hatfields Ferry Power Station  
Unit #1 – 508.6 MW  
Unit #2 – 508.6 MW  
Unit #3 – 508.6 MW

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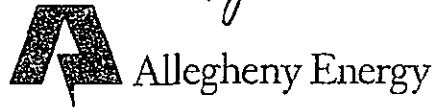
In the 2012 RTEP Base Case the units were dispatched as follows:

Elrama Power Station  
Unit #1 – 91.9 MW  
Unit #2 – 91.9 MW  
Unit #3 – 103.2 MW  
Unit #4 – 161.9 MW  
Mitchell Power Station  
Unit #2 – 77.7 MW



Unit #3 – 262.3 MW  
Hatfields Ferry Power Station  
Unit #1 – 501.9 MW  
Unit #2 – 501.9 MW  
Unit #3 – 501.9 MW

ECC Cross Exam Ex 34  
MAR 26 2008 Pgh FX



LEGAL SERVICES

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March 6, 2006

Via Federal Express

Office of Electricity Delivery and Energy Reliability, OE-20  
Attention: EPACK 1221 Comments  
U.S. Department of Energy  
Forestall Building, Room 6H-050  
1000 Independence Avenue, SW  
Washington, DC 20585

Re: Considerations for Transmission Congestion Study  
and Designation of National Interest Electric  
Transmission Corridors; Notice of Inquiry  
Requesting Comment and Providing Notice  
of a Technical Conference; 71 FR 5660 (February 2, 2006)

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SECRETARY'S BUREAU

Gentlemen and Ladies:

Enclosed in regard to the above-referenced matter are the original and 10 copies of the Comments and Request of Allegheny Power for Early Designation of National Interest Electric Transmission Corridor. Correspondence or communications with respect to this submission should be addressed to one or more of the individuals identified in Part III of the Comments and Request.

Sincerely,

A handwritten signature in cursive script that reads 'Randall B. Palmer'.

Randall B. Palmer  
Senior Attorney

**UNITED STATES OF AMERICA  
BEFORE THE  
DEPARTMENT OF ENERGY  
OFFICE OF ELECTRICITY DELIVERY AND ENERGY RELIABILITY**

**Re: Considerations for Transmission Congestion Study  
and Designation of National Interest Electric  
Transmission Corridors; Notice of Inquiry  
Requesting Comment and Providing Notice  
of a Technical Conference**

**COMMENTS AND REQUEST OF ALLEGHENY POWER FOR  
EARLY DESIGNATION OF  
NATIONAL INTEREST ELECTRIC TRANSMISSION CORRIDOR**

Pursuant to the Notice of Inquiry Requesting Comment and Providing Notice of a Technical Conference<sup>1</sup> (NOI) issued by the Department of Energy's Office of Electricity Delivery and Energy Reliability, Allegheny Power<sup>2</sup> submits these Comments and Request for Early Designation of National Interest Electric Transmission Corridor.

**I. Comments on Criteria Development**

The NOI identified eight draft preliminary criteria along with identified metrics that the Department proposes to use in evaluating the suitability of a geographic area for designation as a National Interest Electric Transmission Corridor (NIETC). Allegheny Power supports the implementation of these criteria and metrics for the assessment of NIETC proposals provided the Department does not apply these measures of NIETC worthiness in a rigid manner by

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<sup>1</sup> 71 FR 5660 (February 2, 2006)

<sup>2</sup> Allegheny Power is the trade name for Monongahela Power Company, The Potomac Edison Company, and West Penn Power Company. The Allegheny Power companies are public utilities that supply electric energy at retail in parts of Pennsylvania, Virginia, West Virginia and Maryland. All of the Allegheny Power companies own electric transmission facilities subject to the functional control of PJM. Monongahela Power Company owns generation facilities. The Allegheny Power companies are owned and controlled by, and are direct subsidiaries of, Allegheny Energy, Inc., a public utility holding company.

determining that every proposal must meet all eight of the criteria or satisfy all of the metrics for each of the criteria determined to be applicable. For example, a specific proposal may not meet the expectations of both Draft Criterion 1 and Draft Criterion 2. Draft Criterion 1 relates to action needed to maintain high reliability and Draft Criterion 2 relates to action needed to achieve economic benefits for consumers. Although these criteria are not mutually exclusive, not all proposals requiring NIETC designation will necessarily fulfill both. A proposal may justify NIETC designation solely for reliability reasons but will provide minimal or no economic benefits. The failure to meet both requirements should not prevent NIETC designation.

A close examination of the draft criteria suggests that it should be sufficient for NIETC designation if a proposal substantially meets any one of the first six criteria and its associated metrics with Draft Criteria 7 and 8 used as factors in evaluating the merits of the proposal. For example, a project may meet the economic benefits test of Draft Criterion 2 but the need for the project may be encumbered with unduly contingent uncertainties associated with analytic assumptions as described in Draft Criteria 7. In other words, the project may show economic benefits many years into the future but is fraught with the uncertainties of the assumptions inherent in the analysis that, on balance, the project should not warrant NIETC designation when other proposals demonstrate more pressing and certain needs or benefits.

In short, Allegheny Power believes the criteria have been correctly identified in the NOI. However, the Department's method for applying the criteria is as important as the criteria themselves. Allegheny Power urges the Department to apply the criteria and associated metrics in a flexible and non-exclusive manner that permits NIETC designations that meet any of one of the first six criteria and allows for evaluation of the proposal in the context of one or more of those criteria under the seventh and eighth criteria.

## II. Request for Early Designation of National Interest Electric Transmission Corridor

The NOI invited parties to identify areas that they believe merit designation as an NIETC, and to explain why early designation is necessary and appropriate. The NOI stated that the Department will consider for early designation as NIETCs only those proposed corridors for which a particularly compelling case is made that early designation is both necessary and appropriate, and for which data and information are submitted strongly supporting such a designation.

Pursuant to the invitation extended by the NOI, Allegheny Power requests the Department to assign an early designation as NIETC to the corridor necessary for the construction of the Trans-Allegheny Interstate Line (TrAIL) Project. As a transmission-owning member of PJM Interconnection, L.L.C. (PJM), Allegheny Power submitted its proposal for the TrAIL Project to PJM on March 1, 2006 for inclusion in PJM's next iteration of its Regional Transmission Expansion Plan. (Project details are set forth in Attachment A, which is a copy of the TrAIL Project proposal as submitted to PJM.)

The area for which Allegheny Power seeks early designation as NIETC for the TrAIL Project is shown on Attachment B and highlighted in yellow. The proposed TrAIL Corridor will extend from the West Virginia western panhandle area, through the southwestern Pennsylvania-Northern West Virginia area, along the eastern West Virginia panhandle and western Maryland area, to the central Maryland area. As shown on Attachment B, the TrAIL Corridor will include several existing transmission facilities, including:<sup>3</sup>

- Wylie Ridge 500/345 kV Substation
- Kammer 765/500 kV Substation
- Fort Martin – Pruntytown 500 kV Line
- Pruntytown – Mt. Storm 500 kV Line
- Mt. Storm – Doubs 500 kV Line
- Black Oak – Bedington 500 kV Line
- Doubs 500/230 kV Substation

<sup>3</sup> Allegheny Power owns all or portions of these facilities.

The TrAIL Project will:

- Enhance the reliability of the PJM Transmission System,
- Provide economic benefits to consumers,
- Ease congestion on the PJM Transmission System,
- Diversify available generation sources,
- Strengthen the energy independence of the PJM Energy Market and the markets of adjacent RTOs, and
- Further national energy policy.

#### **A. Reliability Enhancement**

The TrAIL Project will enhance the reliability of the PJM Transmission System by adding an additional EHV<sup>4</sup> transmission line across the AP Zone<sup>5</sup> and lessen reductions in west-to-east transfers and re-dispatching of generation during single contingency events. During 2005, PJM issued approximately 350 load-dump warnings for the AP Zone. Allegheny Power estimates that TrAIL will reduce this number by approximately 30%. In the same year, PJM called for about 480 TLRs (Transmission Load Relief Orders) in the AP Zone, with more than 50 of these related to EHV facilities. Allegheny Power estimates that TrAIL will eliminate most of the EHV- related TLRs within the AP Zone. In addition, there has been an increase in generation retirement announcements in the mid-Atlantic area of the PJM Region.<sup>6</sup> By increasing the available transmission transfer capacity through the construction of TrAIL, Allegheny Power will contribute significantly to alleviating many of the reliability concerns associated with potential generation retirements in the PJM Region.

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<sup>4</sup> Allegheny Power refers to EHV as "Extra High Voltage" and as voltages at 345 kV and above.

<sup>5</sup> The AP Zone is identified in Attachment J of the PJM Open Access Transmission Tariff as the "APS Zone."

<sup>6</sup> *2004 State of the Markets Report* issued by the Federal Energy Regulatory Commission, June 2005, Docket MO05-4-000, page 110.

## B. Economic Benefits

The TrAIL Project will improve the economic vitality and development of markets within the PJM Region. The proposed line will provide the high-cost electric energy markets in the eastern PJM Region with access to lower-cost generation in the Midwest by increasing the west-to-east transfer capacity of the PJM Transmission System. TrAIL will allow generation to be dispatched to minimize electric energy costs across the corridor and into the electric energy market of the eastern PJM Region. This aspect of TrAIL is of particular importance because PJM has been unable to timely implement market devices that mitigate the high-cost of electric energy in this portion of the PJM Region, and merchant generation has not stepped forward to construct generation plants to alleviate high prices.

Results of load flow analyses performed by Allegheny Power using PJM's 2010 Summer RTEP (50/50) load flow model are summarized in Table 1 below. These results demonstrate that TrAIL will increase the west-to-east total transfer capability of the PJM Transmission System by 3800 MW over base case levels and supports the conclusion that TrAIL will provide economic benefits to consumers within the PJM Region, especially those in the high-cost electric energy markets in the eastern portion of the region.

**Table 1**

System Configuration	Limit Type	FCITC (MW)	Limiting Constraint	Contingency	Incremental Transfer Capability (MW)
Base Case	Voltage	400	Meadow Brook 500kV bus voltage	Black Oak-Bedington 500kV Line	-
Base Case	Thermal Loading	600	Black Oak-Bedington 500kV Line	Pruntytown-Mt. Storm 500kV Line	-
Base Case	Thermal Loading	1450	Mt. Storm - Doubs 500 kV Line	Greenland Gap - Meadow Brook 500 kV Line	-
TrAIL Project	Thermal Loading	4200	Lexington-Dooms 500kV Line	Bath Co-Valley 500kV Line	3800
TrAIL Project	Thermal Loading	5200	Pruntytown - Mt. Storm 500 kV Line	502 Station - Mt. Storm 500 kV Line	4800

### C. Congestion Reduction

As part of the economic planning component of its Regional Transmission Expansion Plan (RTEP), PJM has been monitoring and posting to its website the gross congestion costs associated with each individual transmission constraint in the PJM Region since August 1, 2003.<sup>7</sup> For those individual transmission constraints in which the gross congestion costs exceed predefined thresholds, PJM then calculates the unhedgeable congestion costs associated with those constraints.<sup>8</sup> PJM defines unhedgeable congestion as costs that cannot be hedged by the use of Financial Transmission Rights (FTRs) or other hedging instruments pursuant to the PJM Tariff or the Operating Agreement. Unhedgeable congestion costs are also posted on the PJM website.<sup>9</sup>

The existing transmission facilities in the TrAIL Corridor listed above account for a significant amount of the gross and unhedgeable congestion in PJM, as these facilities provide a primary transmission path within the PJM Region for electric energy from sources in the Midwest and the western portions of the PJM Region to loads in the eastern portion of the PJM Region.<sup>10</sup> Total congestion costs in PJM during 2004 were 9% of total billings, which totaled \$808 million.<sup>11</sup> One of the facilities located in the TrAIL Corridor contributing to the congestion is the Bedington-Black Oak 500 kV Line. This line was constrained for 1,131 hours during 2004 and 54 percent of the line's congestion occurred during on-peak hours. This constraint increased the average LMP on the average affected load of 39,170 MW by \$12 or 20%.<sup>12</sup> The Bedington-Black Oak Line was the most frequently constrained facility on the PJM system throughout

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<sup>7</sup> Gross and Unhedgeable congestion costs were calculated from the "2003-04-05-monthly-congestion-summary.xls" file located on the PJM website ([www.PJM.com/planning/economic-planning/](http://www.PJM.com/planning/economic-planning/)).

<sup>8</sup> *Id.*

<sup>9</sup> *Id.*

<sup>10</sup> *2004 State of the Market*, issued by PJM's Market Monitoring Unit, March 8, 2005, page 218

<sup>11</sup> *Id.*, footnote 11, page 37

<sup>12</sup> *Id.*, footnote 11, page 59



2004.<sup>13</sup> In 2005, the total gross congestion costs associated with facilities in the TrAIL Corridor accounted for \$3.7 billion, or nearly two-thirds, of the total \$5.6 billion accumulated in PJM.<sup>14</sup> These facilities have accounted for \$4.8 billion of gross congestion, or 60% of the total in PJM, and nearly \$150 million of unhedgeable congestion, or nearly one-third of the total in PJM, between August 1, 2003 and January 31, 2006. Along with plans currently underway to increase transformer capacity of the three substations in the TrAIL Corridor, construction of the TrAIL Project is expected to significantly reduce congestion by relieving loading on the four-500 kV lines in the TrAIL Corridor. Table 2 below lists the impact of the TrAIL Project on these 500 kV lines.

Table 2

Congestion Area	4-Hour Rating	Line Loading (% 4-Hour Rating)		Contingency
		2010 RTEP	With Trans-Allegheny Interstate Line	
Black Oak - Bedington 500 kV	2744	97.9	70.9	Pruntytown - Mt. Storm 500 kV
Mt. Storm - Doubs 500 kV	2598	94.1	76.1	Mt. Storm - Greenland Gap 500 kV
Mt. Storm - Doubs 500 kV	2598	94.1	76.1	Greenland Gap - Meadow Brook 500 kV
Mt. Storm - Doubs 500 kV	2598	92.0	72.0	Black Oak - Bedington 500 kV
Fort Martin - Pruntytown 500 kV	2434	87.1	67.7	Harrison - Pruntytown 500 kV
Pruntytown - Mt. Storm 500 kV	3326	89.8	67.5	Black Oak - Bedington 500 kV

#### D. Increase Generation Diversity

The TrAIL Project will provide loads in the eastern portion of the PJM Region with access to a larger, more diverse, lower cost sources of generation. This will allow generation to be dispatched to minimize the electric energy costs. Also, the corridor will provide better access to these loads for new wind and coal-fired generation facilities being developed in areas along and adjacent to the proposed corridor.

<sup>13</sup> *Id.*, footnote 11, page 218

<sup>14</sup> Gross and Unhedgeable congestion costs were calculated from the "2003-04-05-monthly-congestion-summary.xls" file located on PJM web site ([www.PJM.com/planning/economic-planning/](http://www.PJM.com/planning/economic-planning/)).

### **E. Strengthen Energy Independence**

Construction of the TrAIL Project will reduce the dependence of loads in the mid-Atlantic area on imported oil and liquefied natural gas by providing reliable lower-cost sources of energy from the western PJM Region and the Midwest. In short, the TrAIL Project strengthens the energy independence of the United States.

### **F. Further National Energy Policy**

Congress and the Federal Energy Regulatory Commission have identified the need for capital investment in the national transmission infrastructure.<sup>15</sup> Additionally, the Department has concluded that the electric system in the United States is in need of substantial capital investment to meet the future needs of the Information Economy.<sup>16</sup>

The TrAIL Project will be a significant capital investment in the national transmission infrastructure that will enhance the reliability of the PJM Transmission System and provide energy cost reducing benefits to consumers in the mid-Atlantic areas within the PJM Region.

### **G. The TrAIL Project Merits Early Designation as an NIETC**

Based on the foregoing and the project details set forth in Attachment A, an early designation as an NIETC is both necessary and appropriate for the TrAIL Project. A compelling need exists for the designation so that Allegheny Power and PJM can begin to bring about the reliability enhancement, economic, congestion relief, generation diversity, energy independence and furtherance of national energy policy benefits offered by the TrAIL Project. Allegheny Power requests the Department to provide an early NIETC designation to the corridor needed for the TrAIL Project.

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<sup>15</sup> *Energy Policy Act of 2005*, Sections 1241 and 1242; *Promoting Transmission Investment through Pricing Reform*, 113 FERC ¶ 61,182 (November 18, 2005)

<sup>16</sup> "GRID 2030" *A National Vision for Electricity's Second 100 Years*, issued by United States Department of Energy – Office of Electric Transmission and Distribution, July 2003, page iii

### III. Correspondence and Communications

Correspondence or communications with respect to these comments and request should be addressed to the following:

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tgrabia@alleghenyenergy.com

Respectfully submitted,

**Allegheny Power**

By Randall B. Palmer

Kathryn L. Patton, Deputy General Counsel  
Randall B. Palmer, Senior Attorney  
Allegheny Energy, Inc.  
800 Cabin Hill Drive  
Greensburg, PA 15601  
724-838-6894 (voice)  
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rpalmer@alleghenyenergy.com

Attorneys for Allegheny Power

Dated at Greensburg, PA this 6<sup>th</sup> day of March 2006.

# **Attachment A**

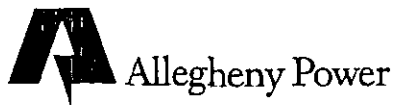
# **The Trans-Allegheny Interstate Line Project**

## **A 500 kV Transmission Line Through the AP Zone**



February 28, 2006

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II. Background	6
III. Analysis	9
IV. Project Details	13
V. Project Siting	21
VI. Project Cost and Timeline	22
VII. Conclusions	25



## I. Executive Summary

In May 2005, PJM Interconnection L.L.C. (PJM) unveiled the Project Mountaineer concept. As conceived, Project Mountaineer would consist of one or more transmission system reinforcement projects to enhance the west-to-east transfer capability of the entire PJM Transmission System. PJM envisioned its independent planning process, known as the Regional Transmission Expansion Planning Protocol, as the vehicle for identifying a comprehensive plan for Project Mountaineer.

Following PJM's announcement of Project Mountaineer, Allegheny Power<sup>1</sup> (AP), a transmission owner within the PJM Region, began reviewing various transmission system enhancement opportunities within the AP Zone<sup>2</sup> that would provide significant increases in west-to-east transfer capability within the entire PJM Region and could be incorporated into PJM's Regional Transmission Expansion Plan (RTEP). The Trans-Allegheny Interstate Line Project<sup>3</sup> described in this Proposal meets those requirements and will improve reliability.<sup>4</sup> The Project is an effective solution for addressing long-term reliability issues in the PJM Region and should be included in the RTEP as a part of a major expansion of the PJM Transmission System. In addition to improving reliability, the Project will increase west-to-east transfer capability throughout the entire PJM Region and is expected to improve market efficiency by reducing congestion.

The Trans-Allegheny Interstate Line will span about 330 miles, all within the AP Zone, and consist of a 500 kV line stretching from AP's existing Wylie Ridge Substation in the western panhandle of West Virginia near Weirton on the western side of the AP Zone to a new substation near Kemptown, Maryland on the eastern side of the AP Zone in Frederick County, Maryland. The Project will make effective use of existing facilities and rights-of-way. Initial engineering and planning will begin in 2007 with the first phase of the Project placed in service during 2013. The Project is expected to cost approximately \$1.4 billion.

AP requests that PJM incorporate the Project into the next RTEP. AP understands that the PJM Board of Managers is expected to approve the next RTEP in June 2006. Once included in the approved RTEP, AP will initiate the process of obtaining state authorizations to build the Project. In addition, concurrently with the submission of this Proposal to PJM, AP is submitting to the Federal Energy Regulatory Commission (FERC) a request for authorization of certain incentive rate treatments. In addition, AP

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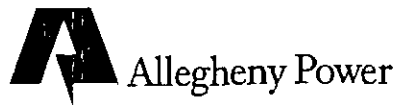
<sup>1</sup> Allegheny Power is the trade name for Monongahela Power Company, The Potomac Edison Company and West Penn Power Company.

<sup>2</sup> The transmission zones of PJM are shown in Attachment J of the PJM Open Access Transmission Tariff. The AP Zone is identified in Attachment J as the "APS Zone."

<sup>3</sup> The Trans-Allegheny Interstate Line Project will be constructed by one or more of the three AP operating companies, a subsidiary of one or more of the AP operating companies, or a subsidiary of Allegheny Energy, Inc., the parent of the AP operating companies.

<sup>4</sup> For the purposes of this Proposal, the term "improve reliability" is defined as meeting or exceeding the reliability criteria of the North American Electric Reliability Council, *ReliabilityFirst*, PJM and AP.





expects to request the U.S. Department of Energy to designate the Project as a National Interest Electric Transmission Corridor in a filing to be made on or about March 6, 2006.

The primary advantages of the Trans-Allegheny Interstate Line Project are:

- ◆ The Project will significantly strengthen the existing PJM Transmission System infrastructure;
- ◆ Construction will be completed in phases, yielding incremental benefits as each phase is completed and placed in service;
- ◆ Existing facilities and rights-of-way will be used where feasible;
- ◆ Loading on several highly congested facilities will be reduced;
- ◆ Voltage and thermal limitations will be relieved;
- ◆ West-to-east transfer capability will be increased; and
- ◆ The Project is viable either on a stand-alone basis or as a complement to other possible transmission enhancement proposals.

Based on numerous studies, AP identified the Trans-Allegheny Interstate Line Project as the most effective realization of the Project Mountaineer concept. The line will be constructed from the existing Wylie Ridge Substation to the proposed Prexy Substation in southwestern Pennsylvania, and continue to the proposed 502 Junction Substation in Greene County, Pennsylvania along the Kammer-Fort Martin-Harrison Line. From 502 Junction, the line will continue to the existing Mt. Storm Substation in Grant County, West Virginia.<sup>5</sup> The next segment of the Trans-Allegheny Interstate Line Project will continue to traverse West Virginia to the existing Bedington Substation in Berkeley County, West Virginia with the final segment extending to the new Kemptown Substation in Frederick County, Maryland. The Project will also include the installation of a Static VAR Compensator (SVC) of approximately +500 MVAR at AP's Meadow Brook Substation south of Winchester, Virginia. The location of the Trans-Allegheny Interstate Line Project is shown on the map on page 5 of this Proposal.

This Proposal is supported by load flow analyses that used PJM's 2010 Summer RTEP (50/50) load flow model. Based on these analyses, the Trans-Allegheny Interstate Line will increase the west-to-east total transfer capability of the PJM Transmission System by 3800 MW over base case levels. The Project will be routed through developing load centers and areas of potential generation retirement to allow not only increased system transfers but also provide for local area reinforcement. AP estimates that construction of the Trans-Allegheny Interstate Line Project can be completed over a seven-year period with the entire Project in-service during 2013. However, construction will occur in phases with separate line segments placed in service when completed in order to begin to provide benefits to the entire PJM Region.

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<sup>5</sup> Virginia Electric and Power Company owns the Mt. Storm Substation, and AP owns transmission equipment within the substation.



Supplementary analyses indicate that the Project performed comparably to the recently proposed AEP Interstate Project<sup>6</sup> when tested under system conditions and outage contingencies in the studies underlying this Proposal. If both the Trans-Allegheny Interstate Line Project and the AEP Interstate Project were to be constructed, AP's analysis indicates the total west-to-east transfer capability of the PJM Transmission System would significantly enhance power flows above the 5000 MW level stated by PJM.<sup>7</sup>

Based on these various studies and analyses, AP submits this Proposal to PJM for inclusion of the Trans-Allegheny Interstate Line Project in the next RTEP as a solution to anticipated reliability criteria violations resulting from PJM's 15-year planning study. AP looks forward to working closely with PJM in the development and implementation of the Trans-Allegheny Interstate Line Project.

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<sup>6</sup> "The AEP Interstate Project Proposal – A 765 kV Transmission Line From West Virginia to New Jersey" prepared by American Electric Power Corporation and dated January 31, 2006.

<sup>7</sup> Testimony of Karl Pfirrmann, President, PJM Western Region, at FERC Technical Conference on May 13, 2005

# PROPRIETARY INFORMATION

Docket Number A-110172

Name of Document Page 5 Map

Date Document Received 3-26-2008

**DOCUMENT CONTAINS**

**PROPRIETARY INFORMATION**

## II. Background

### A. Overview of AP's Existing Transmission Facilities

The three AP operating companies that conduct business as "Allegheny Power" are Monongahela Power Company, The Potomac Edison Company and West Penn Power Company. All three are subsidiaries of Allegheny Energy, Inc., headquartered in Greensburg, Pennsylvania. The AP operating companies provide retail electric service to approximately three million people in Maryland, Pennsylvania, Virginia, and West Virginia. AP's transmission facilities subject to the functional control of PJM consist of approximately 4,600 circuit-miles of transmission lines. These lines operate with nominal operating voltages of 115 kV, 138 kV, 230 kV, 345 kV and 500 kV. Shown below in Figure 1 is the AP Zone within the PJM Region.

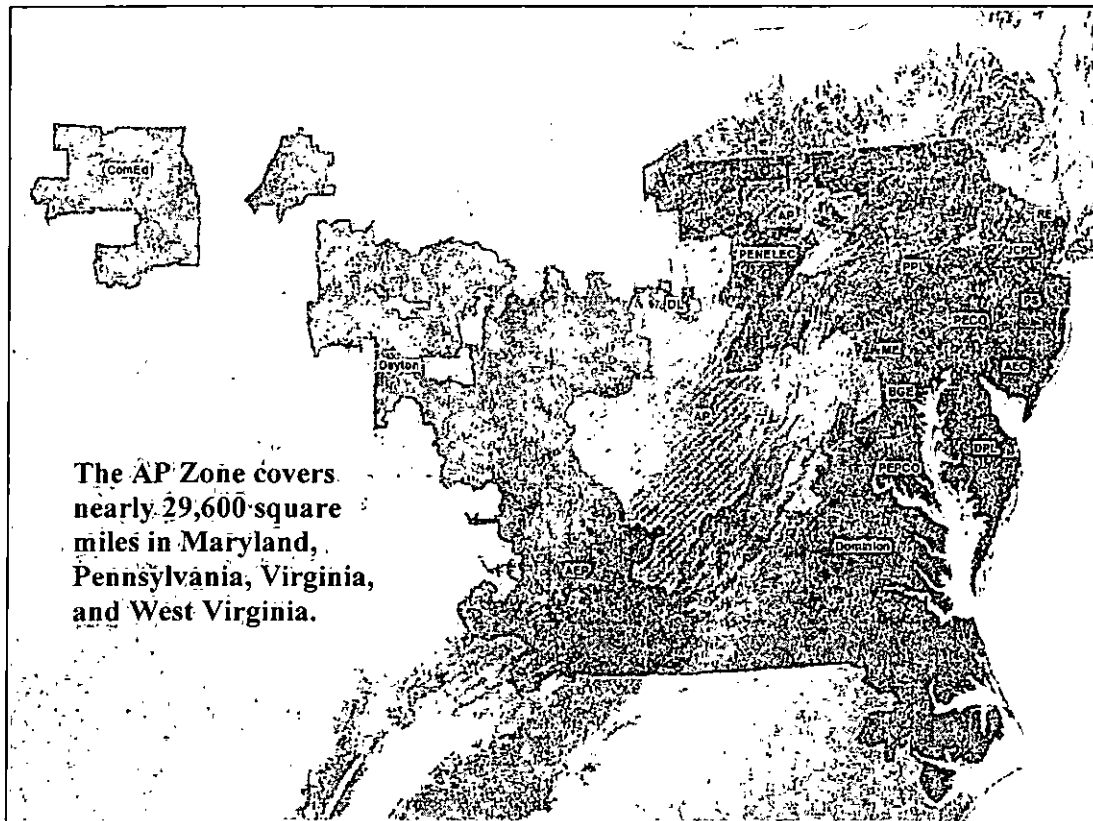
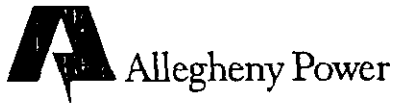


Figure 1 - AP Zone



The AP transmission facilities are interconnected through 48 tie lines to the transmission facilities of five neighboring transmission owners. These include 15 ties to the operating companies of American Electric Power Corporation, four ties to Duquesne Light Company, 19 ties to FirstEnergy Corporation, three ties to Potomac Electric Power Company, and seven ties to Dominion Virginia Power.

Because of the location of the AP Zone, AP's transmission facilities are integral to many of the west-to-east transfers within the PJM Region. With the integration of AP, AEP, Commonwealth Edison, Dayton Power and Light, and Duquesne Light into PJM, west-to-east transfers have increased significantly.<sup>8</sup> These transfers have caused constraints, thermal overloads, and low voltage problems throughout the AP Zone under numerous heavy transfer and contingency scenarios. In addition to these reliability issues, these increased transfers resulting from the movement of lower-cost generation from the west to the load centers in the east have caused congestion issues, many of which have been identified by PJM as attributable to constraints within the AP Zone.

## B. Development of the Trans-Allegheny Interstate Line Project

At a FERC Technical Conference held on May 13, 2005, Karl Pfirrmann, President, PJM Western Region, proposed Project Mountaineer. As conceived, Project Mountaineer would consist of one or more transmission system reinforcement projects to provide the eastern PJM load centers, where energy costs are higher, with access to the lower cost coal-fired generation in the western PJM Region and the footprint of the Midwest Independent Transmission System Operator. This can be achieved by increasing the west-to-east system transfer capacity of the PJM Transmission System.

On a conceptual basis, Project Mountaineer consisted of four possible transmission corridors extending west to east across the PJM Region. Three of the corridors were located in the AP Zone. As a result, during the summer of 2005, AP began an evaluation process to study, determine increases in system transfer capacity and evaluate the impact of the new facilities in its transmission zone.

AP used a linear First Contingency Incremental Transfer Capability (FCITC) analysis to identify and screen facilities needed to increase the west-to-east transfer capability along the three proposed transmission corridors that crossed the AP Zone. Approximately 12 to 15 lines or line combinations were identified and evaluated as well as a number of transformer capacity upgrades.

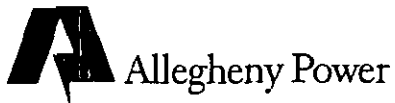
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<sup>8</sup> Id.



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More detailed FCITC and Power-Voltage (PV) analyses narrowed the potential line combinations to the route described in this Proposal. This study assessed the performance of this line route as providing an effective realization of the Project Mountaineer concept while focusing on existing congestion areas, underlying system support, and voltage and thermal improvements.



### III. Analysis

The analyses conducted for the study underlying this Proposal were based on PJM's 2010 Summer RTEP (50/50) load flow model. To this model, the following facility additions were added:

- ◆ Two additional 500/345 kV transformer banks at the Wylie Ridge Substation;
- ◆ The replacement of the existing 1500 MVA 765/500 kV transformer at the Kammer Substation with upgraded capacity;
- ◆ A +525/-100 MVAR SVC at the Black Oak Substation; and
- ◆ The reconductoring of the two Doubs-Dickerson 230 kV Lines.

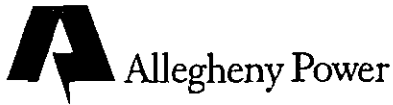
As part of the RTEP process, AP is currently working on all of these projects.

AP chose 500 kV as the operating voltage since all of the stations along the three transmission corridors contain 500 kV facilities. However, AP modeled the lines assuming 765 kV line construction to allow for future conversion as dictated by system needs. When constructing the Trans-Allegheny Interstate Line, AP would use 765 kV construction standards if directed by PJM. Right-of-way width for this construction was assumed to be 200 feet, which is AP's current standard for 500 kV construction and is adequate for 765 kV construction. Upgrading operation to 765 kV at a later date would entail addition of the proper transformations and associated equipment.

The results from the base case analyses with the upgrades listed above provided a voltage limited incremental transfer capability of 400 MW, with the 500 kV bus voltage at Meadow Brook being the limit on this transfer for the outage of the Black Oak-Bedington 500 kV Line.

The results of the analyses of the Wylie Ridge - Prexy - 502 Junction - Mt. Storm - Bedington - Kemptown 500 kV line and Meadow Brook SVC provide an incremental transfer increase above the voltage limited base of up to 3800 MW of additional transfer capacity upon the completion of the entire Project.

As a comparison, supplementary analyses indicate that the Project's system reinforcement performed comparably to the AEP Interstate Project reinforcements when tested under system conditions and outage contingencies in the AP study. If both the AP and the AEP projects are constructed, the total transfer capability would significantly enhance power flows above 5000 MW. With the construction of other transmission system reinforcements within the PJM Region other than those contemplated by this Proposal and the AEP Interstate Project Proposal outside of the AP Zone, greater increases in total transfer capability could be realized.



AP proposes to construct the Project in the following three distinct phases that will be constructed concurrently:

Phase I - Construct 502 Junction to Mt. Storm to Bedington and install SVC at Meadow Brook

Results of the Phase I facility additions provide an incremental transfer above the base of 1300 MW. The transfer limit after Phase I construction will be the thermal rating of the Bedington–Doubs 500 kV Line for the outage of the Mt. Storm-Doubs 500kV Line.

Phase II - Construct Bedington to Kemptown

Results of the Phase II facility additions provide an incremental transfer above the base of 3750 MW. The transfer limit after Phase II construction will be the thermal rating of the Lexington-Dooms 500kV Line for the outage of the Bath County-Valley 500kV Line.

Phase III - Construct Wylie Ridge to Prexy to 502 Junction

Results of the Phase III facility additions provide an incremental transfer above the base of 3800 MW. The transfer limit after Phase III construction will be the thermal rating of the Lexington-Dooms 500kV Line for the outage of the Bath County-Valley 500kV Line.

A detailed discussion of the implementation of these three construction phases is provided in Section VI, Part B.





The results of the analyses performed for this Proposal are summarized in Table 1 below.

System Configuration	Limit Type	FCITC (MW)	Limiting Constraint	Contingency	Incremental Transfer Capability (MW)
Base Case	Voltage	400	Meadow Brook 500kV bus voltage	Black Oak-Bedington 500kV Line	-
Base Case	Thermal Loading	600	Black Oak-Bedington 500kV Line	Pruntytown-Mt. Storm 500kV Line	-
Base Case	Thermal Loading	1450	Mt. Storm - Doubs 500 kV Line	Greenland Gap - Meadow Brook 500 kV Line	
Phase I	Thermal Loading	1700	Bedington-Doubs 500kV Line	Mt. Storm-Doubs 500kV Line	1300
Phase I	Thermal Loading	4100	Lexington-Dooms 500kV Line	Bath Co-Valley 500kV Line	3700
Phase II	Thermal Loading	4150	Lexington-Dooms 500kV Line	Bath Co-Valley 500kV Line	3750
Phase II	Thermal Loading	5200	Pruntytown - Mt. Storm 500 kV Line	502 Station - Mt. Storm 500 kV Line	4800
Phase III	Thermal Loading	4200	Lexington-Dooms 500kV Line	Bath Co-Valley 500kV Line	3800
Phase III	Thermal Loading	5200	Pruntytown - Mt. Storm 500 kV Line	502 Station - Mt. Storm 500 kV Line	4800

**Table 1**  
**Summary of AP Analysis Results**



As part of this study, AP reviewed the impact of the Project on facilities known to be highly congested in the AP Zone. Congested facilities in the AP zone are:

- Black Oak – Bedington 500 kV Line (Voltage)
- Wylie Ridge Substation
- Kammer Substation
- Mt. Storm – Doubs 500 kV Line
- Fort Martin – Pruntytown 500 kV Line
- Black Oak – Bedington 500 kV Line (thermal)
- Doubs Substation

The Black Oak – Bedington 500 kV Line (voltage) as well as Wylie Ridge, Kammer, and Doubs Substations congestion issues have been addressed by the facility additions listed on page 9. Table 2 lists the impact of all three phases of the Project on the remaining congested facilities.

Congestion Area	4-Hour Rating	Line Loading (% 4-Hour Rating)		Contingency
		2010 RTEP	With Trans-Allegheny Interstate Line	
Black Oak - Bedington 500 kV	2744	97.9	70.9	Pruntytown - Mt. Storm 500 kV
Mt. Storm - Doubs 500 kV	2598	94.1	76.1	Mt. Storm - Greenland Gap 500 kV
Mt. Storm - Doubs 500 kV	2598	94.1	76.1	Greenland Gap - Meadow Brook 500 kV
Mt. Storm - Doubs 500 kV	2598	92.0	72.0	Black Oak - Bedington 500 kV
Fort Martin - Pruntytown 500 kV	2434	87.1	67.7	Harrison - Pruntytown 500 kV
Pruntytown - Mt. Storm 500 kV	3326	89.8	67.5	Black Oak - Bedington 500 kV

**Table 2  
AP Congested Facilities**



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## IV. Project Details

The following are technical details associated with construction of the Project:

### A. Line Construction Details

Line construction may use 765 kV construction standards on 200-foot right-of-way.

Phase I:	502 Junction-Mt. Storm-Bedington -160 miles
Phase II:	Bedington-Kempton - 70 miles
Phase III:	Wylie Ridge-Prexy-502 Junction - 100 miles
Total:	330 miles

Line impedance per mile used in the study:

$$R = 0.000008 \quad X = 0.000202 \quad BC = 0.021326$$

(Values in per unit at 500 kV on a 100 MVA base)

Line terminals were chosen to:

- ◆ Maximize west-to-east transfer capability through the AP Zone.
- ◆ Reduce loading on highly congested facilities.
- ◆ Address system stability issues due to generation pockets.

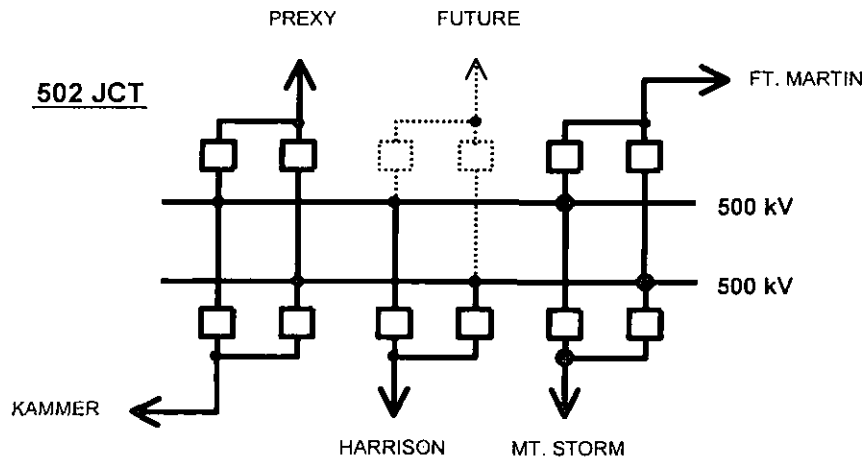
B. Phase I Substation Details

502 Junction Substation (Proposed)

Facilities to be constructed:

- Establish 2-500 kV buses
- Add 10-500 kV breakers
- Add 5-500 kV line terminals

The new substation will be located near 502 Junction. The three terminal Kammer-Ft. Martin-Harrison 500 kV Line will be split into three line sections. The Kammer, Harrison, Ft. Martin, and Mt. Storm line terminals will be added in Phase I and the Prexy line terminal will be added in Phase III.

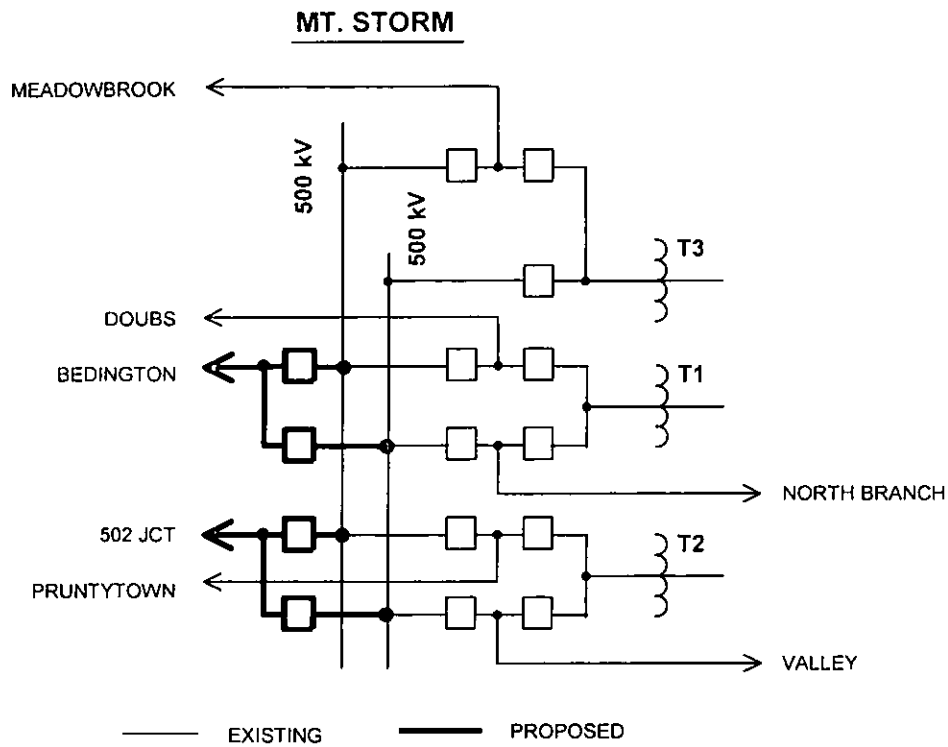


**Figure 2**  
**Proposed Facilities for**  
**502 Junction Substation**

Mt. Storm Substation

Facilities to be constructed :

- Extend 2-500 kV buses
- Add 4-500 kV breakers
- Add 2-500 kV line terminals

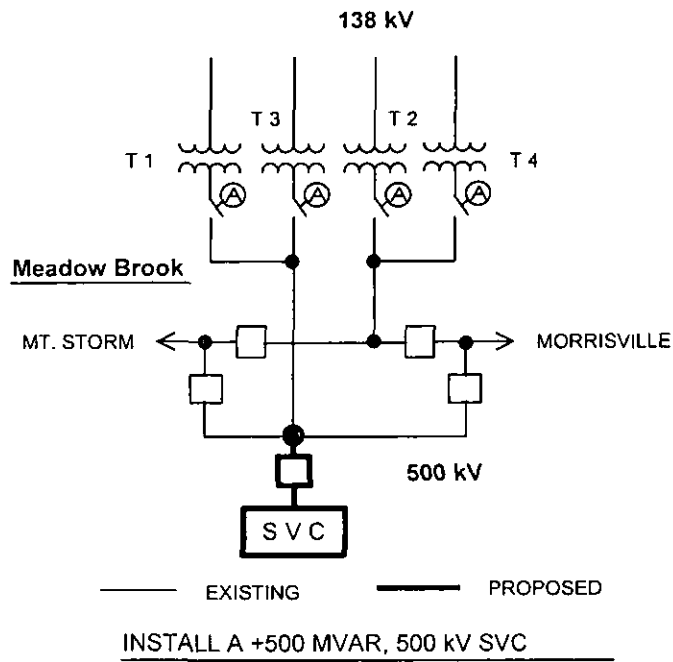


**Figure 3**  
**Proposed Facilities for**  
**Mt Storm Substation**

Meadow Brook Substation

Facilities to be added:

- Add 1-500 kV breaker
- Install an SVC of approximately +500 MVAR



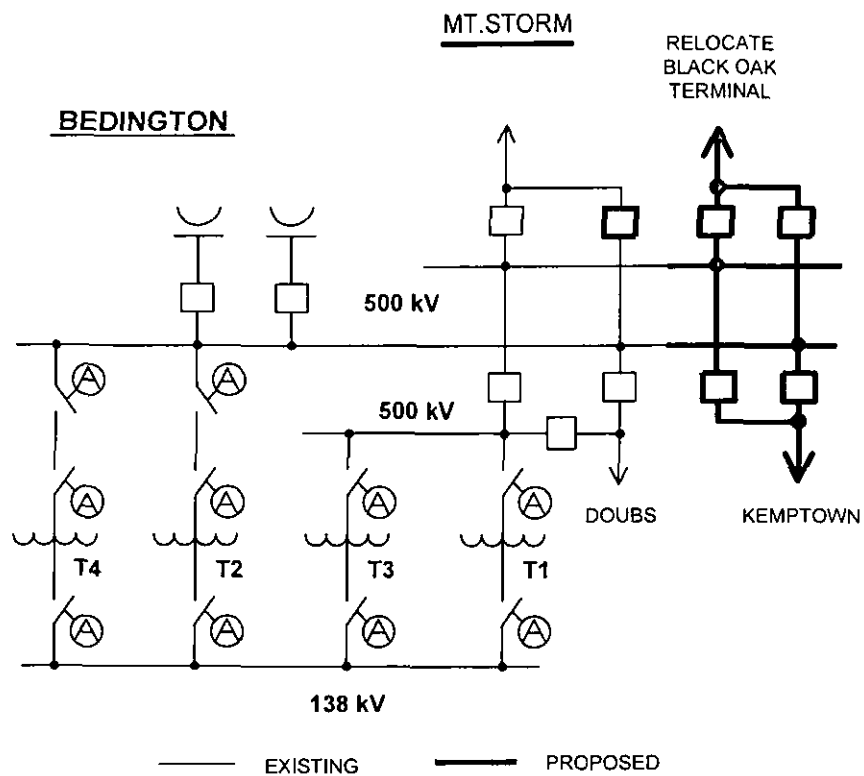
**Figure 4**  
**Proposed Facilities for**  
**Meadow Brook Substation**

Bedington Substation

Facilities to be added:

- Extend 2-500 kV buses
- Add 5-500 kV breakers
- Add 2-500 kV line terminals

The Mt. Storm line terminal will be added in Phase I and the Kempton line terminal will be added in Phase II.



**Figure 5**  
**Proposed Facilities for**  
**Bedington Substation**

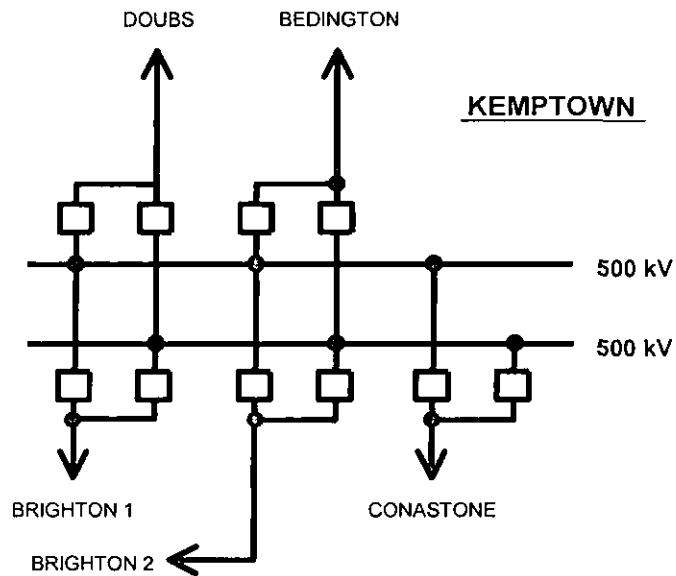
C. Phase II Substation Details

Kempton Substation (Proposed)

Facilities to be added:

- Establish 2-500 kV buses
- Add 10-500 kV breakers
- Add 5-500 kV line terminals

The new substation will be located near Kempton. The Doubs – Brighton and Brighton – Conastone 500kV Lines will be split and routed through Kempton.



**Figure 6**  
**Proposed Facilities for**  
**Kempton Substation**

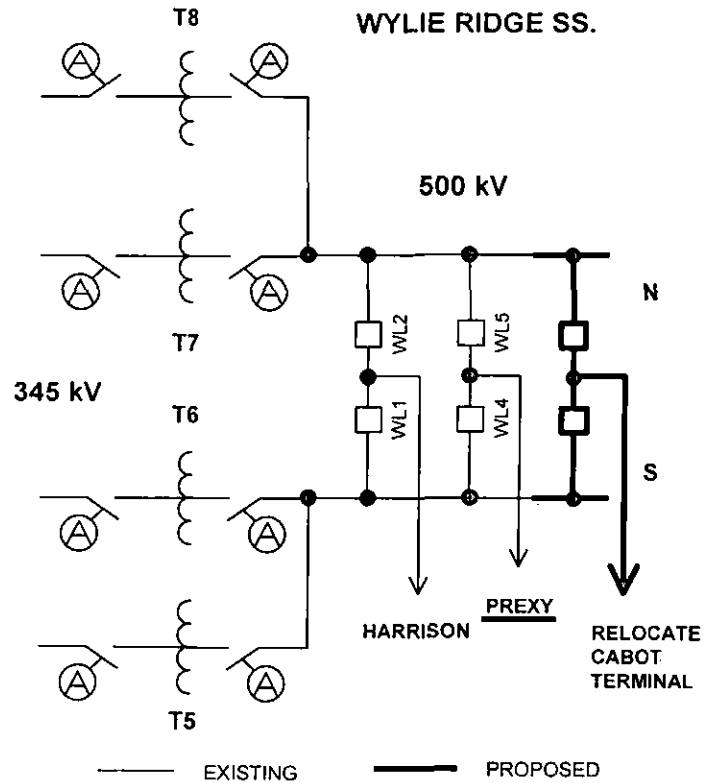


D. Phase III Substation Details

Wylie Ridge Substation

Facilities to be added:

- Extend 2-500 kV buses
- Add 2-500 kV breakers
- Add 1-500 kV line terminals



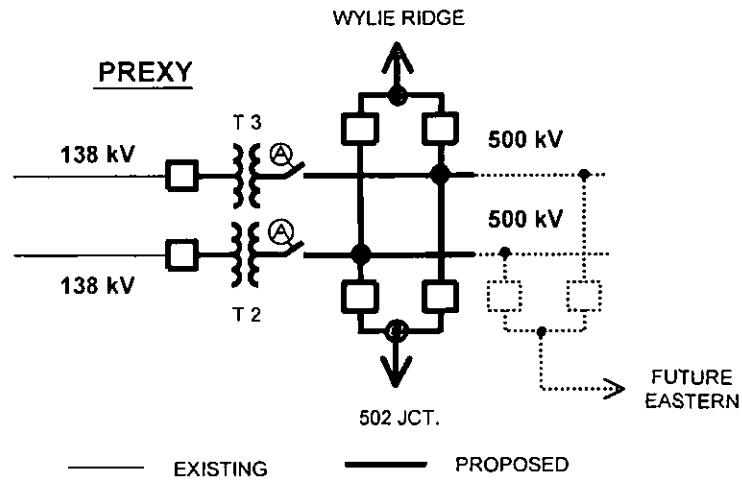
**Figure 7**  
**Proposed Facilities for**  
**Wylie Ridge Substation**

## Prexy Substation

Facilities to be added:

- Establish 2-500 kV buses
- Add 4-500 kV breakers
- Add 2-500 kV line terminals

500/138 kV transformers will be added at Prexy to prevent system overloads and support system voltages in the area.



**Figure 8**  
**Proposed Facilities for**  
**Prexy Substation**



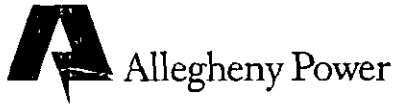
## V. Project Siting

AP must obtain a Certificate of Public Convenience and Necessity from each of the states in which the Trans-Allegheny Interstate Line Project will be constructed. When obtaining the necessary governmental authorizations to site and construct the Project, AP is committed to working with land owners, neighboring residents and business owners, and regulators to balance all interests in an effort to minimize environmental and land use impacts. In addition, while the Energy Policy Act of 2005 provides FERC with “backstop” transmission siting authority, AP believes the Project is capable of receiving state siting authorization without the need to resort to FERC for such authority.

Some of the issues to be considered and evaluated by AP during the route selection process are:

1. Geography
  - ◆ Population and population centers,
  - ◆ Physiography and soils,
  - ◆ Drainage, and
  - ◆ Scenic rivers and waterways.
  
2. Land Use
  - ◆ Agricultural security areas,
  - ◆ Cultural features,
  - ◆ Religious facilities,
  - ◆ Schools,
  - ◆ Archaeological sites,
  - ◆ Historic sites,
  - ◆ Recreational sites,
  - ◆ Hospitals,
  - ◆ Commercial and industrial facilities,
  - ◆ Transportation corridors, and
  - ◆ Airports.
  
3. Threatened and endangered species
  - ◆ Wildlife species, and
  - ◆ Plant species.
  
4. Wetlands

To the extent possible, AP will mitigate the impact of Project siting during the siting and design phases of developing the Project.



## VI. Project Cost and Timeline

The following cost estimates are based on the conceptual outline of the Project since a number of variables and assumptions will continue to be addressed.

### A. Project Costs

#### Phase I

502 Junction – Mt. Storm      160 miles of line construction:  
 – Bedington

Line siting and certification, rights-of-way, material and construction	- line total	\$575,000,000
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502 Junction Substation:	Station equipment, construction	\$ 50,000,000
Mt Storm Substation:	Station equipment, construction	\$ 25,000,000
Meadow Brook Substation:	Station equipment, construction	\$ 30,000,000
Bedington Substation:	Station equipment, construction	\$ 25,000,000

<b>Phase I Total</b>	<b>\$705,000,000</b>
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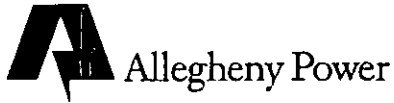
#### Phase II

Bedington – Kempton      70 miles of line construction:

Line Siting and certification, rights-of-way, material and construction	- line total	\$300,000,000
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Bedington Substation:	Station equipment, construction	\$ 25,000,000
Kempton Substation:	Station equipment, construction	\$ 50,000,000

<b>Phase II Total</b>	<b>\$375,000,000</b>
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Phase III

Wylie Ridge – Prexy – 502 Junction	100 miles of line construction:	
Siting and certification, rights-of-way, material and construction	- line total	\$300,000,000
Wylie Ridge Substation:	Station equipment, construction	\$ 10,000,000
Prexy Station:	Station equipment, construction	\$ 10,000,000
	<b>Phase III Total</b>	<b>\$320,000,000</b>

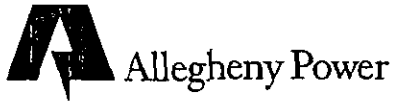
Total Project Costs

Line construction	330 miles	\$1,175,000,000
Substation construction	Modifications to 7 substations	\$225,000,000
	<b>Project Total</b>	<b>\$1,400,000,000</b>

B. Project Timeline

This schedule is preliminary in nature and as further refinements of the Project are made, items may be accelerated or delayed to best meet Project goals. The Project will be constructed in three phases. The phases will be overlapping and not sequential. Each phase is expected to require seven years to complete. The first three years will consist primarily of line siting and certification activities. The fourth year will involve the commencement of detailed engineering and right-of-way acquisition. In the fourth year of each phase, substation and line work will begin, predominantly with final engineering and equipment ordering. Permitting activities will begin in this timeframe as well. The construction of the substation and line facilities will commence and continue during the fifth and sixth years with all facilities for the phase completed in the seventh year.

AP expects that all phases will begin in approximately the same timeframe with each phase being completed independently without the necessity of completing the phases sequentially. Assuming an initial commencement of work in 2007, the following dates are projected for the proposed facilities indicated for each of the phases:



Phase I - 502 Junction-Mt. Storm-Bedington and Meadow Brook SVC

Line construction – 160 Miles: Project start – 2007; project completion - 2013

502 Junction Substation: Project start – 2007; project completion - 2010

Mt. Storm Substation: Project start – 2007; project completion - 2013

Meadow Brook Substation: Project start – 2011; project completion - 2013

Bedington Substation: Project start – 2007; project completion - 2013

Phase II - Bedington – Kemptown

Line construction – 70 Miles: Project start – 2007; project completion - 2013

Bedington Substation: Project start – 2007; project completion - 2013

Kemptown Substation: Project start – 2007; project completion - 2013

Phase III - Wylie Ridge – Prexy – 502 Junction

Line construction – 100 Miles: Project start – 2007; project completion - 2013

Wylie Ridge Substation: Project start – 2012; project completion - 2013

Prexy Substation: Project start – 2007; project completion - 2010



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## VII. Conclusions

The numerous studies conducted by AP since May 2005 indicate that construction of the Project in the AP Zone as described in this Proposal is needed to provide an effective realization of the Project Mountaineer concept. The Trans-Allegheny Interstate Line will increase total west-to-east transfer capability by 3800 MW and will make effective use of existing facilities and rights-of-way. The line can be routed through developing load centers and areas of anticipated generation retirement to allow not only increased system transfers but also provide for local area reinforcement. Full implementation of the Project can be completed over a seven-year period and in-service during 2013.

As a comparison, supplementary analyses indicate that the Project's system reinforcement performed comparably to the recently proposed AEP Interstate Project reinforcements when tested under system conditions and outage contingencies in the AP study. With other system reinforcements within PJM other than the Project and the AEP Interstate Project, greater increases in total transfer capability could be realized.

This Proposal is an effective solution for addressing the long-term reliability issues and economic constraints in the PJM Region. AP requests that PJM include this Project in the RTEP.

## **Attachment B**



# PROPRIETARY INFORMATION

Docket Number A-110172

Name of Document Attachment B

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Date Document Received 3-26-2008

**DOCUMENT CONTAINS**

**PROPRIETARY INFORMATION**