

**DOMINION TESTIMONY SUMMARY
MEADOW BROOK – LOUDOUN 500KV TRANSMISSION LINE
FILED APRIL 19, 2007**

Major Points: Application and Testimony of 500 KV line

Dominion Virginia Power on April 19, 2007 filed with the State Corporation Commission an application for approval of a 500-kilovolt transmission line in Warren, Rappahannock, Culpeper, Fauquier, Prince William and Loudoun Counties.

The proposed path is within or immediately adjacent to existing transmission rights-of-way. The line would extend 65 miles from a point in Warren County to the company's Loudoun substation. Dominion Virginia Power believes this proposal would provide the best means of meeting the continuing need for reliable service while reasonably minimizing adverse impact on the scenic, environmental and historic assets of the area.

As described in testimony the company submitted to the SCC, the new transmission facility is urgently needed to provide continued reliable service to Northern Virginia, a region with a strong economy and a growing demand for electricity.

The company has requested that the SCC expedite the hearing process in order to have the new transmission line operational by 2011.

Highlights of the testimony submitted to the SCC on April 19 are below.

John D. Smatlak, Vice President of Electric Transmission for Dominion Virginia Power, offers testimony that provides an overview and background for the proposed 500 KV line. Smatlak testified that "there is a critical need for this line to maintain reliability of service in Northern Virginia."

Smatlak describes the evolving process of how the siting for the line was determined. The company began with an examination of a cross-country route and sought public input on this route from a wide variety of interested parties beginning in 2006.

"This was expected to be a viable route electrically for the project, though it involved a substantial amount of new right-of-way across a relatively undeveloped, scenic and historic area. Company representatives gathered input from the public, elected representatives, government agencies and interested organizations. " (Smatlak, p. 7)

Based on this input, and with updated information from PJM, the regional transmission grid manager, Dominion determined “that additional options should be reviewed from both electrical and routing perspectives.” (Smatlak, p. 7)

The company identified three additional routes for further study:

- An overhead alternative along existing transmission line corridors to the south (the Proposed Route).
- An overhead alternative on Interstate 66 (the Alternate Route).
- A direct current underground alternative generally along the network of segments comprising the cross-country route.

Smatlak’s testimony highlights the advantages of the Proposed Route.

“The significant advantage...is that existing right-of-way is sufficient in some areas, and can be expanded in other areas, to accommodate the new line, which makes this route the one that best minimizes new impacts and clearly meets the statutory requirements for approval...There are distinct advantages to the use of existing transmission line corridor for 100 percent of the routing of this line, including the much reduced incremental impact on the public as compared to other options.” (Smatlak, p. 9)

He also testified that undertaking this project is vital to the public interest of northern Virginia customers, including residential, commercial, and government interests.

“There is a critical need for this line to maintain reliability of service in northern Virginia...Without this transmission improvement, transmission lines that help serve the northern Virginia portion of our service territory will overload, with the likelihood of rolling blackouts in the area unless we reinforce the transmission grid.” (Smatlak, p. 2)

James R. (Ronnie) Bailey, Manager of Electric Transmission Planning, provided testimony describing the possible consequences of not constructing the proposed line.

Bailey comments that there will be “identified violations of the North American Electric Reliability Corporation (“NERC”) mandatory reliability standards (“NERC Reliability Standards”) if the line is not built. These violations, if not relieved, will severely impact the transmission system’s ability to provide reliable service to Dominion Virginia Power’s and Allegheny Power’s customers in the northern Virginia load area.” (J.R. Bailey, p. 3)

The federal Energy Policy Act of 2005 imposes daily fines of up to \$1 million per violation on electric utilities that do not meet the NERC Reliability Standards.

“The NERC Reliability Standards constitute minimum criteria with which all utilities, including Dominion Virginia Power, must comply as components of the regional transmission system.” (J.R. Bailey, p. 4, emphasis added)

Based on 2006 PJM load forecasts, by 2011 there will be violations of NERC reliability criteria due to line overloadings and voltage reductions on specific Dominion transmission facilities listed in his testimony. The 2007 projections predict an even more severe situation, with normal load that is 4.6 percent higher than the 2006 predictions. This presents “an unacceptable operating condition and one which could lead to cascading outages should th[e] contingency condition occur.” (p. 18) These contingencies include failure of a 740-MW generating unit at Dominion’s Possum Point Power Station and failures of existing high-voltage lines serving the region.

Bailey’s testimony also cites an August 2006 U.S. Department of Energy study that placed Northern Virginia in one of two national “Critical Congestion Areas” for electricity transmission. The report also stated that the region requires “billions of dollars of investment in new transmission, generation and demand-side resources over the next decade to protect grid reliability and ensure the area’s economic viability.” (J.R. Bailey, p. 11)

Bailey reiterates that Dominion Virginia Power has been working for years to manage the growing electric demand in Northern Virginia.

“Network transmission work in Northern Virginia, with either completed or planned work (again responding to this rapid growth) totals to \$142 million by 2010.” (J.R. Bailey, p.12) This does not include the cost of the proposed 500-kV line.

Bailey notes the importance of adequate transmission infrastructure to the economic health of the Commonwealth. “A robust and reliable transmission system is an important part of economic development in Virginia because all businesses need reliable energy, and many make expansion decisions on the basis of energy availability.” (J.R. Bailey, p. 29)

Bailey also notes that Dominion Virginia Power hired KEMA, a leading expert in transmission and distribution solution, to independently investigate the need and proposed solution. KEMA confirmed the critical need for additional transmission facilities.

“To reliably serve future load growth and to avoid subjecting the area to potential rolling blackouts beginning in the Summer 2011 timeframe, this line must be constructed.” (J.R. Bailey, p. 13)

Steven Herling, Vice President of Planning for PJM Interconnection, provided testimony to explain PJM's regional transmission expansion planning process ('RTEPP'). As a transmission-owner member of PJM, DVP is an integral part of the RTEPP.

PJM is a regional transmission organization that "ensures the reliability of electric transmission system under its functional control and coordinates the movement of wholesale electricity in all or parts of Delaware, Illinois, Indiana, Kentucky, Maryland, Michigan, New Jersey, North Carolina, Ohio, Pennsylvania, Tennessee, Virginia, West Virginia and the District of Columbia." (Herling, p. 4)

Each year, PJM prepares the Regional Transmission Expansion Plan, or RTEP, to analyze the electric supply needs of customers within the PJM region.

The protocol for the Regional Transmission Expansion Plan integrates transmission, generation and demand-side resources in order to address constraints involving reliability and congestion.

By conducting baseline reliability assessments, PJM identifies areas where the electric system, as forecasted over a specific time, "...is not in compliance with reliability standards developed by NERC, PJM reliability standards and standards required by the Nuclear Regulatory Commission..." (Herling, p. 8)

In June 2006, PJM approved the RTEP, which included the proposed 500 KV transmission line, in order to address specific reliability criteria violations that would occur by 2011. The violations include potential line overloads and voltage problems.

Herling notes that Northern Virginia is included in an area of the mid-Atlantic region "that continues to experience significant economic growth- growth that requires access to additional sources of electricity and the transmission infrastructure to provide it." (Herling, p. 17)

Herling testified that "[w]ithout the project, northern Virginia will be at risk for experiencing transmission line overloads, which could lead to substation voltage drops, voltage collapses and rolling blackouts in the northern Virginia region." (p. 17)

Other transmission solutions were evaluated, according to Herling, but none of them were found to resolve the forecast reliability violations sufficiently, in a timely manner, or were not as effective as the proposed option.

Edward V. Badolato, Integrated Infrastructure Analytics, Inc. (Electric reliability and homeland security); former Deputy Assistant Secretary for the Department of Energy, offered testimony about the potential dangers to

critical national security and emergency infrastructure in the National Capital Region (NCR), which includes the Northern Virginia region.

Badolato notes the dramatic growth of the region's transportation infrastructure, including the expansion of Dulles International Airport, modernization of Ronald Reagan Washington National Airport and the military airport at Andrews Air Force Base, and expansion of the Metrorail system. He also discusses the expansion of Northern Virginia's national security facilities. "There will be an increased demand in electric power from such government activities." (Badolato, p.7)

Reliability problems, including loss of power and chronic power shortages, "that could be associated with lack of adequate electric transmission capacity to Northern Virginia region can have profound impacts on our national security as well as other critical infrastructures. Blackouts and loss of service in the NCR can impact emergency services, transportation, healthcare, building support, food supply and other non-defense components of the federal, state and local governments." (Badolato, page 7)

"In an era where interruption as short as a fraction of a second can cause major problems or equipment damage to electronic intelligence, e-commerce and other IT systems, the predicted electric power shortfalls in 2011 could have dire consequences on our national security, Badolato states. "Continuously operating government facilities like operational data centers add more demand to the electric power base load and must have a reliable supply of electricity to carry out important national security functions. While many have backup facilities, they are not designed to address a chronic shortfall in power supply. Since the effective national security functioning of the NCR and its various units are almost totally dependent upon electrical systems, the widespread loss or degradation of power systems that serve clusters of key DOD headquarters, military bases, critical infrastructure assets and major metropolitan areas would have a very detrimental effect on national security." (Badolato, pp. 9-10)

John Bailey, Coordinator of Siting and Permitting for Dominion Virginia Power, discusses in his testimony the factors considered in the choice of the Proposed Route and the Alternate Route. He also discusses why certain other routes were originally considered but not included as alternates.

The proposed option, according to Bailey, is the best because 100 percent of it is within or adjacent to existing transmission line rights-of-way. The route minimizes the impact on historic districts and scenic areas. Most of the homes along this route will not be newly affected, as they are already adjacent to existing lines.

The Alternate Route primarily uses the I-66 right-of-way. The company has discussed with the VDOT the feasibility of placing the line in the limited access area either on the north or south side of the interstate. The Alternate Route is

approximately 37 miles long and would be adjacent to the I-66 corridor, then turn north to Loudoun substation. The advantages of this route are that it utilizes existing electric transmission right-of-way and existing highway right-of-way. It is also the shortest route and has relatively low impacts on residences, agricultural districts, forest districts, and wetlands. However, of the routes examined, it does have the highest number of historic sites.

“While Dominion Virginia Power believes that the Alternate Route is technically feasible and should be considered by the Commission, the Proposed Route offers the best overall route to both serve the electrical needs and minimize the impacts through its use of an existing 500 kV corridor.” (J.B. Bailey, p. 8)

Bailey notes that an underground direct current approach was also evaluated. This route is approximately 41 miles long. Two fenced converter stations would be required for this line, each requiring three buildings eight stories tall for the necessary equipment. The advantages of the underground option are that, aside from the two converter stations, visual impacts are minimized. There are also few residential zones or agricultural zones that will be impacted. However, the cost of this option is significantly higher, with an estimated cost of \$1 billion. Also, the technology involved has been used only rarely and neither Dominion nor PJM has experience with it. Finally, the length of the underground option that passes through historic sites is relatively high and constructing trenches would impact archaeological sites.

Bailey also reviews the active program the company undertook to notify the public and explain the need for the project and the routes under consideration. Dominion held 15 informational meetings between October 2006 and April 2007 to address public concerns. The company also provided additional information to the public through numerous interviews with the local media and through an internet website dedicated to the project.

“The Proposed and Alternate Routes are the culmination of the company’s evaluation efforts and analysis, listening to interested parties and taking into account very different perspectives, while also keeping in mind the company’s responsibility to provide reliable, cost-effective electric service.” (J.B. Bailey, p. 8).