

Scott C. Miller
Vice President - Transmission
Dominion Virginia Power



An operating segment of
Dominion Resources, Inc.
120 Tredegar Street, Richmond, VA 23219
Phone 804-819-2432
Email Scott.Miller@dom.com

dom.com

June 23, 2016

**US Army Corps of
Engineers
Norfolk District
Regulatory Office
Received by: RLS
Date: June 28, 2016**

William T. (Tom) Walker
Chief Regulatory Branch
USACE Norfolk District
803 Front Street
Norfolk, Virginia. 23510

Re: Response to National Park Service's June 7, 2016, Letter Re: *Proposed Dominion Power Surry-Skiffes Creek-Wheaton Transmission Line Project Corps Permit Application NAO-2012-00080 / 13-V0408 (James River) James City County, Virginia*

Dear Mr. Walker:

Dominion Virginia Power ("Dominion") is pleased to provide this response to the National Park Service's ("NPS") June 7, 2016, letter to you ("NPS Letter"). That letter provides NPS' additional comments regarding what NPS alleges are recently changed circumstances it believes are germane to the purpose and need for the Surry-Skiffes Creek-Wheaton 500 kV Transmission Line project ("Project"), and thus, to the U.S. Army Corps of Engineers' ("Corps") alternatives analysis, as well as information that calls for an expansion of the alternatives analysis. NPS Letter at 1-2. Specifically, the NPS Letter believes there are changed circumstances related to the Yorktown Power Station and the North American Electric Reliability Corporation's ("NERC") Reliability Standards, and that there is new information regarding underground drilling. *Id.* at 3-6. Finally, the NPS Letter questions the Corps' treatment of natural gas in its analysis.

As discussed below, the NPS Letter does not raise any new information or issues. Each of these issues has been raised by other consulting parties directly, or using slightly different language. As the Corps knows, since its application was filed, Dominion has responded to these issues multiple times, including making numerous presentations to the Corps and consulting parties regarding the need for the Project and alternatives, as well as on the technical aspects of operating and maintaining a reliable electric transmission system, including regarding compliance with legally binding NERC Reliability Standards. In any event, below Dominion provides brief responses to the NPS Letter to ensure the record is clear on these issues.

1. The Role of Yorktown Power Station

NPS states that the Corps' Preliminary Alternatives Conclusions White Paper (October 1, 2015) ("White Paper") appears to argue that Yorktown Unit #3 is a critical element of the need for the project, and asks what role that unit has regarding the Project's purpose and need. NPS Letter at 3. NPS goes on to ask how many megawatts have to be replaced because of the Yorktown unit retirements, and seeks other additional clarifications. *Id.* In making these statements, NPS suggests that the retirement of Yorktown Unit #3 by 2020 appears to be in flux based on what NPS appears to perceive as equivocal language regarding the retirement date for the unit in Dominion's 2016 Integrated Resource Plan ("IRP"). *Id.* at 3-4.

As set forth in the Corps' White Paper, the Project would be necessary regardless of whether any retirements occurred at the Yorktown Power Station, including Yorktown Unit #3. White Paper at 2, 3. The record is replete with explanations and findings supporting this fact. For example, in the alternatives analysis provided by Dominion, it states that Project originally was projected to be needed by 2019 to meet the electricity demands of the North Hampton Roads Load Area ("NHRLA"), even assuming all three Yorktown units continued to operate.¹ It was only after regulatory changes implemented by the U.S. Environmental Protection Agency ("EPA") that necessitated the retirement of Yorktown Units #1 & #2 (because they are coal-fired) that Dominion determined that the time table for the Project accelerated (and the need increased).² The Virginia State Corporation Commission ("SCC") came to the same conclusion.³

Dominion has further explained this issue, including directly to certain consulting parties. For example, in a letter to the National Parks Conservation Association ("NPCA") responding to its questions, Dominion explained that "the NHRLA is so generation-deficient that, even under normal operating conditions [(i.e., no Yorktown retirements)], 86.6% of its capacity needs in 2015 must come from distant generators located west of Richmond and that, with the retirement of Yorktown Units 1 and 2, 98% of NHRLA requirements must come from these distant generators."⁴ Because the NHRLA currently has no access to Dominion's robust 500 kV transmission network, which can bring power in from far away generation sources, it must rely on the existing 230 kV network, which is not strong enough to pull in enough power from far-away sources to meet its needs. Dominion's NERC Reliability Standards-consistent power flow models showed that by 2019, even with the Yorktown Units operating, additional power would be needed to reliably serve the area (and meet NERC Reliability Standards). The retirement of Yorktown #1 and #2 only hastened the need.

¹ Stantec, *Surry-Skiffes Creek-Wheaton 500 kV/230 kV Alternatives Analysis*, §§ 2.1, 3.1.3, 3.1.5 (explaining that the NHRLA is generation deficient: thus, while the Yorktown Power Station produces some of the area's power, it relies significantly on transmission to import most of its power) ("Stantec Alts.").

² *Id.* §§ 2.1, 3.1.2.

³ SCC, Order at 21-22 (Nov. 26, 2013) (relying on NERC Reliability Standard-consistent load flow models, Dominion demonstrated, and the SCC agreed and independently verified, that there was a need for the Project *before* Dominion determined that Yorktown Units #1 or #2 had to be retired; the retirement of those units only increased the need for the Project and accelerated the timing for the Project) ("SCC Order").

⁴ Letter from J.K. Curtis, Dominion, to P. Goddard, NPCA, at 1-2 (Dec. 15, 2015).

As can be seen, the operation or retirement of Yorktown Unit #3 does not play a significant, if any, role in the question of need for the Project. This is borne out further by the fact that, due to environmentally-based operational restrictions (which NPS acknowledged), Yorktown Unit #3 only is authorized to operate intermittently (8% of the year). As such, it has been, and can only be, used to assist in peak load circumstances, and cannot be relied on as a daily power generator. Thus, whether Yorktown Unit #3 is retired in 2020, in 2022 when the Clean Power Plan requirements take effect (as discussed in the Dominion 2016 IRP), or never, does not change that there is serious, time-critical, need for the Project.⁵

In light of the foregoing, and contrary to NPS's suggestion, the Corps is not placing any particular or undue emphasis on Yorktown Unit #3. The context of the Corps' White Paper statements about Unit #3 demonstrates that when it references the Yorktown Units, the Corps simply was providing facts about them, and noting when they would be retired. To the extent the Corps' statement of purpose and need was stressing the retirement of any Yorktown units as a critical element for the Project, it is the imminent retirement of Units #1 and #2, which substantially accelerated the time table for need for the Project (as well as for the additional daily capacity that must be transmitted into the NHRLA to meet needs and maintain reliability).

In January of 2016, at the Corps' request, Dominion updated its reliability analysis based on PJM's 2016 Load Forecast. As Dominion presented to the Corps, the results of this analysis continue to demonstrate that the proposed Project is needed immediately. PJM, the Regional Transmission Organization (RTO), came to this same conclusion.⁶

NPS's comments regarding the Yorktown Power Station are neither new nor do they raise any new or changed circumstances that might impact the Project's statement of purpose and need, or the Corps' alternatives analysis.

2. NERC Reliability Standards

NPS states that potential NERC violations "must be understood in the context of the standard numbering scheme and associated topical areas in the NERC standards," and seeks clarification on the potential violations the Corps notes in the White Paper. NPS Letter at 4. As set forth in Dominion's power point presentation titled "Surry-Skiffes Creek-Whealton Modeling and Alternatives Analysis Review ("Presentation"),⁷ generally, NERC Reliability Standards are grouped into four categories, which are known by the letters A-D. In each group are standards and criteria that must be met for varying operating scenarios.

⁵ Thus, NPS's suggestion that the Corps simply should do a capacity comparison between all Yorktown Units operating (1,141 MW) and Units #1 and #2 operating without Unit #3 (323 MW) to determine how to size the Project has no bearing on the issue. And, as the discussion of NERC Reliability Standards below shows, it also is wrong and misplaced.

⁶ Letter from S. Herling, PJM, to Col. J. Kelly, Corps (Jan. 25, 2016).

⁷ This document accompanied Dominion's oral presentation to the Corps regarding NERC Reliability Standards, violations thereof, power flow modeling, and an additional evaluation of the Project and alternatives in light of PJM's 2016 Load Forecast.

For example, Category A's standards and criteria for normal operations (referred to as "N" or "Normal"), with all facilities operational and no contingencies. Category C provides standards and criteria for system stability and equipment ratings and voltage limits maintenance for multiple system events, including, for example, the loss of one system element followed by system adjustments, followed by the loss of a second system element (this being referred to N-1-1, for which NPS requested clarification).⁸ As can be seen, as you move from Category A to D, the standards provide requirements that account for scenarios that become less likely, but that have more extreme, and/or wide-spread consequences. Hence, while Category A is known as "Normal," Category D is known as "Extreme," because the latter category sets criteria to account for extreme events when two or more system elements are removed from service.⁹

The above provides the NPS-desired clarification of the topical areas of the potential violations covered by the Corps statement in the White Paper that the "[l]oss of the generation capacity of Yorktown 1 and 2 creates violations of NERC Category B, C, and D." As noted above, even without the retirement of the Yorktown Units, Dominion already had determined the Project would be needed to avoid NERC violations; the loss of Yorktown Units #1 and #2 simply makes violations more severe, and the timing for them more immediate.

NPS asserts, without explanation or citation, that most NERC violations are self-reported and concern a lack of training, poor documentation, and rarely result in fines. NPS Letter at 4. It also suggests that, with respect to the NHRLA, the result of NERC Reliability Standards violations will be required pre-contingency load shedding (*i.e.*, rolling blackouts). *Id.* From this, NPS requests a "more thorough analysis" of the likely outcomes of the projected NERC violations, in light of the "nature of most NERC violations." *Id.* NPS misunderstands. The required pre-contingency load shedding is not a NERC-imposed punishment for a NERC Reliability Standards violation; it is part of the standards.¹⁰ It is mandatory to prevent greater, more extreme and/or wide-spread damage or harm related to the larger system failures that might occur if not implemented. Thus, Dominion will not be fined for implementing the pre-contingency load-shedding, and it is not punishment itself. Dominion will, however, be fined for violating federally mandated NERC Reliability Criteria by not initiating pre-contingency and or post contingency load shedding in the NHRLA when such action when it was warranted by actual system conditions.¹¹

Finally, following a brief discussion about PJM without providing any new information or request for additional consideration about PJM, NPS requests an explanation of the scenarios under which Category B, C, and D violations would occur, and states it is trying to understand the scenarios under which non-compliance might occur. NPS Letter at 5. As noted above, the

⁸ Presentation at 3-4. Dominion's presentation also provides the requested associated number scheme with each Category. All NERC Reliability Standards and additional information related thereto can be found at www.nerc.com. See, e.g., <http://www.nerc.com/pa/Stand/Pages/ReliabilityStandards.aspx>.

⁹ *Id.* at 4.

¹⁰ See NERC Standard TPL-001-1, Table I; see also *id.* PRC-010-1 (setting out requirements regarding Undervoltage Load Shedding, including in scenarios where load shedding is required under TPL standards).

¹¹ See also Letter from B. McGuire, Dominion, to R. Steffey, Corps, at 2, 4 and Att. 1 (Dec. 15, 2015) (discussing NERC Reliability Standards, power load flow studies, and violations).

Presentation provides a discussion of NERC violations, and provides an example of a situation in such violations occurred in the past. In addition, if power load modeling demonstrates that a system cannot, or will not be able to,¹² meet standards in the face of an N-1-1 scenario, a NERC Category C violation will exist unless certain action is taken (such as pre-contingency load shedding).¹³ Here, as discussed above and in numerous record materials, the retirement of Yorktown Units #1 and #2 presents a situation in which NERC Category B, C and D violations will occur, unless certain action is taken (pre-contingency load shedding), or the Project is constructed and put into service.

3. Horizontal Directional Drilling/Underground Transmission and Gas Supply.

NPS claims that “much has changed” regarding the use of underground transmission lines since Dominion first submitted its Project for review, and the Corps’ review thereof. NPS Letter at 5. As such, NPS urges the Corps to revisit the use of underground transmission lines as a Project alternative. *Id.* at 7. In support, NPS provides the Corps excerpts from a Dominion presentation regarding Dominion’s Atlantic Coast Pipeline (“ACP”) project regarding the use of horizontal directional drilling (“HDD”).¹⁴ These excerpts provide lists of successfully completed underground oil and gas pipeline projects, some of which go under rivers, and provides the length of those projects and the diameter of the drilling (either 36 or 42 inches). *Id.* at 6. NPS also claims, without providing any additional information, that HDD is being used for underground transmission lines too. *Id.* at 5.

Based on this information, NPS claims that the use of HDD is covering ever increasing distances (e.g., just over 7,200 ft) with lower costs. The information provided by NPS does not represent any change regarding the use of HDD for underground transmission lines, or the use of underground transmission lines generally. It information is about oil and gas pipelines. It does not speak to the issues related to installing, operating, and maintaining an underground electric transmission line. Indeed, comparing the technical needs, requirements, and considerations regarding the use of underground transmission lines for oil and gas on the one hand, and electric on the other is akin to comparing apples and baseballs; they both appear to be the same shape,

¹² NERC Reliability Criteria requires that power flow modeling be conducted in accordance with NERC defined modeling and study procedures in real time (Operational) and for Planning Assessments. It is compliance with the required Planning Assessments, which are conducted with PJM’s FERC approved methodologies, that demonstrates the forecasted NERC Reliability Standards violations in the NHRLA. Only through these assessments can one determine if the transmission system is NERC Compliant and what the impacts are of potential solution(s) to resolve identified deficiencies.

¹³ N-1-1 scenarios can arise, for example, when any generation or transmission system component fails, the system takes correct actions, which is followed by a second generation or transmission system component failure. These failures could occur for any number of reasons, such as, equipment failures, system stress, weather damage, or increased demand. N-1-1 scenarios also can arise due to planned component outages for regular maintenance, repair, or replacement. *See generally* U.S.–Canada Power System Outage Task Force Final Report on the August 14, 2003 Blackout in the United States and Canada: Causes and Recommendations, Section II at 5 (“Providing reliable electricity is an enormously complex technical challenge, even on the most routine of days. It involves real-time assessment, control and coordination of electricity production at thousands of generators, moving electricity across an interconnected network of transmission lines, and ultimately delivering the electricity to millions of customers by means of a distribution network.”).

¹⁴ As NPS notes, and as the Corps may be aware, the ACP is a natural gas transmission pipeline project.

but the similarities end there. In any event, as the record makes clear, there are significant technical considerations involved in citing a 500 kV line underground (and underwater) with the thermal capacity needed for the Project; it has never been done before at the distances necessary to cross under the James River, and such a project is at the cutting edge of technology and is highly experimental.¹⁵ Further, even if the technology was feasible the installation would require the excavation of over 36,000 square feet of river bottom, and result in severe environmental impacts, including, for example, to the endangered Atlantic sturgeon.¹⁶ Maintenance for routine or outage repairs likely would continue to result in such impacts.¹⁷ The NPS information, of course, does not speak to the issues of timing or costs, which also have not changed.

As discussed above, at the Corps' request, Dominion updated its power flow modeling and alternatives analysis based on the latest 2016 information. Regarding underground alternatives, that information and analysis continued to show that such alternatives were not practicable because they did not resolve NERC violations, had greater environmental costs, took more than seven years to get into service, and cost more than the proposed alternative.¹⁸ Building underground transmission lines, using HDD or trenching (or other method of installation) is not practicable from a permitting, environmental, constructability let alone a cost standpoint for this project and would not be in the public's best interest.¹⁹ NPS' provision of HDD information regarding the length and diameter of certain underground oil and gas pipeline projects does not provide new information,²⁰ let alone relevant information. The Corps need not revisit this issue.

Finally, citing Dominion's 2016 IRP, NPS states that it appears that Dominion is considering the ACP in its load growth calculations as a driver for future growth. NPS Letter at 7 (quoting Dominion 2016 IRP at 26). From this, NPS asks the Corps to explain why it cannot consider the ACP on the gas supply side as a source of natural gas to reduce the need for and/or size of the line. *Id.*

¹⁵ Letter from J.K. Curtis, Dominion, to P. Goddard, NPCA, at 7-11 (Feb. 1, 2016) (discussing, for example, voltage control issues, as well as demonstrating the technical, reliability, and other considerations that make a 230 kV underground system impracticable); Stantec Alts. § 3.3; Dominion Response to October 1, 2015, Public Notice Comments at 45-47 (Jan. 29, 2016) (rejecting NPCA and PERI's additional suggestions regarding underground transmission lines and collecting record citations regarding the infeasibility of underground transmission lines for the Project); SCC Order at 33 (noting technical and reliability issues with underground transmission).

¹⁶ Presentation at 17 (noting additional impacts to above ground and underwater archeological sites, visual impacts to Carter's Grove (a National Historic Landmark), 84 houses located nearby, and an underwater gas line).

¹⁷ Letter from J.K. Curtis, Dominion, to P. Goddard, NPCA, at 7-11 (Feb. 1, 2016); Stantec Alts. § 3.3; Dominion Response to October 1, 2015, Public Notice Comments at 45-47 (Jan. 29, 2016) ; SCC Order at 33 (noting technical and reliability issues with underground transmission).

¹⁸ Presentation at 18-19, 22; *see also* White Paper at 4 (noting routing and siting constraints and land acquisition issues, in addition to cost, timing, and increased environmental and cultural impacts).

¹⁹ *See* Letter from J.K. Curtis, Dominion, to P. Goddard, NPCA, at 3 (Mar. 21, 2016) (noting that PJM concurred in Dominion's updated 2016 modeling and alternatives analysis) (quoting Letter from S. Herling, PJM, to Col. J. Kelly, Corps (Jan. 25, 2016)).

²⁰ NPS acknowledges that information about the use of HDD for oil and gas pipelines is not new. NPS Letter at 5 (HDD "has been in use in the oil and gas pipeline industry for quite some time").

Initially, NPS takes the language it quotes from the 2016 IRP a bit out of context. The complete statement in the 2016 IRP from which NPS quotes reads:

On a long-term basis, the economic outlook for Virginia remains positive. Over the next 15 years, real per-capita income in the state is expected to grow about 1.6% per year on average, while real GSP is projected to grow more than 2.0% per year on average. During the same period, Virginia's population is expected to grow steadily at an average rate of approximately 0.75% per year. Further, after the Atlantic Coast Pipeline ("ACP") is completed, new industrial, commercial and residential load growth is expected to materialize as additional low-cost natural gas is made available to the geographical region.

Dominion 2016 IRP at 26. This discussion is about the long-term economic outlook in Virginia, generally, and is part of a few paragraphs providing a very high level summary of potential future economic growth, which is a key driver of energy consumption in Virginia (gas and electric), and thus, in Dominion's energy sales and load forecasts.²¹ Thus, the quoted language does not stand as an analysis of what impacts additional gas supply in the NHRLA might have. It simply notes that as part of longer term economic forecasting, the ACP is expected to result in growth that in turn will increase energy consumption. Notably, the IRP is not talking specifically about gas or electric here, but both. And of course, the "new industrial, commercial, and residential" growth that the ACP is expected to bring will create both gas and electric load demand, as these new uses will require electricity, as well as potentially gas. [Moreover, most of the ACP capacity is already spoken for as it will supply gas for new electric generation units along its route that will replace retired coal units.]

In any event, as the project location map for the ACP project demonstrates,²² the ACP lateral in question will be located in the Southampton Roads Area, south of the James River, and not in the NHRLA. It would not be able support any potential new gas fired generation needed in the NHRLA, including at the Yorktown Power Station. Thus, NPS is incorrect that the "ACP pipeline must be considered as a source of natural gas to Dominion Virginia Power and a possible option to reduce the need and/or size of the transmission line due to the options for natural gas fired electricity generation in the NHRLA." NPS Letter at 7. That conclusion is consistent with the Corps' conclusion that there currently is not sufficient gas supply to repower the Yorktown Power Station with gas.²³

Finally, NPS also is incorrect to suggest that the expected economic growth related to the ACP (and its attendant and expected creation of additional energy demand (for both gas and electric), primarily in the Southampton Roads area) cannot be considered because the gas provided by the ACP cannot be considered on the supply side. As the facts suggest, the two issues do have not an inverse relationship. NPS' statements regarding gas supply and the ACP do add new information or other impact the Corps' previously decisions regarding repowering Yorktown

²¹ Dominion 2016 IRP at 25-26.

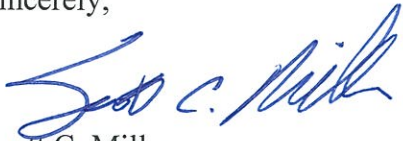
²² Dominion, ACP Maps, at <https://www.dom.com/corporate/what-we-do/atlantic-coast-pipeline/maps>.

²³ White Paper at 3; *see also* Stantec Alts. §§ 3.2.1.2, 3.2.1.4 (there is insufficient gas supply to repower Yorktown Power Station or support the development of new gas-powered generation in the NHRLA).

Power Station or developing new generation in the NHRLA, or regarding the need for, or scope of, the Project.

If you have any questions regarding this response, please contact me.

Sincerely,



Scott C. Miller

cc: Randy Steffey
Environmental Scientist/Project Manager USACE