

**BEFORE THE**  
**PENNSYLVANIA PUBLIC UTILITY COMMISSION**

<b>IN RE: APPLICATION OF TRANS-ALLEGHENY</b>	<b>:</b>	
<b>INTERSTATE LINE COMPANY FOR</b>	<b>:</b>	
<b>(I) A CERTIFICATE OF PUBLIC CONVENIENCE</b>	<b>:</b>	
<b>TO OFFER, RENDER, FURNISH AND/OR</b>	<b>:</b>	
<b>SUPPLY TRANSMISSION SERVICE IN THE</b>	<b>:</b>	
<b>COMMONWEALTH OF PENNSYLVANIA;</b>	<b>:</b>	
<b>(II) AUTHORIZATION AND CERTIFICATION</b>	<b>:</b>	
<b>TO LOCATE, CONSTRUCT, OPERATE AND</b>	<b>:</b>	<b>Docket Nos. A-110172</b>
<b>MAINTAIN CERTAIN HIGH VOLTAGE ELECTRIC</b>	<b>:</b>	<b>A-110172F0002</b>
<b>TRANSMISSION LINES AND RELATED ELECTRIC</b>	<b>:</b>	<b>A-110172F0003</b>
<b>SUBSTATION FACILITIES; (III) AUTHORITY</b>	<b>:</b>	<b>A-110172F0004</b>
<b>TO EXERCISE THE POWER OF EMINENT</b>	<b>:</b>	<b>G-00071229</b>
<b>DOMAIN FOR THE CONSTRUCTION AND</b>	<b>:</b>	
<b>INSTALLATION OF AERIAL ELECTRIC</b>	<b>:</b>	
<b>TRANSMISSION FACILITIES ALONG THE</b>	<b>:</b>	
<b>PROPOSED TRANSMISSION LINE ROUTES</b>	<b>:</b>	
<b>IN PENNSYLVANIA; (IV) APPROVAL OF AN</b>	<b>:</b>	
<b>EXEMPTION FROM MUNICIPAL ZONING</b>	<b>:</b>	
<b>REGULATION WITH RESPECT TO THE</b>	<b>:</b>	
<b>CONSTRUCTION OF BUILDINGS; AND</b>	<b>:</b>	
<b>(V) APPROVAL OF CERTAIN RELATED</b>	<b>:</b>	
<b>AFFILIATED INTEREST ARRANGEMENTS</b>	<b>:</b>	

**REBUTTAL TESTIMONY OF STEVEN R. HERLING**

**Re: PJM and Regional Planning Process**

**December 10, 2007**

REBUTTAL TESTIMONY OF STEVEN R. HERLING

1 Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

2 A. My name is Steven R. Herling and my business address is 955 Jefferson Avenue,  
3 Valley Forge Corporate Center, Norristown, 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. 3.

9

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

11 A. This Rebuttal Testimony addresses various assertions, concerning PJM and the  
12 regional transmission planning process, by Office of Trial Staff ("OTS") witness  
13 Gary Yocca in OTS Statement No. 1, Office of Consumer Advocate ("OCA")  
14 witness Peter Lanzalotta in OCA Statement No.1, Energy Conservation Council  
15 ("ECC") witness George Loehr in ECC Statement No. 1, and by certain members  
16 of the public during public input hearings.

17

18 Q. WILL THE USE OF VARIOUS TERMS IN YOUR REBUTTAL TESTIMONY  
19 BE CONSISTENT WITH THE DEFINITIONS ASSIGNED TO THOSE TERMS  
20 IN THE TABLE OF NOMENCLATURE ATTACHED TO TRAILCO

1 WITNESS FLITMAN'S DIRECT TESTIMONY AS TRAILCO EXHIBIT DEF-  
2 1?

3 A. Yes. In addition, I may define other terms in my rebuttal testimony.  
4

5 NERC STANDARDS

6 Q. HAVE YOU ANY COMMENT WITH RESPECT TO TESTMONY THAT THE  
7 NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION ("NERC")  
8 STANDARDS ARE NOT LIKELY TO BE STRICTLY ENFORCED?

9 A. Yes. It is expected, and there has been no communication to the contrary, that all  
10 of the approved standards will be strictly enforced by NERC and the Regional  
11 Reliability Organizations ("RRO"s). A number of NERC Standards were  
12 approved by the Federal Energy Regulatory Commission ("FERC") on March 16,  
13 2007. These included standards TPL-001, TPL-002, TPL-003, and TPL-004,  
14 which define the requirements related to acceptable performance of the power  
15 grid under a range of contingency situations. These standards became mandatory  
16 on June 1, 2007. PJM is certainly not aware of any suggestion that the standards  
17 should be applied only to the most serious violations.

18  
19 Through the on-going NERC standards development process, efforts are  
20 underway to revise standards TPL-001, TPL-002, TPL-003, and TPL-004. A  
21 standards drafting team is preparing revised versions of the standards to be  
22 publicly vetted through the NERC process. These revised standards may  
23 ultimately be proposed to the NERC Board of Trustees and filed at FERC for their

1           respective approvals. However, the existing standards are no less enforceable in  
2           the interim. In fact, it is expected that the revised standards will be even more  
3           detailed and robust than the existing standards. It is my expectation that the  
4           existing standards will be strictly enforced until such time as revised standards are  
5           approved by FERC.

6  
7           In addition, Schedule 6, Sec. 1 of the PJM Operating Agreement defines the  
8           Regional Transmission Expansion Planning Protocol and Sec. 1.2 of the PJM  
9           Operating Agreement requires that the Regional Transmission Expansion Plan  
10          conform to the standards of NERC and the Regional Reliability Councils, more  
11          stringent reliability criteria, if any, and PJM operating criteria and procedures.  
12          The procedures used to implement the planning process are fully documented in  
13          the PJM Manuals. All PJM members are signatories to the PJM Operating  
14          Agreement.

15  
16          NERC CATEGORY C3 CRITERIA

17          Q.     HAVE YOU ANY COMMENT WITH RESPECT TO TESTIMONY THAT  
18                 MANUAL ADJUSTMENTS WERE IGNORED IN ANALYZING NERC  
19                 CRITERIA?

20          A.     Yes. The NERC Category C3 criteria requires that transmission system elements  
21                 remain within applicable thermal limits, that system voltages remain within  
22                 applicable limits and that the system remain stable following a fault on the  
23                 transmission system with normal clearing followed by manual system adjustments

1 and then a subsequent fault with normal clearing. A fault with normal clearing  
2 can remove from service one or more transmission facilities and/or generation  
3 facilities, depending on the system configuration. Such a fault is considered a  
4 single contingency even if it results in the loss of multiple facilities. The  
5 reference in the standard to manual system adjustments recognizes that, following  
6 a fault, operators will adjust the system to prepare for the possibility of a further  
7 contingency. This could involve redispatch of generation facilities and, in some  
8 cases, adjustments to the configuration of the transmission system. The Category  
9 C3 criteria then requires that a second contingency be simulated. As with the first  
10 contingency, the second contingency removes from service one or more  
11 transmission elements and/or generation facilities, depending on the system  
12 configuration. PJM's analysis of category C3 events provides for the  
13 optimization of generation re-dispatch following the first contingency event in an  
14 effort to avoid a criteria violation following the second contingency event.

15  
16 These events are often referred to as "n-2" contingencies. This is perhaps a  
17 misnomer, and such events could also correctly be referred to as "n-1-1" events.  
18 The criteria are not related to the evaluation of simultaneous, unrelated double  
19 contingencies. Such events would represent the loss of two facilities as a result of  
20 separate system faults or failures and are not covered by NERC Category C3.  
21 The criteria requiring the evaluation of "n-1-1" events are not overly conservative.  
22 They are a part of the FERC approved standards, and the system must be  
23 demonstrated to be compliant with these criteria.

1 NERC Category C3 does allow for planned-for or controlled loss of load. This is  
2 in recognition of the lower probability of such events as well as the fact that at  
3 some system voltages load buses may only be served by two transmission  
4 facilities. In such cases, the loss, sequentially, of the two facilities would result in  
5 the connected load being lost. This is often referred to as consequential loss of  
6 load. The NERC standards do not identify any bounds with respect to planned-for  
7 or controlled loss of load, only that such loss cannot result in cascading outages.  
8 Clearly, judgment must be applied with respect to the magnitude of load that  
9 might be lost, consequentially, and the potential frequency of such events. If the  
10 loss of load is great, good utility practice would suggest that system reinforcement  
11 would be the preferred course of action. Similarly, where a number of  
12 combinations of first and second contingencies result in loss of load in one area it  
13 is likely that system reinforcement would be appropriate.

14  
15 DELIVERABILITY TESTS RE PENNSYLVANIA 502 JUNCTION FACILITIES

16 Q. HAVE YOU REVIEWED OPPOSING TESTIMONY FROM MR.  
17 LANZALOTTA AND MR. LOEHR CRITICIZING THE DELIVERABILITY  
18 TESTS RELATED TO THESE FACILITIES?

19 A. Yes, I have.

20  
21 Q. ARE YOU ALSO FAMILIAR WITH OPPOSING TESTIMONY SUGGESTING  
22 THAT PJM HAS IGNORED GENERATION RELATED OR OTHER  
23 ALTERNATIVES TO THE TRAIL PROJECT?

1 A. Yes, I am.

2

3 Q. HAVE YOU ANY COMMENTS IN REBUTTAL TO THESE ASSERTIONS?

4 A. Yes. The concept of deliverability is twofold. Load deliverability tests to assure  
5 that a pocket of load experiencing a resource capacity shortage can rely on the  
6 capability of the transmission system to deliver energy from resources available  
7 from the aggregate generation within the remainder of the PJM system as well as  
8 from resources available outside of the PJM system. Generator deliverability  
9 ensures that clusters of capacity resources within PJM have sufficient  
10 transmission capability to be delivered to the aggregate of PJM load during  
11 circumstances where the capacity of that cluster of resources is needed due to  
12 higher than normal unavailability of resources elsewhere in PJM. The generator  
13 deliverability test insures that deliverable capacity resources are not bottled when  
14 needed.

15

16 Both tests evaluate the ability of the transmission system to deliver energy from  
17 the aggregate of generation in one area to the aggregate of load in another. There  
18 is no requirement in the PJM planning process that every generator be deliverable  
19 to every point on the PJM system. This is a gross exaggeration of the result of  
20 applying the deliverability construct.

21

22 Further, the load deliverability criteria are designed to provide a needed linkage  
23 between the resource adequacy planning process and the transmission planning

1 process. Load deliverability analyses over the fifteen year planning horizon send  
2 signals to the market as to where generation and demand response resources will  
3 be required, in the future, to resolve developing reliability concerns. Load  
4 deliverability also serves as the basis for price separation in RPM auctions, which  
5 provide incentives for the development of generation and demand response  
6 resources in constrained areas of the system. By providing signals to the market  
7 over the fifteen year planning horizon, developers can anticipate areas where  
8 capacity prices will be higher and their resources more valuable. The  
9 transmission planning process considers the impact of such projects when  
10 evaluating the on-going compliance of the system with reliability criteria. To the  
11 extent that sufficient resources are developed to mitigate future reliability criteria  
12 violations, further transmission system upgrades become unnecessary. To the  
13 extent that the signals provided through the RTEP and through RPM auctions are  
14 ignored and reliability criteria violations develop in the future, then the RTEP  
15 process must identify the transmission system upgrades required for the system to  
16 remain compliant with those criteria.

17  
18 TrAIL is needed in 2011 to resolve a number of reliability criteria violations.  
19 These violations were identified in the 2006 RTEP analysis and were the basis of  
20 the recommendation to include the line in the RTEP and the basis of the Board's  
21 approval of the line. Neither economic benefits to customers or generation  
22 owners nor the existence of a regulated rate of return associated with the  
23 construction of the line were a part of the justification for the line. Further, the

1           2007 RTEP analysis has shown the reliability criteria violations to be more severe  
2           than originally identified in the 2006 RTEP. The scope of the violations  
3           identified in the 2007 RTEP show the 502 Junction – Loudoun line and an Amos  
4           – Kemptown line to both be required. The Amos – Kemptown line is required in  
5           2012 and the 502 Junction – Loudoun line continues to be required in 2011.  
6           Neither line obviates the need for the other; they are both required.

7  
8           From my review of the RTEP and the filings by TrAIL, it is my view that TrAIL  
9           offers a reasonable long term solution to anticipated reliability shortfalls that will  
10          occur in the near future absent such a solution. Having reviewed the testimony  
11          from parties opposing the project, I have seen nothing that offers a comparable  
12          solution. It is perhaps easy to suggest short term band-aid approaches to cure  
13          isolated pockets of degrading reliability circumstances, but such short term  
14          projects will not cure the long term problems giving rise to the need for the  
15          transmission capability offered by TrAIL and would result in an on-going need  
16          for additional such projects on a year to year basis. In my opinion TrAIL offers  
17          the best solution to the transmission reliability concerns that Allegheny and PJM  
18          will face in the near future.

1 INTER-REGIONAL STUDIES

2 Q. HAVE YOU ANY COMMENT CONCERNING ASSERTIONS THAT  
3 INADEQUATE INTER-REGIONAL STUDIES HAVE BEEN CONDUCTED  
4 WITH RESPECT TO THE TRAIL PROJECT?

5 A. Yes. In 2006, PJM and MISO performed coordinated planning analysis, as  
6 required by the Joint Operating Agreement filed with FERC. That analysis was to  
7 merge the transmission plans of the two organizations and identify any reliability  
8 concerns that might arise associated with the deliverability of resources within the  
9 two systems. This analysis was for the 2011 summer period and did include all  
10 PJM transmission upgrades identified as required for that time period, including  
11 the 502 Junction – Prexy and 502 Junction – Mt. Storm – Meadow Brook –  
12 Loudoun 500 kV circuits. No issues were identified related to the addition of  
13 these circuits to the PJM system.

14

15 OTHER PUBLIC INPUT CONCERNS

16 Q. WOULD YOU RESPOND TO OPPONENTS' CRITICISMS OF PJM'S RTEP  
17 PROCESS?

18 A. Yes. The PJM Regional Transmission Expansion Planning Protocol as codified in  
19 Schedule 6 of the PJM Operating Agreement is an open and transparent process  
20 designed to facilitate coordination and cooperation with all interested PJM  
21 stakeholders. The RTEP process allows opportunity for direct participation and  
22 exchange of information through two primary committees – the Transmission  
23 Expansion Advisory Committee (“TEAC”) and the Planning Committee. These

1 Committees regularly meet and are open to all PJM stakeholders. The primary  
2 function of the TEAC is to provide advice and recommendations to aid in the  
3 development of the RTEP. The primary purpose of the Planning Committee is to  
4 provide data, information and support necessary for PJM to perform studies as  
5 required and to develop the RTEP and, as part of the broader PJM committee  
6 structure, to support the development of changes to the planning process, which  
7 may include amendments to the PJM Agreements and revisions to the PJM  
8 Manuals.

9  
10 PJM Transmission Customers (as that term is defined in the PJM Tariff), and  
11 applicants for transmission service; any other entity proposing to provide  
12 Transmission Facilities to be integrated into the PJM Region, all PJM members;  
13 the agencies and offices of consumer advocates of the States in the PJM Region  
14 exercising regulatory authority over the rates, terms or conditions of electric  
15 service or the planning, siting, construction or operation of electric facilities and  
16 any other interested entities or persons, can participate in the development of the  
17 RTEP through the TEAC, as stated in 1.3(b) of the PJM Operating Agreement.  
18 The existence and role of the TEAC is also described in the PJM Operating  
19 Agreement.

20  
21 Through the TEAC, PJM invites written comments and opinions from its  
22 stakeholders, regarding the RTEP and RTEP process. These comments are shared  
23 with the PJM Board of Managers as well as posted on the PJM website. This

1 exchange of information is designed to support the open and cooperative forum  
2 for PJM's planning processes. Notably, PJM represents a diverse group of  
3 stakeholders with diverse financial interests and as such these stakeholders also  
4 represent a wide range of opinions on how planning should be conducted and how  
5 ultimately planning decisions should be made. As in any open forum, all the  
6 input of the participants and stakeholders is afforded review and consideration.  
7 Attached to Sierra Club's public input testimony were excerpts of comments  
8 offered by certain generation owners during the review of the certain transmission  
9 upgrades proposed, in 2007, to be included in the RTEP. These particular  
10 comments reflect the nature of the on-going debate within PJM and the broader  
11 industry regarding how planning should be performed and, more specifically, the  
12 balance of financial interests impacted by the results of the planning process.  
13 These comments represent but one among many types of interests that must be  
14 balanced as part of the RTEP process.

15  
16 Ultimately, PJM manages a dynamic and diverse planning process. The PJM  
17 RTEP process is designed to efficiently and effectively plan the transmission grid  
18 for reliability and to meet all the transmission needs for a reliable, economic and  
19 environmentally sound transmission system. In the course of this process, PJM  
20 shares information regarding the data and input used in the analyses as well as the  
21 processes relied upon in the course of the analyses. PJM's planning processes and  
22 methodologies are discussed in more detail in the PJM Manuals as well as in the

1 PJM OA. Importantly, we should consider the comments and observations of  
2 individual stakeholders within the whole context of the RTEP process.

3

4 Q. SOME MEMBERS OF THE PUBLIC EXPRESSED CONCERNS ABOUT THE  
5 TRAIL PROJECT BEING EXPOSED TO TERRORIST ACTIVITY. ONE  
6 PERSON SUGGESTED A SPECIAL HOMELAND SECURITY STUDY  
7 SHOULD BE PERFORMED. DO YOU HAVE ANY COMMENTS WITH  
8 RESPECT TO SUCH CONCERNS?

9 A. Yes. PJM takes very seriously its role as an RTO to help address homeland  
10 security issues and concerns. PJM works in total cooperation with the Federal  
11 agency in charge of homeland security to help ensure the ongoing safety and  
12 integrity of the regional transmission grid from an homeland security perspective.  
13 For example, PJM has participated in and sponsored training sessions with the  
14 United States Department of Homeland Security (“USDHS”). Also, PJM acts in  
15 an advisory capacity to the USDHS regarding designation of Critical  
16 Infrastructure and protections that may be needed, and PJM assisted in the  
17 “CyberStorm” internet exercise sponsored in 2005 by the DHS.

18

19 PJM is also a member of the Critical Infrastructure Protection Committee  
20 (“CIPC”) formed within NERC. The CIPC was developed to coordinate NERC's  
21 security initiatives. The group is comprised of industry experts in the areas of  
22 cyber security, physical security, and operational security. The CIPC Executive  
23 Committee, along with the President and CEO of NERC, serve as the Electricity

1 Sector Coordinating Council to collaborate with the U.S. Department of Energy  
2 and USDHS on critical infrastructure and security matters.

3  
4 There is no basis to perform an additional security study. In fact, projects such as  
5 TrAIL, which address both the regional grid and local transmission facilities, are  
6 among the measures that help strengthen the area's transmission system.

7  
8 Q. SOME MEMBERS OF THE PUBLIC EXPRESSED CONCERNS THAT  
9 TRAIL WILL ENCOURAGE ADDITIONAL OPERATION OF COAL FIRED  
10 GENERATION FACILITIES THAT HAVE BEEN THE SUBJECT OF  
11 ONGOING AIR POLLUTION MONITORING WITHIN THE SURROUNDING  
12 AREA. FROM PJM'S PERSPECTIVE, WAS TRAIL REVIEWED AND  
13 APPROVED ON THE BASIS OF ANY ENHANCED CAPABILITY TO SELL  
14 COAL-FIRED GENERATION?

15 A. No. PJM's RTEP process is driven by eliminating reliability concerns, not to  
16 enhance any particular generation resources.

17  
18 Furthermore, it is not accurate to single out coal fired generation as the sole  
19 beneficiary of grid improvements. I have reviewed the active queued generation  
20 projects proposed since the approval of TrAIL by the PJM Board. There are  
21 approximately 7,700 MW of coal projects active in the queue, approximately  
22 19,200 MW of natural gas projects and 25,600 MW of wind projects proposed in  
23 PJM since July 2006.

1

2

There are many factors that impact the decisions of developers as to what fuel

3

type generation to build. Transmission is only one factor. The RTEP process

4

cannot dictate the types of resources to be built or the location of resources.

5

These are decided by developers in the market based on a wide range of factors.

6

Transmission facilities identified as needed to satisfy baseline reliability criteria

7

violations are not developed to deliver individual resources or certain types of

8

resources. They are identified to restore the ability of the transmission system to

9

deliver the aggregate of all resources in accordance with criteria.

10

11

Finally, I would note that the operation of coal fired generation resources is the

12

subject of extensive regulation by Federal and State environmental agencies.

13

Those agencies will determine the permissible parameters for future operation of

14

coal fired generation facilities, separate and apart from any regional grid

15

improvements.

16

17

Q. DOES THIS CONCLUDE YOUR REBUTTAL TESTIMONY?

18

A. Yes. However, I reserve the right to file such additional testimony as may be

19

necessary or appropriate, and to supplement my rebuttal after reviewing responses

20

to discovery propounded on other parties.