Dominion Energy®

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

Before the State Corporation Commission of Virginia

Clubhouse-Dry Bread Line #2201 and Dry Bread-Lakeview Line #254 230 kV Virginia Rebuild Project

Application No. 302

Case No. PUR-2020-00269

Filed: November 18, 2020

Volume 2 of 3

COMMONWEALTH OF VIRGINIA

STATE CORPORATION COMMISSION

APPLICATION OF	)	
VIRGINIA ELECTRIC AND POWER COMPANY	)	Case No. PUR-2020-00269
	)	
For approval and certification of electric transmission	)	
facilities: Clubhouse-Dry Bread Line #2201	)	
and Dry Bread-Lakeview Line #254	)	
230 kV Virginia Rebuild Project	)	

IDENTIFICATION, SUMMARIES AND TESTIMONY OF DIRECT WITNESSES OF VIRGINIA ELECTRIC AND POWER COMPANY

Christopher G. Mertz

Witness Direct Testimony Summary
Direct Testimony
Appendix A: Background and Qualifications

Amanda L. Savage

Witness Direct Testimony Summary
Direct Testimony
Appendix A: Background and Qualifications

Santosh Bhattarai

Witness Direct Testimony Summary
Direct Testimony
Appendix A: Background and Qualifications

Nancy R. Reid

Witness Direct Testimony Summary
Direct Testimony
Appendix A: Background and Qualifications

WITNESS DIRECT TESTIMONY SUMMARY

Witness: Christopher G. Mertz

Title: Engineer III – Electric Transmission Planning

Summary:

Company Witness Christopher G. Mertz sponsors those portions of the Appendix describing the Company's transmission system and need for, and benefits of, the proposed Virginia Rebuild Project, as follows:

- Section I.B: This section details the engineering justifications for the proposed project.
- Section I.C: This section describes the present system and details how the proposed project will effectively satisfy present and projected future load demand requirements.
- Section I.D: This section describes critical contingencies and associated violations due to the inadequacy of the existing system.
- Section I.E: This section explains feasible project alternatives.
- Section I.H: This section provides the desired in-service date of the proposed project and the estimated construction time.
- Section I.J: This section provides information about the project if approved by the RTO.
- Section I.K: Although not applicable to the proposed project, this section provides outage history and maintenance history for existing transmission lines if the proposed project is a rebuild and is due in part to reliability issues.
- Section I.M: Although not applicable to the proposed project, this section contains information for transmission lines interconnecting a non-utility generator.
- Section I.N: Although not applicable to the proposed project, this section, when applicable, provides the proposed and existing generating sources, distribution circuits or load centers planned to be served by all new substations, switching stations, and other ground facilities associated with the proposed project.
- Section II.A.10: This section provides details of the construction plans for the proposed project, including requested and approved line outage schedules.

Additionally, Company Witness Mertz co-sponsors the following portions of the Appendix:

- Section I.A (co-sponsored with Company Witness Amanda L. Savage): This section details the primary justifications for the proposed project.
- Section I.F (co-sponsored with Company Witness Amanda L. Savage): This section describes any lines or facilities that will be removed, replaced or taken out of service upon completion of the proposed project, including the number of circuits and normal and emergency ratings of the facilities.
- Section I.G (co-sponsored with Company Witness Nancy R. Reid): This section provides a system map for the affected area.
- Section II.A.3 (co-sponsored with Company Witness Nancy R. Reid): This section provides color maps of existing or proposed rights-of-way in the vicinity of the proposed project.

A statement of Mr. Mertz's background and qualifications is attached to his testimony as Appendix A.

DIRECT TESTIMONY
OF
CHRISTOPHER G. MERTZ
ON BEHALF OF
VIRGINIA ELECTRIC AND POWER COMPANY
BEFORE THE
STATE CORPORATION COMMISSION OF VIRGINIA
CASE NO. PUR-2020-00269

Q. Please state your name, business address and position with Virginia Electric and Power Company ("Dominion Energy Virginia" or the "Company").

A. My name is Christopher G. Mertz, and I am an Engineer III in the Electric Transmission Planning Department for the Company. My business address is 10900 Nuckols Road, Glen Allen, Virginia 23060. A statement of my qualifications and background is provided as Appendix A.

Q. Please describe your areas of responsibility with the Company.

A. I am responsible for planning the Company's electric transmission system for voltages of 69 kilovolt ("kV") through 500 kV.

Q. What is the purpose of your testimony in this proceeding?

A. In order to maintain the structural integrity and reliability of its transmission system in compliance with mandatory North American Electric Reliability Corporation ("NERC") Reliability Standards, the Company proposes in Greensville County, Virginia, the following (collectively, the "Virginia Rebuild Project"):

(i) Rebuild, entirely within existing right-of-way or on Company-owned property, approximately 1.6 miles of the existing 230 kV overhead single circuit Clubhouse-Dry Bread Line #2201 on single circuit structures, which runs from Structure #2201/1A within the Company's existing Clubhouse Substation to Structure #2201/14 / #254/14 within the Company's existing Dry Bread Substation;

(ii) Rebuild, entirely within existing right-of-way or on Company-owned property, approximately 10.9 miles of the existing 230 kV overhead single circuit Dry Bread-Lakeview Line #254 on single circuit structures, which runs from Structure #2201/14 / #254/14 within the Company's existing Dry Bread Substation to Structure #254/113 at the Virginia state line; and

(iii) Perform system protection coordination studies and relay resets at Clubhouse and Dry Bread Substations, as well as line terminal upgrade work at Clubhouse Substation.

The purpose of my testimony is to describe the Company's transmission system and the need for, and benefits of, the proposed Virginia Rebuild Project. I am sponsoring Sections I.B, I.C, I.D, I.E, I.H, I.J, I.K, I.M, I.N, and II.A.10 of the Appendix. Additionally, I co-sponsor Sections I.A and I.F with Company Witness Amanda L. Savage, and Sections I.G and II.A.3 with Company Witness Nancy R. Reid.

Q. Does this conclude your pre-filed direct testimony?

A. Yes, it does.

APPENDIX A

BACKGROUND AND QUALIFICATIONS
OF
CHRISTOPHER G. MERTZ

Christopher G. Mertz received a Bachelor of Science degree and a Master of Science degree in Electrical Engineering from the Virginia Polytechnic Institute & State University in 2011 and 2013, respectively. In 2019, Mr. Mertz received his Master of Business Administration from Virginia Commonwealth University. Mr. Mertz has been licensed as a Professional Engineer in the Commonwealth of Virginia since 2017, and has been employed by the Company for 7 years. Mr. Mertz's experience with the Company includes Electric Transmission System Protection Engineering (2013-2017), Electric Transmission Operation Engineering Support & Special Studies (2017-2018), and Electric Transmission Planning & Strategic Initiatives (2018-Present).

WITNESS DIRECT TESTIMONY SUMMARY

Witness: Amanda L. Savage

Title: Line Engineer II – Electric Transmission Line Engineering

Summary:

Company Witness Amanda L. Savage will sponsor those portions of the Appendix providing an overview of the design characteristics of the transmission facilities for the proposed Virginia Rebuild Project, and discussing electric and magnetic field levels, as follows:

- Section I.L: This section provides photographs illustrating the deterioration of structures and associated equipment as applicable.

- Section II.A.5: This section provides drawings of the right-of-way cross section showing typical transmission lines structure placements.

- Section II.B.1 to II.B.4: This section provides the line design and operational features of the proposed project.

- Section IV: This section provides analysis on the health aspects of electric and magnetic field levels.

Additionally, Company Witness Savage co-sponsors the following portions of the Appendix:

- Section I.A (co-sponsored with Company Witness Christopher G. Mertz): This section details the primary justifications for the proposed project.

- Section I.F (co-sponsored with Company Witness Christopher G. Mertz): This section describes any lines or facilities that will be removed, replaced or taken out of service upon completion of the proposed project, including the number of circuits and normal and emergency ratings of the facilities.

- Section I.I (co-sponsored with Company Witness Santosh Bhattarai): This section provides the estimated total cost of the proposed project.

- Section II.B.5 (co-sponsored with Company Witness Nancy R. Reid): This section provides the mapping and structure heights for the existing overhead structures.

A statement of Ms. Savage's background and qualifications is attached to her testimony as Appendix A.

DIRECT TESTIMONY
OF
AMANDA L. SAVAGE
ON BEHALF OF
VIRGINIA ELECTRIC AND POWER COMPANY
BEFORE THE
STATE CORPORATION COMMISSION OF VIRGINIA
CASE NO. PUR-2020-00269

Q. Please state your name, business address and position with Virginia Electric and Power Company ("Dominion Energy Virginia" or the "Company").

A. My name is Amanda L. Savage, and I am a Transmission Line Engineer II in the Electric Transmission Line Engineering department of the Company. My business address is 10900 Nuckols Road, Glen Allen, Virginia 23060. A statement of my qualifications and background is provided as Appendix A.

Q. Please describe your areas of responsibility with the Company.

A. I am responsible for the estimating, conceptual and final design of high voltage transmission line projects from 69 kilovolt ("kV") to 500 kV.

Q. What is the purpose of your testimony in this proceeding?

A. In order to maintain the structural integrity and reliability of its transmission system in compliance with mandatory North American Electric Reliability Corporation ("NERC") Reliability Standards, the Company proposes in Greensville County, Virginia, the following (collectively, the "Virginia Rebuild Project"):

(i) Rebuild, entirely within existing right-of-way or on Company-owned property, approximately 1.6 miles of the existing 230 kV overhead single circuit Clubhouse-Dry Bread Line #2201 on single circuit structures, which runs from Structure #2201/1A within the Company's existing Clubhouse Substation to Structure #2201/14 / #254/14 within the Company's existing Dry Bread Substation;

(ii) Rebuild, entirely within existing right-of-way or on Company-owned property, approximately 10.9 miles of the existing 230 kV overhead single circuit Dry Bread-Lakeview Line #254 on single circuit structures, which runs from Structure #2201/14 / #254/14 within the Company's existing Dry Bread Substation to Structure #254/113 at the Virginia state line; and

(iii) Perform system protection coordination studies and relay resets at Clubhouse and Dry Bread Substations, as well as line terminal upgrade work at Clubhouse Substation.

The purpose of my testimony is to describe the design characteristics of the transmission facilities for the proposed Virginia Rebuild Project, and also to discuss electric and magnetic field ("EMF") levels. I sponsor Sections I.L, II.A.5, II.B.1 to II.B.4, and IV of the Appendix. I also co-sponsor Sections I.A and I.F of the Appendix with Company Witness Christopher G. Mertz; Section I.I of the Appendix with Company Witness Santosh Bhattarai; and Section II.B.5 with Company Witness Nancy R. Reid.

Q. Does this conclude your pre-filed direct testimony?

A. Yes, it does.

APPENDIX A

BACKGROUND AND QUALIFICATIONS OF AMANDA L. SAVAGE

Ms. Amanda L. Savage earned her bachelor's degree from Tufts University in Electrical Engineering. Her past work experience includes working as an RF Engineer at MIT Lincoln Laboratory in Lexington, Massachusetts, and then as an Electrical Engineer responsible for the Power Distribution of a PET film plant in Chester, Virginia. Ms. Savage joined Dominion Energy Virginia in 2019 as an Engineer II in the Transmission Overhead Lines Engineering Group that oversees all projects involving the design of Transmission Overhead Lines.

WITNESS DIRECT TESTIMONY SUMMARY

Witness: Santosh Bhattarai

Title: Consulting Engineer – Substation Engineering

Summary:

Company Witness Santosh Bhattarai sponsors or co-sponsors the following portions of the Appendix describing the work to be performed at the existing substation for the Virginia Rebuild Project, as follows:

- Section I.I (co-sponsored with Company Witness Amanda L. Savage): This section provides the estimated total cost of the proposed project.

- Section II.C: This section describes and furnishes a one-line diagram of the substation associated with the proposed project.

A statement of Mr. Bhattarai's background and qualifications is attached to his testimony as Appendix A.

DIRECT TESTIMONY
OF
SANTOSH BHATTARAI
ON BEHALF OF
VIRGINIA ELECTRIC AND POWER COMPANY
BEFORE THE
STATE CORPORATION COMMISSION OF VIRGINIA
CASE NO. PUR-2020-00269

Q. Please state your name, business address and position with Virginia Electric and Power Company ("Dominion Energy Virginia" or the "Company").

A. My name is Santosh Bhattarai, and I am a Consulting Engineer in the Substation Engineering section of the Electric Transmission group of the Company. My business address is 2400 Grayland Avenue, Richmond, Virginia 23220. A statement of my qualifications and background is provided as Appendix A.

Q. What are your responsibilities as a Consulting Engineer?

A. I am responsible for evaluation of the substation project requirements, feasibility studies, conceptual physical design, scope development, preliminary engineering and cost estimating for high voltage transmission and distribution substations.

Q. What is the purpose of your testimony in this proceeding?

A. In order to maintain the structural integrity and reliability of its transmission system in compliance with mandatory North American Electric Reliability Corporation ("NERC") Reliability Standards, the Company proposes in Greensville County, Virginia, the following (collectively, the "Virginia Rebuild Project"):

(i) Rebuild, entirely within existing right-of-way or on Company-owned property, approximately 1.6 miles of the existing 230 kV overhead single circuit Clubhouse-Dry Bread Line #2201 on single circuit structures, which runs from Structure #2201/1A within the Company's existing Clubhouse Substation to Structure #2201/14 / #254/14 within the Company's existing Dry Bread Substation;

(ii) Rebuild, entirely within existing right-of-way or on Company-owned property, approximately 10.9 miles of the existing 230 kV overhead single circuit Dry Bread-Lakeview Line #254 on single circuit structures, which runs from Structure #2201/14 / #254/14 within the Company's existing Dry Bread Substation to Structure #254/113 at the Virginia state line; and

(iii) Perform system protection coordination studies and relay resets at Clubhouse and Dry Bread Substations, as well as line terminal upgrade work at Clubhouse Substation.

The purpose of my testimony is to describe the work to be performed at the proposed Virginia Rebuild Project's various substations. I sponsor Section II.C of the Appendix and co-sponsor Section I.I of the Appendix with Company Witness Amanda L. Savage, specifically, as it pertains to substation work.

Q. Does this conclude your pre-filed direct testimony?

A. Yes, it does.

BACKGROUND AND QUALIFICATIONS OF SANTOSH BHATTARAI

Santosh Bhattarai received a Master of Science degree in Electrical Engineering from South Dakota State University in 2006. Before working for the Company, Mr. Bhattarai worked at Electrical Consultants, Inc. from 2006 to 2009 in Billings, Montana as a Substation Design Engineer. Then, from 2010 to 2013, he worked at Electrical Consultants, Inc. in Madison, Wisconsin as a Substation Project Engineer. Mr. Bhattarai's responsibilities included the evaluation of the substation project requirements, development of project scope documents, estimates and schedules, preparation of specifications and bid documents, material procurement, develop detailed physical drawings, bill of materials, electrical schematics and wiring diagrams. Mr. Bhattarai joined the Dominion Energy Virginia Substation Engineering department in November 2013 as an Engineer III. He was promoted to Consulting Engineer in July 2019. He has been licensed as a Professional Engineer in the Commonwealth of Virginia since 2015. In recognition of his professional standing, the Institute of Electrical and Electronics Engineers ("IEEE") board has elected him to the grade of Senior Member in 2017.

Mr. Bhattarai has previously testified before the Virginia State Corporation Commission

WITNESS DIRECT TESTIMONY SUMMARY

Witness: Nancy R. Reid

Title: Siting and Permitting Specialist

Summary:

Company Witness Nancy R. Reid sponsors those portions of the Appendix providing an overview of the design of the route for the proposed Virginia Rebuild Project, and related permitting, as follows:

- Section II.A.1: This section provides the length of the proposed corridor and viable alternatives to the proposed project.
- Section II.A.2: This section provides a map showing the route of the proposed project in relation to notable points close to the proposed project.
- Section II.A.4: This section explains why the existing right-of-way is not adequate to serve the need, to the extent applicable.
- Sections II.A.6 to II.A.8: These sections provide detail regarding the right-of-way for the proposed project.
- Section II.A.9: This section describes the proposed route selection procedures and details alternative routes considered.
- Section II.A.11: This section details how the construction of the proposed project follows the provisions discussed in Attachment 1 of the Transmission Appendix Guidelines.
- Section II.A.12: This section identifies the counties and localities through which the proposed project will pass and provides General Highway Maps for these localities.
- Section II.B.6: This section provides photographs of existing facilities, representations of proposed facilities, and visual simulations.
- Section III: This section details the impact of the proposed project on scenic, environmental, and historic features.
- Section V: This section provides information related to public notice of the proposed project.

Additionally, Ms. Reid co-sponsors the following portion of the Appendix:

- Section I.G (co-sponsored with Company Witness Christopher G. Mertz): This section provides a system map for the affected area.
- Section II.A.3 (co-sponsored with Company Witness Christopher G. Mertz): This section provides color maps of existing or proposed rights-of-way in the vicinity of the proposed project.
- Section II.B.5 (co-sponsored with Company Witness Amanda L. Savage): This section provides the mapping and structure heights for the existing overhead structures.

Finally, Ms. Reid sponsors the DEQ Supplement filed with the Application.

A statement of Ms. Reid's background and qualifications is attached to her testimony as Appendix A.

DIRECT TESTIMONY
OF
NANCY R. REID
ON BEHALF OF
VIRGINIA ELECTRIC AND POWER COMPANY
BEFORE THE
STATE CORPORATION COMMISSION OF VIRGINIA
CASE NO. PUR-2020-00269

Q. Please state your name, business address and position with Virginia Electric and Power Company ("Dominion Energy Virginia" or the "Company").

A. My name is Nancy R. Reid, and I am a Siting and Permitting Specialist for the Company. My business address is 10900 Nuckols Road, Glen Allen, Virginia 23060. A statement of my qualifications and background is provided as Appendix A.

Q. Please describe your areas of responsibility with the Company.

A. I am responsible for identifying appropriate routes for transmission lines and obtaining necessary federal, state, and local approvals and environmental permits for those facilities. In this position, I work closely with government officials, permitting agencies, property owners, and other interested parties, as well as with other Company personnel, to develop facilities needed by the public so as to reasonably minimize environmental and other impacts on the public in a reliable, cost-effective manner.

Q. What is the purpose of your testimony in this proceeding?

A. In order to maintain the structural integrity and reliability of its transmission system in compliance with mandatory North American Electric Reliability Corporation ("NERC") Reliability Standards, the Company proposes in Greensville County, Virginia, the following (collectively, the "Virginia Rebuild Project"):

(i) Rebuild, entirely within existing right-of-way or on Company-owned property, approximately 1.6 miles of the existing 230 kV overhead single

circuit Clubhouse-Dry Bread Line #2201 on single circuit structures, which runs from Structure #2201/1A within the Company's existing Clubhouse Substation to Structure #2201/14 / #254/14 within the Company's existing Dry Bread Substation;

(ii) Rebuild, entirely within existing right-of-way or on Company-owned property, approximately 10.9 miles of the existing 230 kV overhead single circuit Dry Bread-Lakeview Line #254 on single circuit structures, which runs from Structure #2201/14 / #254/14 within the Company's existing Dry Bread Substation to Structure #254/113 at the Virginia state line; and

(iii) Perform system protection coordination studies and relay resets at Clubhouse and Dry Bread Substations, as well as line terminal upgrade work at Clubhouse Substation.

The purpose of my testimony is to provide an overview of the route and permitting for the proposed Virginia Rebuild Project. As it pertains to routing and permitting, I sponsor Sections II.A.1, II.A.2, II.A.4, II.A.6, II.A.7, II.A.8, II.A.9, II.A.11, II.A.12, II.B.6, III, and V of the Appendix. I also sponsor the DEQ Supplement filed with the Application, and co-sponsor Sections I.G and II.A.3 with Company Witness Christopher G. Mertz, and Section II.B.5 of the Appendix with Company Witness Amanda L. Savage.

Q. Has the Company complied with Va. Code § 15.2-2202 E?

A. Yes. In accordance with § 15.2-2202 E of the Code of Virginia, letters dated August 27, 2020, were delivered to Ms. Brenda N. Parson, County Administrator, and Mr. Linwood E. Pope, Jr, Planning Director, in Greensville County, Virginia, advising of the Company's intention to file this Application and inviting the counties to consult with the Company about the Virginia Rebuild Project. Copies of the letters are included as Appendix Attachment V.D.1.

Q. Does this conclude your pre-filed direct testimony?

A. Yes, it does.

APPENDIX A

BACKGROUND AND QUALIFICATIONS
OF
NANCY R. REID

Nancy R. Reid earned her Bachelor's degree from Christopher Newport University in environmental biology with a minor in chemistry and her Master's degree in safety and Environmental Management from Columbia Southern University. Her past work experience includes working for the City of Franklin and Southampton County as the Environmental Specialist where she developed the areas stormwater management and permitting programs. Mrs. Reid joined Dominion Energy in 2017 as an Environmental Compliance Coordinator where she assisted in developing the environmental program for the most efficient combined-cycle gas plant in the country and is now a Sitting and Permitting Specialist for Electric Transmission.

Mrs. Reid has previously submitted pre-filed testimony to the Virginia State Corporation Commission.