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VIA ELECTRONIC DELIVERY

March 21, 2016

William H. Chambliss, Esq.
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Office of General Counsel
Tyler Building – 10th Floor
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Richmond, Virginia 23219

**Application of Virginia Electric and Power Company for approval and certification of
electric facilities: Haymarket 230 kV Double Circuit Transmission Line
and 230-34.5 kV Haymarket Substation
Case No. PUE-2015-00107**

Dear Counsel:

Enclosed are the responses of Virginia Electric and Power Company to the Interrogatories and Requests for Production of Documents by the Staff of the State Corporation Commission (First Set). The attachments to Question No. 8 are confidential and will be provided under separate cover. The responses to Question Nos. 9, and 14 - 17 will be forthcoming.

Should you have any questions regarding this matter, please do not hesitate to contact me.

Sincerely,

A handwritten signature in blue ink that reads "Charlotte P. McAfee/vmc".

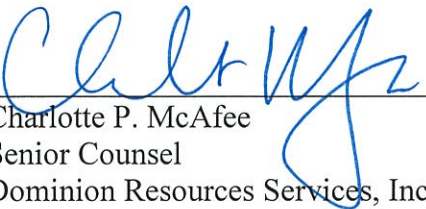
Charlotte P. McAfee
Senior Counsel

Enclosure

cc: Mr. Neil Joshipura
Will Reisinger, Esq.
Vishwa Link, Esq.
Jennifer Valaika, Esq.
Will Reisinger, Esq.

Virginia Electric and Power Company
Case No. PUE-2015-00107
Virginia State Corporation Commission Staff
First Set

The following response to Question No. 1 of the First Set of Interrogatories and Requests for Production of Documents propounded by Virginia State Corporation Commission Staff received on March 10, 2016 has been prepared under my supervision.


Charlotte P. McAfee
Senior Counsel
Dominion Resources Services, Inc.

Question No. 1

Please provide the initial and revised responses to all formal or informal interrogatories or data request made by any party to this proceeding when that response is provided to the requesting party.

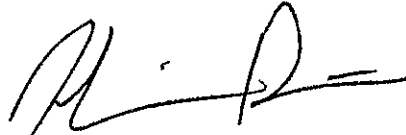
Response:

Copies of responses to all formal and informal interrogatories, requests for production of documents, and other requests for data made by a party to Virginia Electric and Power Company (“Dominion Virginia Power” or the “Company”) pursuant to 5 VAC 5-20-260 in this proceeding will be provided or otherwise made available to the Commission Staff, except where the Company withholds such responses on the basis of privilege or other reasonable objections. Where the Company considers information contained in such responses to be confidential or extraordinarily sensitive, such responses may be provided to the Commission Staff pursuant to the protections set forth in 5 VAC 5-20-170, the Hearing Examiner’s Protective Ruling issued on March 15, 2016 in Case No. PUE-2015-00107, and any subsequent Protective Ruling that may be issued in this proceeding. Third-party proprietary information will be provided subject to any restrictions on use and/or disclosure imposed by the owner of the proprietary information.

On a continuing basis, for the period of this proceeding, the Company will provide copies of all responses provided to any party intervening in this docket by posting copies to an electronic discovery site (eRoom) established in this case (PUE-2015-00107).

Virginia Electric and Power Company
Case No. PUE-2015-00107
Virginia State Corporation Commission Staff
First Set

The following response to Question No. 2 of the First Set of Interrogatories and Requests for Production of Documents Propounded by the Virginia State Corporation Commission Staff received on March 10, 2016 has been prepared under my supervision.



Harrison Potter
Engineer III
Dominion Virginia Power

Question No. 2

Please provide a detailed history of the Gainesville distribution circuits ("DC") #379, #695, and #378. Specifically, for each circuit, provide when it was originally energized, a map of its route, a list of any upgrades or expansions, and the rationale for each such upgrade or expansion.

Response:

See Attachment Staff Set 1-2(1) for the map of all three circuits. Attachment Staff Set 1-2(2) is a copy of the Haymarket Load Area (as defined in Section I.A. of the Appendix) map on Commission velum print.

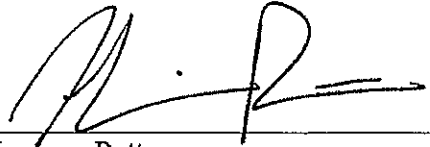
Gainesville distribution circuit ("DC") #378 was energized in August of 2015 to relieve DC #379 and DC #695 in order to free up capacity for load growth of an existing data center customer being fed by those circuits. An additional line extension overbuilding DC #695 west along State Route ("SR") 55 is nearing completion in order to bridge the Customer's initial phase of the Customer's buildout until the Haymarket Substation and 230 kV lines are built.

Gainesville DC #379 was built and energized prior to 1992. The DC #379 circuit originally served U.S. 29 load only. The circuit was expanded to serve residential and commercial load along Heathcote Boulevard north of Interstate 66 ("I-66") in the 2009-2010 timeframe to relieve loading concerns on DC #695.

Gainesville DC #695 was built and energized prior to 1992. DC #695 originally served load on U.S. 29, along with the entire load west of U.S. 29 along SR 55 towards the Town of Haymarket including the load that is now served by DC #379. During 2009-2010, the load north of I-66 was shifted to DC#379 to relieve loading concerns.

Virginia Electric and Power Company
Case No. PUE-2015-00107
Virginia State Corporation Commission Staff
First Set

The following response to Question No. 3 of the First Set of Interrogatories and Requests for Production of Documents Propounded by the Virginia State Corporation Commission Staff received on March 10, 2016 has been prepared under my supervision.



Harrison Potter
Engineer III
Dominion Virginia Power

Question No. 3

On page 9 of the Appendix to the Application, the Company states that the Gainesville DC #379 and #695 are rated for 36 MVA and the Gainesville DC #378 is rated for 54 MVA. Is it possible for the Company to uprate the Gainesville DC #379 and #695 circuits to match the 54 MVA capacity of the Gainesville DC #378? If not, please explain the rationale.

Response:

Increasing the capacity of DC #379 and DC #695 to 54 MVA is feasible, but it would not replace the need for Haymarket Substation.

Assuming DC#379 and DC#695 were uprated to 54 MVA circuits and Dominion Virginia Power had adequate transformer capacity, the total DC capacity of the three circuits feeding the Haymarket Load Area would be 166 MVA (54 MVA x 3). As identified in Attachment I.B.1 of the Appendix, DC #378 serves 16.4 MVA, DC #379 serves 11.0 MVA, and DC #695 serves 12.3 MVA of non-data center load (39.7 MVA total), limiting even uprated distribution circuits to 126.3 MVA of capacity. An existing data center customer is currently ramping up towards a 40 MVA buildout which, in combination with the 120 MVA of proposed data center facilities, would require 160 MVA of capacity on the three distribution circuits. Even if the circuits were uprated, with 126.3 MVA of capacity to serve 160 MVA of load, additional distribution circuits would be required.

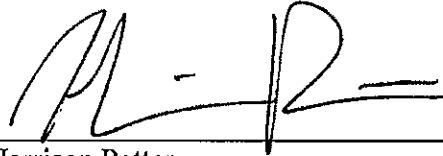
Gainesville Substation has two 230-34.5 kV 84 MVA distribution transformers. With the additional transformer proposed in Case No. PUE-2014-00025, Gainesville Substation does not have physical room for additional transformation. Gainesville transformer ("TX") #1 feeds DC #379 (36 MVA capacity) and #380 (36 MVA capacity), for a total of 72 MVA of circuit

capacity. Gainesville TX#4 feeds DC #378 (54 MVA capacity) and #695 (36 MVA capacity), for a total of 90 MVA of circuit capacity. Upgrading DC #695 to 54 MVA capacity would increase the circuit capacity to 108 MVA on an 84 MVA transformer. The additional circuit capacity would be limited by the transformer size and would not be able to be utilized.

DC #379 and #695 are built to 36 MVA Dominion Virginia Power 34.5 kV distribution circuit standards. Upgrading to 54 MVA standards is not simple and would require 795AL overhead conductor coupled with parallel 1000 kcmil underground cable that cannot be tapped to serve customer load between overhead facilities. The reconductor of existing overhead 477AL sections of DC #379 and #695 would require additional mid-span poles, stronger cross-arms, and longer guy leads requiring additional rights of way from landowners.

Virginia Electric and Power Company
Case No. PUE-2015-00107
Virginia State Corporation Commission Staff
First Set

The following response to Question No. 4 of the First Set of Interrogatories and Requests for Production of Documents Propounded by the Virginia State Corporation Commission Staff received on March 10, 2016 has been prepared under my supervision.

A handwritten signature in black ink, appearing to read 'H. Potter', written over a horizontal line.

Harrison Potter
Engineer III
Dominion Virginia Power

Question No. 4

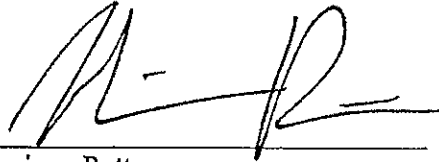
Attachment I.B.2 of the Appendix to the Application shows the customer's load at 101 MVA in 2017; however, Attachment I.B.3 shows the customer's load at 40 MVA in 2017. Please explain the discrepancy.

Response:

As described on page 10 of the Appendix, Attachment I.B.2 reflects the Customer's original requested load ramp schedule. Dominion Virginia Power coordinated with the Customer on an adjusted ramp schedule reflecting the estimated time necessary for permitting and construction of the Project. Attachment I.B.3 reflects this adjusted ramp schedule and supports the identified summer 2018 need date.

Virginia Electric and Power Company
Case No. PUE-2015-00107
Virginia State Corporation Commission Staff
First Set

The following response to Question No. 5 of the First Set of Interrogatories and Requests for Production of Documents Propounded by the Virginia State Corporation Commission Staff received on March 10, 2016 has been prepared under my supervision.



Harrison Potter
Engineer III
Dominion Virginia Power

Question No. 5

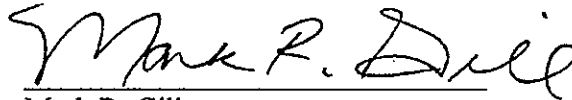
Once the proposed transmission Project is constructed, will the three distribution circuits remain in place? If so, what purpose will the circuits serve? Will the circuits provide redundancy to the Haymarket data center campus, for reliability purposes?

Response:

Yes, the three distribution circuits will remain in place after the Project is constructed. The circuits will be used to serve existing Dominion Virginia Power customer load, future load growth, and reliability support for all customers in the Haymarket Load Area, including the Haymarket data center campus.

Virginia Electric and Power Company
Case No. PUE-2015-00107
Virginia State Corporation Commission Staff
First Set

The following response to Question No. 6 of the First Set of Interrogatories and Requests for Production of Documents Propounded by the Virginia State Corporation Commission Staff received on March 10, 2016 has been prepared under my supervision.



Mark R. Gill
Consulting Engineer
Dominion Virginia Power

Question No. 6

Please provide the Company's basis for uprating Line #124 from 115 kV to 230 kV.

Why is this voltage uprate required for the proposed Project?

- a. Provide a list of each network violation that would occur if the Haymarket Project was constructed at the 115 kV level. Provide power flow printouts identifying each violation.

Response:

Converting Line #124 from 115 kV to 230 kV is consistent with the Company's practice of using 230 kV to support demand growth in northern Virginia. This approach was identified and established over multiple approved Company electric transmission projects, including in Case Nos. PUE-2009-00134, PUE-2011-00011, PUE-2012-00065, and PUE-2014-00025. Indeed, since at least 2009, the Company has made consistent efforts in the northern Virginia transmission planning area to move load off the 115 kV system and convert to 230 kV where appropriate because of the dynamic nature of load growth in the area, particularly block load additions.

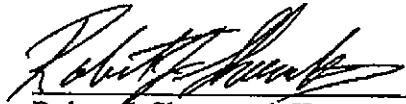
The voltage uprate is required in order to provide an appropriate tap point for the proposed Project since additional 230 kV terminals cannot be accommodated at the Company's Gainesville Substation. See the Company's response to Question No. 7 of the Staff's First Set.

A formal load flow study of the Haymarket Project constructed at 115 kV has not been performed since serving this amount of new load with 115 kV service, particularly in the northern Virginia area of the Company's territory, is not consistent with the Company's practice

and does not represent good utility practice. See the Company's response to Question No. 11 of the Staff's First Set.

Virginia Electric and Power Company
Case No. PUE-2015-00107
Virginia State Corporation Commission Staff
First Set

The following response to Question No. 7 of the First Set of Interrogatories and Requests for Production of Documents Propounded by the Virginia State Corporation Commission Staff received on March 10, 2016 has been prepared under my supervision as it pertains to transmission line engineering.


Robert J. Shevenock II
Consulting Engineer
Dominion Technical Solutions, Inc.

The following response to Question No. 7 of the First Set of Interrogatories and Requests for Production of Documents Propounded by the Virginia State Corporation Commission Staff received on March 10, 2016 has been prepared under my supervision as it pertains to station engineering.

Wilson Velazquez
Supervisor Substation Engineering
Dominion Technical Solutions, Inc.

Question No. 7

Describe any hardware (conductors, switches, line traps, etc.) changes associated with uprating Circuit #124 to 230 kV.

Response:

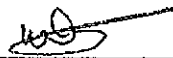
The Company's existing Line #124 between Gainesville Substation and Loudoun Switching Station ("Loudoun Station") was designed and constructed for 230 kV operation in the underbuild position of the Line #535 structures. This did not include 230 kV connections at Gainesville Substation and Loudoun Station.

Virginia Electric and Power Company
Case No. PUE-2015-00107
Virginia State Corporation Commission Staff
First Set

The following response to Question No. 7 of the First Set of Interrogatories and Requests for Production of Documents Propounded by the Virginia State Corporation Commission Staff received on March 10, 2016 has been prepared under my supervision as it pertains to transmission line engineering.

Robert J. Shevenock II
Consulting Engineer
Dominion Technical Solutions, Inc.

The following response to Question No. 7 of the First Set of Interrogatories and Requests for Production of Documents Propounded by the Virginia State Corporation Commission Staff received on March 10, 2016 has been prepared under my supervision as it pertains to station engineering.



Wilson Velazquez
Supervisor Substation Engineering
Dominion Technical Solutions, Inc.

Question No. 7

Describe any hardware (conductors, switches, line traps, etc.) changes associated with uprating Circuit #124 to 230 kV.

Response:

The Company's existing Line #124 between Gainesville Substation and Loudoun Switching Station ("Loudoun Station") was designed and constructed for 230 kV operation in the underbuild position of the Line #535 structures. This did not include 230 kV connections at Gainesville Substation and Loudoun Station.

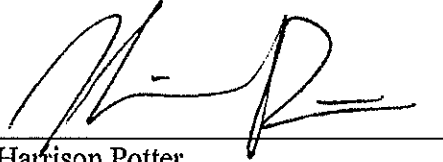
See Section I.D of the Appendix for a description of the transmission line facilities to be removed in association with conversion of existing Line #124 to 230 kV. The transmission line work includes removing the 115 kV connections at Gainesville Substation, Catharpin DP, and Loudoun Station.

The transmission line work also includes installing connections to the 230 kV bus at Gainesville Substation and Loudoun Station. The transmission line work at Gainesville Substation includes the installation of a 3-pole terminal structure, a 3-pole angle structure, a backbone structure, and two spans of conductor between the structures. The transmission line work at Catharpin DP includes the installation of a terminal structure and transfer of the existing tap span to the structure. The transmission line work at Loudoun Station includes the installation of an A-frame and a double circuit backbone inside the station along with the installation of three spans of conductor.

The substation work required at Loudoun Station and Gainesville Substation is described in full in Section II.C of the Appendix.

Virginia Electric and Power Company
Case No. PUE-2015-00107
Virginia State Corporation Commission Staff
First Set

The following response to Question No. 8 of the First Set of Interrogatories and Requests for Production of Documents Propounded by the Virginia State Corporation Commission Staff received on March 10, 2016 has been prepared under my supervision.



Harrison Potter
Engineer III
Dominion Virginia Power

Question No. 8

Please provide copies of the following documents:

- a. The Request for Information "RFI" for the Project provided by the customer.
- b. The Load Letter for each of the buildings that will be served. Include any changes/revisions made.
- c. Most recent ramp schedule.
- d. The contract between the customer and Dominion Virginia Power, which document might also be called the "Electric Service Agreement."
- e. The Letter of Authorization between the customer and Dominion Virginia Power.

Response:

The Request for Information ("RFI") submitted by a customer for a new or expanding development / load is typically the first communication between Dominion Virginia Power and a customer outlining the location, need date, and preliminary load ramp for the new or expanded load. The Company received the RFI for the Customer's Haymarket Campus in February 2014 and it is provided as Confidential Attachment Staff Set 1-8(1).

Prior to filing an application with the Commission for this transmission line extension there were three key pieces of information required: (1) Letter of Authorization, (2) ramp schedule, and (3) real estate ownership/control. The Customer's revised ramp schedule is provided as Confidential Attachment Staff Set 1-8(2).

The Letter of Authorization was signed on February 15, 2015 and is provided as Confidential Attachment Staff Set Informal (1). The Customer acquired the land on September 14, 2015.

On February 25, 2016 the Company received the load letter provided as Confidential Attachment Staff Set 1-8(3) with an August 3, 2016 target date for energization of the first phase of the Customer's development. The load letter is required in order for the Company to calculate and write the Electric Service Agreement contract language.

Prior to the energization of the meter, the Electric Service Agreement is provided to and must be signed by the customer, and must be accompanied by any outstanding payments the Customer must contribute. This has not occurred on any of the three buildings because they have not been developed to the point that setting a meter is appropriate. The Company has requested an updated ramp schedule from the Customer reflecting the projected timing for the three buildings but has not yet received it.

All of the information in Confidential Attachments Staff Set 1-8(1)-(3) is Confidential and is being provided to Staff pursuant to the protections set forth in 5 VAC 5-20-170, and subject to those protections set forth in the Hearing Examiner's Protective Ruling issued on March 15, 2016 in Case No. PUE-2015-00107.

Virginia Electric and Power Company
Case No. PUE-2015-00107
Virginia State Corporation Commission Staff
First Set

The following response to Question No. 10 of the First Set of Interrogatories and Requests for Production of Documents Propounded by the Virginia State Corporation Commission Staff received on March 10, 2016 has been prepared under my supervision.



Harrison Potter
Engineer III
Dominion Virginia Power

Question No. 10

Describe the geographical area referred to as the "Haymarket Load Area" as defined in the Company's Application.

- a. Does this area include the existing data center currently being served by DC #379 and #695? If so, how much of the current load is associated with the existing data center?
- b. Provide a map of the Haymarket Load Area with each distribution circuit included on the map.

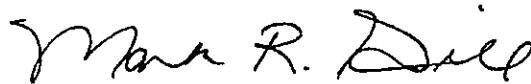
Response:

The Haymarket Load Area includes all distribution customers served by Gainesville Substation along U.S. 29 and SR 55. This area includes the existing data center building served by DC #379 and #695. The existing data center customer demand is 19.5 MVA.

See Attachment Staff Set 1-2 for a map of the Haymarket Load Area.

Virginia Electric and Power Company
Case No. PUE-2015-00107
Virginia State Corporation Commission Staff
First Set

The following response to Question No. 11 of the First Set of Interrogatories and Requests for Production of Documents Propounded by the Virginia State Corporation Commission Staff received on March 10, 2016 has been prepared under my supervision.



Mark R. Gill
Consulting Engineer
Dominion Virginia Power

Question No. 11

In justifying its need for the Project, the Company states that "...prudent utility practice would prevent building additional distribution circuits to feed the Customer long-term." Additionally, the Company utilizes Section G of its Transmission Planning Criteria which recommends the general use of transmission facilities for "[a]ll loads and generation over 20 MW." Please describe the basis for this practice in detail, including the rationale for the 20 MW threshold. Specifically, relate this practice to the Haymarket Project.

Response:

See Section I.B of the Appendix (n. 9 at p. 8) for the FERC definition of "prudent utility practices."


In addition, Section G of the Company's Transmission Planning Criteria states that *"transmission facilities may be used. . . when the use of distribution feeders is not practicable"* and *"generally, the use of transmission facilities should be considered for the following conditions"* which include *"all loads over 20 MW"* and *"remote locations where distribution facilities are not adequate."* The Company's Transmission Planning Criteria are now provided in Section 6 of the NERC FAC-001-2 mandatory Facility Interconnection Requirements ("FIR") document which is available at www.dom.com/library/domcom/pdfs/electric-transmission/facility-connection-requirements.pdf.

The 20 MW threshold is considered a *minimum* load level within the ten-year planning horizon that must be met as a condition for interconnecting to the transmission system. The 20 MW threshold is applied to 115 kV and 138 kV transmission lines and increases to 30 MW as the *minimum* threshold required for interconnecting with the 230 kV transmission system. Interconnection of loads below these levels will be permitted if the reliability of distribution

alternatives is clearly inferior and costs exceed those associated with a transmission-voltage interconnection. The approximately 120 MVA of new load projected for the Customer's Haymarket Campus (160 MVA for the proposed Haymarket Substation at full build-out) clearly exceeds the minimum 30 MW threshold for interconnecting with the 230 kV transmission system.

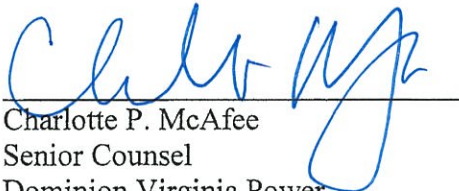
Virginia Electric and Power Company
Case No. PUE-2015-00107
Virginia State Corporation Commission Staff
First Set

The following response to Question No. 12 of the First Set of Interrogatories and Requests for Production of Documents Propounded by the Virginia State Corporation Commission Staff received on March 10, 2016 has been prepared under my supervision as it pertains to transmission planning.



Mark R. Gill
Consulting Engineer
Dominion Virginia Power

The following response to Question No. 12 of the First Set of Interrogatories and Requests for Production of Documents Propounded by the Virginia State Corporation Commission Staff received on March 10, 2016 has been prepared under my supervision as it pertains to legal matters.



Charlotte P. McAfee
Senior Counsel
Dominion Virginia Power

Question No. 12

What is the basis of the Company's selection of 100 MW as the limit for radial transmission lines?

- a. Has NERC provided any guidance relative to what utilities should utilize as the load limit for radial transmission lines? If so, please provide.
- b. Has PJM provided any guidance relative to what utilities should utilize as the load limit for radial transmission lines? If so, please provide.
- c. Provide the load limits for radial transmission lines for other utilities within PJM.

Response:

The complete set of NERC Reliability Standards referenced in this response is available at www.nerc.com/pa/Stand/Pages/default.aspx.

- a. There are no NERC-specified limits on radial transmission line loading. The purpose of the NERC Facility Connection (“FAC”) standards is to avoid adverse impacts on reliability by requiring each Transmission Owner (“TO”) to establish facility connection and performance requirements in accordance with FAC-001, and that the TO’s and end-users meet and adhere to the established facility connection and performance requirements in accordance with FAC-002.

Specifically, FAC-001-2 requirement R1 requires the TO to document and make available the Facility Interconnection Requirements, and FAC-002-2 requirement R1.1.2 requires the Planning Coordinator (here PJM), the TO (here Dominion Virginia Power), and the end-users to adhere to the TO planning criteria and Facility Interconnection Requirements. The Company maintains the Facility Interconnection Requirements document, including the Company’s Transmission Planning Criteria, to meet the mandatory NERC FAC requirements. Section C.2.6 of the Company’s Transmission Planning Criteria limits loading on a radial feed in excess of 100 MW. Additionally, the practice of requiring the TOs to develop and adhere to requirements is consistent with other NERC Reliability Standards.

For example, the NERC Transmission System Planning Performance Requirements set forth in TPL-001-4 require that transmission system planning performance requirements must be established to develop a Bulk Electric System (“BES”) that will operate reliably over a broad spectrum of system conditions and contingency events. Although the TPL standard identifies some of the categories of performance metrics that must be set – thermal, voltage, and cascading, for example – NERC does not define those metrics, instead leaving the Planning Coordinator (here PJM) and TO to specify the metrics that best meet the needs of their specific geographic area. NERC does, however, mandate that Dominion Virginia Power and PJM adhere to the established TO criteria in order to avoid being subjected to penalties.

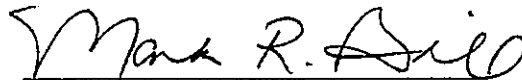
- b. PJM has not provided any guidance regarding radial transmission line loading; however, as indicated above, the NERC standards require PJM to follow and adhere to the TO criteria.
- c. The Company objects to this request to the extent that it seeks publicly-available information maintained by other TOs and/or available from PJM and would require original work. Notwithstanding and subject to the foregoing objection, the Company provides the following response.

In 2014, as part of its planning criteria review process, the Company conducted a survey through the North American Transmission Forum to learn how peer TOs facilitate expansion of radial transmission lines and accommodate direct connection of load to networked transmission lines. The Company presented the results of that survey to its stakeholders, which included cooperatives and municipalities, on October 16, 2014. That presentation is included as Attachment Staff Set 1-12. As noted in Attachment Staff Set 1-12, among the peer utilities having a “maximum load” criteria for radial lines, there was only one utility with a higher criteria (120 MW) than the Company, with the others

at 70, 60, 50, 30, or 20 MW. This survey was also the basis for the Company adding the MW per mile exposure criteria for radial lines.

Virginia Electric and Power Company
Case No. PUE-2015-00107
Virginia State Corporation Commission Staff
First Set

The following response to Question No. 13 of the First Set of Interrogatories and Requests for Production of Documents Propounded by the Virginia State Corporation Commission Staff received on March 10, 2016 has been prepared under my supervision.



Mark R. Gill
Consulting Engineer
Dominion Virginia Power

Question No. 13

Would NERC or PJM requirements prohibit the Company from amending its Transmission Planning Criteria to create a different load limit for radial transmission lines that are needed for a line extension to serve a single customer, such as a data center? If the Company is prohibited from developing such criteria, please provide the document(s) that serve as the basis for that prohibition. If the Company is not prohibited from developing such criteria, please detail whether the Company will develop a different criteria for such scenarios or if it will not develop such criteria, the reasons it won't.

Response:

The Company is not prohibited from amending its Transmission Planning Criteria. As discussed in the Company's response to Question No. 12(c) of the Staff's First Set, the Company conducted a survey through the North American Transmission Forum to learn how peer TOs facilitate expansion of radial transmission lines and accommodate direct connection of load to networked transmission lines. The results of that survey were the basis for the Company adding the MW per mile exposure criteria for radial lines. In fact, the Company regularly reviews its Transmission Planning Criteria and makes adjustments where appropriate to support "prudent utility practices" in order to provide and maintain a reliable and resilient transmission system for the specific geographic area and customer base served.

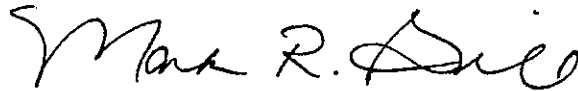
The 100 MW radial criterion has been evaluated on multiple occasions and the Company maintains that this threshold is appropriate regardless of the number or type of customers served. The objective of the criterion is to establish a reasonable and standardized level of service expectation for large MW loads to prevent extended duration outages for the loss of a transmission source. Typically, it is extremely difficult or impossible to restore radially-fed loads at or above this threshold exclusively through distribution circuit ties. Additionally, the

Company believes that making an exception based entirely on the type of customer (*i.e.*, data centers) or number of customers that make up the 100+ MW load could ultimately reduce reliability and negatively impact economic development, as well could be inconsistent with the Company's responsibility to provide non-discriminatory service.

The number of customers or meters comprising a load does not correspond to the level of system reliability impacts that would occur should a loss of service event occur. In its application of its transmission planning criteria, the Company does not distinguish between a single block load customer and a cooperative delivery point serving thousands of residential customers, as an example.

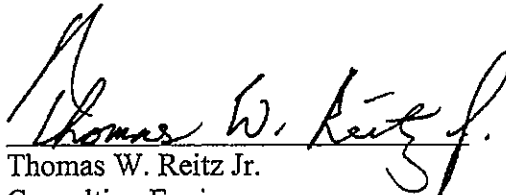
Virginia Electric and Power Company
Case No. PUE-2015-00107
Virginia State Corporation Commission Staff
First Set

The following response to Question No. 18 of the First Set of Interrogatories and Requests for Production of Documents Propounded by the Virginia State Corporation Commission Staff received on March 10, 2016 has been prepared under my supervision as it pertains to electric transmission planning.



Mark R. Gill
Consulting Engineer
Dominion Virginia Power

The following response to Question No. 18 of the First Set of Interrogatories and Requests for Production of Documents Propounded by the Virginia State Corporation Commission Staff received on March 10, 2016 has been prepared under my supervision as it pertains to underground transmission line engineering.



Thomas W. Reitz Jr.
Consulting Engineer
Dominion Technical Solutions

Question No. 18

Describe the feasibility of a "Single-Circuit I-66 Hybrid Alternative." This alternative would follow the same electrical configuration as the I-66 Hybrid Alternative (double-circuit 230 kV loop) to the transition station and then, from the transition station, extend a single-circuit 230 kV transmission line underground to the proposed Haymarket Substation along the same route as the I-66 Hybrid Alternative. Include the cost, reliability, and environmental impact.

Response:

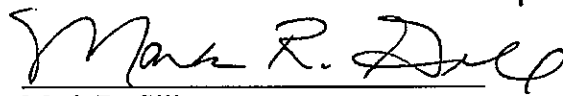
For the same reasons that a double circuit Haymarket Loop was proposed instead of a single circuit tap, as stated in Section I.A of the Appendix, a "Single-Circuit I-66 Hybrid Alternative" would not be acceptable since the Customer's proposed load ramp schedule is projected to

exceed 100 MW. This would create loading on a radial line in excess of 100 MW, which is a violation of the Company's NERC-compliant Transmission Planning Criteria, specifically Section C.2.6, which limits loading on a radial feed in excess of 100 MW without "an alternate transmission supply." See also the Company's response to Question No. 13 of the Staff's First Set.

Because the Single-Circuit I-66 Hybrid Alternative is not electrically feasible, the Company has not conducted additional analysis.

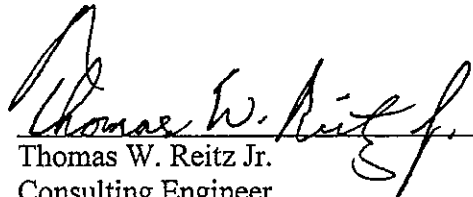
Virginia Electric and Power Company
Case No. PUE-2015-00107
Virginia State Corporation Commission Staff
First Set

The following response to Question No. 19 of the First Set of Interrogatories and Requests for Production of Documents Propounded by the Virginia State Corporation Commission Staff received on March 10, 2016 has been prepared under my supervision as it pertains to electric transmission planning.



Mark R. Gill
Consulting Engineer
Dominion Virginia Power

The following response to Question No. 19 of the First Set of Interrogatories and Requests for Production of Documents Propounded by the Virginia State Corporation Commission Staff received on March 10, 2016 has been prepared under my supervision as it pertains to underground transmission line engineering.



Thomas W. Reitz Jr.
Consulting Engineer
Dominion Technical Solutions

Question No. 19

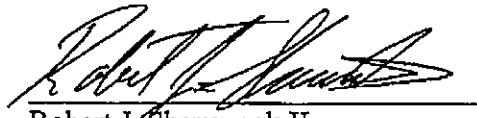
Compare the Company's I-66 Hybrid option versus the Single-Circuit I-66 Hybrid Alternative described in the previous question. Include comparisons of cost, reliability, and environmental impact, and projected construction time.

Response:

See the Company's response to Question No. 18 of the Staff's First Set.

Virginia Electric and Power Company
Case No. PUE-2015-00107
Virginia State Corporation Commission Staff
First Set

The following response to Question No. 20 of the First Set of Interrogatories and Requests for Production of Documents Propounded by the Virginia State Corporation Commission Staff received on March 10, 2016 has been prepared under my supervision as it pertains to transmission line engineering.



Robert J. Shevenock II
Consulting Engineer
Dominion Technical Solutions, Inc.

Question No. 20

Please provide the minimum and maximum design heights for the structures along all five of the proposed and alternative routes.

Response:

The range of structure heights assumed for the estimated transmission line cost for the proposed and alternative routes are listed below. The heights should be considered preliminary in nature and subject to change based on final design. The structure heights listed below do not include foundation reveal which is typically approximately 1.5 feet.

<u>Route</u>	<u>Range of Pole Heights Assumed for Cost Estimate</u>
Carver	90-125 ft.
I-66 Hybrid	105-125 ft.
I-66 Overhead (proposed Project)	90-125 ft.
Madison	90-125 ft.
Railroad	80-125 ft.

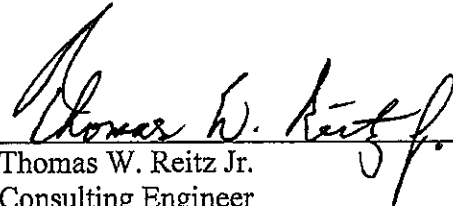
Virginia Electric and Power Company
Case No. PUE-2015-00107
Virginia State Corporation Commission Staff
First Set

The following response to Question No. 21 of the First Set of Interrogatories and Requests for Production of Documents Propounded by the Virginia State Corporation Commission Staff received on March 10, 2016 has been prepared under my supervision as it pertains to transmission line planning.



Mark R. Gill
Consulting Engineer
Dominion Virginia Power

The following response to Question No. 21 of the First Set of Interrogatories and Requests for Production of Documents Propounded by the Virginia State Corporation Commission Staff received on March 10, 2016 has been prepared under my supervision as it pertains to underground line engineering.



Thomas W. Reitz Jr.
Consulting Engineer
Dominion Technical Solutions

Question No. 21

Compare the Company's proposal for an underground transition station versus a transitional riser pole for the Company's I-66 Hybrid option. Include comparisons of reliability, cost, and constructability.

Response:

The transitional riser pole would not eliminate the need for an underground transition station since a four-breaker 230 kV ring bus would still be required to allow continued network flow, in the event that one of the underground lines was out of service for an extended period of time, and to facilitate the interconnection of the two 50-100 MVAR reactor banks.