

**Dominion Energy**  
P.O. Box 26666, Richmond, VA 23261  
DominionEnergy.com



David J. DePippo  
Senior Counsel  
Direct: (804) 819-2411  
Facsimile: (804) 819-2183  
david.j.depippo@dominionenergy.com

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Via Email

Ms. Anna Lawston  
U.S. Army Corps of Engineers - Norfolk District  
803 Front Street  
Norfolk, Virginia 23510

RE: Response to the U.S. Army Corps of Engineers's Questions Related to the Proposed Haymarket Transmission Line

Dear Ms. Lawston:

This letter responds to three questions the U.S. Army Corps of Engineers ("Corps") asked VADATA, Inc., the project proponent for the Midwood project permit application ("Midwood Project"), to pass along to Virginia Electric and Power Company ("Dominion Energy Virginia" or the "Company").<sup>1</sup> The Company received those questions by email dated May 30, 2017, from David Dutton, a consultant for VADATA. The questions pertain to the Company's plans to respond to VADATA's request for electrical service to its existing and proposed data centers, including those that are the subject of the Midwood Project. The Corps's questions are set out below in bold, and the Company's responses follow after each question.

For clarity, and before responding to the Corps's questions, Dominion Energy Virginia notes that for its purposes (*i.e.*, the sole purpose of providing reliable electricity to customers in its service territory), it considers the VADATA "Project" to consist of four data center buildings – an existing building plus new buildings 1, 2 and 3 – all of which already are taking or have requested service from the Company. The Company understands that the existing building and building 1 are (1) built, (2) currently operating as data centers, and (3) are neither part of the Midwood Project, nor subject to the Corps's jurisdiction. Therefore, the Company further understands that only proposed buildings 2 and 3 are part of the Midwood Project. With

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<sup>1</sup> Effective May 10, 2017, Dominion Resources, Inc., the Company's publicly held parent company, changed its name to Dominion Energy, Inc. As part of this corporate-wide rebranding effort, Virginia Electric and Power Company has changed its "doing business as" ("d/b/a") names in Virginia and North Carolina effective May 12, 2017. In Virginia, the Company's d/b/a name has been changed from Dominion Virginia Power to Dominion Energy Virginia.

these clarifications and understandings in mind, the Company will provide its responses below and use the terms Project and Midwood Project as appropriate to answer the Corps's questions about the Company's provision of reliable electricity to the Haymarket Load Area.

**Why did Dominion Energy Virginia propose to serve the Project with a new substation and transmission line rather than distribution lines from an existing substation?**

Dominion Energy Virginia proposed a substation and transmission solution to serve VADATA's existing and proposed four data center buildings (*i.e.*, the Project), as well as other existing and projected load in the Haymarket Load Area, which consists of over 6,000 homes and businesses, including the Novant Health UVA Haymarket Medical Center. Generally, the Haymarket Load Area includes all distribution customers served by the Gainesville Substation along U.S. Route 29, State Route 55, and Heathcote Boulevard. A distribution-only solution is not adequate for future use.

Specifically, the Company's distribution network in the Haymarket Load Area consists of three 34.5 kilovolt ("kV") distribution circuits. These distribution circuits ("DC" or lines) are known as Gainesville DC #378, #379, and #695. From the Gainesville Substation, DC #379 and #695 run 1.0 mile south to Wellington Road and 2.0 miles west along Wellington Road to the intersection of U.S. Route 29. At this location, DC #379 and DC #695 circuit split and take separate paths until they tie at the existing building at the VADATA facility. DC #379 generally follows Heathcote Boulevard underground for 4.0 miles to the VADATA facility, while DC #695 generally follows State Route 55 overhead for 2.7 miles to the VADATA facility. DC #378 feeds north out of Gainesville Substation and crosses Prince William Parkway, State Route 55, and U.S. Route 29. The circuit then parallels U.S. Route 29 to the area near the intersection of U.S. Route 29 and State Route 619, where it splits with a branch continuing along U.S. 29, and a branch overbuilt on existing DC #695 through the Town of Haymarket to the VADATA facilities. Of these three circuits, in addition to serving VADATA's existing building and building 1, DC#379 currently serves residential and commercial load along Heathcote Boulevard, DC#695 serves residential and commercial load along State Route 55, and DC#378 serves residential and commercial load along U.S. Route 29, with an overbuild section along State Route 55. A map of these distribution circuits is enclosed for your reference.

As discussed further below, these three circuits are utilized fully to serve the current load in the Haymarket Load Area (which includes the VADATA existing building and building 1), and will be so until the Haymarket Substation is energized. Gainesville DC #379 and #695 are rated for 36 Mega Volt Amps ("MVA") and Gainesville DC #378 is rated for 54 MVA (for a total of 126 MVA for all three lines), with differing amounts of load served by each circuit. Further, due to the amount of load identified by VADATA for the Project and the line mileage from the Company's existing Gainesville Substation, prudent utility practice would prevent building additional distribution circuits to feed the Haymarket Load Area for the long term. In addition, Section 6 of the Company's planning criteria contained in its 2017 Facilities Interconnection Requirements ("FIR") recommends the use of transmission facilities for all

loads over 20 megawatts (“MW”), with minimum existing or predicted loads of 30 MW for the use of 230 kV transmission facilities, or when there are insufficient or remote distribution facilities.<sup>2</sup> Both circumstances are present here. *See also infra* note 3.

**What customer(s) will the proposed transmission line serve? Will service be limited to the Project, or will others in the Haymarket community be benefited?**

The proposed transmission line and Haymarket Substation will serve the Haymarket Load Area customer load in addition to the VADATA Project load. The Company’s current plan is to serve directly all customers west of Route 15 from the new facilities upon energizing the transmission line. This covers approximately 460 customers, including the VADATA load and Novant Health UVA Haymarket Medical Center. In addition, because the new Haymarket distribution circuits out of the Haymarket Substation fed by the proposed transmission line will relieve load from, and be tied into, the existing Gainesville circuits, it will increase the reliability for all 6,000+ customers in the Haymarket Load Area during planned and unplanned outages (see response to the third question below for additional detail). The proposed transmission line and Haymarket Substation also increases the available capacity in the Haymarket Load Area for future development, both residential and commercial. For example, Northern Virginia Electric Cooperative previously has expressed an interest in a new delivery point near or potentially within the proposed Haymarket Substation to help accommodate their load growth in the area, and to resolve operational issues between their Broad Run Substation to the west and their Evergreen Substation to the north. The Company also presented evidence as part of the State Corporation Commission proceeding that the Prince William County Planning Office has estimated approximately 4.9 million square feet of non-residential development remaining to be built in the Company’s service territory that would be served through a combination of the Company’s existing Gainesville Substation and the new Haymarket facilities.<sup>3</sup> *See also infra* note 4 and related text.

**If the [Midwood] Project were to not be constructed, would the transmission line still be constructed?**

As noted above, the Company considers the “Project” to be all four VADATA buildings, including the existing building and building 1, which are operating as data centers and taking electric service. Dominion Energy Virginia has been given no reason to believe that buildings 2 and 3, which are the subject of the Corps’s review, will not be constructed. Nevertheless, should the Midwood Project not be constructed, for the reasons discussed below, in combination with

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<sup>2</sup> A copy of the Company’s FIR can be found at <https://www.dominionenergy.com/about-us/moving-energy/electric-transmission-access> (last visited June 13, 2017).

<sup>3</sup> *See Application of Virginia Electric and Power Co. For approval and Certification of Electric Facilities Haymarket 230 kV Double Circuit Transmission Line and 230-34.5 kV Haymarket Substation*, PUE-2015-00107, Report of Glenn P. Richardson, Hearing Examiner at 63-65 (Nov. 15, 2016) (finding that the current distribution circuits do not have the necessary capacity to meet the current and projected growth and finding the transmission line is necessary).

the Company's answer to the first two questions, the Company believes it would still need a transmission solution in the Haymarket Load Area.

As noted, the Company has three distribution circuits in this area. The existing and subscribed load on these circuits *without any load from buildings 2 and 3* are set out in the table below. This load is the combined load from the customers in the area and the VADATA load for the existing building and building 1.

<b>Circuit</b>	<b>Load (MVA)</b>	<b>Max. Capacity (MVA)</b>	<b>% Loaded</b>
DC #379	35.7	36	99.2%
DC #695	30.7	36	85.3%
DC #378	45.7	54	84.6%

The remaining 0.3 MVA of capacity on the DC#379 could be overloaded by the addition of a commercial building (*e.g.*, a Home Depot)<sup>4</sup> or large residential development.

The high loading levels here present serious operational issues for the Company in maintaining a reliable electric system in the Haymarket Load Area. Throughout the year, the Company is required to switch load from one source to another during planned and unplanned outage events. During unplanned outage events, such as a car hitting a pole, fallen trees, or lightning, the Company typically operates in a "switch-before-fix" method to restore as many customers as possible in a timely manner. In a "switch-before-fix" method, the Company switches load from the affected circuit to an adjacent circuit with capacity to quickly restore electricity to as many customers as possible. Unfortunately, with these three distribution circuits loaded as they are, the Company may not have the available capacity to switch any load during an outage event. This means that the Company cannot operate in a "switch-before-fix" method, and instead has to operate in a "fix-before-restore" method, leading to longer outage times for all customers on the affected circuit. As an example, on June 3, 2017, the Company experienced equipment failure on DC #379 that could have resulted in a 8-9 hour outage for the Novant Health UVA Haymarket Medical Center if the temperature would have been 10-15 degrees warmer.<sup>5</sup> This is because the higher temperatures would have created additional load that would have prevented the Company from operating in the "switch-before-fix" method. Moreover, in the event the Company needs to take planned outages for maintenance operations, connecting

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<sup>4</sup> We reference a Home Depot here because during the evidentiary hearing before the State Corporation Commission, a local developer's representative testified that it owned a large parcel adjacent to the existing Wal-Mart located in the Haymarket Village Center at the intersection of U.S. Route 15 and State Route 55, and that the developer was planning to build a 160,000 square foot "full retail center" that was anchored by a Home Depot. *Application of Virginia Electric and Power Co. For approval and Certification of Electric Facilities Haymarket 230 kV Double Circuit Transmission Line and 230-34.5 kV Haymarket Substation*, PUE-2015-00107, Testimony of Peter Cooper at 25, 35 (June 21, 2016).

<sup>5</sup> Considering that the high temperature that day in Haymarket was only 84 F with 34% humidity, it is not hard to imagine that, under the current electrical circumstances, the risk of longer outages due to "fix-before-restore" situations is significant. See <https://www.timeanddate.com/weather/usa/haymarket/historic> (last visited June 13, 2017).

new customers, or other purposes, existing customers in the Haymarket Load Area may experience extended outage times due to the lack of available capacity on the circuits in the load area that they otherwise would have not experienced.

As noted above, the Company's planning criteria in its FIR advises the consideration of transmission solutions anytime there are large capacity loads (anything over 20 MW (and over 30 MW for 230 kV transmission facilities)), or insufficient or remote distribution facilities. Both of these situations exist even without VADATA buildings 2 and 3 because the existing building and building 1 are over 30 MW, and the Company considers the Haymarket Load Area to have insufficient and remote distribution for the reasons discussed above, and because it is located approximately six miles from the nearest substation (Gainesville).

Finally, the Company notes that the operational scheme noted above, wherein three distribution circuits are serving the existing VADATA building and building 1 (in addition to the rest of the Haymarket Area Load), is considered to be a "bridging power" situation. In such situations, the use of distribution as "bridging power" is meant as an interim solution while a permanent, long-term transmission line solution is developed, the requisite approvals are obtained, and construction is completed. Bridging power is not meant to be a permanent solution due to operational risks, including those noted herein.

If the Corps has any questions concerning the Company's response to its questions, please do not do not hesitate to contact me by email at david.j.depippo@dominionenergy.com or by phone at 804-819-2411.

Sincerely,

/s/David J. DePippo

David J. DePippo  
Senior Counsel

Enclosure

cc: Tom Walker, U.S. Army Corps of Engineers  
David Dutton, Dutton & Associates  
Deborah Tompkins Johnson, Regional Policy Director, Dominion Energy  
Chris Behrens, Project Manager, Dominion Energy