209

GREENWICH - THALIA - LYNNHAVEN
230kV Rebuild

SIMULATION 4

Date: 5/18/22
Time: 11:24am
Viewing Direction: West

- ④ PHOTO VIEWPOINT
- ▲ EXISTING SUBSTATIONS
- ■ BEGIN REBUILD PROJECT
- EXISTING TRANSMISSION LINE STRUCTURES TO REMAIN - NEW FO COMMUNICATIONS ONLY (SEE NOTE 1)
- EXISTING TRANSMISSION LINE TO BE REBUILT

Dominion Energy®

210

GREENWICH - THALIA - LYNNHAVEN
230kV Rebuild

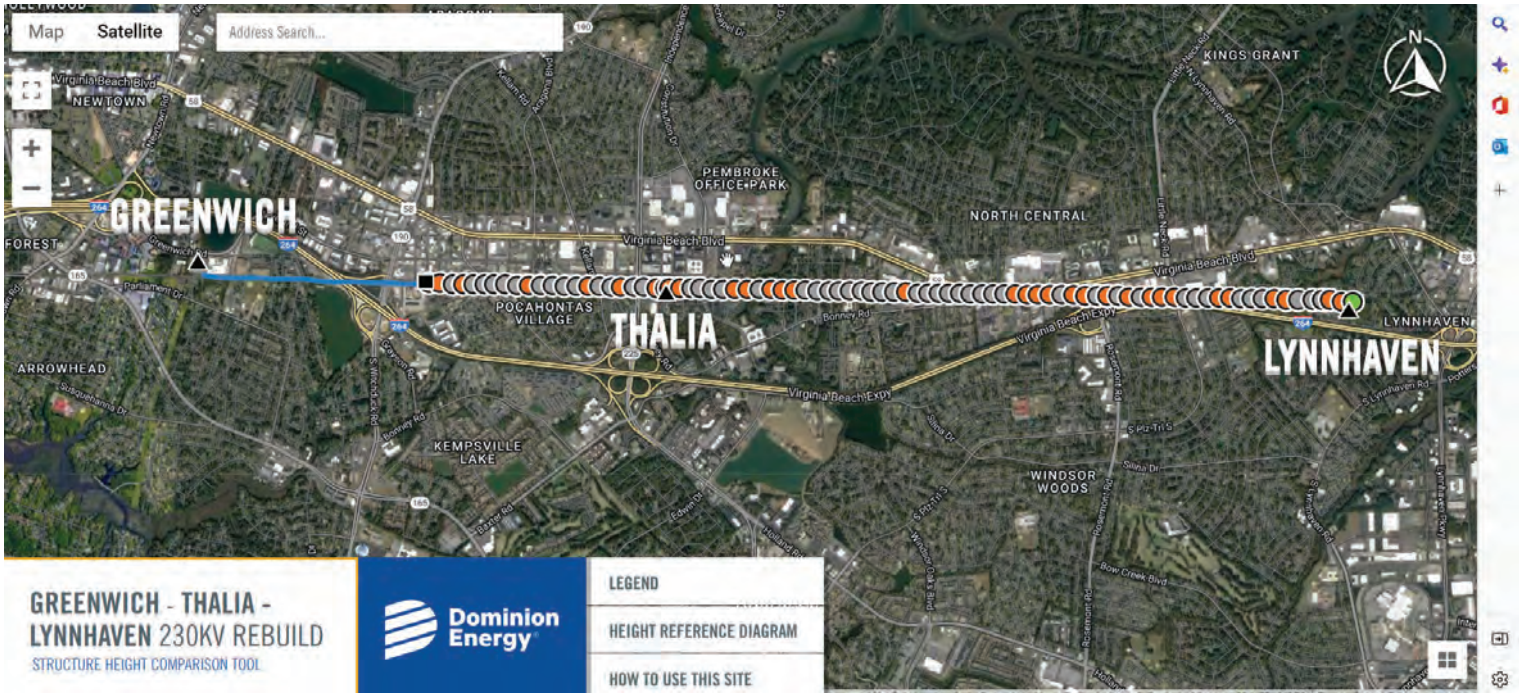
SIMULATION 5

Date: 5/18/22
Time: 10:23am
Viewing Direction: Northwest

- PHOTO VIEWPOINT
- EXISTING SUBSTATIONS
- BEGIN REBUILD PROJECT
- EXISTING TRANSMISSION LINE STRUCTURES TO REMAIN - NEW FO COMMUNICATIONS ONLY (SEE NOTE 1)
- EXISTING TRANSMISSION LINE TO BE REBUILT

Dominion Energy®


Map
Satellite
Address Search...
GREENWICH
THALIA
LYNNHAVEN
NEWTOWN
KINGS GRANT
PEMBROKE OFFICE PARK
NORTH CENTRAL
POCAHONTAS VILLAGE
ARROWHEAD
KEMPSVILLE LAKE
WINDSOR WOODS
Virginia Beach Blvd
Virginia Beach Expy
GREENWICH - THALIA - LYNNHAVEN 230KV REBUILD
STRUCTURE HEIGHT COMPARISON TOOL
Dominion Energy
LEGEND
HEIGHT REFERENCE DIAGRAM
HOW TO USE THIS SITE


Map
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Address Search...
GREENWICH
THALIA
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PEMBROKE OFFICE PARK
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KINGS GRANT
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GREENWICH - THALIA - LYNNHAVEN 230KV REBUILD
STRUCTURE HEIGHT COMPARISON TOOL
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HEIGHT REFERENCE DIAGRAM
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Environmental Justice: Ongoing Commitment to Our Communities

At Dominion Energy, we are committed to providing reliable, affordable, clean energy in accordance with our values of safety, ethics, excellence, embrace change and team work. This includes listening to and learning all we can from the communities we are privileged to serve.

Our values also recognize that environmental justice considerations must be part of our everyday decisions, community outreach and evaluations as we move forward with projects to modernize the generation and delivery of energy.

To that end, communities should have a meaningful voice in our planning and development process, regardless of race, color, national origin, or income. Our neighbors should have early and continuing opportunities to work with us. We pledge to undertake collaborative efforts to work to resolve issues. We will advance purposeful inclusion to ensure a diversity of views in our public engagement processes.

Dominion Energy will be guided in meeting environmental justice expectations of fair treatment and sincere involvement by being inclusive, understanding, dedicated to finding solutions, and effectively communicating with our customers and our neighbors. We pledge to be a positive catalyst in our communities.

November 2018

III. IMPACT OF LINE ON SCENIC, ENVIRONMENTAL AND HISTORIC FEATURES

C. Detail the nature, location, and ownership of each building that would have to be demolished or relocated if the project is built as proposed.

Response: During the initial review of the existing Rebuild Project transmission corridor, the Company identified six unauthorized encroachments in the Rebuild Project right-of-way, which include sheds, vehicles, and debris/construction equipment.

Encroachments will need to be addressed with the respective property owners as the Company continues to investigate the right-of-way. The Company is not aware of any residences encroaching on the existing corridor and does not expect to have any residences demolished or relocated in connection with the Rebuild Project.

III. IMPACT OF LINE ON SCENIC, ENVIRONMENTAL AND HISTORIC FEATURES

D. Identify existing physical facilities that the line will parallel, if any, such as existing transmission lines, railroad tracks, highways, pipelines, etc. Describe the current use and physical appearance and characteristics of the existing ROW that would be paralleled, as well as the length of time the transmission ROW has been in use.

Response: Construction of Lines #2019 and #2007 was completed in 1970, and these lines have been in continuous use since that time. The existing transmission lines parallel a retired Norfolk Southern Railroad for the length of the Rebuild Project. Water and sewer lines also parallel the Rebuild Project from Structure #2019/20 to Structures #2007/80 and #2007/68, respectively, before leaving the shared corridor.

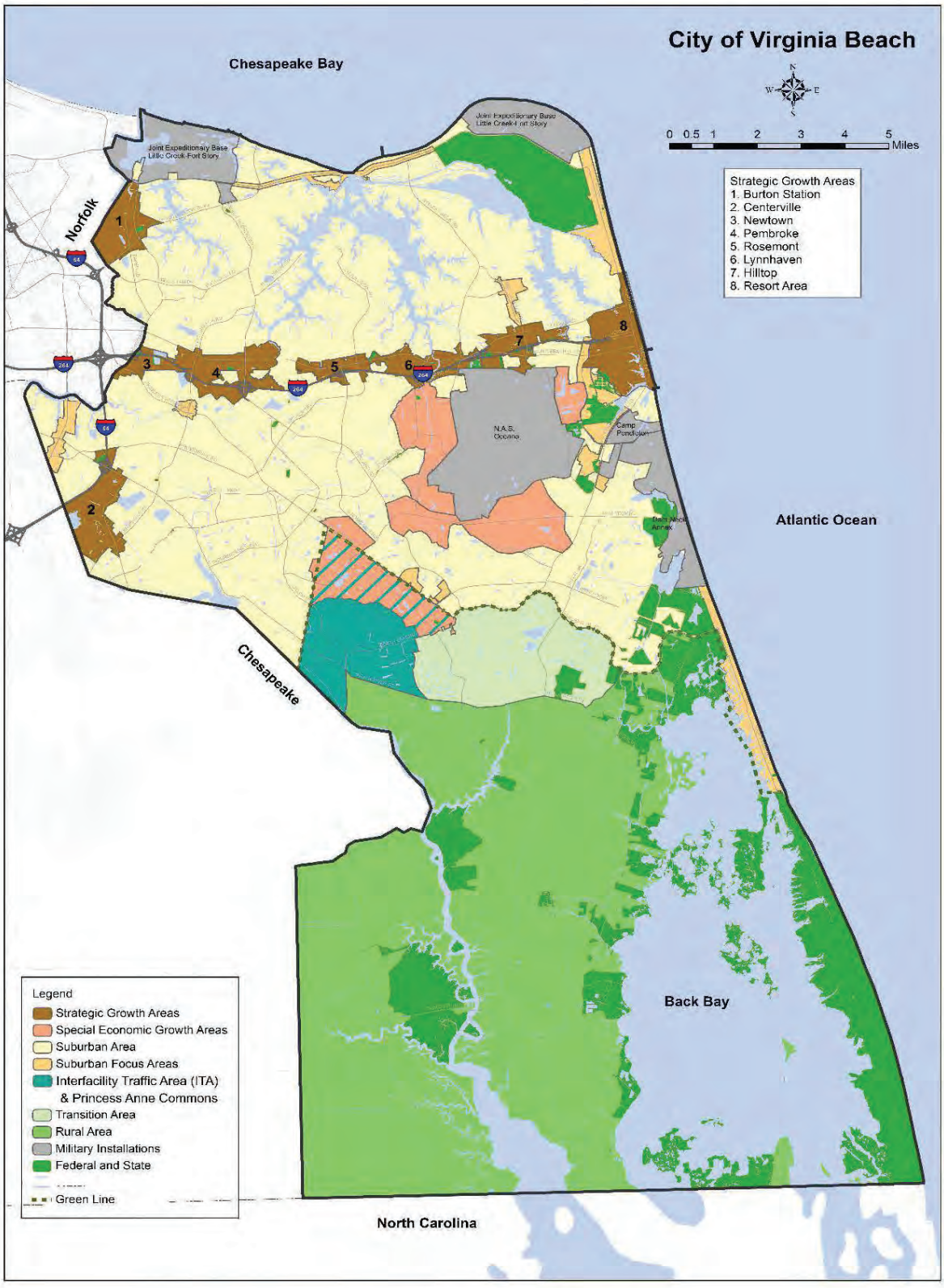
III. IMPACT OF LINE ON SCENIC, ENVIRONMENTAL AND HISTORIC FEATURES

E. Indicate whether the Applicant has investigated land use plans in the areas of the proposed route and indicate how the building of the proposed line would affect any proposed land use.

Response: The Company reviewed the *City of Virginia Beach Comprehensive Plan* to evaluate the potential effect the Rebuild Project could have on future development. The placement and construction of electric transmission lines is not addressed within this plan. The Rebuild Project is located entirely within the existing right-of-way or on Company-owned property and is not expected to affect land use. The Rebuild Project is not expected to impact the character of the community as the transmission corridor has been in use for at least 52 years.

See Attachment III.E.1 for the City's Land Use Map.

1.1 – Planning Areas Planned Land Use Map



Planned Land Use Map

III. IMPACT OF LINE ON SCENIC, ENVIRONMENTAL AND HISTORIC FEATURES

F. Government Bodies

1. Indicate if the Applicant determined from the governing bodies of each county, city and town in which the proposed facilities will be located whether those bodies have designated the important farmlands within their jurisdictions, as required by § 3.2-205 B of the Code.

2. If so, and if any portion of the proposed facilities will be located on any such important farmland:

a. Include maps and other evidence showing the nature and extent of the impact on such farmlands;

b. Describe what alternatives exist to locating the proposed facilities on the affected farmlands, and why those alternatives are not suitable; and

c. Describe the Applicant's proposals to minimize the impact of the facilities on the affected farmland.

Response:

1. The City of Virginia Beach has no designated important farmlands or agricultural districts within its jurisdiction.

2. Not applicable.

III. IMPACT OF LINE ON SCENIC, ENVIRONMENTAL AND HISTORIC FEATURES

G. Identify the following that lie within or adjacent to the proposed ROW:

1. **Any district, site, building, structure, or other object included in the National Register of Historic Places maintained by the U.S. Secretary of the Interior;**

2. **Any historic architectural, archeological, and cultural resources, such as historic landmarks, battlefields, sites, buildings, structures, districts or objects listed or determined eligible by the Virginia Department of Historic Resources ("DHR");**

3. **Any historic district designated by the governing body of any city or county;**

4. **Any state archaeological site or zone designated by the Director of the DHR, or its predecessor, and any site designated by a local archaeological commission, or similar body;**

5. **Any underwater historic assets designated by the DHR, or predecessor agency or board;**

6. **Any National Natural Landmark designated by the U.S. Secretary of the Interior;**

7. **Any area or feature included in the Virginia Registry of Natural Areas maintained by the Virginia Department of Conservation and Recreation ("DCR");**

8. **Any area accepted by the Director of the DCR for the Virginia Natural Area Preserves System;**

9. **Any conservation easement or open space easement qualifying under §§ 10.1-1009 – 1016, or §§ 10.1-1700 – 1705, of the Code (or a comparable prior or subsequent provision of the Code);**

10. **Any state scenic river;**

11. **Any lands owned by a municipality or school district; and**

12. **Any federal, state or local battlefield, park, forest, game or wildlife preserve, recreational area, or similar facility. Features, sites, and the like listed in 1 through 11 above need not be identified again.**

Response: 1. None.

2. There is one architectural resource (VDHR ID: 134-5145, Norfolk and Virginia Beach Railroad) eligible for listing adjacent to the Rebuild Project. This resource is parallel to the existing transmission line and within the existing right-of-way.

3. The Francis Land House District is a City of Virginia Beach designated Historic and Cultural Overlay District adjacent to the Rebuild Project.

4. There is one archaeological site (VDHR ID: 44VB0060, Kempsville Canal) adjacent to the Rebuild Project. This resource is crossed by the right-of-way.

5. None.

6. None.

7. None.

8. None.

9. None.

10. None.

11. There are 24 parcels owned by the City of Virginia Beach adjacent to the Rebuild Project.

12. There is one City of Virginia Beach park, Francis Land Park, adjacent to the Rebuild Project. See Attachment II.A.2.

III. IMPACT OF LINE ON SCENIC, ENVIRONMENTAL AND HISTORIC FEATURES

H. List any registered aeronautical facilities (airports, helipads) where the proposed route would place a structure or conductor within the federally-defined airspace of the facilities. Advise of contacts, and results of contacts, made with appropriate officials regarding the effect on the facilities' operations.

Response: The Federal Aviation Administration ("FAA") is responsible for overseeing air transportation in the United States. The FAA manages air traffic in the United States and evaluates physical objects that may affect the safety of aeronautical operations through an obstruction evaluation. The prime objective of the FAA in conducting an obstruction evaluation is to ensure the safety of air navigation and the efficient utilization of navigable airspace by aircraft.

The Company has reviewed the FAA's website[11] to identify airports within 10.0 miles of the proposed Rebuild Project. The following airports were identified:

- Norfolk International Airport, 4.6 miles northwest of the Rebuild Project start
- Oceana Naval Air Station (Apollo Soucek FLD) Airport, 2.6 miles east of the Lynnhaven Substation
- Norfolk Naval Station (Chambers FLD) Airport, 10.0 miles northwest of the Rebuild Project start
- Comlantflt Heliport, 10.0 miles northwest of the Rebuild Project start
- Fentress Naval Auxiliary Landing Field Airport, 9.7 miles south of the Thalia Substation
- Norfolk Naval Station Airport, 10.0 miles northwest of the Rebuild Project start
- LZ ALFA Heliport, 6.9 miles southeast of the Lynnhaven Substation

In an email dated June 30, 2022, the Virginia Department of Aviation ("DOAv") stated that a Form 7460 will need to be submitted to the FAA to initiate an aeronautical study to ensure that the proposed Rebuild Project will not constitute a hazard to air navigation. The Company will submit Form 7460 to the FAA prior to construction to initiate aeronautical studies and will design the proposed structures to avoid interference with air navigation. See also Section 2.O of the DEQ Supplement.

[11] *See* https://oeaaa.faa.gov/oeaaa/external/portal.jsp.

III. IMPACT OF LINE ON SCENIC, ENVIRONMENTAL AND HISTORIC FEATURES

I. Advise of any scenic byways that are in close proximity to or that will be crossed by the proposed transmission line and describe what steps will be taken to mitigate any visual impacts on such byways. Describe typical mitigation techniques for other highways' crossings.

Response: The Rebuild Project does not cross any scenic Virginia byways. Use of the existing right-of-way minimizes or eliminates permanent incremental impacts at road crossings.

III. IMPACT OF LINE ON SCENIC, ENVIRONMENTAL AND HISTORIC FEATURES

J. Identify coordination with appropriate municipal, state, and federal agencies.

Response: As described in Sections III.B and V.D, the Company solicited feedback from the City of Virginia Beach regarding the proposed Rebuild Project. Below is a list of coordination that has occurred with other municipal, state and federal agencies:

- A Desktop Wetland Review has been completed and sent to DEQ's Office of Wetlands and Stream Protection to initiate the wetlands impact consultation. See Attachment 2.D.1 of the DEQ Supplement.
- A Stage I Pre-Application Analysis has been prepared and submitted to VDHR. See Attachment 2.I.2 of the DEQ Supplement.
- The Company solicited comments from the Virginia Marine Resources Commission and the Corps regarding the proposed Rebuild Project. See Attachment 2 of the DEQ Supplement.
- The Company requested comments from the USFWS, DWR, and DCR regarding the proposed Rebuild Project. See Attachment 2 of the DEQ Supplement.
- The Company solicited comments from the DOAv regarding the proposed Rebuild Project. See Attachment 2 of the DEQ Supplement.
- Letters were submitted to the agencies listed in Section V.C on June 29 or 30, 2022, describing the Rebuild Project and requesting comment.
- On June 30, 2022, the Company sent letters to the VDHR.
- On June 29, 2022, the Company solicited comments via letter from several federally recognized Native American tribes, including:

  Cheroenhaka (Nottoway) Indian Tribe
  Chickahominy Indian Tribe
  Chickahominy Indians Eastern Division
  Mattaponi Tribe
  Monacan Indian Nation
  Nansemond Indian Tribe of Virginia
  Nottoway Indian Tribe of Virginia
  Pamunkey Indian Tribal Resource Officer
  Pamunkey Indian Tribe
  Patawomeck Indian Tribe of Virginia
  Rappahannock Tribe
  Upper Mattaponi Indian Tribe

  A copy of the letter template is included as Attachment III.J.1.[12] See also Sections III.B, III.K, and V.D of this Appendix, and the DEQ Supplement.

[12] The letter indicates that the Company planned to submit an application to the Commission in August 2022. The application referenced in that letter is the Application submitted with this Appendix to the Commission on February 24, 2023.

Dominion Energy Virginia
Electric Transmission
P.O. Box 26666, Richmond, VA 23261-6666
DominionEnergy.com

June 29, 2022

Greenwich Thalia Lynnhaven 230 kV Electric Transmission Line Rebuild Project

Dear:_____:

At Dominion Energy, we are dedicated to finding the best solution for our long-term needs in the communities we serve. As a valued stakeholder with a vested interest in the community, we invite you to participate in the development of a 5-mile 230 kilovolt (kV) electric transmission line rebuild project in Virginia Beach, Virginia.

This project is located generally along a portion of the I-264 corridor between Princess Anne Road and Lynnhaven Parkway. We are planning to rebuild this line and rebuild existing concrete and steel structures with new galvanized single-circuit steel structures.

No new right-of-way is needed for this project. Construction is scheduled to begin in July 2024 with an anticipated completion date of June 2025.

We are currently in the conceptual phase and are seeking input as we prepare to submit an application with the Virginia State Corporation Commission (SCC) in August 2022. Doing so allows us to hear any concerns you may have as we work to meet the needs of the project. To see a project overview map and photo simulations, please visit our webpage at DominionEnergy.com/Greenwich

Please feel free to notify other relevant organizations that may have an interest in the project area. For reference, recipients of this letter include other county and statewide historic, cultural and scenic organizations and Native American Tribes.

We also invite you to attend a virtual community meeting July 14, 2022 from 5-6 p.m. You can find meeting details, as well as project information, on our project webpage.

If you would like any additional information, have questions, or would like to set up a meeting to discuss the project, please do not hesitate to contact Ken Custalow, our Tribal Liaison. He can be reached by email at ken.custalow@dominionenergy.com. Thank you for your willingness to join us in our commitment to serving the community.

Sincerely,

Robert E. Richardson

Robert Richardson
Communications Consultant
The Electric Transmission Project Team
Robert.E.Richardson@DominionEnergy.com

III. IMPACT OF LINE ON SCENIC, ENVIRONMENTAL AND HISTORIC FEATURES

K. Identify coordination with any non-governmental organizations or private citizen groups.

Response: On June 29, 2022, the Company solicited comments via letter from the non-governmental organizations and private citizen groups identified below. A copy of the letter template is included as Attachment III.K.1.[13]

Name	Organization
Ms. Elizabeth S. Kostelny	Preservation Virginia
Mr. Thomas Gilmore	American Battlefield Trust
Mr. Jim Campi	American Battlefield Trust
Mr. Max Hokit	American Battlefield Trust
Mr. Steven Williams	Colonial National Historical Park
Ms. Eleanor Breen, PhD, RPA	Council of Virginia Archaeologists
Ms. Leighton Powell	Scenic Virginia
Ms. Julie Bolthouse	Piedmont Environmental Council
Mr. John McCarthy	Piedmont Environmental Council
Ms. Elaine Chang	National Trust for Historic Preservation
Mr. Roger Kirchen, Archaeologist	Virginia Department of Historic Resources
Ms. Adrienne Birge-Wilson	Virginia Department of Historic Resources
Dr. Newby-Alexander	Norfolk State University
Mr. Dave Dutton	Dutton + Associates, LLC

[13] The letter indicates that the Company planned to submit an application to the Commission in August 2022. The application referenced in that letter is the Application submitted with this Appendix to the Commission on February 24, 2023.

Dominion Energy Virginia
Electric Transmission
P.O. Box 26666, Richmond, VA 23261-6666
DominionEnergy.com

June 29, 2022

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We also invite you to attend a virtual community meeting July 14, 2022 from 5-6 p.m. You can find meeting details, as well as project information, on our project webpage.

If you would like any additional information, have questions, or would like to set up a meeting to discuss the project, please contact me by sending an email to Robert.E.Richardson@dominionenergy.com or calling 888-291-0190.

Thank you for your willingness to join us in our commitment to serving the community.

Sincerely,

Robert E. Richardson

Rob Richardson
Communications Consultant
The Electric Transmission Project Team

III. IMPACT OF LINE ON SCENIC, ENVIRONMENTAL AND HISTORIC FEATURES

L. Identify any environmental permits or special permissions anticipated to be needed.

Response: See table below for potential permits anticipated for the proposed Rebuild Project.

Potential Permits

Activity	Permit	Agency
Impacts to wetlands and waters of the U.S.	Nationwide Permit 57	U.S. Army Corps of Engineers
Impacts to wetlands and waters of the U.S.	Virginia Water Protection Permit	Virginia Department of Environmental Quality
Work within, over or under state subaqueous bottom and tidal waters	Subaqueous Bottom Permit	Virginia Marine Resources Commission
Work within tidal wetlands	Local Wetlands Board Permit	Local Wetlands Board
Discharges of Stormwater from Construction Activities	Construction General Permit	Virginia Department of Environmental Quality
Work within VDOT right-of-way	Land Use Permit	Virginia Department of Transportation
Work within city right-of-way	Civil Permit	City of Virginia Beach
Airspace obstruction evaluation	FAA 7460-1	Federal Aviation Administration

IV. HEALTH ASPECTS OF ELECTROMAGNETIC FIELDS ("EMF")

A. Provide the calculated maximum electric and magnetic field levels that are expected to occur at the edge of the ROW. If the new transmission line is to be constructed on an existing electric transmission line ROW, provide the present levels as well as the maximum levels calculated at the edge of ROW after the new line is operational.

Response: Public exposure to magnetic fields is best estimated by field levels from power lines calculated at annual average loading. For any day of the year, the electric and magnetic field ("EMF") levels associated with average conditions provide the best estimate of potential exposure. Maximum (peak) values are less relevant as they may occur for only a few minutes or hours each year.

This section describes the levels of EMF associated with the existing and proposed transmission lines. EMF levels are provided for both historical (2022) and future (2025) annual average and maximum (peak) loading conditions.

Existing Lines – Historical Average Loading

EMF levels were calculated for the existing lines at the ***historical average*** load condition of ***191 amps*** for Line #2019 and ***58 amps*** for Line #2007. Lines #2019 and #2007 have a maximum operating voltage of 241.5 kV. See Attachments II.A.5.a, c, e, g, j and k.

These field levels were calculated at mid-span where the conductors are closest to the ground and the conductors are at a historical average load operating temperature.

EMF levels at the edge of the right-of-way for the existing lines at the historical average loading:

Existing Lines – Historic *Average* Loading

		Left Edge ROW Per Drawing View		**Right Edge ROW Per Drawing View**	
	Attachment	Electric Field (kV/m)	Magnetic Field (mG)	Electric Field (kV/m)	Magnetic Field (mG)
Line #2019	**II.A.5.a**	0.120	8.803	0.082	9.540
	II.A.5.c	0.048	9.840	1.099	17.804
	II.A.5.e	0.236	12.418	1.099	17.804
Line #2007	**II.A.5.g**	0.047	2.986	1.099	5.399
	II.A.5.i	0.047	2.986	1.099	5.399
	II.A.5.k	0.116	3.448	1.099	5.399

Existing Lines – Historical Peak Loading

EMF levels were calculated for the existing lines at the ***historical peak*** load condition of ***478 amps*** for Line #2019 and ***261 amps*** for Line #2007. Lines #2019 and #2007 have a maximum operating voltage of 241.5 kV. See Attachments II.A.5.a, c, e, g, i and k.

These field levels were calculated at mid-span where the conductors are closest to the ground and the conductors are at a historical peak load operating temperature.

EMF levels at the edge of the right-of-way for the existing lines at the historical peak loading:

Existing Lines – Historic *Peak* Loading

		Left Edge ROW Per Drawing View		**Right Edge ROW Per Drawing View**	
	Attachment	Electric Field (kV/m)	Magnetic Field (mG)	Electric Field (kV/m)	Magnetic Field (mG)
Line #2019	**II.A.5.a**	0.122	22.052	0.083	23.902
	II.A.5.c	0.050	24.652	1.098	44.646
	II.A.5.e	0.234	31.122	1.098	44.646
Line #2007	**II.A.5.g**	0.048	13.448	1.098	24.337
	II.A.5.i	0.048	13.448	1.098	24.337
	II.A.5.k	0.115	15.532	1.098	24.337

Proposed Rebuild – Projected Average Loading in 2025

EMF levels were calculated for the proposed Rebuild Project at the ***projected average*** load condition of ***182 amps*** for Line #2019 and ***40 amps*** for Line #2007. Lines #2019 and #2007 have a maximum operating voltage of 241.5 kV. See Attachments II.A.5.b, d, f, h, j and l.

These field levels were calculated at mid-span where the conductors are closest to the ground and the conductors are at a projected average load operating temperature.

EMF levels at the edge of the right-of-way for the proposed Rebuild Project at the projected average loading:

Proposed Rebuild – Projected *Average* Loading

	Attachment	Left Edge ROW Per Drawing View		Right Edge ROW Per Drawing View	
		Electric Field (kV/m)	Electric Field (kV/m)	Magnetic Field (mG)	
Line #2019	**II.A.5.b**	0.069	0.196	5.747	
	II.A.5.d	0.197	1.852	9.824	
	II.A.5.f	0.322	1.451	9.056	
Line #2007	**II.A.5.h**	0.322	1.451	1.990	
	II.A.5.j	1.006	0.542	1.517	
	II.A.5.l	0.322	1.451	1.990	

Proposed Rebuild – Projected Peak Loading in 2025

EMF levels were calculated for the proposed Rebuild Project at the ***projected peak*** load condition of ***456 amps*** for Line #2019 and ***179 amps*** for Line #2007. Lines #2019 and #2007 have a maximum operating voltage of 241.5 kV. See Attachments II.A.5.b, d, f, h, j and l.

These field levels were calculated at mid-span where the conductors are closest to the ground and the conductors are at a projected peak load operating temperature.

EMF levels at the edge of the right-of-way for the proposed Rebuild Project at the projected peak loading:

Proposed Lines – Projected *Peak* Loading

	Attachment	Left Edge ROW Per Drawing View		Right Edge ROW Per Drawing View	
		Electric Field (kV/m)	Magnetic Field (mG)	Electric Field (kV/m)	Magnetic Field (mG)
Line #2019	**II.A.5.b**	0.069	12.262	0.195	14.406
	II.A.5.d	0.197	14.253	1.852	24.634
	II.A.5.f	0.321	15.403	1.450	22.708
Line #2007	**II.A.5.h**	0.322	6.077	1.451	8.957
	II.A.5.j	1.006	7.947	0.542	6.827
	II.A.5.l	0.322	6.077	1.451	8.957

IV. HEALTH ASPECTS OF ELECTROMAGNETIC FIELDS ("EMF")

B. If the Applicant is of the opinion that no significant health effects will result from the construction and operation of the line, describe in detail the reasons for that opinion and provide references or citations to supporting documentation.

Response: The conclusions of multidisciplinary scientific review panels assembled by national and international scientific agencies during the past two decades are the foundation of the Company's opinion that no adverse health effects will result from the operation of the proposed Rebuild Project. Each of these panels has evaluated the scientific research related to health and power-frequency EMF and provided conclusions that form the basis of guidance to governments and industries. The Company regularly monitors the recommendations of these expert panels to guide their approach to EMF.

Research on EMF and human health varies widely in approach. Some studies evaluate the effects of high, short-term EMF exposures not typically found in people's day-to-day lives on biological responses, while others evaluate the effects of common, lower EMF exposures found throughout communities. Studies also have evaluated the possibility of effects (*e.g.*, cancer, neurodegenerative diseases, and reproductive effects) of long-term exposure. Altogether, this research includes well over a hundred epidemiologic studies of people in their natural environment and many more laboratory studies of animals (*in vivo*) and isolated cells and tissues (*in vitro*). Standard scientific procedures, such as weight-of-evidence methods, were used by the expert panels assembled by agencies to identify, review, and summarize the results of this large and diverse research.

The reviews of EMF biological and health research have been conducted by numerous scientific and health agencies, including the European Health Risk Assessment Network on Electromagnetic Fields Exposure ("EFHRAN"), the International Commission on Non-Ionizing Radiation Protection ("ICNIRP"), the World Health Organization ("WHO"), the IEEE's International Committee on Electromagnetic Safety ("ICES"), the Scientific Committee on Emerging and Newly Identified Health Risks ("SCENIHR") of the European Commission, and the Swedish Radiation Safety Authority ("SSM") (formerly the Swedish Radiation Protection Authority ["SSI"]) (WHO, 2007; SCENIHR, 2009, 2015; EFHRAN, 2010, 2012; ICNIRP, 2010; SSM, 2015, 2016, 2018, 2019, 2020, 2021; ICES, 2019). The general scientific consensus of the agencies that have reviewed this research, relying on generally accepted scientific methods, is that the scientific evidence does not confirm that common sources of EMF in the environment, including transmission lines and other parts of the electric system, appliances, etc., are a cause of any adverse health effects.

The most recent reviews on this topic include the 2015 report by SCENIHR and annual reviews published by SSM (*e.g.*, for the years 2015 through 2021). These reports, similar to previous reviews, found that the scientific evidence does not

confirm the existence of any adverse health effects caused by environmental or community exposure to EMF.

The WHO has recommended that countries adopt recognized international standards published ICNIRP and ICES. Typical levels of EMF from Dominion's power lines outside its property and rights-of-way are far below the screening reference levels of EMF recommended for the general public and still lower than exposures equivalent to restrictions to limits on fields within the body (ICNIRP, 2010; ICES, 2019).

Thus, based on the conclusions of scientific reviews and the levels of EMF associated with the proposed Rebuild Project, the Company has determined that no adverse health effects are anticipated to result from the operation of the proposed Rebuild Project.

References

European Health Risk Assessment Network on Electromagnetic Fields Exposure (EFHRAN). Report on the Analysis of Risks Associated to Exposure to EMF: *In Vitro* and *In Vivo* (Animals) Studies. Milan, Italy: EFHRAN, 2010.

European Health Risk Assessment Network on Electromagnetic Fields Exposure (EFHRAN). Risk Analysis of Human Exposure to Electromagnetic Fields (Revised). Report D2 of the EFHRAN Project. Milan, Italy: EFHRAN, 2012.

International Commission on Non-ionizing Radiation Protection (ICNIRP). Guidelines for limiting exposure to time-varying electric and magnetic fields (1 Hz to 100 kHz). Health Phys 99: 818-36, 2010.

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IV. HEALTH ASPECTS OF ELECTROMAGNETIC FIELDS ("EMF")

C. Describe and cite any research studies on EMF the Applicant is aware of that meet the following criteria:

1. Became available for consideration since the completion of the Virginia Department of Health's most recent review of studies on EMF and its subsequent report to the Virginia General Assembly in compliance with 1985 Senate Joint Resolution No. 126;

2. Include findings regarding EMF that have not been reported previously and/or provide substantial additional insight into findings; and

3. Have been subjected to peer review.

Response: The Virginia Department of Health ("VDH") conducted its most recent review and issued its report on the scientific evidence on potential health effects of extremely low frequency ("ELF") EMF in 2000: "[T]he Virginia Department of Health is of the opinion that there is no conclusive and convincing evidence that exposure to extremely low frequency EMF emanated from nearby high voltage transmission lines is causally associated with an increased incidence of cancer or other detrimental health effects in humans."[14]

The continuing scientific research on EMF exposure and health has resulted in many peer-reviewed publications since 2000. The accumulating research results have been regularly and repeatedly reviewed and evaluated by national and international health, scientific, and government agencies, including most notably:

- The WHO, which published one of the most comprehensive and detailed reviews of the relevant scientific peer-reviewed literature in 2007;
- SCENIHR, a committee of the European Commission, which published its assessments in 2009 and 2015;
- The SSM, which has published annual reviews of the relevant peer-reviewed scientific literature since 2003, with its most recent review published in 2021; and,
- EFHRAN, which published its reviews in 2010 and 2012.

The above reviews provide detailed analyses and summaries of relevant recent peer-reviewed scientific publications. The conclusions of these reviews that the evidence overall does not confirm the existence of any adverse health effects due to exposure to EMF below scientifically established guideline values are consistent with the conclusions of the VDH report. With respect to the statistical association observed in some of the childhood leukemia epidemiologic studies, the most recent

[14] *See* http://www.vdh.virginia.gov/content/uploads/sites/12/2016/02/highfinal.pdf.

comprehensive review of the literature by SCENIHR, published in 2015, concluded that "no mechanisms have been identified and no support is existing [*sic*] from experimental studies that could explain these findings, which, together with shortcomings of the epidemiological studies prevent a causal interpretation" (SCENIHR, 2015, p. 16).

While research is continuing on multiple aspects of EMF exposure and health, many of the recent publications have focused on an epidemiologic assessment of the relationship between EMF exposure and childhood leukemia and EMF exposure and neurodegenerative diseases. Of these, the following recent publications, published following the inclusion date (June 2014) for the SCENIHR (2015) report through May 2021, provided additional evidence and contributed to clarification of previous findings. Overall, new research studies have not provided evidence to alter the previous conclusions of scientific and health organizations, including the WHO and SCENIHR.

Recent epidemiologic studies of EMF and childhood leukemia include:

- Bunch et al. (2015) assessed the potential association between residential proximity to high-voltage underground cables and development of childhood cancer in the United Kingdom largely using the same epidemiologic data as in a previously published study on overhead transmission lines (Bunch et al., 2014). No statistically significant associations or trends were reported with either distance to underground cables or calculated magnetic fields from underground cables for any type of childhood cancers.

- Pedersen et al. (2015) published a case-control study that investigated the potential association between residential proximity to power lines and childhood cancer in Denmark. The study included all cases of leukemia (n=1,536), central nervous system tumor, and malignant lymphoma (n=417) diagnosed before the age of 15 between 1968 and 2003 in Denmark, along with 9,129 healthy control children matched on sex and year of birth. Considering the entire study period, no statistically significant increases were reported for any of the childhood cancer types.

- Salvan et al. (2015) compared measured magnetic-field levels in the bedroom for 412 cases of childhood leukemia under the age of 10 and 587 healthy control children in Italy. Although the statistical power of the study was limited because of the small number of highly exposed subjects, no consistent statistical associations or trends were reported between measured magnetic-field levels and the occurrence of leukemia among children in the study.

- Bunch et al. (2016) and Swanson and Bunch (2018) published additional analyses using data from an earlier study (Bunch et al., 2014). Bunch et al. (2016) reported that the association with distance to power lines observed in earlier years was linked to calendar year of birth or year of cancer diagnosis, rather than the age of the power lines. Swanson and Bunch (2018) re-analyzed

data using finer exposure categories (e.g., cut-points of every 50-meter distance) and broader groupings of diagnosis date (e.g., 1960-1979, 1980-1999, and 2000-on) and reported no overall associations between exposure categories and childhood leukemia for the later periods (1980 and on), and consistent pattern for the periods prior to 1980.

- Crespi et al. (2016) conducted a case-control epidemiologic study of childhood cancers and residential proximity to high-voltage power lines (60 kilovolts ["kV"] to 500 kV) in California. Childhood cancer cases, including 5,788 cases of leukemia and 3,308 cases of brain tumor, diagnosed under the age of 16 between 1986 and 2008, were identified from the California Cancer Registry. Controls, matched on age and sex, were selected from the California Birth Registry. Overall, no consistent statistically significant associations for leukemia or brain tumor and residential distance to power lines were reported.

- Kheifets et al. (2017) assessed the relationship between calculated magnetic-field levels from power lines and development of childhood leukemia within the same study population evaluated in Crespi et al. (2016). In the main analyses, which included 4,824 cases of leukemia and 4,782 controls matched on age and sex, the authors reported no consistent patterns, or statistically significant associations between calculated magnetic-field levels and childhood leukemia development. Similar results were reported in subgroup and sensitivity analyses. In two subsequent studies, Amoon et al. (2018a, 2019) examined the potential impact of residential mobility (i.e., moving residences between birth and diagnosis) on the associations reported in Crespi et al. (2016) and Kheifets et al. (2017). Amoon et al. (2018a) concluded that changing residences was not associated with either calculated magnetic-field levels or proximity to the power lines, while Amoon et al. (2019) concluded that while uncontrolled confounding by residential mobility had some impact on the association between EMF exposure and childhood leukemia, it was unlikely to be the primary driving force behind the previously reported associations in Crespi et al. (2016) and Kheifets et al. (2017).

- Amoon et al. (2018b) conducted a pooled analysis of 29,049 cases and 68,231 controls from 11 epidemiologic studies of childhood leukemia and residential distance from high-voltage power lines. The authors reported no statistically-significant association between childhood leukemia and proximity to transmission lines of any voltage. Among subgroup analyses, the reported associations were slightly stronger for leukemia cases diagnosed before 5 years of age and in study periods prior to 1980. Adjustment for various potential confounders (*e.g.*, socioeconomic status, dwelling type, residential mobility) had little effect on the estimated associations.

- Kyriakopoulou et al. (2018) assessed the association between childhood acute leukemia and parental occupational exposure to social contacts, chemicals, and electromagnetic fields. The study was conducted at a major pediatric hospital in Greece and included 108 cases and 108 controls matched for age, gender,

and ethnicity. Statistically non-significant associations were observed between paternal exposure to magnetic fields and childhood acute leukemia for any of the exposure periods examined (1 year before conception; during pregnancy; during breastfeeding; and from birth until diagnosis); maternal exposure was not assessed due to the limited sample size. No associations were observed between childhood acute leukemia and exposure to social contacts or chemicals.

- Auger et al. (2019) examined the relationship between exposure to EMF during pregnancy and risk of childhood cancer in a cohort of 784,000 children born in Quebéc. Exposure was defined using residential distance to the nearest high-voltage transmission line or transformer station. The authors reported statistically non-significant associations between proximity to transformer stations and any cancer, hematopoietic cancer, or solid tumors. No associations were reported with distance to transmission lines.
- Crespi et al. (2019) investigated the relationship between childhood leukemia and distance from high-voltage lines and calculated magnetic-field exposure, separately and combined, within the California study population previously analyzed in Crespi et al. (2016) and Kheifets et al. (2017). The authors reported that neither close proximity to high-voltage lines nor exposure to calculated magnetic fields alone were associated with childhood leukemia; an association was observed only for those participants who were both close to high-voltage lines (< 50 meters) and had high calculated magnetic fields (≥ 0.4 microtesla [i.e., ≥ 4 milligauss]). No associations were observed with low-voltage power lines (< 200 kV). In a subsequent study, Amoon et al. (2020) examined the potential impact of dwelling type on the associations reported in Crespi et al. (2019). Amoon et al. (2020) concluded that while the type of dwelling at which a child resides (e.g., single-family home, apartment, duplex, mobile home) was associated with socioeconomic status and race or ethnicity, it was not associated with childhood leukemia and did not appear to be a potential confounder in the relationship between childhood leukemia and magnetic-field exposure in this study population.
- Swanson et al. (2019) conducted a meta-analysis of 41 epidemiologic studies of childhood leukemia and magnetic-field exposure published between 1979 and 2017 to examine trends in childhood leukemia development over time. The authors reported that while the estimated risk of childhood leukemia initially increased during the earlier period, a statistically non-significant decline in estimated risk has been observed from the mid-1990s until the present (*i.e.*, 2019).
- Talibov et al. (2019) conducted a pooled analysis of 9,723 cases and 17,099 controls from 11 epidemiologic studies to examine the relationship between parental occupational exposure to magnetic fields and childhood leukemia. No statistically significant association was found between either paternal or maternal exposure and leukemia (overall or by subtype). No associations were observed in the meta-analyses.

- Núñez-Enríquez et al. (2020) assessed the relationship between residential magnetic-field exposure and B-lineage acute lymphoblastic leukemia ("B-ALL") in children under 16 years of age in Mexico. The study included 290 cases and 407 controls matched on age, gender, and health institution; magnetic-field exposure was assessed through the collection of 24-hour measurements in the participants' bedrooms. While the authors reported some statistically significant associations between elevated magnetic-field levels and development of B-ALL, the results were dependent on the chosen cut-points.

- Seomun et al. (2021) performed a meta-analysis based on 33 previously published epidemiologic studies investigating the potential relationship between magnetic-field exposure and childhood cancers, including leukemia and brain cancer. For childhood leukemia, the authors reported statistically significant associations with some, but not all, of the chosen cut-points for magnetic-field exposure. The associations between magnetic-field exposure and childhood brain cancer were statistically non-significant. The study provided limited new insight as most of the studies included in the current meta-analysis, were included in previously conducted meta- and pooled analyses.

Recent epidemiologic studies of EMF and neurodegenerative diseases include:

- Seelen et al. (2014) conducted a population-based case-control study in the Netherlands and included 1,139 cases diagnosed with amyotrophic lateral sclerosis ("ALS") between 2006 and 2013 and 2,864 frequency-matched controls. The shortest distance from the case and control residences to the nearest high-voltage power line (50 to 380 kilovolts [kV]) was determined by geocoding. No statistically significant associations between residential proximity to power lines with voltages of either 50 to 150 kV or 220 to 380 kV and ALS were reported.

- Sorahan and Mohammed (2014) analyzed mortality from neurodegenerative diseases in a cohort of approximately 73,000 electricity supply workers in the United Kingdom. Cumulative occupational exposure to magnetic-fields was calculated for each worker in the cohort based on their job titles and job locations. Death certificates were used to identify deaths from neurodegenerative diseases. No associations or trends for any of the included neurodegenerative diseases (Alzheimer's disease, Parkinson's disease, and ALS) were observed with various measures of calculated magnetic fields.

- Koeman et al. (2015, 2017) analyzed data from the Netherlands Cohort Study of approximately 120,000 men and women who were enrolled in the cohort in 1986 and followed up until 2003. Lifetime occupational history, obtained through questionnaires, and job-exposure matrices on ELF magnetic fields and other occupational exposures were used to assign exposure to study subjects. Based on 1,552 deaths from vascular dementia, the researchers reported a statistically not significant association of vascular dementia with estimated exposure to metals, chlorinated solvents, and ELF magnetic fields. However,

because no exposure-response relationship for cumulative exposure was observed and because magnetic fields and solvent exposures were highly correlated with exposure to metals, the authors attributed the association with ELF magnetic fields and solvents to confounding by exposure to metals (Koeman et al., 2015). Based on a total of 136 deaths from ALS among the cohort members, the authors reported a statistically significant, approximately two-fold association with ELF magnetic fields in the highest exposure category. This association, however, was no longer statistically significant when adjusted for exposure to insecticides (Koeman et al., 2017).

- Fischer et al. (2015) conducted a population-based case-control study that included 4,709 cases of ALS diagnosed between 1990 and 2010 in Sweden and 23,335 controls matched to cases on year of birth and sex. The study subjects' occupational exposures to ELF magnetic fields and electric shocks were classified based on their occupations, as recorded in the censuses and corresponding job-exposure matrices. Overall, neither magnetic fields nor electric shocks were related to ALS.

- Vergara et al. (2015) conducted a mortality case-control study of occupational exposure to electric shock and magnetic fields and ALS. They analyzed data on 5,886 deaths due to ALS and over 58,000 deaths from other causes in the United States between 1991 and 1999. Information on occupation was obtained from death certificates and job-exposure matrices were used to categorize exposure to electric shocks and magnetic fields. Occupations classified as "electric occupations" were moderately associated with ALS. The authors reported no consistent associations for ALS, however, with either electric shocks or magnetic fields, and they concluded that their findings did not support the hypothesis that exposure to either electric shocks or magnetic fields explained the observed association of ALS with "electric occupations."

- Pedersen et al. (2017) investigated the occurrence of central nervous system diseases among approximately 32,000 male Danish electric power company workers. Cases were identified through the national patient registry between 1982 and 2010. Exposure to ELF magnetic fields was determined for each worker based on their job titles and area of work. A statistically significant increase was reported for dementia in the high exposure category when compared to the general population, but no exposure-response pattern was identified, and no similar increase was reported in the internal comparisons among the workers. No other statistically significant increases among workers were reported for the incidence of Alzheimer's disease, Parkinson's disease, motor neuron disease, multiple sclerosis, or epilepsy, when compared to the general population, or when incidence among workers was analyzed across estimated exposure levels.

- Vinceti et al. (2017) examined the association between ALS and calculated magnetic-field levels from high-voltage power lines in Italy. The authors included 703 ALS cases and 2,737 controls; exposure was assessed based on

residential proximity to high-voltage power lines. No statistically significant associations were reported and no exposure-response trend was observed. Similar results were reported in subgroup analyses by age, calendar period of disease diagnosis, and study area.

- Checkoway et al. (2018) investigated the association between Parkinsonism[15] and occupational exposure to magnetic fields and several other agents (endotoxins, solvents, shift work) among 800 female textile workers in Shanghai. Exposure to magnetic fields was assessed based on the participants' work histories. The authors reported no statistically significant associations between Parkinsonism and occupational exposure to any of the agents under study, including magnetic fields.

- Gunnarsson and Bodin (2018) conducted a meta-analysis of occupational risk factors for ALS. The authors reported a statistically significant association between occupational exposures to EMF, estimated using a job-exposure matrix, and ALS among the 11 studies included. Statistically significant associations were also reported between ALS and jobs that involve working with electricity, heavy physical work, exposure to metals (including lead) and chemicals (including pesticides), and working as a nurse or physician. The authors reported some evidence for publication bias. In a subsequent publication, Gunnarsson and Bodin (2019) updated their previous meta-analysis to also include Parkinson's disease and Alzheimer's disease. A slight, statistically significant association was reported between occupational exposure to EMF and Alzheimer's disease; no association was observed for Parkinson's disease.

- Huss et al. (2018) conducted a meta-analysis of 20 epidemiologic studies of ALS and occupational exposure to magnetic fields. The authors reported a weak overall association; a slightly stronger association was observed in a subset analysis of six studies with full occupational histories available. The authors noted substantial heterogeneity among studies, evidence for publication bias, and a lack of a clear exposure-response relationship between exposure and ALS.

- Jalilian et al. (2018) conducted a meta-analysis of 20 epidemiologic studies of occupational exposure to magnetic fields and Alzheimer's disease. The authors reported a moderate, statistically significant overall association; however, they noted substantial heterogeneity among studies and evidence for publication bias.

- Röösli and Jalilian (2018) performed a meta-analysis using data from five epidemiologic studies examining residential exposure to magnetic fields and

[15] Parkinsonism is defined by Checkoway et al. (2018) as "*a syndrome whose cardinal clinical features are bradykinesia, rest tremor, muscle rigidity, and postural instability. Parkinson disease is the most common neurodegenerative form of [parkinsonism]"* (p. 887).

ALS. A statistically non-significant negative association was reported between ALS and the highest exposed group, where exposure was defined based on distance from power lines or calculated magnetic-field level.

- Gervasi et al. (2019) assessed the relationship between residential distance to overhead power lines in Italy and risk of Alzheimer's dementia and Parkinson's disease. The authors included 9,835 cases of Alzheimer's dementia and 6,810 cases of Parkinson's disease; controls were matched by sex, year of birth, and municipality of residence. A weak, statistically non-significant association was observed between residences within 50 meters of overhead power lines and both Alzheimer's dementia and Parkinson's disease, compared to distances of over 600 meters.

- Peters et al. (2019) examined the relationship between ALS and occupational exposure to both magnetic fields and electric shock in a pooled study of data from three European countries. The study included 1,323 ALS cases and 2,704 controls matched for sex, age, and geographic location; exposure was assessed based on occupational title and defined as low (background), medium, or high. Statistically significant associations were observed between ALS and ever having been exposed above background levels to either magnetic fields or electric shocks; however, no clear exposure-response trends were observed with exposure duration or cumulative exposure. The authors also noted significant heterogeneity in risk by study location.

- Filippini et al. (2020) investigated the associations between ALS and several environmental and occupational exposures, including electromagnetic fields, within a case-control study in Italy. The study included 95 cases and 135 controls matched on age, gender, and residential province; exposure to electromagnetic fields was assessed using the participants' responses to questions related to occupational use of electric and electronic equipment, occupational EMF exposure, and residential distance to overhead power lines. The authors reported a statistically significant association between ALS and residential proximity to overhead power lines and a statistically non-significant association between ALS and occupational exposure to EMF; occupational use of electric and electronic equipment was associated with a statistically non-significant decrease in ALS development.

- Huang et al. (2020) conducted a meta-analysis of 43 epidemiologic studies examining potential occupational risk factors for dementia or mild cognitive impairment. The authors included five cohort studies and seven case-control studies related to magnetic-field exposure. For both study types, the authors reported positive associations between dementia and work-related magnetic-field exposures. The paper, however, provided no information on the occupations held by the study participants, their magnetic-field exposure levels, or how magnetic-field levels were assessed; therefore, the results are difficult to interpret. The authors also reported a high level of heterogeneity among studies. Thus, this analysis adds little, if any, to the overall weight of evidence

on a potential association between dementia and magnetic fields.

- Jalilian et al. (2020) conducted a meta-analysis of ALS and occupational exposure to both magnetic fields and electric shocks within 27 studies from Europe, the United States, and New Zealand. A weak, statistically significant association was reported between magnetic-field exposure and ALS; however, the authors noted evidence of study heterogeneity and publication bias. No association was observed between ALS and electric shocks.

- Chen et al. (2021) conducted a case-control study to examine the association between occupational exposure to electric shocks, magnetic fields, and motor neuron disease ("MND") in New Zealand. The study included 319 cases with a MND diagnosis (including ALS) and 604 controls, matched on age and gender; exposure was assessed using the participants' occupational history questionnaire responses and previously developed job-exposure matrices for electric shocks and magnetic fields. The authors reported no associations between MND and exposure to magnetic fields; positive associations were reported between MND and working at a job with the potential for electric shock exposure.

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Talibov M, Olsson A, Bailey H, Erdmann F, Metayer C, Magnani C, Petridou E, Auvinen A, Spector L, Clavel J, Roman E, Dockerty J, Nikkila A, Lohi O, Kang A, Psaltopoulou T, Miligi L, Vila J, Cardis E, Schüz J. Parental occupational exposure to low-frequency magnetic fields and risk of leukaemia in the offspring: findings from the Childhood Leukaemia International Consortium (CLIC). Occup Environ Med 76:746-753, 2019.

Vergara X, Mezei G, Kheifets L. Case-control study of occupational exposure to electric shocks and magnetic fields and mortality from amyotrophic lateral sclerosis in the US, 1991-1999. J Expo Sci Environ Epidemiol 25: 65-71, 2015.

Vinceti M, Malagoli C, Fabbi S, Kheifets L, Violi F, Poli M, Caldara S, Sesti D, Violanti S, Zanichelli P, Notari B, Fava R, Arena A, Calzolari R, Filippini T, Iacuzio L, Arcolin E, Mandrioli J, Fini N, Odone A, Signorelli C, Patti F, Zappia M, Pietrini V, Oleari P, Teggi S, Ghermandi G, Dimartino A, Ledda C, Mauceri C, Sciacca S, Fiore M, Ferrante M. Magnetic fields exposure from high-voltage power lines and risk of amyotrophic lateral sclerosis in two Italian populations. Amyotroph Lateral Scler Frontotemporal Degener 18: 583-589, 2017.

World Health Organization (WHO). Environmental Health Criteria 238: Extremely Low Frequency (ELF) Fields. Geneva, Switzerland: World Health Organization, 2007.

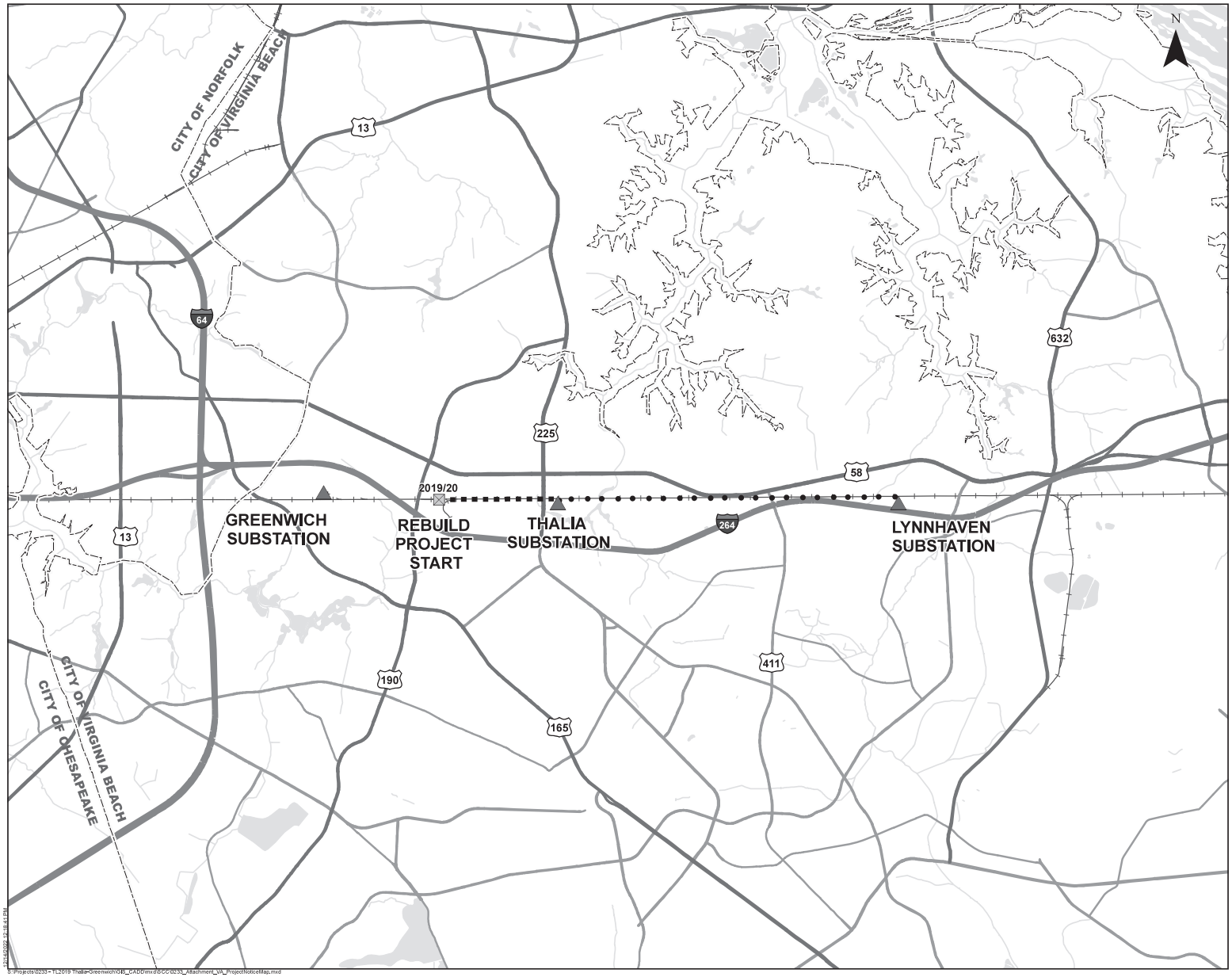
V. NOTICE

A. Furnish a proposed route description to be used for public notice purposes. Provide a map of suitable scale showing the route of the proposed project. For all routes that the Applicant proposed to be noticed, provide minimum, maximum and average structure heights.

Response: A map showing the existing route to be used for the Rebuild Project is provided as Attachment V.A. A written description of the route is as follows:

The proposed route for the Rebuild Project is located within an existing approximately 4.54-mile right-of-way corridor currently occupied by existing 230 kV transmission Lines #2019 and #2007. The existing transmission right-of-way for the proposed route originates at Structure #2019/20 and heads east for approximately 1.17 miles before reaching the Thalia Substation, then continues east for approximately 3.37 miles before terminating at the Lynnhaven Substation. The right-of-way crosses Thalia Creek and Pinetree Branch. The Rebuild Project crosses major roads, including Witchduck Road (Route 190), Independence Boulevard (Route 225), and Rosemont Road (Route 411). The entire Rebuild Project is located within the City of Virginia Beach, Virginia.

For the proposed Rebuild Project, the Company proposes to replace primarily concrete monopoles with galvanized steel monopoles. The proposed minimum structure height is approximately 92 feet, the maximum structure height is approximately 117 feet and the average structure height is approximately 103 feet, based on preliminary conceptual design, inclusive of foundation reveal, and subject to change based on final engineering design.



ATTACHMENT V.A

PROJECT NOTICE MAP

Lines #2019 and #2007 Rebuild Project

City of Virginia Beach, Virginia

Owner/ Applicant:
Dominion Energy Virginia

C2 Env Project:	Prepared By:	Date:
0233	GCF	07/19/22

0 0.5 1 2 Miles

Scale is 1 IN = 1 MI when printed at original size of 11x17

LEGEND

- Existing Line #2019 Project Centerline
- Existing Line #2007 Project Centerline
- Existing Structure 2019/20
- Existing Substation
- Limited Access Highway
- US or VA Primary Highway
- Local or Main Road
- Railroad
- County Boundary
- NHD Stream/River
- NHD Waterbody

Notes:
1. Basemap from ESRI Topographic Map
2. Project centerline provided by Dominion Energy
3. Roads and railroads from VGIN
4. Streams, rivers and waterbodies from USGS National Hydrography Data

ENVIRONMENTAL

Dominion Energy®

SHEET 1 OF 1

S:\Projects\0233 - TL2019 Thalia-Greenwich\GIS_CADD\mxd\SCC\0233_Attachment_VA_ProjectNoticeMap.mxd

V. NOTICE

B. List Applicant offices where members of the public may inspect the application. If applicable, provide a link to website(s) where the application may be found.

Response: The Application is available for public inspection electronically at the following website: https://www.dominionenergy.com/greenwich.

V. NOTICE

C. List all federal, state, and local agencies and/or officials that may reasonably be expected to have an interest in the proposed construction and to whom the Applicant has furnished or will furnish a copy of the application.

Response: The following agency representatives may reasonably be expected to have an interest in the proposed Rebuild Project. Instead of furnishing a copy of the Application to these parties, the Company has sent a letter noting the availability of the Application for the proposed Rebuild Project on the Company's website.

Ms. Bettina Rayfield
Manager, Environmental Impact Review and Long Range Priorities
Office of Environmental Impact Review
Department of Environmental Quality, Central Office
PO Box 1105
Richmond, Virginia 23218

Ms. Michelle Henicheck
Office of Wetlands and Streams
Department of Environmental Quality
1111 East Main Street, Suite 1400
Richmond, Virginia 23219

Ms. Robbie Rhur
Environmental Specialist, Planning & Recreation
Department of Conservation and Recreation
600 East Main Street, 24th Floor
Richmond, Virginia 23219

Ms. Rene Hypes
Environmental Review Coordinator, Natural Heritage Program
Department of Conservation and Recreation
600 East Main Street, 24th Floor
Richmond, Virginia 23219

Ms. Amy Martin
Environmental Services Biologist Manager
Virginia Department of Wildlife Resources
P.O. Box 90778
Henrico, Virginia 23228

Mr. Keith Tignor
Endangered Plant and Insect Species Program
Virginia Department of Agriculture and Consumer Services
102 Governor Street
Richmond, Virginia 23219

Mr. Roger Kirchen
Director, Review and Compliance Division
Department of Historic Resources
2801 Kensington Avenue
Richmond, Virginia 23221

Mr. Karl Didier
Forestland Conservation Division
Virginia Department of Forestry
900 Natural Resources Drive, Suite 800
Charlottesville, Virginia 22903

Ms. Tiffany Birge
Habitat Management Division
Virginia Marine Resources Commission
Building 96, 380 Fenwick Road
Fort Monroe, Virginia 23651

Mr. Troy Andersen
US Fish and Wildlife Service
Ecological Services Virginia Field Office
6669 Short Lane
Gloucester, Virginia 23061

Mr. Pete Kube
U.S. Army Corps of Engineers
Norfolk District, Eastern Section
803 Front Street
Norfolk, Virginia 23510

Ms. Martha Little
Virginia Outdoors Foundation
P.O. Box 85073, PMB 38979
Richmond, Virginia 23285-5073

Mr. Conrad Spencer, III
Virginia Department of Mine, Minerals, and Energy
1100 Bank Street
Washington Building, 8th Floor
Richmond, Virginia 23219

Mr. Christopher G. Hall, P.E.
Hampton Roads District Engineer
Virginia Department of Transportation
7511 Burbage Drive
Suffolk, Virginia 23435

Mr. Patrick A. Duhaney
City of Virginia Beach City Manager
2401 Courthouse Drive
Virginia Beach, Virginia 23456

V. NOTICE

D. If the application is for a transmission line with a voltage of 138 kV or greater, provide a statement and any associated correspondence indicating that prior to the filing of the application with the SCC the Applicant has notified the chief administrative officer of every locality in which it plans to undertake construction of the proposed line of its intention to file such an application, and that the Applicant gave the locality a reasonable opportunity for consultation about the proposed line (similar to the requirements of § 15.2-2202 of the Code for electric transmission lines of 150 kV or more).

Response: In accordance with Va. Code § 15.2-2202 E, a letter dated June 29, 2022, was sent to Mr. Patrick A. Duhaney, City Manager of the City of Virginia Beach, advising of the Company's intention to file this Application and inviting the City to consult with the Company about the proposed Rebuild Project. The letter is included as included as Attachment V.D.1.

Dominion Energy Services, Inc.
120 Tredegar Street
Richmond, VA 23219
DominionEnergy.com

June 29, 2022

Mr. Patrick A. Duhaney
City of Virginia Beach City Manager
2401 Courthouse Drive
Virginia Beach, Virginia 23456

RE: Dominion Energy Virginia's Proposed Line #2019 and Line #2007 Rebuild Project
City of Virginia Beach, Virginia - Notice Pursuant to Va. Code § 15.2-2202 E

Dear Mr. Duhaney,

Dominion Energy Virginia (the "Company") is proposing to rebuild Greenwich-Thalia Line #2019 and Lynnhaven-Thalia Line #2007 located within existing right-of-way or on Company-owned property along an approximately 4.54-mile transmission corridor in the City of Virginia Beach, Virginia (the "Rebuild Project"). The proposed Rebuild Project will replace aging infrastructure that is at the end of its service life.

Specifically, as part of the Rebuild Project, the Company is proposing to rebuild an approximately 1.17-mile segment of 230 kV Greenwich-Thalia Line #2019 from Structure #2019/20 to the Company's existing Thalia Substation and rebuild the entire approximately 3.37-mile 230 kV Lynnhaven-Thalia Line #2007 between the Company's existing Lynnhaven and Thalia Substations.The Rebuild Project will include replacement of structures, as well as conductors and shield wire, within the existing right-of-way. Additionally, the Rebuild Project will require work at the Company's existing Greenwich, Thalia and Lynnhaven Substations.

The Company is preparing an application for a Certificate of Public Convenience and Necessity from the Virginia State Corporation Commission ("SCC"). Pursuant to Va. Code § 15.2-2202, the Company is writing to notify you of the proposed in advance of this SCC filing. We respectfully request that you submit any comments or additional information you feel would have bearing on the Rebuild Project within 30 days of the date of this letter. Enclosed is a Project Location Map depicting the rebuild route and project location.

If you would like to receive a GIS shapefile of the transmission line routes to assist in the project review or if there are any questions, please do not hesitate to contact me at (804) 239-6450 or charles.h.weil@dominionenergy.com.

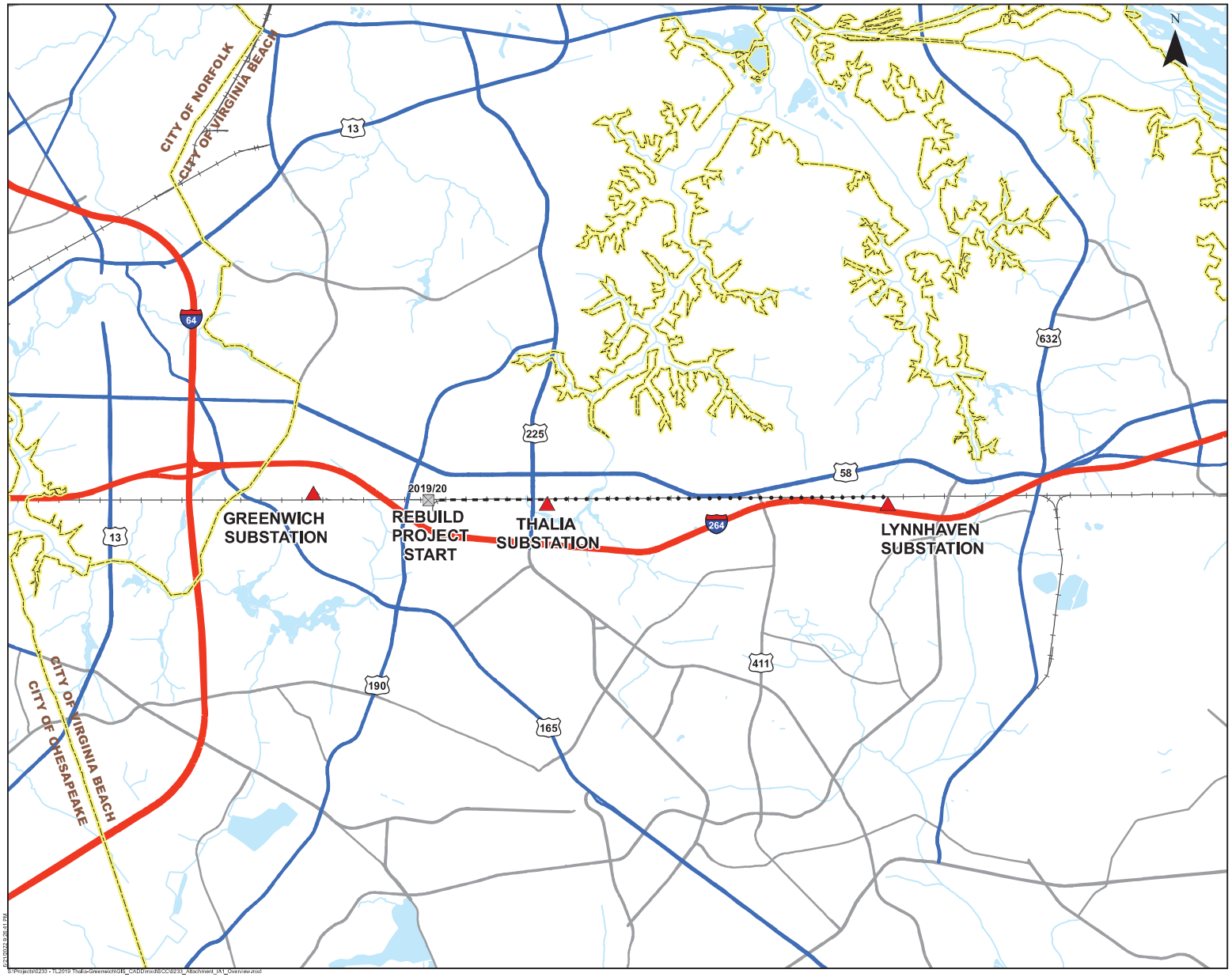
We appreciate your assistance with this project review and look forward to any additional information you may have to offer.

Sincerely,

Dominion Energy Virginia

Charles H. Weil, PE
Siting and Permitting Services

Attachment: Project Notice Map



PROJECT OVERVIEW MAP

Lines #2019 and #2007 Rebuild Project

City of Virginia Beach, Virginia

Owner/ Applicant:
Dominion Energy Virginia

C2 Env Project:	Prepared By:	Date:
0233	GCF	06/22/22

0 0.5 1 2 Miles

Scale is 1 IN = 1 MI when printed at original size of 11x17

LEGEND

- Existing Line #2019
- Existing Line #2007
- Existing Structure 2019/20
- Existing Substation
- Limited Access Highway
- US or VA Primary Highway
- Local or Main Road
- Railroad
- County Boundary
- NHD Stream/River
- NHD Waterbody

Notes:
1. Basemap from ESRI Topographic Map
2. Project centerline provided by Dominion Energy
3. Roads and railroads from VGIN
4. Streams, rivers and waterbodies from USGS National Hydrography Data

C2 ENVIRONMENTAL

Dominion Energy

SHEET 1 OF 1

COMMONWEALTH OF VIRGINIA

STATE CORPORATION COMMISSION

APPLICATION OF	)	
	)	
VIRGINIA ELECTRIC AND POWER COMPANY	)	Case No. PUR-2023-00023
	)	
For approval and certification of electric transmission facilities: Lines #2019 and Line #2007 Rebuild Project	)	

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

Samuel L. Carter

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

Trey M. Rydel

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

Antoaneta Yanev

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

Charles H. Weil

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

WITNESS DIRECT TESTIMONY SUMMARY

Witness: Samuel L. Carter

Title: Area Planning Engineer – Electric Transmission Planning

Summary:

Company Witness Samuel L. Carter sponsors those portions of the Appendix describing the Company's transmission system and need for, and benefits of, the proposed 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: Although not applicable, 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, 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, this section contains information for transmission lines interconnecting a non-utility generator.
- Section I.N: Although not applicable, 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 Carter co-sponsors the following portions of the Appendix:

- Section I.A (co-sponsored with Company Witness Trey M. Rydel): This section details the primary justifications for the proposed project.
- Section I.F (co-sponsored with Company Witness Trey M. Rydel): 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 Charles H. Weil): This section provides a system map for the affected area.
- Section II.A.3 (co-sponsored with Company Witness Charles H. Weil): This section provides color maps of existing or proposed rights-of-way in the vicinity of the project.

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

DIRECT TESTIMONY
OF
SAMUEL L. CARTER
ON BEHALF OF
VIRGINIA ELECTRIC AND POWER COMPANY
BEFORE THE
STATE CORPORATION COMMISSION OF VIRGINIA
CASE NO. PUR-2023-00023

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

A. My name is Samuel L. Carter, and I am an Area Planning Engineer 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 Reliability Standards, the Company proposes the following rebuild project located within existing right-of-way or on Company-owned property along an approximately 4.54-mile existing transmission corridor in the City of Virginia Beach, Virginia (the "Rebuild Project"):

- Rebuild an approximately 1.17-mile segment of 230 kV Greenwich-Thalia Line #2019 from Structure #2019/20 to the Company's existing Thalia Substation. Specifically, replace 1.17 miles of Line #2019 structures beginning at Structure #2019/21, which primarily are single circuit concrete monopoles, with single circuit galvanized steel monopoles on concrete foundations. Additionally, replace conductors between Structure #2019/20 and the Thalia Substation, and replace

shield wires between Greenwich Substation and Thalia Substation with two fiber optic shield wires.

- Rebuild the entire approximately 3.37-mile 230 kV Lynnhaven-Thalia Line #2007 between the Company's existing Lynnhaven and Thalia Substations. Specifically, replace 3.37 miles of Line #2007 structures between Structure #2007/102 and Structure #2007/42A, which primarily are single circuit concrete monopoles, with single circuit galvanized steel monopoles on concrete foundations. Additionally, between Greenwich Substation and Thalia Substation, replace conductors, and replace shield wires with two fiber optic shield wires.

- Conduct related work at the Company's existing Greenwich, Thalia and Lynnhaven Substations to support the new line ratings.

The purpose of my testimony is to describe the Company's transmission system and the need for, and benefits of, the proposed 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 the Executive Summary with Company Witnesses Trey M. Rydel, Antoaneta Yanev, and Charles H. Weil; Sections I.A and I.F with Company Witness Trey M. Rydel; and Sections I.G and II.A.3 with Company Witness Charles H. Weil.

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

A. Yes, it does.

APPENDIX A

BACKGROUND AND QUALIFICATIONS
OF
SAMUEL L. CARTER

Samuel L. Carter received a Bachelor of Science degree in Electrical Engineering from Virginia Polytechnic Institute and State University in 1979. He is licensed as a Professional Engineer in the Commonwealth of Virginia. Before joining Dominion Energy Virginia in 2020, Mr. Carter worked for Westinghouse as a transformer design engineer from 1979 to 1988 and for Dominion Energy from 1988 to 2019 in various positions including Distribution Standards Engineer, East Richmond District Operations Supervisor, Distribution Planning Engineer and Transmission Planning Engineer (2008-2019).

Mr. Carter has not previously submitted pre-filed testimony to the State Corporation Commission of Virginia.

WITNESS DIRECT TESTIMONY SUMMARY

Witness: Trey M. Rydel

Title: Electric Transmission Engineer

Summary:

Company Witness Trey M. Rydel sponsors those portions of the Appendix providing an overview of the design characteristics of the transmission facilities for the proposed 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.

- Sections II.B.1 to II.B.3: These sections provide the line design and operational features of the proposed project.

- Section II.B.4: Although not applicable, this section normally provides the line design and operational features of a proposed project.

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

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

- Section I.A (co-sponsored with Company Witness Samuel L. Carter): This section details the primary justifications for the proposed project.

- Section I.F (co-sponsored with Company Witness Samuel L. Carter): 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 Antoaneta Yanev): This section provides the estimated total cost of the proposed project.

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

- Section V.A (co-sponsored with Company Witness Charles H. Weil): This section provides information related to public notice of the proposed project

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

DIRECT TESTIMONY
OF
TREY M. RYDEL
ON BEHALF OF
VIRGINIA ELECTRIC AND POWER COMPANY
BEFORE THE
STATE CORPORATION COMMISSION OF VIRGINIA
CASE NO. PUR-2023-00023

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

A. My name is Trey M. Rydel, and I am an Electric Transmission Engineer 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. Additionally, I am responsible for providing engineering support to field personnel throughout the construction process.

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 Reliability Standards, the Company proposes the following rebuild project located within existing right-of-way or on Company-owned property along an approximately 4.54-mile existing transmission corridor in the City of Virginia Beach, Virginia (the "Rebuild Project"):

- Rebuild an approximately 1.17-mile segment of 230 kV Greenwich-Thalia Line #2019 from Structure #2019/20 to the Company's existing Thalia Substation.

Specifically, replace 1.17 miles of Line #2019 structures beginning at Structure #2019/21, which primarily are single circuit concrete monopoles, with single circuit galvanized steel monopoles on concrete foundations. Additionally, replace conductors between Structure #2019/20 and the Thalia Substation, and replace shield wires between Greenwich Substation and Thalia Substation with two fiber optic shield wires.

- Rebuild the entire approximately 3.37-mile 230 kV Lynnhaven-Thalia Line #2007 between the Company's existing Lynnhaven and Thalia Substations. Specifically, replace 3.37 miles of Line #2007 structures between Structure #2007/102 and Structure #2007/42A, which primarily are single circuit concrete monopoles, with single circuit galvanized steel monopoles on concrete foundations. Additionally, between Greenwich Substation and Thalia Substation, replace conductors, and replace shield wires with two fiber optic shield wires.

- Conduct related work at the Company's existing Greenwich, Thalia and Lynnhaven Substations to support the new line ratings.

The purpose of my testimony is to describe the design characteristics of the transmission facilities for the proposed Rebuild Project, and also to discuss electric and magnetic field 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 the Executive Summary with Company Witnesses Samuel L. Carter, Antoaneta Yanev, and Charles H. Weil; Sections I.A and I.F of the Appendix with Company Witness Samuel L. Carter; Section I.I of the Appendix with Company Witness Antoaneta Yanev; and Sections II.B.5 and V.A with Company Witness Charles H. Weil.

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

A. Yes, it does.

APPENDIX A

BACKGROUND AND QUALIFICATIONS
OF
TREY M. RYDEL

Trey Rydel received a Bachelor of Science degree in Civil Engineering from Virginia Polytechnic Institute and State University in 2016. He is licensed as a Professional Engineer in the Commonwealth of Virginia. He has been employed by the Company since 2020. Mr. Rydel's experience with the Company includes transmission line engineering (2 years). Prior to working for the Company, Mr. Rydel worked as a civil engineer for four years in the transportation sector.

Mr. Rydel has not previously submitted pre-filed testimony to the State Corporation Commission of Virginia.

WITNESS DIRECT TESTIMONY SUMMARY

Witness: Antoaneta Yanev

Title: Engineering Technical Specialist III

Summary:

Company Witness Antoaneta Yanev sponsors or co-sponsors the following portions of the Appendix describing the work to be performed at the existing substations for the proposed Rebuild Project, as follows:

- Section I.I (co-sponsored with Company Witness Trey M. Rydel): 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(s) associated with the proposed project, as applicable.

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

DIRECT TESTIMONY
OF
ANTOANETA YANEV
ON BEHALF OF
VIRGINIA ELECTRIC AND POWER COMPANY
BEFORE THE
STATE CORPORATION COMMISSION OF VIRGINIA
CASE NO. PUR-2023-00023

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

A. My name is Antoaneta Yanev, and I am an Engineering Technical Specialist III. My business address is 2400 Grayland Avenue, Richmond, Virginia 23220. A statement of my qualifications and background is provided as Appendix A.

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

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 Reliability Standards, the Company proposes the following rebuild project located within existing right-of-way or on Company-owned property along an approximately 4.54-mile existing transmission corridor in the City of Virginia Beach, Virginia (the "Rebuild Project"):

- Rebuild an approximately 1.17-mile segment of 230 kV Greenwich-Thalia Line #2019 from Structure #2019/20 to the Company's existing Thalia Substation. Specifically, replace 1.17 miles of Line #2019 structures beginning at Structure #2019/21, which primarily are single circuit concrete monopoles, with single circuit galvanized steel monopoles on concrete foundations. Additionally, replace conductors between Structure #2019/20 and the Thalia Substation, and replace

shield wires between Greenwich Substation and Thalia Substation with two fiber optic shield wires.

- Rebuild the entire approximately 3.37-mile 230 kV Lynnhaven-Thalia Line #2007 between the Company's existing Lynnhaven and Thalia Substations. Specifically, replace 3.37 miles of Line #2007 structures between Structure #2007/102 and Structure #2007/42A, which primarily are single circuit concrete monopoles, with single circuit galvanized steel monopoles on concrete foundations. Additionally, between Greenwich Substation and Thalia Substation, replace conductors, and replace shield wires with two fiber optic shield wires.

- Conduct related work at the Company's existing Greenwich, Thalia and Lynnhaven Substations to support the new line ratings.

The purpose of my testimony is to describe the work to be performed at the proposed Rebuild Project's various substations. I sponsor Section II.C of the Appendix and co-sponsor the Executive Summary with Company Witnesses Samuel L. Carter, Trey M. Rydel, and Charles H. Weil, and Section I.I of the Appendix with Company Witness Trey M. Rydel, specifically, as those sections pertain to substation work.

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

A. Yes, it does.

APPENDIX A

BACKGROUND AND QUALIFICATIONS
OF
ANTOANETA YANEV

Antoaneta Yanev received her Bachelor of Science degree in electrical engineering from the Technical University of Sofia, Bulgaria in 1991, with a major in Electric Power, Stations, Networks and Systems. Ms. Yanev joined the Company in 2008. Her previous responsibilities at the Company included developing detailed physical construction drawings, bill of material, grounding studies, electrical schematics, and wiring diagrams.

Ms. Yanev has previously submitted pre-filed testimony to the State Corporation Commission of Virginia.

WITNESS DIRECT TESTIMONY SUMMARY

Witness: Charles H. Weil

Title: Electric Transmission Local Permitting Consultant

Summary:

Company Witness Charles H. Weil sponsors those portions of the Appendix providing an overview of the design of the route for the proposed 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.

Additionally, Mr. Weil co-sponsors the following portions of the Appendix:

- Section I.G (co-sponsored with Company Witness Samuel L. Carter): This section provides a system map for the affected area.
- Section II.A.3 (co-sponsored with Company Witness Samuel L. Carter): 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 Trey M. Rydel): This section provides the mapping and structure heights for the existing overhead structures.
- Section V.A (co-sponsored with Company Witness Trey M. Rydel): This section provides information related to public notice of the proposed project.

Finally, Mr. Weil sponsors the DEQ Supplement filed with the Application.

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

DIRECT TESTIMONY
OF
CHARLES H. WEIL
ON BEHALF OF
VIRGINIA ELECTRIC AND POWER COMPANY
BEFORE THE
STATE CORPORATION COMMISSION OF VIRGINIA
CASE NO. PUR-2023-00023

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

A. My name is Charles H. Weil, and I am an Engineer II in the Siting and Permitting Group 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 Reliability Standards, the Company proposes the following rebuild project located within existing right-of-way or on Company-owned property along an approximately 4.54-mile existing transmission corridor in the City of Virginia Beach, Virginia (the "Rebuild Project"):

- Rebuild an approximately 1.17-mile segment of 230 kV Greenwich-Thalia Line #2019 from Structure #2019/20 to the Company's existing Thalia Substation. Specifically, replace 1.17 miles of Line #2019 structures beginning at Structure #2019/21, which primarily are single circuit concrete monopoles, with single circuit galvanized steel monopoles on concrete foundations. Additionally, replace conductors between Structure #2019/20 and the Thalia Substation, and replace shield wires between Greenwich Substation and Thalia Substation with two fiber optic shield wires.

- Rebuild the entire approximately 3.37-mile 230 kV Lynnhaven-Thalia Line #2007 between the Company's existing Lynnhaven and Thalia Substations. Specifically, replace 3.37 miles of Line #2007 structures between Structure #2007/102 and Structure #2007/42A, which primarily are single circuit concrete monopoles, with single circuit galvanized steel monopoles on concrete foundations. Additionally, between Greenwich Substation and Thalia Substation, replace conductors, and replace shield wires with two fiber optic shield wires.

- Conduct related work at the Company's existing Greenwich, Thalia and Lynnhaven Substations to support the new line ratings.

The purpose of my testimony is to provide an overview of the route and permitting for the proposed 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 the Executive Summary with Company Witnesses Samuel L. Carter, Trey M. Rydel, and Antoaneta Yanev; Sections I.G and II.A.3 with Company Witness Samuel L. Carter; and Sections II.B.5 and V.A of the Appendix with Company Witness Trey M. Rydel.

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

A. Yes. In accordance with Va. Code § 15.2-2202 E, a letter dated June 29, 2022, was sent to Mr. Patrick A. Duhaney, City Manager of the City of Virginia Beach, advising of the Company's intention to file this Application and inviting the City to consult with the Company about the Rebuild Project. A copy of the letter is included as Attachment

V.D.1 to the Appendix.

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

A. Yes, it does.

APPENDIX A

BACKGROUND AND QUALIFICATIONS OF CHARLES H. WEIL

Charles H. Weil graduated from Virginia Tech in 2012 with a Bachelor of Science in Civil and Environmental Engineering. He has a professional license in Civil Engineering. He was previously a transportation engineer with various consulting firms and the City of Suffolk, Virginia before joining Dominion Energy Virginia as an Engineer II in the Siting and Permitting Group in 2019.

Mr. Weil has previously submitted pre-filed testimony to the State Corporation Commission of Virginia.