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December 15, 2015

United States Army Corps of Engineers  
Norfolk District  
Attention: Randy Steffey  
803 Front Street  
Norfolk, VA 23510-1011

Re: NAO-2012-0080113-V0408, Surry-Skiffes-Wheaton, Dominion Virginia Power  
Response to National Parks Conservation Association/Princeton Energy Resources  
International Comments "Dominion's Proposed 'Surry-Skiffes Creek Project' – Issues  
and Alternatives," dated November 13, 2015

Dear Mr. Steffey:

On behalf of Dominion Virginia Power ("DVP" or "Dominion"), I am writing to respond to a document entitled "Dominion's Proposed 'Surry-Skiffes Creek Project' – Issues and Alternatives," prepared by National Parks Conservation Association ("NPCA") and Princeton Energy Resources International ("PERI") and dated November 13, 2015 ("NPCA/PERI Comments" or the "Comments") that has been submitted to the Corps as a public comment in this proceeding.

DVP has previously provided the Corps with a detailed explanation of why and how the need for the proposed Surry-Skiffes-Wheaton Project (the "Proposed Project") must be, and has been, properly determined in accordance with mandatory federal transmission planning and modeling reliability standards established by the North American Electric Reliability Corporation ("NERC") and approved by the Federal Energy Regulatory Commission ("FERC"). See Attachment 1 to Courtney Fisher's August 14, 2014 letter to Tom Walker of the Corps ("April 14 Letter"). A copy of that Attachment 1 is attached to this letter. The Federal Power Act ("FPA") requires, as a matter of federal law, adherence to these "NERC Reliability Standards," which impose requirements for compliance with certain specific criteria, data and methodologies, including computer modeling, to ensure the reliability of the transmission grid in North America. FERC is the agency of the federal government vested by the FPA with exclusive jurisdiction to determine and regulate the reliability of the electric transmission grid.

In summary, the NPCA/PERI Comments do not present any practicable alternatives to the Proposed Project. The Comments' suggestions to determine electrical reliability based (a) on the Comments' so-called "Revised Peak Load Forecast" (pages 10-26), which is based on inaccurate data and assumptions, or (b) on a methodology purporting to "manage peak loads" without Yorktown Units 1 and 2 (pages 26-28), would

violate the NERC Reliability Standards and the FPA. The Comments' request (pages 28-30) for yet another "re-evaluation" of submarine cable alternatives demonstrates the authors' unawareness of the extensive evidence on this subject previously considered by regional and state authorities and the Corps. Finally, the Comments' unsupported claims that economic impacts have not been considered are false.

As noted in Attachment 1, violations of the criteria provided in these NERC Reliability Standards, which drive the need for construction of new transmission facilities, are determined based on the results of complex computer models required by the NERC Reliability Standards to utilize specified data inputs for all transmission system elements. The mandatory computer modeling is used to predict how system elements such as switches, transformers, and transmission lines will behave under different operating circumstances, including high winds, and other weather events, unanticipated equipment failure, cyber attack and swinging load levels. The NERC-required computer models, called power flow studies or load flow studies, also account for future growth in the system and the load it serves.

PJM and DVP use these models to determine what new facilities need to be included in PJM's annual Regional Transmission Expansion Plan ("RTEP"). The RTEP process is implemented by PJM (and its transmission owner members including DVP) using NERC-compliant processes, criteria and methodologies approved by FERC and audited by NERC. These include power flow studies that show the operating results of projected changes to the system in 5-year and 10-year intervals into the future, including load forecasts (reflecting the impacts of demand-side management ("DSM") response and gains in energy efficiency), interconnections of new generation units and additions of new or replacement transmission facilities.

The FERC-approved PJM RTEP process, using the power flow studies required by the NERC Reliability Standards, determined that (1) the planned retirement of Yorktown Units 1 and 2 would result in extensive thermal and voltage violations of NERC Reliability Standards on DVP's transmission system in the North Hampton Roads Load Area ("NHRLA") beginning June 1, 2015 and (2) the Proposed Project, which will provide a new 500 kV source into the NHRLA, would resolve all of those violations and is the best solution. Indeed, the Comments recognize on page 6 --as they must -- that "Load Flow modeling is used to forecast reliability violations so problems can be addressed before they occur" and that such studies "conclude that if the proposed project is not in service before retirement of Yorktown Power Station Units 1 and 2, NHRLA will not meet the Reliability Standards of [NERC] and load shedding will result."

Because NPCA does not like these results, however, it now seeks to change the federally mandated methodologies and inputs that produced them. The primary focus of the Comments (pages 10-26) is the following claim by the authors (page 31):

The electrical load flow studies performed by Dominion and confirmed by PJM staff were performed using standard models and methods. However, several of the key operational and demographic assumptions going into the

economic models regarding future loads and generation appear significantly out of date or inaccurate, and the model algorithms that were used to project peak loads are now considered flawed. In brief, the Dominion study significantly overestimates NHRLA growth, including peak loads, and it underestimates: a) the availability of DSM capacity to reduce peak loads, b) the growth of distributed generation, and c) the increasing effectiveness of efficiency measures and energy reduction programs. These flaws result in exaggerated forecasts of rolling brown- or blackouts up to 80 events a year.

The Comments assert further that the aspects of the RTEP methodology that the authors consider to be “flawed” can simply be discarded in order “to reduce, reconfigure or eliminate the need for the project” (page 6). Specifically, the Comments assert that the RTEP’s methodology for projecting future load growth should be rejected and replaced by a purported “Revised Peak Load Forecast” developed by the authors -- using protocols and inputs other than those required by the NERC Reliability Standards -- to support NPCA’s opposition to the Proposed Project.

But regardless of projections of local growth, only NERC, subject to FERC review and approval, can make such a determination and/or change the requirements of the NERC Reliability Standards for such standard models and methods, or the algorithms to be utilized. And only FERC can approve changes to the PJM Open Access Transmission Tariff provisions that govern PJM determinations of which new transmission facilities need to be constructed. To do as the Comments suggest would violate the FPA and the NERC Reliability Standards, which DVP cannot and will not do.

Not only would reliance on the Comments’ “Revised Load Forecast” violate the NERC Reliability Standards, it is refuted both by its use of inaccurate data and assumptions and by the actual current operating circumstances in the NHRLA. For example, the Comments (page 11) claim that Figure 4 (page 12) shows a 4000 MW “forecast error” between the peak load forecasts and actual load for PJM’s Dominion Zone (“DOM Zone”) in 2012 -2014, which the Comments equate to a 400 MW error in the NHRLA. But the load forecast values shown in Figure 4 are for DOM Zone, which includes the load for all retail customers in DOM Zone, while the actual load values are for only the retail customers served by DVP, which constitute approximately 82% of the total load in DOM Zone. No forecast error is shown by this inherently false comparison. The Comments also ignore the fact that, as required by Virginia law, the Virginia SCC and its independent expert consultants verified the power flow studies and modeling algorithms used to develop them.

In any event, the difference between forecasted and actual loads in the NHRLA is essentially an academic exercise because, as stated in Section 3.1.3 of the Stantec Alternatives Analysis (filed January 8, 2015), existing system load in the NHRLA already exceeds the capability of the transmission system without Yorktown Units 1 and 2.



The Comments' misunderstanding of the NERC Reliability Standards is further demonstrated by their assertion (page 7) that violations of NERC Reliability Standards are merely a "useful metric to show how often the load in a particular balancing area exceeds a threshold that is set at a safe margin ('reserve margin') below the available power (transmission and generation capacities)." This is incorrect and a fundamental misstatement of the NERC Reliability Standards, which are not a 'useful metric' but a requirement of federal law and have nothing to do with reserve margin. The NERC Reliability Standards establish mandatory requirements under federal law for planning the transmission system to determine, through specified types of power flow studies, whether specific reliability criteria will be met as to each element of the transmission system under specific types of operating conditions. In contrast, the calculation of a "reserve margin" is used in generation planning to ensure that there is a sufficient amount of available generation capacity to serve overall system load -- a determination separate and independent from DVP's obligation to comply with the NERC Reliability Standards for transmission planning.

DVP also cannot comply with the NERC Reliability Standards by "managing" load shedding after the retirements at Yorktown based on assumptions that unproven levels of demand-side management ("DSM") and solar PV will be available or economic and that Yorktown Unit 3 could be operated more despite its environmental operating limitations and out-of-market cost, as the Comments claim (page 26-28). Regardless of the efficacy of these claimed alternatives, however, DVP must comply with the NERC Reliability Standards by observing the specific criteria and methodologies for determining compliance, as described above and in Attachment 1. In fact, these alternatives are not practicable.

As noted on page 5 of the Corps' October 1, 2015 Preliminary Alternatives Conclusions White Paper ("White Paper"), the results of demand-side management resources are already accounted for in the transmission planning process that produced the Proposed Project. While solar PV has important attributes, the fact that it is both intermittent and non-dispatchable means that it cannot reliably be turned on to meet critical needs during periods of peak demand, such as the 7:00 am daily peak during the winter. This is why for planning purposes PJM treats a MW of solar capacity as equal to 38% of a fossil-fueled MW. It was determined in the SCC proceeding that, if the Proposed Project were not built, 620 MW of new gas-fired generation would be required at Yorktown Power Station for the transmission system to comply with NERC standards. Using PJM's conversion factor, this would equate to construction of approximately 1,630 MW of solar PV at Yorktown. Applying DVP's experience that 8-10 acres of land is required for each MW of new solar PV, this would require the acquisition of at least 13,040 acres in proximity to Yorktown Power Station. This is an area only a bit smaller than the City of Petersburg (14,675 acres), or almost 10,000 football fields. Even if it were possible to develop this amount of solar PV in the right location, construction of backup dispatchable generation (such as combustion turbines) in the vicinity of Yorktown would also be required because of the intermittent and non-dispatchable nature of solar.

Virginia law requires DVP approval from the State Corporation Commission of Virginia (“SCC”) for construction of the Proposed Project. The Virginia Supreme Court has affirmed the SCC’s determination of need for new transmission facilities based on violations of NERC Reliability Standards. After more than 18 months of exhaustive investigation and hearings, the SCC found that the Proposed Project is needed to resolve the identified NERC Reliability Violations and that the route reasonably minimizes adverse impact on the scenic assets. As shown in Attachments 2 and 3, the evidence in the SCC proceeding demonstrated that none of the alternatives suggested by the Comments, including DSM, increases in energy efficiency, distributed generation or underwater cables<sup>1</sup>, is a practicable alternative to the Proposed Project. See also June 23, 2015 DVP Responses to ACOE Questions Received June 25, 2015; August 14, 2015 Courtney Fisher Letter to Tom Walker Responding to Walker Letter of July 31, 2005; September 23, 2015 Email to Randy Steffey Responding To Question Regarding 500 kV Vancouver Underwater Line; October 1 White Paper; November 13, 2015 Courtney Fisher Letter to Randy Steffey Responding To Statements At Public Hearing Regarding Underwater 345 kV Lines, Neptune and Hudson River Underwater Line and High Tension, Low Sag Conductors.

The SCC proceeding also produced evidence refuting the Comments’ unsupported claims (pages 9, 29-30) regarding impacts of the Proposed Project. The Comments acknowledge (page 9) that the requirements of Va. Code § 10.1 419 were observed through the SCC’s consideration of impacts on the limited portion of the James River that is designated a “historic river” by that statute but merely disagrees with the result of that consideration. The Comments also offer (page 9) conclusory claims, without factual support, of adverse impacts on economic development, including on property values, recreation and navigation. However, the Comments do not acknowledge the testimony of numerous witnesses at the Corps’ October 30 public hearing who support the Proposed Project because they understand the positive impact of reliable electric service on economic development in the NHRLA. Their testimony was consistent with the following finding of the SCC, based on the extensive impacts evidence in its proceeding:

The Commission finds that the Proposed Project will support economic development in the Commonwealth by cost-effectively maintaining system reliability in a large part of the Commonwealth and adequately increasing transmission capacity. Given these benefits and the modern development existing along the route of the Proposed Project, the Commission cannot conclude that tourism in the Historic Triangle or economic development in the Commonwealth will be negatively impacted by the Proposed Project.

SCC Order issued November 25, 2013 in Case No. PUE-2012-00029, page 53.

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<sup>1</sup> None of the submarine HVAC lines referenced in the table on page 29 of the Comments can provide even half of the transmission capacity required to meet the NERC Reliability Standards for the NHRLA upon retirement of Yorktown Units 1 and 2.

For all of the foregoing reasons, the NPCA/PERI Comments do not present any practicable alternatives to the Proposed Project.

Sincerely,

A handwritten signature in black ink, appearing to read 'Bob McGuire', with a long horizontal flourish extending to the right.

Bob McGuire

Director, Transmission Project Development and Execution

cc: Board of Supervisors, James City County