

COMMONWEALTH OF VIRGINIA
BEFORE THE
STATE CORPORATION COMMISSION

APPLICATION OF)
)
TRANS-ALLEGHENY INTERSTATE LINE)
COMPANY)
)
For approval and certification of electric)
transmission facilities under Va. Code)
§ 56-46.1 and the Utility Facilities Act,)
Va. Code § 56-265.1 *et seq.*)

Case No. PUE-2007-000 _____

APPLICATION OF
TRANS-ALLEGHENY INTERSTATE LINE COMPANY
FOR APPROVAL AND CERTIFICATION OF ELECTRIC FACILITIES FOR
THE
CONSTRUCTION OF 500 kV TRANSMISSION LINE

DIRECT TESTIMONY OF
STEVEN R. HERLING

April 19, 2007

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 19403-2497.

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

5 A. I am Vice President of Planning for PJM Interconnection, L.L.C. (“PJM”). As
6 PJM’s Vice President of Planning, I am responsible for the Capacity Adequacy
7 Planning Department, which develops the long-term load forecast for the PJM
8 region and, in consultation with load-serving entities, sets and enforces
9 requirements for the sufficiency, adequacy, and availability of the generation
10 resources needed to ensure reliable service to loads; the Interconnection Planning
11 Department, which evaluates interconnections to the transmission system by new
12 generation and merchant transmission projects; and the Transmission Planning
13 Department, which evaluates the reliability and market efficiency of the
14 transmission grid and develops the regional transmission expansion plan (“RTEP”).

15 Q. PLEASE DESCRIBE YOUR PROFESSIONAL EXPERIENCE AND
16 EDUCATIONAL BACKGROUND.

17 A. I have been employed by PJM since May 1990, when I began work as an Engineer
18 in the Operations Planning Department. I was promoted to Senior Engineer in 1993
19 and to Manager of the System Planning Department in 1994. I then held a number
20 of management positions until I was promoted to Executive Director, System
21 Planning Division in 2003. I was promoted to my current position in May 2004.

1 While at PJM, I have contributed to or led initiatives that resulted in a wide
2 range of milestone achievements in its evolution and growth as a regional
3 transmission organization (“RTO”), including the creation of the RTEP process, the
4 development of procedures and standard terms and conditions for generator and
5 merchant transmission interconnections, and the reliability and adequacy aspects of
6 successive integrations of additional control areas that have more than doubled the
7 size of the PJM market area in the last five years.

8 In addition to my work for PJM, I have contributed to a wide range of
9 activities of the North American Electric Reliability Corporation (“NERC”),
10 formerly the North American Electric Reliability Council. Currently, I serve as
11 vice-chair of the NERC Planning Committee. I have also served on various regional
12 and industry working groups and committees addressing reliability and planning
13 matters. I have testified on a number of occasions on system planning and
14 reliability issues in proceedings before the Federal Energy Regulatory Commission
15 (“FERC”), state commissions, and legislative task forces.

16 Prior to joining PJM, I worked for the General Public Utilities Service
17 Corporation for three years in systems operations, where I was responsible for
18 dispatcher training and certification, operations planning activities, and energy
19 management system and operational support tools. Prior to that, I worked for the
20 American Electric Power Service Corporation (“AEP”) for eight years in bulk
21 transmission planning. In that position, I performed a range of power system

1 analyses related to mechanical behavior of turbine-generator shaft systems, the AEP
2 765 kV transmission system, and generator and circuit breaker dynamic modeling.

3 I am a licensed Professional Engineer in the state of Ohio. I hold a
4 Bachelor of Science in Electrical Power Engineering and a Master of Engineering in
5 Electric Power Engineering, both from Rensselaer Polytechnic Institute.

6

7

PURPOSE OF TESTIMONY

8 Q. PLEASE DESCRIBE THE PURPOSE OF YOUR TESTIMONY.

9 A. I have been asked by Trans-Allegheny Interstate Line Company (“TrAILCo”) to
10 describe PJM and its regional transmission expansion planning process (“RTEPP”).
11 In particular, I will discuss the Virginia Segments of the Trans-Allegheny Interstate
12 Line (“TrAIL”) in the context of the PJM RTEPP.

13 Q. WILL THE USE OF VARIOUS TERMS IN YOUR TESTIMONY BE
14 CONSISTENT WITH THE DEFINITIONS ASSIGNED TO THOSE
15 TERMS IN THE TABLE OF NOMENCLATURE ATTACHED TO THE
16 APPLICATION AS EXHIBIT 2?

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

18

19

PJM

20 Q. PLEASE DESCRIBE PJM.

21 A. PJM is an RTO that ensures the reliability of the electric transmission system
22 under its functional control and coordinates the movement of wholesale electricity

1 in all or parts of Delaware, Illinois, Indiana, Kentucky, Maryland, Michigan, New
2 Jersey, North Carolina, Ohio, Pennsylvania, Tennessee, Virginia, West Virginia
3 and the District of Columbia.

4 The PJM system serves approximately 51 million people. PJM dispatches
5 more than 164,000 megawatts (“MW”) of generation capacity over more than
6 56,000 miles of transmission lines – a system that serves nearly 20 percent of the
7 United States economy. PJM’s wholesale electricity markets had more than \$22
8 billion in billings in 2005.

9 PJM presently has more than 450 members. These members/customers
10 include power generators, Transmission Owners, electricity distributors, power
11 marketers and large consumers. PJM’s role as a federally regulated RTO means
12 that it acts independently and impartially in operating and planning the regional
13 transmission system and in overseeing the wholesale electricity market.

14 As part of its ongoing responsibilities as an RTO, PJM prepares the RTEP
15 each year in order to analyze the electric supply needs of the customers in the PJM
16 region. The RTEP directs transmission upgrades to address near-term needs
17 within five years and assesses long-lead-time transmission options requiring a
18 planning horizon of 15 years or more. The RTEP provides forward-looking
19 information as to the state of the supply and delivery infrastructure and identifies
20 future system needs, both in terms of reliability and market efficiency. The RTEP
21 will direct PJM’s transmission owning members to address such needs through
22 specific transmission solutions. However, the information publicly disseminated

1 through the RTEP permits other resource providers, including generators, demand
2 response providers and merchant Transmission Owners, the opportunity to address
3 identified system needs in a manner that might delay or even obviate the
4 transmission solution first identified in the RTEP.

5 Q. IS ALLEGHENY POWER A PJM MEMBER?

6 A. Yes. Each of the three Allegheny Power operating companies is a member of PJM
7 and is considered a “Transmission Owner” under the Amended and Restated
8 Operating Agreement of PJM Interconnection, L.L.C. (“Operating Agreement”).

9 Q. IS TRAILCO A PJM MEMBER?

10 A. Yes. TrAILCo became a PJM member effective on March 28, 2007 and is
11 considered a Transmission Owner under the Operating Agreement.

12 Q. IS VIRGINIA ELECTRIC AND POWER COMPANY A PJM MEMBER?

13 A. Yes, Virginia Electric and Power Company (“Dominion Virginia Power”) is a
14 Transmission Owner member of PJM under the Operating Agreement.

15 Q. HOW IS THE TERM “TRANSMISSION OWNER” DEFINED BY THE
16 OPERATING AGREEMENT?

17 A. “Transmission Owner” means a PJM member that owns Transmission Facilities or
18 leases Transmission Facilities with rights equivalent to ownership. “Transmission
19 Facilities” means facilities that (i) are within the PJM region, (ii) meet the
20 definition of transmission facilities pursuant to FERC’s Uniform System of
21 Accounts or have been classified as transmission facilities in a ruling by FERC
22 addressing such facilities, and (iii) have been demonstrated to the satisfaction of

1 PJM to be integrated with the PJM transmission system and integrated into the
2 planning and operation of the PJM transmission system to serve all of the power
3 and transmission customers within the PJM region.

4

5 PJM TRANSMISSION PLANNING PROCESS

6 Q. DOES PJM HAVE A WRITTEN PROTOCOL FOR TRANSMISSION
7 PLANNING PROCESS?

8 A. Yes. The process is set out in Schedule 6, entitled “Regional Transmission
9 Expansion Planning Protocol” (“RTEPP”) of the Operating Agreement. The
10 purpose and objective of Schedule 6 is stated as:

11 This Regional Transmission Expansion Planning Protocol shall
12 govern the process by which the Members shall rely upon the
13 Office of the Interconnection to prepare a plan for the enhancement
14 and expansion of the Transmission Facilities in order to meet the
15 demands for firm transmission service, and to support competition,
16 in the PJM Region. The Regional Transmission Expansion Plan to
17 be developed shall enable the transmission needs in the PJM Region
18 to be met on a reliable, economic and environmentally acceptable
19 basis.

20

21 Q. WHAT IS PJM’S PLANNING PROCESS?

22 A. A transmission owner’s integration into PJM has the potential to enhance
23 reliability and economic benefits, as a result of inclusion in a larger, stronger and
24 more diversified portfolio of aggregated resources. In order to realize this mutual
25 benefit for its members, PJM’s plans the integrated system from a regional
26 perspective in collaboration with each individual transmission owner. PJM’s
27 authority and obligation to perform this function is established in its Tariff and

1 related agreements whereby certain planning functions that historically had been
2 managed by individual transmission owners have been contractually assigned to
3 PJM. This collaborative planning process - the RTEPP - provides an open and
4 inclusive forum for participation by all classes of market participants and
5 stakeholders.

6 PJM's RTEPP identifies transmission system upgrades and enhancements
7 to preserve the reliability of the transmission system. PJM's federally approved,
8 region-wide planning process provides an open, non-discriminatory framework to
9 identify the system enhancements that will ensure reliability and access by load to
10 efficient power supply.

11 The RTEPP integrates transmission, generation and demand-side resources
12 to address transmission system constraints involving reliability and persistent
13 congestion. The result is one process that integrates many system factors,
14 including:

- 15 • Forecasted load growth, demand-side-response efforts and distributed
16 generation additions;
- 17
- 18 • Interconnection requests by developers of new generating resources and
19 merchant transmission facilities;
- 20
- 21 • Solutions to mitigate persistent congestion and forward-looking economic
22 constraints and to ensure adequate allocation and funding of long-term
23 financial transmission rights;
- 24
- 25 • Assessments of the potential risk of aging infrastructure;
- 26
- 27 • Long-term firm transmission service requests;
- 28
- 29 • Generation retirements and other deactivations;
- 30

- 1 • Transmission Owner-initiated improvements; and
- 2
- 3 • Load-serving entity capacity plans.
- 4

5 Q. WHAT IS A “LOAD-SERVING ENTITY”?

6 A. Under the Operating Agreement, a load-serving entity means an entity that serves
7 end-users (or ultimate consumers of electricity) within the PJM region and that has
8 been granted authority or has an obligation pursuant to state or local law, regulation
9 or franchise to sell electric energy to end-users located within the PJM region. The
10 term includes load aggregators, power marketers and duly designated agents of
11 load-serving entities.

12 Q. ARE THE TRANSMISSION OWNERS ACTIVELY INVOLVED IN THE PJM
13 RTEPP WITH THE SELECTION OF THE EXPANSION PLANS?

14 A. Yes. The Transmission Owners’ involvement is essential to make the process
15 work. The participation of the Transmission Owners’ planning groups is extremely
16 important in the development of the regional transmission plan. The Transmission
17 Owners have first hand knowledge of their systems and have developed
18 relationships with load serving entities within their area of PJM. When PJM
19 determines there are reliability violations, the Transmission Owners are consulted
20 to validate the violation and to suggest recommended upgrades to relieve them.
21 Additionally, each Transmission Owner performs its own independent analysis to
22 identify reliability violations from a more local zone perspective. This approach
23 leads to a more comprehensive package of upgrades that incorporates resolutions to
24 both local and regional reliability violations.

1 Q. WHAT IS THE MAGNITUDE OF TRANSMISSION UPGRADES
2 AUTHORIZED BY PJM?

3 A. More than \$4.2 billion of transmission upgrades and additions have been
4 authorized by the PJM Board of Managers (“PJM Board”) from the inception of
5 the RTEPP in 1999 through December 2006. About \$3.5 billion of baseline
6 transmission network upgrades across PJM ensure that established reliability
7 criteria will continue to be met. At the same time, \$673 million of additional
8 transmission upgrades will add more than 24,000 MW of new generating resources
9 and merchant transmission projects.

10 Q. DESCRIBE WHAT YOU MEAN BY “BASELINE TRANSMISSION
11 NETWORK UPGRADES.”

12 A. PJM’s baseline reliability assessments identify areas where the electric power
13 system, as forecasted over a specific time, is not in compliance with reliability
14 standards developed by NERC, PJM reliability standards and standards required
15 by the Nuclear Regulatory Commission applicable to nuclear plant licensees.
16 Baseline assessment analyses lead to recommendations for enhancement plans to
17 ensure compliance with each set of standards.

18 Q. PLEASE EXPLAIN THE ROLE OF FERC AND NERC IN ADDRESSING
19 TRANSMISSION RELIABILITY.

20 A. Historically, compliance with reliability standards developed by NERC was
21 considered voluntary. Because those standards set an industry standard for good
22 utility practice, compliance was generally universal by Transmission Owners and

1 generation owners. However, the Energy Policy Act of 2005 (“EPAct 2005”)
2 created a mandatory compliance and enforcement regime for reliability standards
3 under the oversight of FERC. Pursuant to EPAct 2005, FERC has designated
4 NERC as the “Electric Reliability Organization” for the United States and NERC
5 has proposed various reliability standards, most of which have been adopted by
6 FERC for enforcement as FERC rules, with mandatory compliance set to begin on
7 June 1, 2007. PJM has been applying the NERC reliability standards, and the PJM
8 deliverability standards used to apply them, on a mandatory basis since the
9 initiation of the RTEP process.

10 Q. ARE ANY OF THESE RELIABILITY STANDARDS ENFORCEABLE
11 THROUGH THE IMPOSITION OF MONETARY PENALTIES FOR NON-
12 COMPLIANCE?

13 A. Yes. When compliance becomes mandatory, penalties for violation of the
14 reliability standards developed by NERC and approved by FERC may be as high
15 as \$1 million per violation per day.

16 Q. WHAT RELIABILITY CRITERIA DOES PJM EVALUATE IN THE
17 DEVELOPMENT OF THE RTEP?

18 A. PJM tests a wide range of reliability criteria in the development of the RTEP. All
19 reliability criteria testing procedures employed in the development of the RTEP
20 include detailed assumptions regarding load levels, transfer levels and generation
21 patterns. The tests are referred to as “bright line” tests because there can be no
22 doubt as to whether the criteria are satisfied or violated. The specific assumptions

1 and requirements associated with each criterion are documented and the analysis
2 procedures are posted on the PJM website.

3 PJM tests for compliance with all reliability criteria imposed through the
4 NERC Planning Standards. NERC Category A criteria require that, for all facilities
5 in service, equipment thermal ratings and system voltage limits are respected and
6 that the system is stable. NERC Category B criteria impose similar requirements
7 with one facility removed from service. This is referred to as the “n minus 1” or
8 “n-1” criteria. These criteria ensure that the system continues to remain reliable
9 upon the instantaneous outage of a transmission element. PJM ensures compliance
10 with NERC Category A and B through the more rigorous deliverability criteria
11 used in testing the PJM system.

12 PJM tests for both load deliverability and generator deliverability. The load
13 deliverability test evaluates the capability of the transmission system to deliver
14 energy from the remainder of the PJM region to a portion of the PJM region
15 experiencing higher than normal unavailability of generating capacity. The
16 generator deliverability test evaluates the capability of the transmission system to
17 deliver energy from a grouping of generators experiencing higher than normal
18 availability to the remainder of the PJM region experiencing lower than normal
19 generator availability. The deliverability tests establish a link between generation
20 resource adequacy for the region and the transmission adequacy necessary to
21 deliver the generation resources to loads.

1 NERC Category C criteria require the system to be stable and equipment
2 thermal ratings and system voltage limits to be respected for less probable system
3 events. Such events include second contingencies, involving the loss of one system
4 element followed by system readjustments and then the loss of a second system
5 element. This is referred to as the “n minus 2” or “n-2” criteria. Category C also
6 includes events such as the loss of two circuits on a single tower line or for a single
7 faulted system element followed by a circuit breaker failing to operate, what is
8 referred to as a stuck breaker. While generation re-dispatch is allowed after the
9 first element in an n-2 event, PJM does not dispatch generation in anticipation of
10 loss of tower line events or stuck breaker events and the test of compliance with
11 these criteria therefore, does not allow generation patterns to be adjusted.

12 In addition, PJM tests for compliance with all locally established reliability
13 criteria (i.e., Transmission Owner reliability criteria). Such criteria may, for
14 example, require a higher degree of reliability through more stringent standards in
15 urban areas. In all cases, such local criteria are documented and posted on the PJM
16 website.

17 Q. PLEASE EXPLAIN THE SIGNIFICANCE OF PJM’S FIVE-YEAR BASELINE
18 RTEP ANALYSIS.

19 A. PJM performs a five-year baseline analysis to assess compliance with reliability
20 criteria and recommend transmission upgrades to meet near-term demand growth
21 for customers’ electricity needs not only from existing generation, but from new
22 resources that arise from interconnection requests by developers seeking to

1 construct new generating plants and merchant transmission facilities. The five-
2 year baseline component of PJM's RTEPP includes the following:

- 3 • Solutions to address baseline transmission constraints revealed by reliability
4 criteria violations observed in power-flow and related studies;
- 5
6 • Cost responsibility allocations for baseline reliability upgrades;
- 7
8 • "Direct connection" transmission enhancements associated with generation
9 and merchant transmission interconnection requests; and
- 10
11 • Necessary "network" transmission enhancements in response to
12 interconnection requests.

13
14 Approved transmission upgrades identified through the five-year planning process
15 have ensured continuing compliance with all applicable reliability criteria and have
16 enabled the interconnection of more than 19,000 MW of new generation to the
17 grid.

18 Q. DOES PJM ENGAGE IN PLANNING BEYOND A FIVE-YEAR HORIZON?

19 A. Yes. The development of the five-year baseline plan is only the first step in a
20 comprehensive 15-year planning process. PJM's 15-year planning horizon permits
21 the consideration of many long-lead-time transmission options. This type of
22 planning enables PJM to address both the reliability and economic performance of
23 the transmission grid based on the impacts of long-term load growth and a wide
24 range of market factors.

25 The scope of 15-year planning encompasses reliability-based sensitivity
26 analyses. These sensitivity studies examine the long-term reliability impacts of
27 uncertainty with respect to assumptions about economic growth, the extent of loop
28 flows within PJM and assumptions about generation resources.

1 PJM also conducts market efficiency studies as part of each RTEP cycle's
2 15-year analyses. Market efficiency analyses addresses such factors as the impacts
3 of fuel and emissions-related prices, generation retirements and the delivery needs
4 of the new "clustered" generation projects, such as those emerging in PJM
5 associated with large baseload Midwest and northern Pennsylvania coal projects,
6 nuclear generation in Maryland and northern Virginia, Appalachian Ridge and
7 northern Illinois wind farms and natural gas pipeline access projects. This analysis
8 provides market participants with both historic congestion information and fifteen-
9 year econometric projections of the cost and benefits of proposed transmission
10 projects.

11 As a result of the first such 15-year analysis, in June 2006, the PJM Board
12 formally endorsed further study and evaluation of a number of backbone
13 transmission proposals to meet the long-term reliability and economic needs of the
14 PJM region. These initial proposals, together with several more Transmission
15 Owner proposed projects and about a dozen more member proposed projects, are
16 being analyzed to identify the most effective set of projects to resolve identified
17 reliability and market efficiency issues.

18 Q. PLEASE EXPLAIN THE SIGNIFICANCE OF THE DOE STUDY AND PJM'S
19 REQUEST FOR THE NIETC DESIGNATION.

20 A. In its August 2006 National Electric Transmission Congestion Study, the United
21 States Department of Energy's ("DOE") identified the Atlantic coastal area from
22 metropolitan New York southward through northern Virginia as one of two

1 “Critical Congestion Areas” in the United States considered by DOE to be
2 critically important to remedy existing or growing congestion problems because
3 the current and/or projected effects of the congestion are severe.

4 In response to the DOE Study, PJM has filed a request for the designation
5 of three National Interest Electric Transmission Corridors (“NIETC Designation”)
6 to facilitate the type of multi-state projects, represented by backbone transmission
7 proposals including the planned Prexy Segment, 502 Junction Segments and
8 Loudoun Segment.

9 Q. HOW ARE RELIABILITY PROJECTS BUILT AND PAID FOR?

10 A. PJM’s Consolidated Transmission Owners Agreement (“TOA”) requires
11 Transmission Owners to build transmission facilities, approved by the PJM Board,
12 that are needed to meet reliability standards and other reliability requirements.
13 This requirement provides all PJM stakeholders much needed certainty in
14 resolving reliability concerns. Regardless of who bears responsibility for the
15 actual construction of new transmission facilities, the cost of such facilities is paid
16 for by load serving entities in the transmission zones that cause the need for the
17 project. Costs are allocated among the transmission zones in proportion to their
18 contribution to the reliability criteria violation resolved by the required
19 transmission facility. It should be noted, however, that the cost allocation
20 procedure is based on a number of specific rules that may have the result that not
21 all load customers contributing to the need for a transmission upgrade bear a share
22 of the cost of that upgrade. For example, in cases where multiple reliability

1 criteria violations are resolved, as with the 502 Junction-Loudoun Line, only the
2 most severe violation is used to establish cost allocation. Transmission Owners
3 recover their costs through FERC-approved transmission service rates.

4 Projects associated with the interconnection of new generation and
5 merchant transmission projects must meet specified financial and construction-
6 related obligations. These requirements enable PJM to ensure that upgrade
7 construction remains on schedule and required in-service dates are met.

8 Q. DOES PJM COORDINATE TRANSMISSION PLANNING WITH
9 NEIGHBORING SYSTEMS?

10 A. Yes. PJM coordinates its planning processes with neighboring systems to address
11 issues of mutual concern. PJM participates in such interregional planning under
12 arrangements with the Midwest Independent Transmission System Operator, the
13 Independent System Operator of New England, the New York Independent System
14 Operator, the Tennessee Valley Authority and Progress Energy.

15 Q. DOES THE RTEPP INVOLVE OTHERS OUTSIDE OF THE PJM
16 ORGANIZATION?

17 A. Yes. The RTEPP is open, transparent and collaborative from start to finish.
18 Forums and processes provide opportunities for stakeholders to help PJM improve
19 the transmission grid, ensuring reliability and access to robust, competitive
20 markets. The activities of the Transmission Expansion Advisory Committee
21 (“TEAC”) provide the primary forum for the ongoing exchange of ideas,
22 discussion of issues and presentation of planning findings. PJM governing

1 committees such as the Members Committee, Planning Committee and TOA
2 Administrative Committee provide additional opportunities for stakeholders to
3 provide input.

4 Ad hoc PJM stakeholder groups are commissioned periodically to address
5 specific issues. Such groups are addressing issues associated with 15-year
6 planning, market efficiency and cost allocation.

7 In addition, PJM staff liaisons to federal and state regulatory bodies,
8 including the Organization of PJM States, Inc., continue to foster two-way
9 communication and the resolution of planning issues.

10 Q. PLEASE DESCRIBE THE RELATIONSHIP OF THE TEAC TO THE RTEPP.

11 A. The TEAC operates under specific provisions of the Operating Agreement. TEAC
12 activities are at the core of stakeholder input in the RTEPP. The scope of the
13 TEAC's responsibility includes the review of and the provision of comments and
14 input on the following:

- 15 • Scope and assumptions of RTEPP studies, including economic/market
16 efficiency analysis;
- 17 • RTEP analysis at defined points during the RTEPP cycle;
- 18 • RTEP recommendations to be proposed to the PJM Board for endorsement;
19 and
- 20 • Specified RTEPP matters as requested by the PJM Board.
21
22
23
24

25 TEAC participation is open to all transmission customers, any other entity
26 proposing to provide transmission facilities to be integrated into the PJM region,
27 all PJM members, representatives of state commissions, the agencies and offices of

1 state consumer advocates of states in the PJM region and any other interested
2 parties. This broad group of constituents fosters a wide range of opinions,
3 comments and advice on RTEP process plan development and recommendations
4 for PJM Board approval.

5 Following the presentation of analysis assumptions or results to the TEAC,
6 stakeholders are invited to provide written comments. These comments are
7 provided to the PJM Board for their consideration and serve as the basis for on-
8 going dialogue at subsequent TEAC meetings.

9 Q. HAS THE PJM BOARD APPROVED AN RTEP THAT INCLUDES THE
10 VIRGINIA SEGMENTS?

11 A. Yes, in June 2006, the PJM Board approved an RTEP that includes a new 500 kV
12 transmission line to connect the proposed 502 Junction Substation in Greene
13 County, Pennsylvania, with Dominion Virginia Power's existing Mt. Storm
14 Substation in Grant County, West Virginia. From the Mt. Storm Substation, the
15 line will continue generally eastward and connect with Allegheny Power's existing
16 Meadow Brook Substation in Frederick County, Virginia. From the Meadow
17 Brook Substation, the line will continue generally eastward to Dominion Virginia
18 Power's Loudoun Substation in Loudoun County, Virginia.

19 Q. WHICH PORTION OF THE LINE AND RELATED FACILITIES WILL BE
20 BUILT BY ALLEGHENY POWER?

21 A. The RTEP designated Allegheny Power as the Transmission Owner responsible for
22 constructing the Virginia Segments, the 502 Junction Substation, the remaining 502

1 Junction Segments and the Meadow Brook Expansion. PJM has been notified by
2 Allegheny Power that TrAILCo, an affiliate of Allegheny Power, will construct the
3 portion of the line designated to Allegheny Power. TrAILCo refers to this portion
4 of the line as the “Trans-Allegheny Interstate Line” or “TrAIL” for short. TrAILCo
5 also includes RTEP Upgrade b0321, which it refers to as the Prexy Facilities, to be
6 constructed in Pennsylvania as part of TrAIL. However, Upgrade b0321 is not part
7 of the 502 Junction Segments or the Loudoun Segment.

8 Q. WHICH PORTION OF THE LINE AND RELATED FACILITIES WILL BE
9 BUILT BY DOMINION VIRGINIA POWER?

10 A. The RTEP designated Dominion Virginia Power as the Transmission Owner
11 responsible for constructing the remainder of the line that is referred to in this
12 proceeding as the Loudoun Segment as well as the Mt. Storm Expansion and the
13 Loudoun Expansion.

14 Q. WHY IS THE LINE COMPRISED OF THE 502 JUNCTION SEGMENTS AND
15 LOUDOUN SEGMENT NECESSARY?

16 A. Studies performed by PJM under the direction of Scott Gass, a then current
17 employee of PJM and a TrAILCo witness in this proceeding, revealed the need for
18 a major new 500-kV transmission line to avoid reliability criteria violations
19 observed to occur by 2011. These violations include potential line overloads and
20 voltage problems. Analysis of various options yielded a recommendation for this
21 new line from the western part of PJM to feed the mid-Atlantic and northern
22 Virginia load centers. These load centers encompass an area of PJM that continues

1 to experience significant economic growth – growth that requires access to
2 additional sources of electricity and the transmission infrastructure to provide it.
3 Mr. Gass’s testimony discusses in detail the studies performed by PJM that
4 determined the need for this line, as well as the load growth that has contributed to
5 the need for these additional facilities.

6 Q. WHAT WAS THE BASIS FOR THE PJM BOARD’S JUNE 2006
7 DESIGNATION OF ALLEGHENY POWER TO CONSTRUCT THE PROJECTS
8 THAT COMPRISE TRAIL AND DOMINION TO CONSTRUCT THE
9 PROJECTS THAT CONSTITUTE THE LOUDOUN SEGMENT?

10 A. When PJM identifies reliability projects such as those that comprise the 502
11 Junction Segments and the Loudoun Segment that need to be constructed, Schedule
12 6 of the Operating Agreement requires PJM to designate one or more Transmission
13 Owners or other entities to construct, own and/or finance the recommended
14 transmission enhancement or expansion. With respect to the 502 Junction
15 Segments designated to Allegheny Power, a portion of these segments were
16 proposed by Allegheny Power as part of a larger project considered by PJM in the
17 RTEP analysis to resolve the related reliability criteria violations. The Loudoun
18 Segment designated to Dominion Virginia Power was proposed by Dominion
19 Virginia Power for consideration as an alternative means to resolve the same
20 reliability criteria violations. The substation upgrades, including new substations,
21 associated with the Prexy Facilities, the 502 Junction Segments and the Loudoun
22 Segment were designated to the owners of each substation requiring upgrade.

1 The projects designated to Allegheny Power that TrAILCo has identified as
2 constituting TrAIL and the respective segments referred to in this proceeding are
3 identified in the June 2006 RTEP as follows:

4

Upgrade	Description	Segment
b0321	Prexy 500 kV line, Prexy 500/138 kV Substation, and three 138 kV lines	Prexy Segment
b0328.2	Meadow Brook Substation to Loudoun Substation 500 kV line (approximately 20 of 50 miles in the Allegheny Power transmission zone)	502 Junction Segments
b0347.1	502 Junction Substation to Mt. Storm Substation 500 kV line	502 Junction Segments
b0347.2	Mt. Storm Substation to Meadow Brook Substation 500 kV line	502 Junction Segments
b0347.3	Construct 502 Junction Substation	502 Junction Segments
b0347.4	Upgrade Meadow Brook Substation	502 Junction Segments

5

6 The projects described for purposes of this proceeding as the Loudoun
7 Segment are identified in the June 2006 RTEP as follows:

Upgrade #	Description
b0328.1	Meadow Brook Substation to Loudoun Substation 500 kV line (approximately 30 of 50 miles in the Dominion Virginia Power transmission zone)
b0328.3	Upgrade Mt. Storm Substation
b0328.4	Upgrade Loudoun Substation

8

1 Although the Prexy Facilities are considered by TrAILCo to be a part of
2 TrAIL, they are not part of the 502 Junction Segments or Loudoun Segment
3 because they are based on different electric reliability criteria drivers.

4 Q. DOES THE PJM OPERATING AGREEMENT PERMIT ALLEGHENY POWER
5 TO DESIGNATE TRAILCO TO FINANCE, CONSTRUCT, OWN, OPERATE
6 AND MAINTAIN TRAIL?

7 A. Yes. The Operating Agreement permits a Transmission Owner or other entity
8 designated to construct, own and/or finance a recommended transmission
9 enhancement or expansion to agree to undertake its designated responsibilities
10 jointly with other Transmission Owners or other entities.

11 Q. WHO WITHIN PJM HAD THE PRIMARY RESPONSIBILITY FOR
12 PREPARING OR SUPERVISING THE PREPARATION OF THE RTEP
13 STUDIES THAT IDENTIFIED THE ELECTRICAL NEED FOR THE 502
14 JUNCTION SEGMENT AND THE LOUDOUN SEGMENTS?

15 A. Scott W. Gass supervised the creation of the 2011 Regional Transmission
16 Expansion Planning base case while he was employed by PJM as Manager of the
17 Transmission Planning Department. He also supervised all of the analyses
18 conducted with the case, including model adjustments, identifying reliability
19 criteria violations, and formulating solutions to the violations. At that time, Mr.
20 Gass was one of my direct reports.

21 Q. DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?

22 A. Yes, it does.