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Case Name (if known)	Application of Virginia Electric and Power Company for approval and certification of electric transmission facilities: Line # 235 Extension to Cloud 230 kV and Related Projects
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June 30, 2021

#### **BY ELECTRONIC FILING**

Mr. Bernard Logan, Clerk c/o Document Control Center State Corporation Commission 1300 East Main Street Tyler Building – 1st Floor Richmond, Virginia 23219

#### Application of Virginia Electric and Power Company for approval and certification of electric transmission facilities: Line # 235 Extension to Cloud 230 kV and Related Projects <u>Case No. PUR-2021-00137</u>

Dear Mr. Logan:

Please find enclosed for electronic filing in the above-captioned proceeding the application for approval of electric facilities on behalf of Virginia Electric and Power Company (the "Company"). This filing contains the Application, Appendix, Direct Testimony, and DEQ Supplement, including attachments.

As indicated in Section II.A.12.b of the Appendix, three (3) color copies of the map of the Virginia Department of Transportation "General Highway Map" for Mecklenburg County were mailed to the Commission's Division of Energy Regulation on June 28, 2021. The Company also provided the Division of Energy Regulation electronic access, via e-room on June 28, 2021, to the digital geographic information system ("GIS") map required by § 56-46.1 of the Code of Virginia, which is Attachment II.A.2 to the Appendix.

Please do not hesitate to call if you have any questions in regard to the enclosed.

Very truly yours,

Unohur B. China

Vishwa B. Link

Enclosures

cc: William H. Chambliss, Esq. Mr. David Essah Mr. Neil Joshipura David J. DePippo, Esq.

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Application, Appendix, DEQ Supplement, Direct Testimony and Exhibits of Virginia Electric and Power Company

Before the State Corporation Commission of Virginia

Line #235 Extension to Cloud 230 kV and Related Projets

**Application No. 306** 

Case No. PUR-2021-00137

Filed: June 30, 2021

Volume 1 of 2

# COMMONWEALTH OF VIRGINIA BEFORE THE STATE CORPORATION COMMISSION

## APPLICATION OF

### VIRGINIA ELECTRIC AND POWER COMPANY

# FOR APPROVAL AND CERTIFICATION OF ELECTRIC TRANSMISSION FACILITIES

# Line #235 Extension to Cloud 230 kV and Related Projects

Application No. 306

# Appendix

Containing Information in Response to "Guidelines for Transmission Line Applications Filed Under title 56 of the Code of Virginia"

Case No. PUR-2021-00137

Filed: June 30, 2021

#### COMMONWEALTH OF VIRGINIA

#### STATE CORPORATION COMMISSION

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APPLICATION OF

VIRGINIA ELECTRIC AND POWER COMPANY

For approval and certification of electric transmission facilities: Line #235 Extension to Cloud 230 kV and Related Projects

Case No. PUR-2021-00137

#### APPLICATION OF VIRGINIA ELECTRIC AND POWER COMPANY FOR APPROVAL AND CERTIFICATION OF ELECTRIC TRANSMISSION FACILITIES: LINE #235 EXTENSION TO CLOUD 230 KV AND RELATED PROJECTS

Pursuant to § 56-46.1 of the Code of Virginia ("Va. Code") and the Utility Facilities Act, Va. Code § 56-265.1 *et seq.*, Virginia Electric and Power Company ("Dominion Energy Virginia" or the "Company"), by counsel, files with the State Corporation Commission of Virginia (the "Commission") this application for approval and certification of electric transmission facilities (the "Application"). In support of its Application, Dominion Energy Virginia respectfully shows as follows:

1. Dominion Energy Virginia is a public service corporation organized under the laws of the Commonwealth of Virginia furnishing electric service to the public within its Virginia service territory. The Company also furnishes electric service to the public in portions of North Carolina. Dominion Energy Virginia's electric system—consisting of facilities for the generation, transmission, and distribution of electric energy—is interconnected with the electric systems of neighboring utilities and is a part of the interconnected network of electric systems serving the continental United States. By reason of its operation in two states and its interconnections with other utilities, the Company is engaged in interstate commerce. 2. In order to perform its legal duty to furnish adequate and reliable electric service, Dominion Energy Virginia must, from time to time, replace existing transmission facilities or construct new transmission facilities in its system. The electric facilities proposed in this Application are necessary so that Dominion Energy Virginia can continue to provide reliable electric service to its customers, consistent with applicable reliability standards.

3. In this Application, in order to provide service to two delivery points ("DP") requested by Old Dominion Electric Cooperative ("ODEC"), on behalf of Mecklenburg Electric Cooperative ("MEC"), for MEC to provide service to one of its customers in Mecklenburg County, Virginia; to maintain reliable service for the overall growth in the area; and to comply with mandatory North American Electric Reliability Corporation ("NERC") Reliability Standards, the Company proposes to complete the following in Mecklenburg County, Virginia:

- (i) convert the Company's existing Cloud 115 kV Switching Station<sup>1</sup> located on six acres at the former Mecklenburg Correctional Center (960 Prison Road, Boydton, Virginia) in Mecklenburg County to a 230 kV switching station ("Cloud 230 kV Switching Station");
- (ii) convert the Company's under construction Easters 115 kV Switching Station<sup>2</sup> located between future 115 kV Line #1042 and existing 115 kV Line #137 (both lines between Ridge Road 115 kV Substation and Kerr Dam 115 kV Substation) in Mecklenburg County to a 230 kV switching station ("Easters 230 kV Switching Station"), and add one 230 kV 84 MVAR cap bank in the Easters 230 kV Switching Station for voltage support;

<sup>&</sup>lt;sup>1</sup> On November 8, 2020, the Company requested that Commission Staff ("Staff") find that the Company's work associated with the construction of its proposed 115 kV Cloud Switching Station qualified as "ordinary extensions or improvements in the usual course of business" pursuant to § 56-265.2 A 1 of the Va. Code and, therefore, did not require approval pursuant to Va. Code § 56-46.1 B or a CPCN from the Commission. Specifically, this proposed project included looping existing 115 kV Line #38 in and out of a new breaker station (the 115 kV Cloud Switching Station) to provide service to MEC's Coleman Creek DP, which was intended to serve the load of a new data center under construction in Mecklenburg County. On November 22, 2020, Staff agreed that the construction of the Company's proposed Cloud Switching Station qualified as ordinary course.

<sup>&</sup>lt;sup>2</sup> The proposed in-service date for the Easters Switching Station is November 1, 2021. Since the energization date for this Switching Station occurs after the Company files its Application for these Projects, the Company notes that the 115 kV Easters Switching Station is under construction.

- (iii) cut the Clover-Farmville Line #235 at Structure #235/310 (a point starting west of Chase City Substation), and extend (a) one 230 kV line to the Cloud 230 kV Switching Station, resulting in the 230 kV Farmville-Cloud Line #235; (b) one 230 kV line to the Easters 230 kV Switching Station and renumber the Line #235 structures between Structure #235/310-Clover Substation, resulting in the 230 kV Clover-Easters Line #2226, and (c) one 230kV line between the Easters 230 kV Switching Station and Cloud 230 kV Switching Station, resulting in the 230 kV Easters-Cloud Line #2229. Two 230 kV lines will be installed primarily along approximately 15.3 miles of existing right-of-way with expanded rights-of-way east of the Chase City Substation by less than 0.1 mile, at the Ridge Road Junction by 0.3 mile, and at the Boydton DP by 0.4 mile to accommodate the proposed area of the Projects, totaling approximately 0.7 mile of new rights-of-way. The lines will be supported by 96 double circuit 2-pole galvanized steel structures, 7 double circuit galvanized steel poles, and 4 single circuit galvanized steel H-frame structures utilizing a three-phase twin-bundled 795 ACSR type conductor with a summer transfer capability of 1225 MVA (collectively, "Line #235 Extension"); and
- (iv) relocate Line Numbers 40, 171, and 1009 in an approximate 0.55 mile section of right-of-way located east of the Chase City Substation to allow for the installation of the proposed 230 kV lines (collectively, "115 kV Line Relocations"). To accommodate the 115 kV Line Relocations within the existing right-of-way, the Company proposes to install two single circuit galvanized steel poles; five double circuit galvanized steel poles; two single circuit galvanized steel H-frames; and three triple circuit galvanized steel H-frames.

The proposed Cloud 230 kV Switching Station, proposed Easters 230 kV Switching Station, Line

#235 Extension, and 115 kV Line Relocations are collectively referred to as the "Projects."

4. The Projects are necessary to assure that MEC can support the load growth in

Mecklenburg County. On October 12, 2020, ODEC, on behalf of MEC, submitted to the Company

two DP requests to serve large data center campuses in Mecklenburg County, known as the

"Coleman Creek DP" and "Timber DP."

5. The Coleman Creek DP is located in Mecklenburg County south of Route 58, which

is about two miles west of the double circuit 115 kV Line #38 (Kerr Dam Substation to Cloud

Switching Station) and 115 kV Line #137 (Kerr Dam Substation to Ridge Road Substation). The

Cloud 230 kV Switching Station will feed MEC's Coleman Creek Substation at the Coleman

Creek DP to power MEC's customer's "Prison" data center campus. The Timber DP is located in Mecklenburg County along the existing double circuit 115 kV Line #137 (Kerr Dam Substation to Ridge Road Substation) and 115 kV Line #38 (Kerr Dam Substation to Cloud Switching Station) transmission corridor, which is southeast of the junction of 115 kV Line Numbers 1009, 171, 38, and 137 (also known as Ridge Road Junction). The Easters 230 kV Switching Station will feed MEC's Timber Substation at the Timber DP to power MEC's customer's Timber data center campus.

6. The desired in-service date of the proposed Projects is June 1, 2024, based on information provided to the Company from MEC about its customer's load ramp. The total load at the Cloud 230 kV Switching Station and Easters 230 kV Switching Station is projected to be approximately 419 MW at full build-out. The existing Cloud 115 kV Switching Station and under construction Easters 115 kV Switching Station can provide up to 100 MW and 41 MW, respectively. Per the existing load ramp, the capacities for both switching stations will be exceeded by summer 2024. At which point, the Cloud 230 kV Switching Station and Easters 230 kV Switching Station conversion will be required to accommodate the future load growth.

7. In addition to MEC's customer's two data center campuses, future data centers are expected in this region of Mecklenburg County. The timing of these projects is not yet defined, but the Company is tracking these projects as future load growth in the area, as the proposed Cloud 230 kV Switching Station and Easters 230 kV Switching Station could also serve these projects. Constructing the proposed Projects within this high potential growth area will therefore allow the Company to continue to serve future economic development in the area in a timely manner.

8. Accordingly, the proposed Projects are needed to meet the load requirements of MEC's customer's two new data center campuses and can serve future load growth in Mecklenburg County, which will, in turn, facilitate economic growth in the Commonwealth.

9. The desired in-service target date for the proposed Projects is June 1, 2024. The Company estimates it will take approximately 23 months for detailed engineering, materials procurement, permitting, real estate, and construction after a final order from the Commission. Accordingly, to support this estimated construction timeline and construction plan, the Company respectfully requests a final order by July 1, 2022. Should the Commission issue a final order by July 1, 2022, the Company estimates that construction should begin around April 1, 2023, and be completed by the in-service target date of June 1, 2024. This construction timeline will enable the Company to meet the targeted in-service date for the Projects. This schedule is contingent upon obtaining the necessary permits and transmission line outages; dates may need to be adjusted based on permitting or outage delays, or design modifications in order to comply with additional agency requirements identified during the permitting application process.

10. The estimated conceptual cost of the proposed Projects is approximately \$101.5 million, which includes approximately \$66.2 million for transmission-related work and approximately \$35.3 million for substation-related<sup>3</sup> work (2021 dollars). The description of the proposed Projects is described in detail in Sections I and II of the Appendix attached to this Application.

11. The majority of the Projects is within the Company's existing right-of-way and extends for 15.3 miles; however, as noted above, to accommodate the Projects, the Company will

<sup>&</sup>lt;sup>3</sup> The Company notes that the substation-related costs provided above include the costs that ODEC, on behalf of MEC, intends to pay on behalf of its customer as excess facilities charges for these Projects.

need to expand the rights-of-way east of Chase City Substation, at the Ridge Road Junction, and at the Boydton DP, totaling approximately 0.7 mile of expanded rights-of-way. Section II of the Appendix addresses routing issues. The impact of the proposed Projects on scenic, environmental, and historical features is described in detail in Section III of the Appendix.

12. Based on the Company's experience, the advice of consultants, and a review of published studies by experts in the field, the Company believes that there is no causal link to harmful health or safety effects from electric and magnetic fields generated by the Company's existing or proposed facilities. Section IV of the Appendix provides further details on Dominion Energy Virginia's consideration of the health aspects of electric and magnetic fields.

13. Section V of the Appendix provides a proposed route description for public notice purposes and a list of federal, state, and local agencies and officials that the Company has or will notify about the Application.

14. Based on consultations with the Virginia Department of Environmental Quality ("DEQ"), the Company has developed a supplement ("DEQ Supplement") containing information designed to facilitate review and analysis of the proposed facilities by the DEQ and other relevant agencies. The DEQ Supplement is attached to this Application.

15. In addition to the information provided in the Appendix and the DEQ Supplement, this Application is supported by the pre-filed direct testimony of Company Witnesses Kunal Amare, Furmose Gomez, Mohammad Othman, and Lane Carr filed with this Application.

6

WHEREFORE, Dominion Energy Virginia respectfully requests that the Commission:

 (a) direct that notice of this Application be given as required by § 56-46.1 of the Code of Virginia;

(b) approve pursuant to § 56-46.1 of the Code of Virginia the construction of the Projects; and,

(c) grant a certificate of public convenience and necessity for the Projects under

the Utility Facilities Act, § 56-265.1 et seq. of the Code of Virginia.

#### VIRGINIA ELECTRIC AND POWER COMPANY

By: <u>/s/ Vishwa B. Link</u> Counsel for Applicant

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June 30, 2021

# COMMONWEALTH OF VIRGINIA BEFORE THE STATE CORPORATION COMMISSION

### APPLICATION OF

### VIRGINIA ELECTRIC AND POWER COMPANY

### FOR APPROVAL AND CERTIFICATION OF ELECTRIC TRANSMISSION FACILITIES

# Line #235 Extension to Cloud 230 kV and Related Projects

Application No. 306

# Appendix

Containing Information in Response to "Guidelines for Transmission Line Applications Filed Under title 56 of the Code of Virginia"

Case No. PUR-2021-00137

Filed: June 30, 2021

### TABLE OF CONTENTS

Execut	ive Summaryi
I.	Necessity for the Proposed Project 1
П.	Description of the Proposed Project
III.	Impact of Line on Scenic, Environmental and Historic Features
IV.	Health Aspects of EMF 211
V.	Notice

#### **Executive Summary**

In order to provide service to two delivery points ("DP") requested by Old Dominion Electric Cooperative ("ODEC"), on behalf of Mecklenburg Electric Cooperative ("MEC"), for MEC to provide service to one of its customers in Mecklenburg County, Virginia; to maintain reliable service for the overall growth in the area; and to comply with mandatory North American Electric Reliability Corporation ("NERC") Reliability Standards, Virginia Electric and Power Company ("Dominion Energy Virginia" or the "Company") proposes to complete the following in Mecklenburg County, Virginia:

- (i) convert the Company's existing Cloud 115 kV Switching Station<sup>1</sup> located on six acres at the former Mecklenburg Correctional Center (960 Prison Road, Boydton, Virginia) in Mecklenburg County to a 230 kV switching station ("Cloud 230 kV Switching Station");
- (ii) convert the Company's under construction Easters 115 kV Switching Station<sup>2</sup> located between future 115 kV Line #1042 and existing 115 kV Line #137 (both lines between Ridge Road 115 kV Substation and Kerr Dam 115 kV Substation) in Mecklenburg County to a 230 kV switching station ("Easters 230 kV Switching Station"), and add one 230 kV 84 MVAR cap bank in the Easters 230 kV Switching Station for voltage support;
- (iii) cut the Clover-Farmville Line #235 at Structure #235/310 (a point starting west of Chase City Substation), and extend (a) one 230 kV line to the Cloud 230 kV Switching Station, resulting in the 230 kV Farmville-Cloud Line #235; (b) one 230 kV line to the Easters 230 kV Switching Station and renumber the Line #235 structures between Structure #235/310-Clover Substation, resulting in the 230 kV Clover-Easters Line #2226, and (c) one 230kV line between the Easters 230 kV Switching Station and Cloud 230 kV Switching Station, resulting in the 230 kV Switching Station and Cloud 230 kV Switching Station, resulting in the 230 kV Easters-Cloud Line #2229. Two 230 kV lines will be installed primarily along approximately 15.3 miles of existing right-of-way with expanded rights-of-way east of the Chase City Substation by less than 0.1 mile, at the Ridge Road Junction by 0.3 mile, and at the Boydton DP by 0.4 mile to accommodate the proposed area of the Projects, totaling approximately 0.7 mile of new rights-of-way. The lines will be supported by 96 double circuit 2-pole galvanized steel structures, 7 double circuit galvanized steel poles, and 4 single circuit galvanized steel H-frame structures utilizing a three-phase twin-bundled 795 ACSR type conductor with a

<sup>&</sup>lt;sup>1</sup> On November 8, 2020, the Company requested that Commission Staff ("Staff") find that the Company's work associated with the construction of its proposed 115 kV Cloud Switching Station qualified as "ordinary extensions or improvements in the usual course of business" pursuant to § 56-265.2 A 1 of the Va. Code and, therefore, did not require approval pursuant to Va. Code § 56-46.1 B or a CPCN from the Commission. Specifically, this proposed project included looping existing 115 kV Line #38 in and out of a new breaker station (the 115 kV Cloud Switching Station) to provide service to MEC's Coleman Creek DP, which was intended to serve the load of a new data center under construction in Mecklenburg County. On November 22, 2020, Staff agreed that the construction of the Company's proposed Cloud Switching Station qualified as ordinary course.

<sup>&</sup>lt;sup>2</sup> The proposed in-service date for the Easters Switching Station is November 1, 2021. Since the energization date for this Switching Station occurs after the Company files its Application for these Projects, the Company notes that the 115 kV Easters Switching Station is under construction.

summer transfer capability of 1225 MVA (collectively, "Line #235 Extension"); and

(iv) relocate Line Numbers 40, 171, and 1009 in an approximate 0.55 mile section of right-of-way located east of the Chase City Substation to allow for the installation of the proposed 230 kV lines (collectively, "115 kV Line Relocations"). To accommodate the 115 kV Line Relocations within the existing right-of-way, the Company proposes to install two single circuit galvanized steel poles; five double circuit galvanized steel poles; two single circuit galvanized steel H-frames; and three triple circuit galvanized steel H-frames, as further discussed in Section V.A below.

The proposed Cloud 230 kV Switching Station, proposed Easters 230 kV Switching Station, Line #235 Extension, and 115 kV Line Relocations are collectively referred to as the "Projects."

The Projects are necessary to assure that MEC can support the load growth in Mecklenburg County. On October 12, 2020, ODEC, on behalf of MEC, submitted to the Company two DP requests to serve large data center campuses in Mecklenburg County, known as the "Coleman Creek DP" and "Timber DP."

The Coleman Creek DP is located in Mecklenburg County south of Route 58, which is about two miles west of the double circuit 115 kV Line #38 (Kerr Dam Substation to Cloud Switching Station) and 115 kV Line #137 (Kerr Dam Substation to Ridge Road Substation). The Cloud 230 kV Switching Station will feed MEC's Coleman Creek Substation at the Coleman Creek DP to power MEC's customer's "Prison" data center campus.

The Timber DP is located in Mecklenburg County along the existing double circuit 115 kV Line #137 (Kerr Dam Substation to Ridge Road Substation) and 115 kV Line #38 (Kerr Dam Substation to Cloud Switching Station) transmission corridor, which is southeast of the junction of 115 kV Line Numbers 1009, 171, 38, and 137 (also known as Ridge Road Junction). The Easters 230 kV Switching Station will feed MEC's Timber Substation at the Timber DP to power MEC's customer's Timber data center campus.

The desired in-service date of the proposed Projects is June 1, 2024, based on information provided to the Company from MEC about its customer's load ramp. The total load at the Cloud 230 kV Switching Station and Easters 230 kV Switching Station is projected to be approximately 419 MW at full build-out. The existing Cloud 115 kV Switching Station and under construction Easters 115 kV Switching Station can provide up to 100 MW and 41 MW, respectively. Per the existing load ramp, the capacities for both switching stations will be exceeded by summer 2024. At which point, the Cloud 230 kV Switching Station and Easters 230 kV Switching Station conversion will be required to accommodate the future load growth.

In addition to MEC's customer's two data center campuses, future data centers are expected in this region of Mecklenburg County. The timing of these projects is not yet defined, but the Company is tracking these projects as future load growth in the area, as the proposed Cloud 230 kV Switching Station and Easters 230 kV Switching Station could also serve these projects. Constructing the

proposed Projects within this high potential growth area will therefore allow the Company to continue to serve future economic development in the area in a timely manner.

Accordingly, the proposed Projects are needed to meet the load requirements of MEC's customer's two new data center campuses and can serve future load growth in Mecklenburg County, which will, in turn, facilitate economic growth in the Commonwealth.

The majority of the Projects is within the Company's existing right-of-way and extends for 15.3 miles; however, as noted above, to accommodate the Projects, the Company will need to expand the rights-of-way east of Chase City Substation, at the Ridge Road Junction, and at the Boydton DP, totaling 0.7 mile of expanded rights-of-way.

The estimated conceptual cost of the proposed Projects is approximately \$101.5 million, which includes approximately \$66.2 million for transmission-related work and approximately \$35.3 million for substation-related<sup>3</sup> work (2021 dollars).

The desired in-service target date for the proposed Projects is June 1, 2024. The Company estimates it will take approximately 23 months for detailed engineering, materials procurement, permitting, real estate, and construction after a final order from the Commission. Accordingly, to support this estimated construction timeline and construction plan, the Company respectfully requests a final order by July 1, 2022. Should the Commission issue a final order by July 1, 2022, the Company estimates that construction should begin around April 1, 2023, and be completed by the in-service target date of June 1, 2024. This construction timeline will enable the Company to meet the targeted in-service date for the Projects. This schedule is contingent upon obtaining the necessary permits and transmission line outages; dates may need to be adjusted based on permitting or outage delays, or design modifications in order to comply with additional agency requirements identified during the permitting application process.

<sup>&</sup>lt;sup>3</sup> The Company notes that the substation-related costs provided above include the costs that ODEC, on behalf of the MEC, intends to pay on behalf of its customer (the "Customer") as excess facilities charges for these Projects.

#### I. NECESSITY FOR THE PROPOSED PROJECT

- A. State the primary justification for the proposed project (for example, the most critical contingency violation including the first year and season in which the violation occurs). In addition, identify each transmission planning standard(s) (of the Applicant, regional transmission organization ("RTO"), or North American Electric Reliability Corporation) projected to be violated absent construction of the facility.
- Response: The Projects are necessary to provide service to two DPs requested by ODEC, on behalf of MEC, for MEC to provide service to one of its customers in Mecklenburg County, Virginia, as discussed below, to maintain reliable service for the overall growth in the area, and to comply with mandatory NERC Reliability Standards. See <u>Attachment I.A.1</u> for an overview map of the proposed Projects.

Dominion Energy Virginia's transmission system is responsible for providing transmission service (i) for redelivery to the Company's retail customers; (ii) to Appalachian Power Company, ODEC, Northern Virginia Electric Cooperative ("NOVEC"), Central Virginia Electric Cooperative, and Virginia Municipal Electric Association for redelivery to their retail customers in Virginia; and, (iii) to North Carolina Electric Membership Corporation and North Carolina Eastern Municipal Power Agency for redelivery to their customers in North Carolina (collectively, the "Dominion Energy Zone" or "DOM Zone"). The Company needs to be able to maintain the overall, long-term reliability of its transmission system as its customers require more power in the future.

Dominion Energy Virginia is part of the PJM Interconnection, L.L.C. ("PJM") regional transmission organization ("RTO"), which provides service to a large portion of the eastern United States. PJM is currently responsible for ensuring the reliability and coordinating the movement of electricity through all or parts of Delaware, Illinois, Indiana, Kentucky, Maryland, Michigan, New Jersey, North Carolina, Ohio, Pennsylvania, Tennessee, Virginia, West Virginia, and the District of Columbia. This service area has a population of approximately 65 million and, on August 2, 2006, set a record high of 166,929 megawatts ("MW") for summer peak demand, of which Dominion Energy Virginia's load portion was approximately 19,256 MW serving 2.4 million customers. On July 20, 2020, the Company set a record high of 20,087 MW for summer peak demand. On February 20, 2015, the Company set a winter peak and all-time record demand of 21,651 MW. Based on the 2021 PJM load forecast, the Dominion Energy Zone is expected to grow with average growth rates of 0.5% summer and 0.9% winter over the next 10 years compared to the PJM average of 0.3% and 0.3% over the same period for the summer and winter, respectively.

Dominion Energy Virginia is also part of the Eastern Interconnection transmission grid, meaning its transmission system is interconnected, directly or indirectly, with all of the other transmission systems in the United States and Canada between the Rocky Mountains and the Atlantic Coast, except for Quebec and most of Texas. All of the transmission systems in the Eastern Interconnection are dependent on each other for moving bulk power through the transmission system and for reliability support. Dominion Energy Virginia's service to its customers is extremely reliant on a robust and reliable regional transmission system.

NERC has been designated by the Federal Energy Regulatory Commission ("FERC") as the electric reliability organization for the United States. Accordingly, NERC requires that the planning authority and transmission planner develop planning criteria to ensure compliance with NERC Reliability Standards. Mandatory NERC Reliability Standards require that a transmission owner ("TO") develop facility interconnection requirements that identify load and generation interconnection minimum requirements for a TO's transmission system, as well as the TO's reliability criteria.<sup>4</sup>

Federally mandated NERC Reliability Standards constitute minimum criteria with which all public utilities must comply as components of the interstate electric transmission system. Moreover, the Energy Policy Act of 2005 mandates that electric utilities follow these NERC Reliability Standards and imposes fines on utilities found to be in noncompliance up to \$1.3 million per day per violation.

PJM's Regional Transmission Expansion Plan ("RTEP") is the culmination of a FERC-approved annual transmission planning process that includes extensive analysis of the electric transmission system to determine any needed improvements.<sup>5</sup> PJM's annual RTEP is based on the effective criteria in place at the time of the analyses, including applicable standards and criteria of NERC, PJM, and local reliability planning criteria, among others.<sup>6</sup> Projects identified through the RTEP process are developed by the TO in coordination with PJM, and are presented at the Transmission Expansion Advisory Committee ("TEAC") meetings prior to inclusion in the RTEP that is then presented for approval by the PJM Board of Managers (the "PJM Board").

Outcomes of the RTEP process include three types of transmission system upgrades or projects: (i) baseline upgrades are those that resolve a system reliability criteria violation, which can include planning criteria from NERC, ReliabilityFirst, SERC Reliability Corporation, PJM, and TOs; (ii) network upgrades are new or upgraded facilities required primarily to eliminate reliability criteria violations caused by proposed generation, merchant transmission, or long-term firm transmission service requests; and (iii) supplemental projects are projects initiated by the TO in order to interconnect new customer load, address degraded equipment performance, improve operational flexibility and efficiency, and increase infrastructure resilience.

https://www.nerc.com/ layouts/15/PrintStandard.aspx?standardnumber=FAC-001-

3&title=Facility%20Interconnection%20Requirements&Jurisdiction=United%20States (effective Jan. 1, 2019).

<sup>&</sup>lt;sup>4</sup> See FAC-001-3, which can be found at

<sup>&</sup>lt;sup>5</sup> PJM Manual 14B focuses on the RTEP process and can be found at <u>https://www.pim.com/~/media/documents/manuals/m14b.ashx.</u>

<sup>&</sup>lt;sup>6</sup> See PJM Manual 14B, Attachment D: PJM Reliability Planning Criteria.

The Projects are classified as supplemental projects initiated by the TO in order to interconnect new customer load. While supplemental projects are included in the RTEP, and the PJM Board administers stakeholder review of supplemental projects as part of the RTEP process, the PJM Board does not actually approve such projects. See Section I.J for a discussion of the PJM process as it relates to these Projects.

On October 12, 2020, ODEC, on behalf of MEC, submitted to the Company two DP requests to serve large data center campuses in Mecklenburg County, known as the Coleman Creek DP and the Timber DP. The Coleman Creek DP is located in Mecklenburg County south of Route 58, which is about two miles west of the double circuit 115 kV Line #38 (Kerr Dam Substation to Cloud Switching Station) and 115 kV Line #137 (Kerr Dam Substation to Ridge Road Substation). This DP request from ODEC projected approximately 251 MW of load and an in-service date of June 1, 2024, for MEC to serve its customer's (the "Customer") new data ODEC's Coleman Creek DP request is provided as center development. Attachment I.A.2. Timber DP is located in Mecklenburg County along the existing double circuit 115 kV Line #137 (Kerr Dam Substation to Ridge Road Substation) and 115 kV Line #38 (Kerr Dam Substation to Cloud Switching Station) transmission corridor, which is southeast of the junction of 115 kV Line Numbers 1009, 171, 38, and 137 (the Ridge Road Junction). This DP request from ODEC projected approximately 168 MW of load and an in-service date of June 1, 2024, for MEC to serve its Customer's new data center development. ODEC's Timber DP request is provided as Attachment I.A.3.

#### **Substation Scope of Work**

The Company's Cloud 115 kV Switching Station<sup>7</sup> currently feeds MEC's Coleman Creek Substation at the Coleman Creek DP, which powers the Customer's "Prison" data center campus. The Company is also developing a switching station, Easters 230 kV Switching Station, in the area of the Projects, which is located on an approximately 7-acre site east of Ridge Road, to serve MEC's Timber DP. Currently, the Company's Easters 115 kV Switching Station<sup>8</sup> will feed MEC's Timber Substation at the Timber DP, which will power the Customer's Timber data center campus.

The Customer has requested retail electric service from MEC to support the future build-out of its two campuses: (1) the 145-acres Coleman Creek campus, and (2) the 330-acres Timber campus. Specifically, the Customer is requesting a total of 251 MW of power from the Coleman Creek DP, and 168 MW of power from the Timber DP, both DP's with normal service feeds and full capacity alternate feeds.

<sup>&</sup>lt;sup>7</sup> See supra n. 1.

<sup>&</sup>lt;sup>8</sup> See supra n. 2.

In addition to MEC's customer's two data center campuses, future data centers are expected in this region of Mecklenburg County. The timing of these projects is not yet defined, but the Company is tracking these projects as future load growth in the area, and the proposed Cloud 230 kV Switching Station and Easters 230 kV Switching Station could also serve these projects. Constructing the proposed Projects within this high potential growth area will therefore allow the Company to continue to serve future economic development in the area in a timely manner.

Accordingly, the proposed Projects are needed to meet the load requirements of MEC's customer's two new data center campuses and can serve future load growth in Mecklenburg County, which will, in turn, facilitate economic growth in the Commonwealth. The in-service date of the proposed Projects is June 1, 2024, based on information provided to the Company from MEC about its Customer's load ramp. The total load at the Cloud 230 kV Switching Station and Easters 230 kV Switching Station is projected to be approximately 419 MW at full build-out. The existing Cloud 115kV Switching Station and under construction Easters 115 kV Switching Station can provide up to 100 MW and 41 MW, respectively. Per the existing load ramp, these capacities will be exceeded by summer 2024. At which point, the 230 kV conversions will be required to accommodate the future load growth.

The Company has already constructed the Cloud 115 kV Switching Station by looping Line #38 (Kerr Dam 115 kV Substation to Cloud 115 kV Switching Station) and extending the double circuit 115 kV line to the Cloud 115 kV Switching Station. The 115 kV line number between Cloud 115 kV Switching Station to Boydton Plank Road 115 kV Substation is Line #1041 and Cloud 115 kV Switching Station to Kerr Dam 115 kV Substation is Line #38. See <u>Attachment I.A.4</u> for the existing system as of April 2021.

In the Projects, the Company proposes to convert the 115 kV Cloud Switching Station to the 230 kV Cloud Switching Station. The Company intends to use the proposed Cloud 230 kV Switching Station to continue to serve the Coleman Creek DP located on six acres at the old Mecklenburg Correctional Center (960 Prison Road, Boydton, Virginia) in Mecklenburg County. The existing Cloud 115kV Switching Station can provide up to 100 MW. Per the existing load ramp, this load will exceed 100 MW in summer 2024. At which point, the Cloud 230 kV Switching Station conversion will be required to accommodate the future load growth. The proposed Cloud 230 kV Switching Station will be constructed initially with four 230 kV breakers in a ring bus arrangement, two 224 MVA 230/115 kV transformers with breakers on both sides, and a 115 kV four breaker ring bus. Two 230 kV feeds will be provided to serve the Customer. The Switching Station will be designed to accommodate future growth in the area with a build-out of three row breakers and a half scheme bus with three 230 kV breakers in each row. The third 230 kV breaker and a half scheme bus row will be used for future Company 230 kV transmission lines and future MEC 230 kV feeds. The 115 kV bus will be designed to accommodate future 115 kV expansion with a build-out of two row breaker and half scheme bus with three 115 kV breakers in each row. The 230 kV Switching Station will be built to 3000 Amp Standards.

As noted above, the Company is also currently constructing the Easters 115 kV Switching Station, which is planned to be a 115 kV switching station, by cutting and terminating Line #137 (Kerr Dam Substation to Ridge Road Substation) into a four breaker 115 kV ring bus. The projected in-service date for this project is November 1, 2021. The conductor and switching station equipment used to interconnect Easters 115 kV with the transmission system will be the same as a 230 kV switching station and line equipment. See <u>Attachment I.A.5</u> for a one-line diagram of the system, as of November 2021, after construction of the Easters 115 kV Switching Station.

As part of the instant Projects, the Company also proposes to construct the Easters 230 kV Switching Station. The Easters 115 kV Switching Station and line equipment will be converted to the Easters 230 kV Switching Station. The Company intends to use the same 115 kV feed that enters into the Easters 115 kV Switching Station for the proposed 230 kV feed that will also enter the switching station. The Company proposes to terminate Line #2226 and Line #2229 into the Easters 230 kV Switching Station, resulting in (i) 230 kV Clover-Easters Line #2226, and (ii) 230 kV Cloud-Easters Line #2229. See Attachment I.A.6 for a one-line diagram of the proposed system after the completion of the 230 kV switching station conversion. One 230 kV 84 MVAR cap bank will be added in the Easters 230 kV Switching Station for voltage support. Once conversion from the 115 kV to 230 kV switching station is complete, the Easters 115 kV tap will be removed and Line #137 (Kerr Dam Substation to Ridge Road Substation) will be reconnected. The under construction Easters 115 kV Switching Station can provide up to 41 MW. Per the existing load ramp, this load will exceed 41 MW in summer 2024. At which point, the Easters 230 kV Switching Station conversion will be required to accommodate the future load growth. The Company will continue to deliver 115 kV into the Easters Switching Station until the 230 kV conversion is complete.

The proposed Easters 230 kV Switching Station will be constructed initially with four 230 kV breakers in a ring bus arrangement. Five 230 kV feeds will be provided to serve the Customer. The Easters 230 kV Switching Station will be designed to accommodate future growth in the area with a build-out of five row breakers and a half scheme bus with three 230 kV breakers in the first four rows and two 230 kV breakers in the last row. The 230 kV switching station will be built to 3000 Amp Standards.

#### **Transmission Scope of Work**

As part of the Projects' transmission scope of work, the Company proposes to construct the Line #235 Extension. This part of the Projects would include cutting the Clover-Farmville Line #235 at Structure #235/310 (a point starting west of Chase City Substation), and extending (a) one 230 kV line to the Cloud 230 kV

Switching Station, resulting in the 230 kV Farmville-Cloud Line #235; (b) one 230 kV line to the Easters 230 kV Switching Station and renumbering the Line #235 structures between Structure #235/310-Clover Substation, resulting in the 230 kV Clover-Easters Line #2226, and (c) one 230 kV line between the Easters 230 kV Switching Station and Cloud 230 kV Switching Station, resulting in the 230 kV Easters-Cloud Line #2229. Two 230 kV lines will be installed primarily along approximately 15.3 miles of existing right-of-way with expanded rights-of-way east of the Chase City Substation by less than 0.1 mile, at the Ridge Road Junction by 0.3 mile, and at the Boydton DP by 0.4 mile to accommodate the proposed area of the Projects, totaling approximately 0.7 mile of new rights-of-way. The lines will be supported by 96 double circuit 2-pole galvanized steel structures, 7 double circuit galvanized steel poles, and 4 single circuit galvanized steel H-frame structures utilizing a three-phase twin-bundled 795 ACSR type conductor with a summer transfer capability of 1225 MVA.

In these Projects, the Company also intends to complete the 115 kV Line Relocations. This part of the Projects includes relocating Line Numbers 40, 171, and 1009 in an approximate 0.55 mile section of right-of-way located east of the Chase City Substation, to allow for the installation of the proposed 230 kV lines. To accommodate the 115 kV Line Relocations within the existing right-of-way, the Company proposes to install two single circuit galvanized steel poles; five double circuit galvanized steel poles; two single circuit galvanized steel H-frames; and three triple circuit galvanized steel H-frames, as further discussed in Section V.A below.

See <u>Attachment I.A.6</u> for a one-line diagram of the proposed system after completion of the Projects in June 2024; specifically, please note the updates to the system after completion of the proposed transmission work described above.

#### Summary of the Scope of Work for the Projects

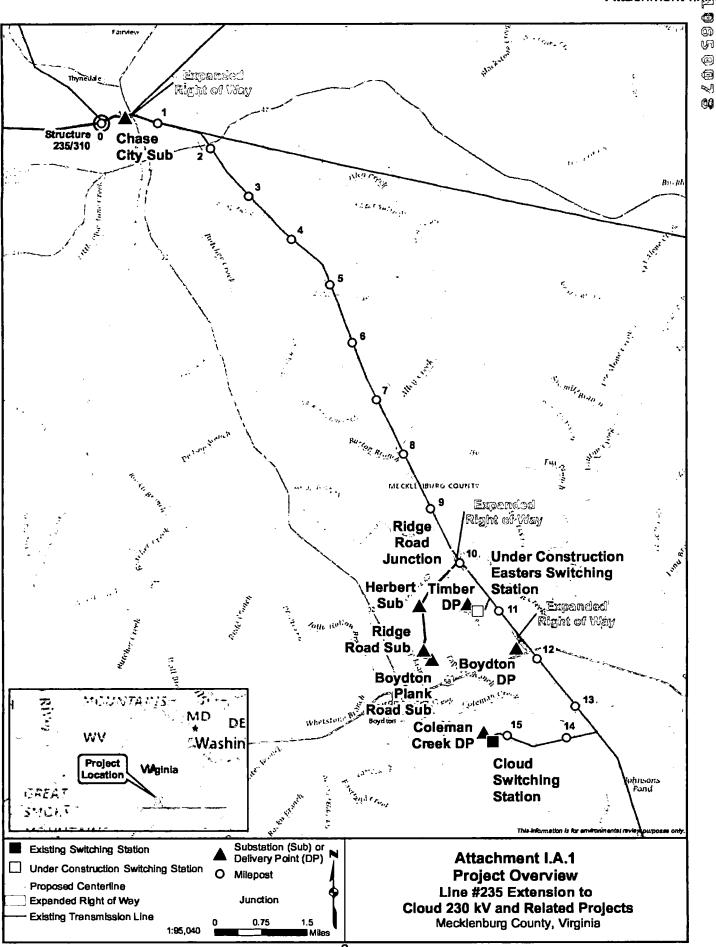
Please see <u>Attachments I.A.4-6</u> for one-line diagrams of the transmission system *before* (specifically, see <u>Attachment I.A.4</u>) and *after* (specifically, see <u>Attachment I.A.6</u>) construction of the Projects. As noted above,

- (i) <u>Attachment I.A.4</u> provides a one-line diagram of the existing system facilities, as of April 2021, prior to construction of the Projects;
- (ii) <u>Attachment I.A.5</u> provides a one-line diagram of the system, as of November 2021, after the completion of the Company's under construction Easters 115 kV Switching Station; and
- (iii) <u>Attachment I.A.6</u> provides a one-line diagram of the system after completion of the proposed Line #235 Extension and 115 kV Line Relocations. Importantly, it shows the proposed system after construction of the Projects as of June 2024.

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In sum, the proposed Projects will provide service requested by the Customer in Mecklenburg County, Virginia, maintain reliable service for the overall growth in the area of the Projects, and comply with mandatory NERC Reliability Standards. See also <u>Attachment II.A.2</u> for a map depicting the proposed Projects.

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### Attachment I.A.1

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#### REQUEST/NOTIFICATION FOR CHANGES IMPACTING DOMINION FACILITIES

SECTION I – GENERAL		Date: 10 / 12/ 2020 Revision No.: 3		
Requestor Name:	Old Dominion Electric Cooperative			
Requestor Address:	4201 Dominion Blvd, Suite 300			
	Gien Allen, Vi	rginia 23060		
Name of Contact Person:	Dan Watkins	Coop Member Contact Person: Brian Woods MEC 434-372-6120		
Contact's Phone:	ext.	Contect's Cell:		
Contact's Fax:	-	Contact's Email:		

Signature below authorizes Dominion to proceed with design, engineering, and estimation of Project cost as appropriate for Dominion to evaluate and respond to this request. This authorization is pursuant and subject to all terms and conditions of the Agreement of which this Appendix is a part.

Authorizing Signature:	Bell Julia	Auth. Date:	10 /12/ 2020
Printed Name:	Bill Pezalla	Phone:	
Title:	Director of Transmission Serivces		

#### SECTION II – DESCRIPTION OF REQUEST

Name of Delivery Point:	Coleman Creek 230
Brief Description of Request:	MEC is requesting Dominion Energy to construct a 230kV transmission line to a new delivery point. Load ramp is included.
(attach detail)	to a new derivery point. Load famp is included.
Brief Reasoning for Request:	MEC has a new data center with a total build-out utility load of 251 MW.
(attach detail)	
Delivery Point Location:	Located at the old Mecklenburg Correctional Center, 960 Prison Rd.
(attach detail if DP is new)	Boydton, VA.
Noteworthy Load Characteristics:	
(large motors, large fluctuating loads, large harmonic-producing loads, etc.)	

<u>A:</u>		
N/A		
Clivery Point Faci	lities:	
	Present Summer Peak kVAR Demand:	-
	Present Winter Peak kVAR Demand:	
	N/A	N/A Delivery Point Facilities: Present Summer Peak kVAR Demand:

#### ANTICIPATED NEW DELIVERY POINT FACILITES DATA:

New Delivery Point Voltage:	230kV		
New Peak kVA Capacity of Delivery Point Facilities:		251 MVA	

#### Peak kW and rkVA During First Three Years Following Implementation and Highest Peak Within Ten Years:

Enter Year →	Initial Year: 2020	Second Year: 2021	Third Year: 2022	Highest in First Ten Years: 2030
Summer Peak kW:	<u> </u>	11MW	40MW	248 MW
Summer Peak rkVA:				
Winter Peak kW:	10MW	18MW	46MW	251 MW
Winter Peak rkVA:				
Delivery Point Facilities Rot	ute:			

(attach detail if new line extension is

involved)

Additional Comments:

This revision entails delivery request for 230kV transmission facilities. This design is to include a breaker and half protection scheme to include four transmission feeds provided to the Coleman Creek substation. Single line diagram included to show requested design. Load ramp included to show projected load ramp anticipated along with future potential growth to full capacity. Please provide costs associated with excess facilities.

#### **SECTION III – CUSTOMER'S EQUIPMENT**

Transformer Primary Voltage:	230 kV	Transformer Secondary Voltage:	25kV
Transformer Nameplate Capacity:	30/50 MVA	- Temperature Rise:	55
Transformer Taps:			* <u></u>
Connection (e.g. Wye-Wye):	Delta - Wye		
Transformer Impedance:			
Isolation Device Type and Rating:	230 kV, 1200A, 3	-PST, GOAB Switch	
Protection Device Type and Rating:	230kV, 2000A Ci	rcuit Breaker	
Required Attachments: [1] One-line	liagram [2] Transf	ormer test report [3] Transformer loss c	

Attachments: [1] One-line diagram [2] Transformer test report [3] Transformer loss curve

[4] Operating procedures description [5] Protection scheme functional diagram

[6] Protection Device information (including device types, serial and model numbers, relay settings, etc.)

#### **SECTION IV – TIMING**

Request included in Custome	er's planning documents subr	nitted to Dominion on:		
Most Recent Submission:	09 /25/ 2019	Second Most Recent Submission:	10/09/2018	
Expected Date Customer's Construction to Commence:		2 /1/ 2020		
Expected Completion Date of Customer Work:		11 /1/ 2020		
Date Requested for Dominion Construction to Commence		: 1 /1/ 2020		
Requested Completion Date	of Dominion Work (De-ener	gized): 10/31/2020	· · ·	
Requested Date to Energize: (See Note)		11 /1/ 2020		
Other Milestones:			<u> </u>	

NOTE: If the "Requested Date to Energize" is marked as (E), then the firm date ultimately supplied must be on or after the estimated date, unless an earlier firm date is mutually agreed-upon prior to submission of the revised request form.

(E) = Estimated

N/A = Not Available

TBD = To Be Determined

	Redacted for Personal Information		Attachment I.A ©	3 9
CI	REQUEST/NOTIFICATION FOR IANGES IMPACTING DOMINION FACILITIE	S		7
SECTION I – GENERAL	Date: 10/09/2020		© Revision No.: 2	9
Requestor Name:	Old Dominion Electric Cooperative			
Requestor Address:	4201 Dominion Blvd, Suite 300			
	Glen Allen, Virginia 23060			
Name of Contact Person:	Dan Watkins Coop Member Contact Person: Br	rian Woods ME	<u>C 434-372-6120</u>	
Contact's Phone:	ext Contact's Cell:	-		
Contact's Fax:	- Contact's Email:	I		
appropriate for Dominion to	Dominion to proceed with design, engineering, and encoded and respond to this request. This authorizant Agreement of which this Apprhich this Approximation is Bill Pezalla	tion is pursuant		
Title:	Director of Transmission Serivces	-		

#### Title:

#### SECTION II - DESCRIPTION OF REQUEST

Name of Delivery Point:	Timber 1		
Brief Description of Request:	MEC is requesting Dominion Energy (DE) to study/design/construct a		
(attach detail)	230kV transmission line to a new 230kV delivery point. The request requires DE to provide 5 lines across the fence to MEC. This should be provided through a breaker and half scheme.		
Brief Reasoning for Request:	MEC has a new data center with a total build-out load of 168 MW. Through		
(attach detail)	discussions with DE, this will have to be served temporarily via a current 115kV line until the 230kV line can be constructed.		
Delivery Point Location:	Site location is adjacent to current DE transmission line near Ridge Road,		
(attach detail if DP is new)	Boydton, VA. Site is east of Ridge Road and South of Old Cox Road.		
Noteworthy Load Characteristics:	Data Center		
(large motors, large fluctuating loads, large harmonic-producing loads, etc.)			

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#### PRESENT DELIVERY POINT DATA:

Present Delivery Point Voltage:		
Present Maximum kVA Capacity of Delivery	Point Facilities:	
Present Summer Peak kW Demand:	Present Summer Peak kVAR Demand:	
Present Winter Peak kW Demand:	Present Winter Peak kVAR Demand:	

#### ANTICIPATED NEW DELIVERY POINT FACILITES DATA:

New Delivery Point Voltage:	230kV		
New Peak kVA Capacity of Delivery	Point Facilities:	168 MVA	

Peak kW and rkVA During First Three Years Following Implementation and Highest Peak Within Ten Years:

Enter Year →	Initial Year: 2021	Second Year: 2022	Third Year: 2023	Highest in First Ten Years: 2028
Summer Peak kW:	0	12 MW	18 MW	168MW
Summer Peak rkVA:				
Winter Peak kW:	12 MW	18 MW	33 MW	168MW
Winter Peak rkVA:				·······
Delivery Point Facilities Ro	ute:			

(attach detail if new line extension is involved)

Additional Comments:

Load ramp schedule and target connection date is attached. Two scenarios presented representing design capacity along with maximum capacity. Given the request for 5 feeds as well as a temporary 115kV source, please provide associated excess facilities charges.

#### SECTION III - CUSTOMER'S EQUIPMENT

Transformer Primary Voltage:	230kV	Transformer Secondary Voltage:	25kV	
Transformer Nameplate Capacity:	40/60 MVA	- Temperature Rise:	55	
Transformer Taps:				
Connection (e.g. Wye-Wye):	Delta - Wye			
Transformer Impedance:				
Isolation Device Type and Rating:	230kV, 1200A, 3-PST, GOAB Switch			
Protection Device Type and Rating:	230kV, 2000A Ci	rcuit Breaker		
Required Attachments: [1] One-line	diagram [2] Transf	ormer test report [3] Transformer loss o	urve	

Required Attachments: [1] One-line diagram [2] Transformer test report [3] Transformer loss curve

[4] Operating procedures description [5] Protection scheme functional diagram

[6] Protection Device information (including device types, serial and model numbers, relay settings, etc.)

#### **SECTION IV – TIMING**

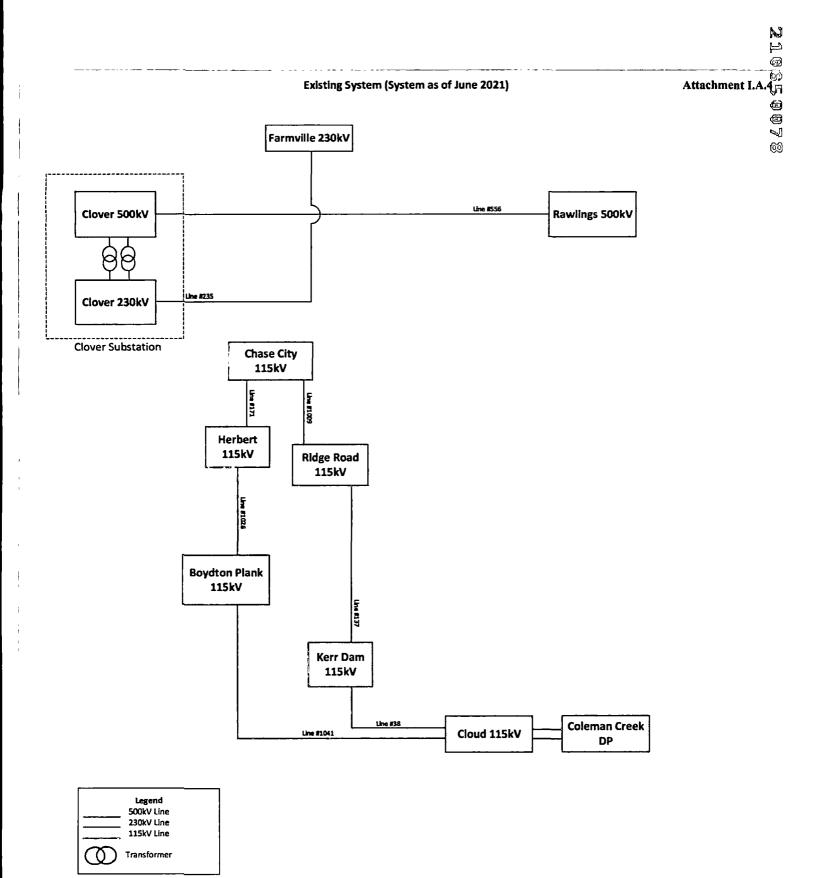
Request included in Cu	stomer's planning documents sub	nitted to ]	Domi	nion on:		
Most Recent Submissio	on: 06 /16/ 2020	Second 1	Most ]	Recent Submission:	03/09/2020	
Expected Date Custom	er's Construction to Commence:	/	/ 20			
Expected Completion Date of Customer Work:		/	/ 20			
Date Requested for Dominion Construction to Commence		»:	/ 20			_
Requested Completion Date of Dominion Work (De-energized): / /20						
Requested Date to Energize: (See Note)		,	/ 20			
Other Milestones: Project milestones directed by load ramp and schedule provided.						

NOTE: If the "Requested Date to Energize" is marked as (E), then the firm date ultimately supplied must be on or after the estimated date, unless an earlier firm date is mutually agreed-upon prior to submission of the revised request form.

#### (E) = Estimated

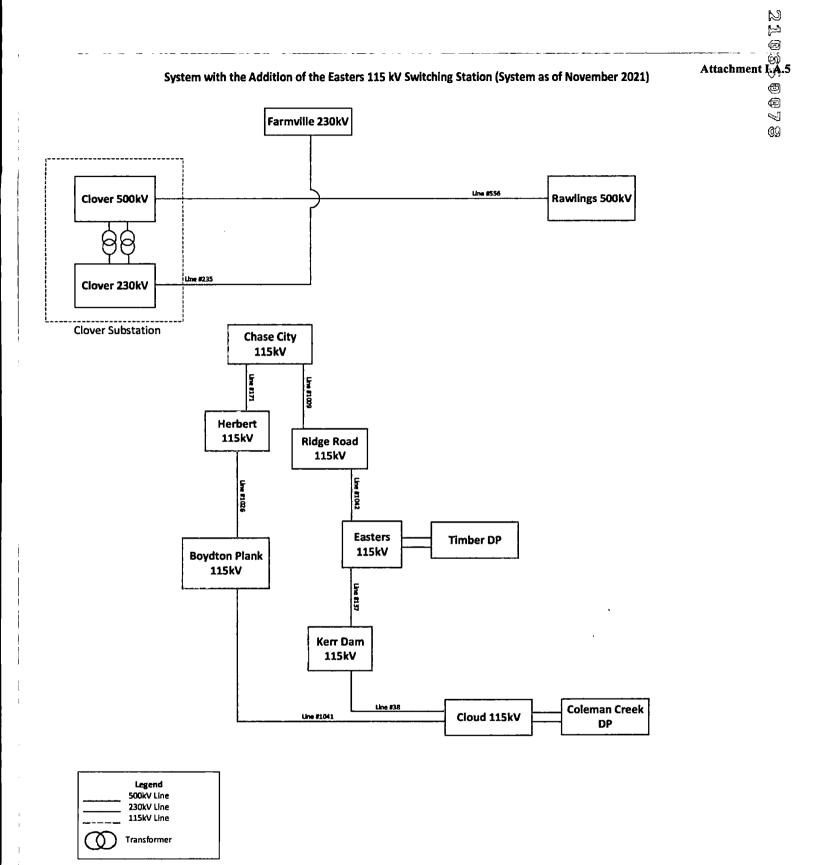
N/A = Not Available

TBD = To Be Determined

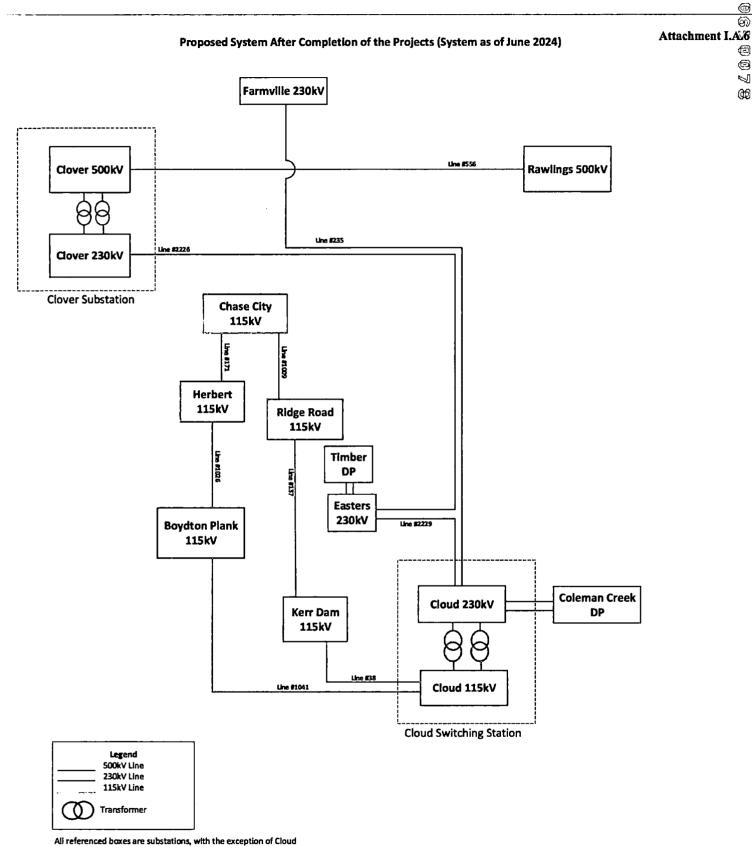


All referenced boxes are substations, with the exception of Cloud Switching Station and Easters Switching Station. All 115kV lines are double circuit lines.

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All referenced boxes are substations, with the exception of Cloud Switching Station and Easters Switching Station. All 115kV lines are double circuit lines.



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Switching Station and Easters Switching Station. All 115kV lines are double circuit lines.

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#### I. NECESSITY FOR THE PROPOSED PROJECT

B. Detail the engineering justifications for the proposed project (for example, provide narrative to support whether the proposed project is necessary to upgrade or replace an existing facility, to significantly increase system reliability, to connect a new generating station to the Applicant's system, etc.). Describe any known future project(s), including but not limited to generation, transmission, delivery point or retail customer projects, that require the proposed project to be constructed. Verify that the planning studies used to justify the need for the proposed project considered all other generation and transmission facilities impacting the affected load area, including generation and transmission facilities that have not yet been placed into service. Provide a list of those facilities that are not yet in service.

#### Response: (1) Engineering Justification for Project

See Section I.A of the Appendix.

#### (2) Known Future Projects

The proposed Projects are needed to serve future data center developments in the area of the Projects, as described in Section I.A. See <u>Attachment I.A.1</u> for existing and future distribution and transmission facilities in the affected load area, including the proposed Projects. Each future data center project has its own unique load growth drivers, and as such, these future projects do not "require" the proposed Projects to be constructed. However, as discussed above, the proposed Projects could also serve these future projects to accommodate future load growth in the area, to the extent necessary.

Additionally, Dominion Energy Virginia is working with a customer to evaluate possible substation locations for a new industrial site, which will be located south of the Chase City area near Line #171(Structure 49). The proposed station will connect to existing 115 kV infrastructure via new right-of-way and the new 115 kV transmission lines will likely cross underneath the proposed Chase City – Cloud 230 kV transmission line. The crossing may or may not require the existing right-of-way to be expanded to accommodate the transmission line crossing.

#### (3) <u>Planning Studies</u>

For these Projects, the Company received DP requests with expected load ramp from MEC to build the Cloud 230 kV Switching Station and Easters 230 kV Switching Station (see <u>Attachments I.A.2</u> and <u>I.A.3</u>).

MEC conferred with the Company's Transmission Planning group to analyze the effects of the projected growth and the addition of Cloud Switching Station and Easters Switching Station on the transmission system.

Dominion Energy Virginia's Electric Transmission Planning group performs

planning studies to ensure delivery of bulk power to a continuously changing customer demand under a wide variety of operating conditions. Studies are performed in coordination with the Company's RTO (*i.e.*, PJM) and in accordance with NERC Reliability Standards. In completing these studies, the Company considered all other known generation and transmission facilities impacting the affected load area.

In order to maintain reliable service to customers of the Company and to comply with mandatory NERC Reliability Standards, specifically Facility Connection ("FAC") standard FAC-001,<sup>9</sup> the Company's Facility Interconnection Requirements ("FIR")<sup>10</sup> document addresses the interconnection requirements of generation, transmission, and electricity end-user facilities. The purpose of the NERC 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 requiring the TO and end-users to meet and adhere to the established facility connection and performance requirements in accordance with FAC-002.

NERC Reliability Standards TPL-001 requirements R2, R5, and R6 require PJM, the Planning Coordinator ("PC") and the TO, to have criteria. PJM's planning criteria outlined in Attachment D of Manual 14B requires the Company, as a TO, to follow NERC and Regional Planning Standards and criteria as well as the TO Standards filed in Dominion Energy Virginia's FERC 715 filings. The Company's FERC 715 filing contains the Dominion Energy Virginia Transmission Planning Criteria in Exhibit A of the FIR document.

The four major criteria considered as part of these Projects were:

- Ring bus arrangement is required for load interconnections in excess of 100 MW (Company's FIR, Section 6.2);
- The amount of direct-connected load at any substation is limited to 300 MW (Company's Transmission Planning Criteria Exhibit A, Section C.2.8);
- 3) N-1-1 contingencies load loss is limited to 300 MW (PJM Manual 14B Section 2.3.8, Attachment D, Attachment D-1, Attachment F); and
- 4) The minimum load levels within a 10-year planning horizon for the direct interconnection to existing transmission lines is 30 MW for a 230 kV delivery (Company's FAC-001 Section 6, Load Criteria End User).

<sup>&</sup>lt;sup>9</sup> See supra n. 4.

<sup>&</sup>lt;sup>10</sup> The Company's FIR is available at: <u>https://www.pjm.com/-/media/planning/planning-criteria/dominion-planning-criteria.ashx</u>.

### (4) Facilities List

See <u>Attachment I.A.1</u> for existing and future distribution and transmission facilities in the affected region of Mecklenburg County.