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April 24, 2025

BY ELECTRONIC FILING

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State Corporation Commission
1300 East Main Street
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Richmond, Virginia 23219

Application of Virginia Electric and Power Company for approval and certification of electric transmission facilities: 230 kV Duval-Midlothian Lines and Duval Substation
Case No. PUR-2025-00073

Dear Mr. Logan:

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

As indicated in Section II.A.12.b of the Appendix, an electronic copy of the map of the Virginia Department of Transportation "General Highway Map" for Chesterfield County, as well as the digital geographic information system ("GIS") map required by § 56-46.1 of the Code of Virginia, which is Attachment II.A.2 to the Appendix, were provided via an e-room to the Commission's Division of Public Utility Regulation on April 23, 2025.

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

Highest regards,

Vishwa B. Link

Enclosures

cc: William H. Chambliss, Esq.
Mr. David Essah (without enclosures)
Mr. Neil Joshipura (without enclosures)

Mr. Michael A. Cizenski (without enclosures)
David J. DePippo, Esq.
Charlotte P. McAfee, Esq.
Annie C. Larson, Esq.
Jennifer D. Valaika, Esq.
Anne Hampton Andrews, Esq.
Sarah B. Nielsen, Esq.

Dominion Energy®

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

Before the State Corporation Commission of Virginia

230 kV Duval-Midlothian Lines and Duval Substation

Application No. 351

Case No. PUR-2025-00073

Filed: April 24, 2025

Volume 1 of 3

COMMONWEALTH OF VIRGINIA
BEFORE THE
STATE CORPORATION COMMISSION

APPLICATION OF

VIRGINIA ELECTRIC AND POWER COMPANY

FOR APPROVAL AND CERTIFICATION
OF ELECTRIC TRANSMISSION FACILITIES

230 kV Duval-Midlothian Lines and Duval Substation

Application No. 351

Case No. PUR-2025-00073

Filed: April 24, 2025

COMMONWEALTH OF VIRGINIA

STATE CORPORATION COMMISSION

APPLICATION OF	)	
	)	
VIRGINIA ELECTRIC AND POWER COMPANY	)	Case No. PUR-2025-00073
	)	
For approval and certification of electric transmission facilities: 230 kV Duval-Midlothian Lines and Duval Substation	)	

APPLICATION OF VIRGINIA ELECTRIC AND POWER COMPANY FOR APPROVAL AND CERTIFICATION OF ELECTRIC TRANSMISSION FACILITIES: 230 kV DUVAL-MIDLOTHIAN LINES AND DUVAL SUBSTATION

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

1. Dominion Energy Virginia is a public service corporation organized under the laws of the Commonwealth of Virginia furnishing electric service to the public within its Virginia service territory. The Company also furnishes electric service to the public in portions of North Carolina. Dominion Energy Virginia's electric system—consisting of facilities for the generation, transmission, and distribution of electric energy—is interconnected with the electric systems of neighboring utilities and is a part of the interconnected network of electric systems serving the continental United States. By reason of its operation in two states and its interconnections with other utilities, the Company is engaged in interstate commerce.

2. In order to perform its legal duty to furnish adequate and reliable electric service, Dominion Energy Virginia must, from time to time, replace existing transmission facilities or

construct new transmission facilities in its system. The electric facilities proposed in this Application are necessary so that Dominion Energy Virginia can continue to provide reliable electric service to its customers, consistent with applicable reliability standards.

3. In this Application, in order to serve significant projected residential and commercial load growth identified by the Company's Distribution Planning group, to maintain and ensure reliable service for the overall load growth in the area thereby supporting economic development in Chesterfield County and Virginia, and to comply with mandatory North American Electric Reliability Corporation ("NERC") Reliability Standards, the Company proposes in Chesterfield County, Virginia, to:

(i) Construct two new 230 kilovolt ("kV") double circuit overhead transmission lines (for a total of four circuits)[1] extending approximately 7.1 miles on new primarily 160-foot-wide right-of-way[2] from the Company's existing Midlothian Substation to the proposed new Duval Substation in Chesterfield County, Virginia, resulting in (i) Duval-Midlothian Line #2448, (ii) Duval-Midlothian Line #2449, (iii) Duval-Midlothian Line #2453, and (iv) Duval-Midlothian Line #2454 (the "Duval-Midlothian Lines"). The Duval-Midlothian Lines will be constructed primarily with double circuit weathering steel monopoles utilizing three-phase twin-bundled 768.2 Aluminum Conductor Steel Supported/Trapezoidal Wire/High Strength ("ACSS/TW/HS") type conductor with a summer transfer capability of 1,573 MVA.[3]

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[1] Due to the significant residential and commercial load growth in the Western Chesterfield Load Area (as defined herein) as well as known future data center load growth, the Company is proposing that the Duval-Midlothian Lines be constructed as two new 230 kV double circuit overhead transmission lines. To the extent that the Company's Project is approved as proposed, the Company believes that it is reasonable and prudent to construct the Duval-Midlothian Lines as two new 230 kV double circuit overhead transmission lines to serve future identified load growth in the area consistent with NERC Reliability Standards. *See* Section I.A of the Appendix.

[2] The Company will need expanded right-of-way width in one location along the Duval-Midlothian Lines to accommodate engineering requirements. Specifically, for approximately 780 feet between proposed Structure #2453/56 / #2449/56 and Structure #2453/58 / #2449/58, the Company proposes to expand to a 250-foot-wide right-of-way (an additional 90 feet) approaching the Duval Substation in order to transition from a vertical configuration (monopoles) to a horizontal configuration (H-frames) and then back to a vertical configuration (monopoles) to match substation phasing. *See* Attachment II.B.3.d of the Appendix.

[3] Apparent power, measured in megavolt amperes ("MVA"), is made up of real power (megawatt or "MW") and reactive power (megavolt ampere reactive or "MVAR"). The power factor ("pf") is the ratio of real power to apparent power. For loads with a high pf (approaching unity), real power will approach apparent power and the two can be used interchangeably. Load loss criteria specify real power (MW) units because that represents the real power that will be dropped; however, MVA is used to describe retail customer projected load, reflecting representative pf,

(ii) Construct a new 230-34.5 kV substation in Chesterfield County, Virginia, within property rights to be obtained by the Company ("Duval Substation") and perform substation-related work at the Company's existing Midlothian Substation.[4]

Collectively, the Duval-Midlothian Lines, the Duval Substation, and related substation work at Midlothian Substation are referred to as the "Western Chesterfield Electric Transmission Project" or the "Project."[5]

4. The Project is necessary to (i) ensure that Dominion Energy Virginia can adequately and reliability serve significant projected residential and commercial load growth identified in Chesterfield County, Virginia; (ii) maintain and ensure reliable electric service consistent with NERC Reliability Standards for the overall growth in the load area, which for purposes of this Application, is defined generally as the area south of Genito and Otterdale Roads,

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and the equipment ratings to handle the apparent power, which includes the real and reactive load components.

[4] To accommodate termination of the Duval-Midlothian Lines at the Midlothian Substation, transmission-related work will be required within the Company's existing property rights. Specifically, four existing lines coming into and out of the Midlothian Substation will need to be reconfigured to accommodate termination of the Duval-Midlothian Lines, including 230 kV Midlothian-Short Pump Line #2009, 230 kV Bremo-Midlothian Line #2027, 230 kV Midlothian-Spruance Non-Utility Generator ("NUG") Line #282, and 500 kV Midlothian-North Anna Line #576. The Project will not require reconfiguration of Midlothian-Trabue Line #2066. The reconfiguration of these four lines will include the following work entirely within the Company's existing property rights: (i) replacing one steel double dead-end H-frame structure on Line #2009 (Structure #2009/1) with one steel double dead-end three-pole structure (Structure #2009/1), (ii) replacing one concrete double dead-end H-frame structure on Line #2027 (Structure #2027/1B) with two steel double dead-end three-pole structures (Structures #2027/1B and #2027/1C), (iii) removing one concrete double dead-end H-frame structure on Line #282 (Structure #282/1C), and (iv) replacing two steel double dead-end tower structures on Line #576 (Structures #576/208 and #576/209) with two steel double dead-end three-pole structures (Structures #576/208 and #576/209). While components of the proposed Project, the Company considers the transmission-related work described herein, all of which is entirely within the Company's existing property rights, to qualify as an "ordinary extension[] or improvement[] in the usual course of business" (*i.e.*, "ordinary course") pursuant to Va. Code § 56-265.2 A 1 and, therefore, does not require approval pursuant to Va. Code § 56-46.1 B or a certificate of public convenience and necessity ("CPCN") from the Commission. Importantly, (i) no more than two structures will be removed on each of Lines #2009, #2027, #282, and #576; (ii) for any of the structures being replaced, none of the proposed structures will be more than 20% taller than the existing structures; and (iii) all of the work will be entirely within the Company's existing property rights. This is consistent with the Commission Staff's July 6, 2017 guidance (available at https://scc.virginia.gov/getdoc/7f6ec0f6-7d14-4ca9-bd8a-9bd2511c5cdb/StaffGuidanceOrdvsNonOrd.pdf). As a component of the proposed Project, the costs associated with the transmission-related work described above on Lines #2009, #2027, #282, and #576 have been included in the total transmission-related conceptual costs. Should the Commission determine that CPCNs are required for the work described herein, the Company requests that the Commission grant such CPCNs as part of its final order in this proceeding.

[5] For outreach purposes, the Company also has referred to the Project as the "Western Chesterfield 230 kV Electric Transmission Improvement Project."

west of the Swift Creek Reservoir and the Woodlake area, north of the Appomattox River and Winterpock area, and east of the Amelia and Powhatan County borders located in western Chesterfield County, Virginia (the "Western Chesterfield Load Area"), thereby supporting economic growth in Chesterfield County and Virginia; and (iii) comply with mandatory NERC Reliability Standards. As discussed in Section I.C of the Appendix, the Company's primary sources of distribution power in the Western Chesterfield Load Area—including the existing Genito, Midlothian, and Winterpock Substations—cannot serve the identified projected load due to practical considerations, geographic constraints, and/or the lack of available capacity. Accordingly, the Company is proposing the Project to serve the projected residential and commercial load identified in the delivery point ("DP") request beginning in 2028 and increasing to approximately 134 MW by 2038, as well as to support future load growth identified in DP requests totaling approximately 900 MW of projected load anticipated by 2033 in the Western Chesterfield Load Area by constructing the Duval-Midlothian Lines as two new 230 kV double circuit overhead transmission lines.[6]

5. The Company identified an approximately 7.1-mile overhead proposed route for the Duval-Midlothian Lines (the "Proposed Route" or "Route 3B"),[7] an approximately 8.6-mile

[6] *See supra*, n. 1; *see also* Section I.A of the Appendix.

[7] The Company's Underground Engineering group reviewed underground construction of the Duval-Midlothian Lines and determined that while it is permittable and technically feasible to route the underground lines following the overhead Proposed Route (Route 3B), constructing the Project in such a manner would require an additional five years for completion (2033), meaning it could not meet the need date for the Project (June 1, 2028). The Underground Engineering group further determined that constructing the Duval-Midlothian Lines underground would cost approximately $902.4 million—more than nine times the transmission-related costs associated with overhead construction of the lines along the Proposed Route (Route 3B) of approximately $93.1 million. For these reasons, the Company rejected underground construction of the Duval-Midlothian Lines along the overhead Proposed Route (Route 3B). However, if the Commission were to select underground construction of the Duval-Midlothian Lines along the overhead Proposed Route (Route 3B), the Company asserts that all property owners along Route 3B would have received notice of the Project, which should be sufficient regardless of whether the lines utilize overhead construction or underground construction. The same would be true for overhead/underground hybrid construction of the lines along the overhead Proposed Route (Route 3B), with the location of a transition station subject to local approvals as needed and at the appropriate time. *See* Section 4.3.2 of the Environmental Routing Study (or "Routing

overhead alternative route ("Alternative Route 2B" or "Route 2B"), and an approximately 7.5-mile overhead alternative route ("Alternative Route 3A" or "Route 3A"), all of which the Company is proposing for Commission consideration and notice.[8] Discussion of the Proposed and Alternative Routes, as well as other overhead, underground, or overhead/underground hybrid routes that the Company studied but ultimately rejected, is provided in Section II of the Appendix and discussed in more detail in the Environmental Routing Study included with the Application.

6. The Company selected Route 3B as the Proposed Route as it is the shortest route, has the greatest amount of collocation with existing and planned linear facilities, and crosses commercial and industrial-zoned lands to the greatest extent and therefore has the smallest impact on residential areas. Importantly, the Proposed Route collocates alongside existing (such as the Norfolk Southern Railway railroad) and planned (such as the Virginia Department of Transportation ("VDOT") Powhite Parkway project) corridors (up to 73% of the total length)[9] to minimize overall impacts to existing residential areas and planned developments[10] crossed to the

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Study") for discussion of underground and overhead/underground hybrid construction of the Duval-Midlothian Lines and the challenges associated with constructing the Project underground.

[8] The Company notes that Project outreach materials, including maps and GeoVoice up to the time of this filing, referred to Proposed Route (Route 3B) as the "Powhite Parkway Variation" and Alternative Route 3A as "Route 3." *See* Section II.A.9 of the Appendix. *See also* maps that were on display at the January 9, 2025 open house, which are available on the Project website at: https://cdn-dominionenergy-prd-001.azureedge.net/-/media/pdfs/global/projects-and-facilities/electric-projects/power-line-projects/western-chesterfield/route-overview-map-series-smaller.pdf?rev=dcd436eeeb0e45efaea5b9b423b90b60&hash=874FB9BDC8472E82CBCF31AF65F6977B.

[9] The Company notes that the Proposed Route collocates alongside existing and planned facilities for up to approximately 73% of its total length, which includes an approximately 1.7-mile segment collocating along VDOT's Powhite Parkway project Conceptual Alignment 1B. If Conceptual Alignment 1B is not selected to be built, the Proposed Route also collocates with Mount Hermon Road for 0.5 mile in that area.

[10] ERM and the Company considered "planned" development—defined as development of any type for which a plan has been submitted to the County for review or has been recently approved—as formal routing constraints and/or opportunities. The Company also met with owners and land developers who discussed other potential future land development concepts. The Company considered these "potential" developments—land development projects for which a formal plan has not yet been filed with the County—where appropriate and feasible during routing but did not consider potential development to be a formal constraint or opportunity. Further discussion is provided in Section 5.1.6 of the Environmental Routing Study.

maximum extent practicable. Further, while all of the route alternatives cross parcels associated with planned developments, the Proposed Route crosses the least amount of planned residential developments (about 10% of its total length) compared to Alternative Route 3A (12%) and Alternative Route 2B (34%). The Proposed Route maximizes collocation opportunities with like uses (transportation and industrial), and therefore, it minimizes overall impacts to forest fragmentation, viewsheds, and existing and planned developments. Based on the foregoing, the Company and ERM selected Route 3B as the Proposed Route for the Duval-Midlothian Lines as it avoids or reasonably minimizes adverse impact to the greatest extent reasonably practicable on the scenic assets, historic and cultural resources, and environment of the area concerned.

7. In accordance with the Company's Facility Interconnection Requirements ("FIR")[11] document and to reliably serve identified projected load growth in the Western Chesterfield Load Area, the proposed Duval Substation initially will be constructed with an air insulated substation ("AIS") 230 kV ring bus with six 4000 amp ("A") circuit breakers, four 230 kV line terminals, and other associated equipment, including a control enclosure to accommodate the protective relay, communications, and security cabinets. The total area of the proposed Duval Substation within the substation fence is approximately 5.1 acres.

8. The estimated conceptual cost of the Project utilizing the Proposed Route is approximately $121.1 million, which includes approximately $93.1 million for transmission-

[11] The Company's mandatory electric transmission planning criteria ("Planning Criteria") can be found in Attachment 1 of the Company's FIR document (effective September 1, 2024), pursuant to Facility Connection ("FAC") Standard FAC-001 (R1, R3), which is available online at https://cdn-dominionenergy-prd-001.azureedge.net/-/media/pdfs/virginia/parallel-generation/facility-connection-requirements.pdf?la=en&rev=f280781e90cf47f69ea526c944c9c347&hash=82DD2567D0B033C47536134B8C4D5C5E.

related work and approximately $28.0 million for substation-related work (2025 dollars).[12]

9. The desired in-service target date for the proposed Project is June 1, 2028. The Company estimates it will take approximately 28 months for detailed engineering, materials procurement, permitting, real estate, and construction after a final order from the Commission. Accordingly, to support this estimated construction timeline and construction plan, the Company respectfully requests a final order by February 1, 2026. Should the Commission issue a final order by February 1, 2026, to accommodate long-lead materials procurement, the Company estimates that construction should begin around February 2027, and be completed by June 1, 2028. This schedule is contingent upon obtaining the necessary permits and outages, the latter of which may be particularly challenging due to the amount of new load growth, rebuilds, and new builds scheduled to occur in this load area. Dates may need to be adjusted based on permitting delays or design modifications to comply with additional agency requirements identified during the permitting application process, as well as the ability to schedule outages, and unpredictable delays due to labor shortages or materials/supply issues. This schedule is also contingent upon the Company's ability to negotiate for easements with property owners along the approved route and to obtain property rights for substation use without the need for additional litigation.

10. In addition, the Company is monitoring actively regulatory changes and requirements associated with the Northern long-eared bat and how they could potentially impact construction timing associated with time of year restrictions. The U.S. Fish and Wildlife Service ("USFWS") issued final guidance, replacing the interim guidance, on October 23, 2024, and the final guidance was fully implemented on November 30, 2024. The Company is reviewing the

[12] These total Project costs include projected real estate costs that the Company anticipates for acquisition of property rights for the Proposed Route and Duval Substation, as well as costs associated with the ordinary course work required on Lines #2009, #2027, #282, and #576. *See supra*, n. 4. The total Project costs exclude costs associated with minor substation-related work described in Section II.C of the Appendix.

final guidance to the extent it applies to the Company's projects and will coordinate with USFWS during the permitting stage.

11. The Company is also monitoring potential regulatory changes associated with the potential up-listing of the Tricolored bat ("TCB"). On September 14, 2022, the USFWS published the proposed rule to the Federal Register to list the TCB as endangered under the Endangered Species Act. USFWS extended its Final Rule issuance target from September 2023 to September 2024, but as of the date of this filing, the TCB listing decision has not been issued. The Company is tracking actively this ruling and evaluating the effects of potential outcomes on Company projects' permitting, construction, and in-service dates, including electric transmission projects.

12. Any adjustments to this Project schedule resulting from these or similar challenges could necessitate a minimum of a six- to twelve-month delay in the targeted in-service date. Accordingly, for purposes of judicial economy, the Company requests that the Commission issue a final order approving both a desired in-service target date (*i.e.*, June 1, 2028) and an authorization sunset date (*i.e.*, June 1, 2029) for energization of the Project.[13]

13. Based on consultations with the Virginia Department of Environmental Quality

[13] The Company notes that this request is consistent with the Commission's findings in other recent proceedings. *See Application of Virginia Electric and Power Company for approval of electric transmission facilities: 230 kV Rebuild, Reconductoring, and New Line Projects to Network Takeoff Substation*, Case No. PUR-2024-00131, Final Order (Mar. 19, 2025), approving an in-service date of August 1, 2027, and a CPCN sunset date of August 1, 2028, for energization of that project in Ordering Paragraph (8); *Application of Virginia Electric and Power Company for approval of electric transmission facilities: Fentress-Yadkin 500 kV Line #588 Rebuild and New 500 kV Fentress-Yadkin Line #5005*, Case No. PUR-2024-00105, Final Order (Feb. 28, 2025), approving an in-service date of January 1, 2027, and a CPCN sunset date of January 1, 2028, for energization of that project in Ordering Paragraph (8); *Application of Virginia Electric and Power Company for approval of electric transmission facilities: 500-230 kV Aspen Substation, 500 kV Aspen-Goose Creek Line #5002, 500 kV and 230 kV Aspen-Golden Lines #5001 and #2333, 500-230 kV Golden Substation, and Lines #2081/#2150 Loop*, Case No. PUR-2024-00032, Final Order (Feb. 6, 2025), approving an in-service date of June 1, 2028, and a CPCN sunset date of June 1, 2029, for energization of that project in Ordering Paragraph (8); and *Application of Virginia Electric and Power Company for approval of electric transmission facilities: 230 kV Apollo-Twin Creeks Lines, and Twin Creeks, Sycolin Creek, Starlight, Lunar, and Apollo Substations*, Case No. PUR-2024-00044, Final Order (Feb. 5, 2025), approving an in service date of September 30, 2028, and a CPCN sunset date of September 30, 2029, for energization of that project in Ordering Paragraph (8).

("DEQ"), the Company has developed a supplement ("DEQ Supplement") containing information designed to facilitate review and analysis of the proposed facilities by the DEQ and other relevant agencies. The DEQ Supplement is attached to this Application.

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

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

16. In addition to the information provided in the Appendix, the DEQ Supplement, and the Environmental Routing Study, this Application is supported by the pre-filed direct testimony of Company Witnesses Jason S. Whitlow, Jeffrey T. Smith, Lucas J. Craft, Kamlesh A. Joshi, Blair M. Parks, and Roya P. Smith filed with this Application.

17. Finally, Dominion Energy Virginia requests that, to the extent the Commission modifies the deadline for responses to interrogatories and requests for production of documents in 5 VAC 5-20-260, the Commission grant the parties seven calendar days in order to afford the Company adequate time to provide comprehensive responses to discovery.

WHEREFORE, Dominion Energy Virginia respectfully requests that the Commission:

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

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

(c) grant a certificate of public convenience and necessity for the Project under the Utility Facilities Act, § 56-265.1 *et seq.* of the Code of Virginia.

VIRGINIA ELECTRIC AND POWER COMPANY

By: *[s] Vishwa B. Link*
Counsel for Applicant

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Counsel for Applicant Virginia Electric and Power Company

April 24, 2025

COMMONWEALTH OF VIRGINIA
BEFORE THE
STATE CORPORATION COMMISSION

APPLICATION OF
VIRGINIA ELECTRIC AND POWER COMPANY

FOR APPROVAL AND CERTIFICATION
OF ELECTRIC TRANSMISSION FACILITIES

230 kV Duval-Midlothian Lines and Duval Substation

Application No. 351

Appendix

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

Case No. PUR-2025-00073

Filed: April 24, 2025

TABLE OF CONTENTS

EXECUTIVE SUMMARY

In order to serve significant projected residential and commercial load growth identified by Virginia Electric and Power Company's ("Dominion Energy Virginia" or the "Company") Distribution Planning group, to maintain and ensure reliable service for the overall load growth in the area thereby supporting economic development in Chesterfield County and Virginia, and to comply with mandatory North American Electric Reliability Corporation ("NERC") Reliability Standards, Dominion Energy Virginia proposes in Chesterfield County, Virginia, to:

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---

[1] Due to the significant residential and commercial load growth in the Western Chesterfield Load Area (as defined herein) as well as known future data center load growth, the Company is proposing that the Duval-Midlothian Lines be constructed as two new 230 kV double circuit overhead transmission lines. To the extent that the Company's Project is approved as proposed, the Company believes that it is reasonable and prudent to construct the Duval-Midlothian Lines as two new 230 kV double circuit overhead transmission lines to serve future identified load growth in the area consistent with NERC Reliability Standards. *See* Section I.A.

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[4] To accommodate termination of the Duval-Midlothian Lines at the Midlothian Substation, transmission-related work will be required within the Company's existing property rights. Specifically, four existing lines coming into and out of the Midlothian Substation will need to be reconfigured to accommodate termination of the Duval-Midlothian Lines, including 230 kV Midlothian-Short Pump Line #2009, 230 kV Bremo-Midlothian Line #2027, 230 kV Midlothian-Spruance Non-Utility Generator ("NUG") Line #282, and 500 kV Midlothian-North Anna Line #576. The Project will not require reconfiguration of Midlothian-Trabue Line #2066. The reconfiguration of these four lines will include

Collectively, the Duval-Midlothian Lines, the Duval Substation, and related substation work at Midlothian Substation are referred to as the "Western Chesterfield Electric Transmission Project" or the "Project."[5]

The Project is necessary to (i) ensure that Dominion Energy Virginia can adequately and reliably serve significant projected residential and commercial load growth identified in Chesterfield County, Virginia; (ii) maintain and ensure reliable electric service consistent with NERC Reliability Standards for the overall growth in the load area, which for purposes of this Application, is defined generally as the area south of Genito and Otterdale Roads, west of the Swift Creek Reservoir and the Woodlake area, north of the Appomattox River and Winterpock area, and east of the Amelia and Powhatan County borders located in western Chesterfield County, Virginia (the "Western Chesterfield Load Area"), thereby supporting economic growth in Chesterfield County and Virginia; and (iii) comply with mandatory NERC Reliability Standards. As discussed in Section I.C, the Company's primary sources of distribution power in the Western Chesterfield Load Area—including the existing Genito, Midlothian, and Winterpock Substations—cannot serve the identified projected load due to practical considerations, geographic constraints, and/or the lack of available capacity. Accordingly, the Company is proposing the Project to serve the projected residential and commercial load identified in the delivery point ("DP") request beginning in 2028 and increasing to approximately 134 MW by 2038, as well as to support future load growth identified in DP requests totaling approximately 900 MW of projected load anticipated by 2033 in the Western Chesterfield Load Area by constructing the Duval-Midlothian Lines as two new 230 kV double circuit overhead transmission lines.[6]

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the following work entirely within the Company's existing property rights: (i) replacing one steel double dead-end H-frame structure on Line #2009 (Structure #2009/1) with one steel double dead-end three-pole structure (Structure #2009/1), (ii) replacing one concrete double dead-end H-frame structure on Line #2027 (Structure #2027/1B) with two steel double dead-end three-pole structures (Structures #2027/1B and #2027/1C), (iii) removing one concrete double dead-end H-frame structure on Line #282 (Structure #282/1C), and (iv) replacing two steel double dead-end tower structures on Line #576 (Structures #576/208 and #576/209) with two steel double dead-end three-pole structures (Structures #576/208 and #576/209). While components of the proposed Project, the Company considers the transmission-related work described herein, all of which is entirely within the Company's existing property rights, to qualify as an "ordinary extension[] or improvement[] in the usual course of business" (*i.e.*, "ordinary course") pursuant to § 56-265.2 A 1 of the Code of Virginia ("Va. Code") and, therefore, does not require approval pursuant to Va. Code § 56-46.1 B or a certificate of public convenience and necessity ("CPCN") from the State Corporation Commission (the "Commission"). Importantly, (i) no more than two structures will be removed on each of Lines #2009, #2027, #282, and #576; (ii) for any of the structures being replaced, none of the proposed structures will be more than 20% taller than the existing structures; and (iii) all of the work will be entirely within the Company's existing property rights. This is consistent with the Commission Staff's July 6, 2017 guidance (available at https://scc.virginia.gov/getdoc/7f6ec0f6-7d14-4ca9-bd8a-9bd2511c5cdb/StaffGuidanceOrdvsNonOrd.pdf). As a component of the proposed Project, the costs associated with the transmission-related work described above on Lines #2009, #2027, #282, and #576 have been included in the total transmission-related conceptual costs. Should the Commission determine that CPCNs are required for the work described herein, the Company requests that the Commission grant such CPCNs as part of its final order in this proceeding.

[5] For outreach purposes, the Company also has referred to the Project as the "Western Chesterfield 230 kV Electric Transmission Improvement Project."

[6] *See supra*, n. 1; *see also* Section I.A.

The Company identified an approximately 7.1-mile overhead proposed route for the Duval-Midlothian Lines (the "Proposed Route" or "Route 3B"),[7] an approximately 8.6-mile overhead alternative route ("Alternative Route 2B" or "Route 2B"), and an approximately 7.5-mile overhead alternative route ("Alternative Route 3A" or "Route 3A"), all of which the Company is proposing for Commission consideration and notice.[8] Discussion of the Proposed and Alternative Routes, as well as other overhead, underground, or overhead/underground hybrid routes that the Company studied but ultimately rejected, is provided in Section II of the Appendix and discussed in more detail in the Routing Study included with the Application.

In accordance with the Company's Facility Interconnection Requirements ("FIR")[9] document and to reliably serve identified projected load growth in the Western Chesterfield Load Area, the proposed Duval Substation initially will be constructed with an air insulated substation ("AIS") 230 kV ring bus with six 4000 amp ("A") circuit breakers, four 230 kV line terminals, and other associated equipment, including a control enclosure to accommodate the protective relay, communications, and security cabinets. The total area of the proposed Duval Substation within the substation fence is approximately 5.1 acres.

The total estimated conceptual cost of the Project utilizing the Proposed Route is approximately $121.1 million, which includes approximately $93.1 million for transmission-related work and

[7] The Company's Underground Engineering group reviewed underground construction of the Duval-Midlothian Lines and determined that while it is permittable and technically feasible to route the underground lines following the overhead Proposed Route (Route 3B), constructing the Project in such a manner would require an additional five years for completion (2033), meaning it could not meet the need date for the Project (June 1, 2028). The Underground Engineering group further determined that constructing the Duval-Midlothian Lines underground would cost approximately $902.4 million—more than nine times the transmission-related costs associated with overhead construction of the lines along the Proposed Route (Route 3B) of approximately $93.1 million. For these reasons, the Company rejected underground construction of the Duval-Midlothian Lines along the overhead Proposed Route (Route 3B). However, if the Commission were to select underground construction of the Duval-Midlothian Lines along the overhead Proposed Route (Route 3B), the Company asserts that all property owners along Route 3B would have received notice of the Project, which should be sufficient regardless of whether the lines utilize overhead construction or underground construction. The same would be true for overhead/underground hybrid construction of the lines along the overhead Proposed Route (Route 3B), with the location of a transition station subject to local approvals as needed and at the appropriate time. *See* Section 4.3.2 of the Environmental Routing Study (or "Routing Study") for discussion of underground and overhead/underground hybrid construction of the Duval-Midlothian Lines and the challenges associated with constructing the Project underground.

[8] The Company notes that Project outreach materials, including maps and GeoVoice up to the time of this filing, referred to Proposed Route (Route 3B) as the "Powhite Parkway Variation" and Alternative Route 3A as "Route 3." *See* Section II.A.9. *See also* maps that were on display at the January 9, 2025 open house, which are available on the Project website at: https://cdn-dominionenergy-prd-001.azureedge.net/-/media/pdfs/global/projects-and-facilities/electric-projects/power-line-projects/western-chesterfield/route-overview-map-series-smaller.pdf?rev=dcd436eeeb0e45efaea5b9b423b90b60&hash=874FB9BDC8472E82CBCF31AF65F6977B.

[9] The Company's mandatory electric transmission planning criteria ("Planning Criteria") can be found in Attachment 1 of the Company's FIR document (effective September 1, 2024), pursuant to Facility Connection ("FAC") Standard FAC-001 (R1, R3), which is available online at https://cdn-dominionenergy-prd-001.azureedge.net/-/media/pdfs/virginia/parallel-generation/facility-connection-requirements.pdf?la=en&rev=f280781e90cf47f69ea526c944c9c347&hash=82DD2567D0B033C47536134B8C4D5C5E.

approximately $28.0 million for substation-related work (2025 dollars).[10]

The desired in-service target date for the proposed Project is June 1, 2028. The Company estimates it will take approximately 28 months for detailed engineering, materials procurement, permitting, real estate, and construction after a final order from the Commission. Accordingly, to support this estimated construction timeline and construction plan, the Company respectfully requests a final order by February 1, 2026. Should the Commission issue a final order by February 1, 2026, to accommodate long-lead materials procurement, the Company estimates that construction should begin around February 2027, and be completed by June 1, 2028. This schedule is contingent upon obtaining the necessary permits and outages, the latter of which may be particularly challenging due to the amount of new load growth, rebuilds, and new builds scheduled to occur in this load area. Dates may need to be adjusted based on permitting delays or design modifications to comply with additional agency requirements identified during the permitting application process, as well as the ability to schedule outages, and unpredictable delays due to labor shortages or materials/supply issues. This schedule is also contingent upon the Company's ability to negotiate for easements with property owners along the approved route and to obtain property rights for substation use without the need for additional litigation.

In addition, the Company is monitoring actively regulatory changes and requirements associated with the Northern long-eared bat ("NLEB") and how they could potentially impact construction timing associated with time of year restrictions ("TOYRs"). The U.S. Fish and Wildlife Service ("USFWS") issued the final guidance, replacing the interim guidance, on October 23, 2024, and the final guidance was fully implemented November 30, 2024. The Company is reviewing the final guidance to the extent it applies to the Company's projects and will coordinate with USFWS during the permitting stage.

The Company is also monitoring potential regulatory changes associated with the potential up-listing of the Tricolored bat ("TCB"). On September 14, 2022, the USFWS published the proposed rule to the Federal Register to list the TCB as endangered under the Endangered Species Act. USFWS extended its Final Rule issuance target from September 2023 to September 2024, but as of the date of this filing, the TCB listing decision has not been issued. The Company is tracking actively this ruling and evaluating the effects of potential outcomes on Company projects' permitting, construction, and in-service dates, including electric transmission projects.

Any adjustments to this Project schedule resulting from these or similar challenges could necessitate a minimum of a six- to twelve-month delay in the targeted in-service date. Accordingly, for purposes of judicial economy, the Company requests that the Commission issue a final order approving both a desired in-service target date (*i.e.*, June 1, 2028) and an

[10] These total Project costs include projected real estate costs that the Company anticipates for acquisition of property rights for the Proposed Route and Duval Substation, as well as costs associated with the ordinary course work required on Lines #2009, #2027, #282, and #576. *See supra*, n. 4. The total Project costs exclude costs associated with minor substation-related work described in Section II.C.

authorization sunset date (*i.e.*, June 1, 2029) for energization of the Project.[11]

[11] The Company notes that this request is consistent with the Commission's findings in other recent proceedings. *See Application of Virginia Electric and Power Company for approval of electric transmission facilities: 230 kV Rebuild, Reconductoring, and New Line Projects to Network Takeoff Substation*, Case No. PUR-2024-00131, Final Order (Mar. 19, 2025), approving an in-service date of August 1, 2027, and a CPCN sunset date of August 1, 2028, for energization of that project in Ordering Paragraph (8); *Application of Virginia Electric and Power Company for approval of electric transmission facilities: Fentress-Yadkin 500 kV Line #588 Rebuild and New 500 kV Fentress-Yadkin Line #5005*, Case No. PUR-2024-00105, Final Order (Feb. 28, 2025), approving an in-service date of January 1, 2027, and a CPCN sunset date of January 1, 2028, for energization of that project in Ordering Paragraph (8); *Application of Virginia Electric and Power Company for approval of electric transmission facilities: 500-230 kV Aspen Substation, 500 kV Aspen-Goose Creek Line #5002, 500 kV and 230 kV Aspen-Golden Lines #5001 and #2333, 500-230 kV Golden Substation, and Lines #2081/#2150 Loop*, Case No. PUR-2024-00032, Final Order (Feb. 6, 2025), approving an in-service date of June 1, 2028, and a CPCN sunset date of June 1, 2029, for energization of that project in Ordering Paragraph (8); and *Application of Virginia Electric and Power Company for approval of electric transmission facilities: 230 kV Apollo-Twin Creeks Lines, and Twin Creeks, Sycolin Creek, Starlight, Lunar, and Apollo Substations*, Case No. PUR-2024-00044, Final Order (Feb. 5, 2025), approving an in service date of September 30, 2028, and a CPCN sunset date of September 30, 2029, for energization of that project in Ordering Paragraph (8).

I. NECESSITY FOR THE PROPOSED PROJECT

A. State the primary justification for the proposed project (for example, the most critical contingency violation including the first year and season in which the violation occurs). In addition, identify each transmission planning standard(s) (of the Applicant, regional transmission organization ("RTO"), or North American Electric Reliability Corporation) projected to be violated absent construction of the facility.

Response: The Project is necessary to serve significant projected residential and commercial load growth identified in Chesterfield County, Virginia; to maintain and ensure reliable service for the overall load growth in the Project area thereby supporting economic growth in Chesterfield County and Virginia; and to comply with mandatory NERC Reliability Standards. See Attachment I.A.1 for an overview map of the proposed Project along the Proposed Route, the Company's existing electric transmission facilities located in the vicinity of the Project, the Project study area for the Duval-Midlothian Lines, and a general boundary of the Western Chesterfield Load Area.

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

Dominion Energy Virginia is part of the PJM Interconnection, LLC ("PJM") regional transmission organization ("RTO"), which provides service to a large portion of the eastern United States. PJM is currently responsible for ensuring the reliability and coordinating the movement of electricity through all or parts of Delaware, Illinois, Indiana, Kentucky, Maryland, Michigan, New Jersey, North Carolina, Ohio, Pennsylvania, Tennessee, Virginia, West Virginia, and the District of Columbia. This service area has a population of approximately 65 million and, on August 2, 2006, set a record high of 165,563 MW for summer peak demand, of which Dominion Energy Virginia's load portion was approximately 19,256 MW. On July 16, 2024, the DOM Zone set a record high of 23,127 MW for summer peak demand. On January 23, 2025, the DOM Zone set a winter and all-time record demand of 24,678 MW. Based on the 2025 PJM Load Forecast, the DOM Zone is expected to grow with average growth rates of 6.3% summer and 6.0% winter over the next 10 years compared to the PJM average of 3.1% and 3.8% over the same

period for the summer and winter, respectively.[12]

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

NERC has been designated by the Federal Energy Regulatory Commission ("FERC") as the electric reliability organization for the United States. Accordingly, NERC requires that the planning authority and transmission planner develop planning criteria to ensure compliance with NERC Reliability Standards. Mandatory NERC Reliability Standards require that a transmission owner ("TO") develop facility interconnection requirements that identify load and generation interconnection minimum requirements for a TO's transmission system, as well as the TO's reliability criteria.[13]

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

PJM's Regional Transmission Expansion Plan ("RTEP") is the culmination of a FERC-approved annual transmission planning process that includes extensive analysis of the electric transmission system to determine any needed improvements.[14] PJM's annual RTEP is based on the effective criteria in place at the time of the analyses, including applicable standards and criteria of NERC, PJM, and local reliability planning criteria, among others.[15] Projects identified through the RTEP process are developed by the TO in coordination with PJM, and are presented at the Transmission Expansion Advisory Committee ("TEAC") meetings prior to inclusion in the RTEP, which is then presented for approval to the PJM Board of Managers (the "PJM Board").

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[12] A copy of the 2025 PJM Load Report is available at the following: https://www.pjm.com/-/media/DotCom/library/reports-notices/load-forecast/2025-load-report.pdf. *See, in particular,* page 9 (PJM) and page 34 (DOM Zone).

[13] *See* Facility Connection ("FAC") Standard FAC-001-4 (effective January 1, 2024), which can be found at https://www.nerc.com/pa/Stand/Reliability%20Standards/FAC-001-4.pdf.

[14] PJM Manual 14B (effective June 27, 2024) focuses on the RTEP process and can be found at https://www.pjm.com/-/media/documents/manuals/m14b.ashx.

[15] *See* PJM Manual 14B, Attachment D: PJM Reliability Planning Criteria. *See supra*, n. 14 for a link to PJM Manual 14B.

Outcomes of the RTEP process include three types of transmission system upgrades or projects: (i) baseline upgrades are those that resolve a system reliability criteria violation, which can include planning criteria from NERC, ReliabilityFirst, SERC Reliability Corporation, PJM, and TOs; (ii) network upgrades are new or upgraded facilities required primarily to eliminate reliability criteria violations caused by proposed generation, merchant transmission, or long-term firm transmission service requests; and (iii) supplemental projects are projects initiated by the TO in order to interconnect new customer load, address degraded equipment performance, improve operational flexibility and efficiency, and increase infrastructure resilience. The Project is classified as a supplemental project initiated by the TO in order to interconnect new customer load. While supplemental projects are included in the RTEP, the PJM Board does not actually approve such projects. See Section I.J for a discussion of the PJM process as it relates to this Project.

As discussed in more detail below, the Project is needed to address significant projected residential and commercial load growth identified by the Company's Distribution Planning group in Chesterfield County, Virginia, as well as support future identified load growth in the Western Chesterfield Load Area by constructing the Duval-Midlothian Lines as two new 230 kV double circuit overhead transmission lines.

NEED FOR THE PROJECT

The Project is needed to ensure that Dominion Energy Virginia can adequately and reliably serve significant projected residential and commercial load growth identified by the Company's Distribution Planning group, as well as ensure a plan is in place to mitigate a potential load drop exceeding 300 MW, consistent with the Company's Planning Criteria and NERC Reliability Standards.

Need to Serve New Customer Load

On April 10, 2025, the Company's Distribution Planning group submitted an updated DP request to the Transmission Planning group for construction of a new substation (*i.e.*, the Duval Substation) to serve significant residential and commercial load growth in the Western Chesterfield Load Area, as well as future identified load growth in Chesterfield County, Virginia. The updated DP request identified a projected summer peak of 32 MW in 2028, with a total projected load of 134 MW by 2038, and a requested energization date of June 1, 2028.

Accordingly, the proposed Project—specifically, the Duval Substation and one of the two proposed double circuit Duval-Midlothian Lines—is required to serve this need (134 MW) with the projected ramp beginning in 2028.

See Section I.C for discussion of the existing area infrastructure and why it is incapable of serving this need. See Section I.J for a discussion of the PJM process as it relates to this Project.

Need to Plan for a Potential 300 MW Load Drop

In addition to the need for 134 MW as described above, there are three additional Company electric distribution DP requests in the vicinity of the proposed Project for three new substations—currently identified as the Garnet, Topaz, and Amethyst Substations—which are planned to serve a new planned data center development in Upper Magnolia Green – West,[16] as described below.

On January 16, 2025, the Company's Distribution Planning group submitted the first DP request to the Transmission Planning group for construction of a new substation (*i.e.*, the Garnet Substation) with 230 kV service requested to serve significant residential and commercial load growth in the Western Chesterfield Load Area, as well as future identified load growth in Chesterfield County, Virginia. The DP request identified a projected summer peak of 0 MW in 2028, with a total projected load of 300 MW by 2030, and a requested energization date of October 2028.[17]

On January 16, 2025, the Company's Distribution Planning group submitted the second DP request to the Transmission Planning group for construction of a new substation (*i.e.*, the Topaz Substation) with 230 kV service requested to serve significant residential and commercial load growth in the Western Chesterfield Load Area, as well as future identified load growth in Chesterfield County, Virginia. The DP request identified a projected summer peak of 0 MW in 2030, with a total projected load of 300 MW by 2031, and a requested energization date of October 2030.[18]

On January 16, 2025, the Company's Distribution Planning group submitted the third DP request to the Transmission Planning group for construction of a new substation (*i.e.*, the Amethyst Substation) with 230 kV service requested to serve significant residential and commercial load growth in the Western Chesterfield Load Area, as well as future identified load growth in Chesterfield County, Virginia. The DP request identified a projected summer peak of 0 MW in 2031,

[16] As to Upper Magnolia Green – West, *see* https://aca-prod.accela.com/CHESTERFIELD/Cap/CapDetail.aspx?Module=Planning&TabName=Planning&capID1=REC25&capID2=00000&capID3=003CG&agencyCode=CHESTERFIELD. Note that the Upper Magnolia Green development includes Upper Magnolia Green – West and Upper Magnolia Green – East. See Attachment I.A.1. The new planned data center development described herein that is driving the need for the Garnet, Topaz, and Amethyst Substations is located in Upper Magnolia Green – West, and is being developed in part by Chesterfield County Economic Development Authority ("Chesterfield County EDA") but currently is not owned by the Chesterfield County EDA. Upper Magnolia Green – East includes, among other things, three planned public schools and the Swift Creek Preserve, a county-designated environmental preservation area, and is currently owned and being developed solely by the Chesterfield County EDA. As to Upper Magnolia Green – East, *see* https://aca-prod.accela.com/CHESTERFIELD/Cap/CapDetail.aspx?Module=Planning&TabName=Planning&capID1=REC25&capID2=00000&capID3=003CL&agencyCode=CHESTERFIELD&IsToShowInspection=.

[17] Because the Garnet Substation will not be energized until October 2028, the summer peak (August) load in 2028 is projected in the DP request to be 0 MW. However, the actual load beginning in 2028 is anticipated to be 75 MW.

[18] Because the Topaz Substation will not be energized until October 2030, the summer peak (August) load in 2030 is projected in the DP request to be 0 MW. However, the actual load beginning in 2030 is anticipated to be 75 MW.

with a total projected load of 300 MW by 2032, and a requested energization date of October 2031.[19]

While the future Garnet, Topaz, and Amethyst Substations have their own unique load driver (*i.e.*, a new planned data center development in Upper Magnolia Green – West), they require construction of the proposed Project—specifically, construction of the Duval-Midlothian Lines as two new double circuit 230 kV transmission lines.[20]

Based on the DP request for the Duval Substation described above, the Company anticipates that the total load of that substation (134 MW), combined with surrounding anticipated load at the Garnet, Topaz, and Amethyst Substations (900 MW), will exceed 300 MW in the future. Consistent with the Company's Planning Criteria and NERC Reliability Standards, the Company is required to have a plan in place to mitigate a potential load drop exceeding 300 MW. In this case, the Company must plan for an anticipated 300 MW N-1-1 violation when Garnet Substation reaches full load. As such, a second 230 kV double circuit transmission line between Duval and Midlothian Substations will be needed in order to mitigate the potential 300 MW N-1-1 violation. Accordingly, the Company is proposing construction of the Duval-Midlothian Lines as two new double circuit 230 kV transmission lines as reasonable and prudent because it will provide a plan to resolve a potential 300 MW load drop violation consistent with the Company's Planning Criteria and NERC Reliability Standards.

Additionally, constructing the Duval-Midlothian Lines as two new double circuit 230 kV transmission lines will allow the Company to obtain permits, mobilize construction crews, and obtain access to properties one time and as part of one Project.

Slides identifying the need for the future Garnet, Topaz, and Amethyst Substations have not been presented to PJM at this time. However, the Company anticipates that they will be submitted in 2025.

[19] Because the Amethyst Substation will not be energized until October 2031, the summer peak (August) load in 2031 is projected in the DP request to be 0 MW. However, the actual load beginning in 2031 is anticipated to be 75 MW.

[20] While the Company has load letters and DP requests requiring construction of the Garnet, Topaz, and Amethyst Substations as described herein, the Company has not yet completed conceptual design or routing necessary to site those substations and the associated transmission lines to interconnect them to the transmission system via the proposed Project at this time. To be clear, the Company is not seeking Commission approval at this time of the Garnet, Topaz, and Amethyst Substations, nor is the Company seeking Commission approval of the transmission lines necessary to interconnect those substations directly to the existing or proposed transmission system as part of this Project. Accordingly, none of those facilities are components of the proposed Project. Rather, the Company will seek Commission approval of those facilities, to the extent needed, at the appropriate time. Importantly, that does not change the need to serve this 900 MW of projected load anticipated in the load area or the need for two double circuit 230 kV Duval-Midlothian Lines to mitigate a future potential 300 MW load drop.

Area Transmission System

The Company's existing area transmission system is incapable of serving the projected load—approaching 1 gigawatt ("GW") by 2033—without the proposed Project.

The Company's primary sources of distribution power in the Western Chesterfield Load Area—including the existing Genito, Midlothian, and Winterpock Substations—cannot serve the identified projected load due to practical considerations, geographic constraints, and/or the lack of available capacity. See Section I.C. Accordingly, the Company is proposing the Project, with the Duval-Midlothian Lines constructed as two new 230 kV double circuit overhead transmission lines, to serve approximately 134 MW of projected residential and commercial load by 2038, to serve an additional approximately 900 MW of projected data center load anticipated by 2033, and to plan for a potential future 300 MW load drop. The proposed Project is the most robust solution to maintain and ensure reliable service for the overall load growth in the area, as well as prevent the existing system transformers from overloading consistent with reliability criteria.

Attachment I.A.2 provides the existing one-line diagram of the area transmission system in the Western Chesterfield Load Area as of February 2025. Attachment I.A.3 provides a one-line diagram of the transmission system in the Western Chesterfield Load Area after the proposed Project is energized in June 2028, which includes all baseline and supplemental projects in the Project area that have been submitted to PJM as of February 2025. Attachment I.A.4 provides a one-line diagram of the transmission system in the Western Chesterfield Load Area as of October 2031, when the future Garnet, Topaz, and Amethyst Substations are energized.

THE PROPOSED PROJECT

Duval-Midlothian Lines

The Company proposes to construct two new 230 kV double circuit overhead transmission lines (for a total of four circuits) extending approximately 7.1 miles from the Company's existing Midlothian Substation to the proposed new Duval Substation in Chesterfield County, Virginia, resulting in (i) Duval-Midlothian Line #2448, (ii) Duval-Midlothian Line #2449, (iii) Duval-Midlothian Line #2453, and (iv) Duval-Midlothian Line #2454 (*i.e.*, the Duval-Midlothian Lines).[21]

The Duval-Midlothian Lines will be constructed on new primarily 160-foot-wide right-of-way, with one exception. The Company will need expanded right-of-way width in one location along the Duval-Midlothian Lines to accommodate engineering requirements. Specifically, for approximately 780 feet between proposed Structure #2453/56 / #2449/56 and Structure #2453/58 / #2449/58, the

[21] *See supra*, n. 1.

Company proposes to expand to a 250-foot-wide right-of-way (an additional 90 feet) approaching the Duval Substation in order to transition from a vertical configuration (monopoles) to a horizontal configuration (H-frames) and then back to a vertical configuration (monopoles) to match substation phasing. See Attachment II.B.3.d.

The Duval-Midlothian Lines will be constructed primarily with double circuit weathering steel monopoles utilizing three-phase twin-bundled 768.2 ACSS/TW/HS type conductor with a summer transfer capability of 1,573 MVA. The proposed Duval-Midlothian Lines will be constructed to source the new proposed Duval Substation, as there is no existing transmission infrastructure source that can feed the proposed substation.

The Company identified an approximately 7.1-mile overhead Proposed Route (Route 3B) for the Duval-Midlothian Lines,[22] an approximately 8.6-mile overhead Alternative Route 2B, and an approximately 7.5-mile overhead Alternative Route 3A. The Company is proposing all of these routes for Commission consideration and notice. Discussion of the Proposed and Alternative Routes, as well as other overhead, underground, or overhead/underground hybrid routes that the Company studied but ultimately rejected, is provided in Section II of the Appendix and discussed in more detail in the Routing Study included with the Application.

Duval and Midlothian Substations

As part of the Project, the Company proposes to construct the new 230-34.5 kV Duval Substation in Chesterfield County, Virginia, within property rights to be obtained by the Company. Additionally, the Company proposes to perform substation-related work at the existing Midlothian Substation.[23] See Section II.C.

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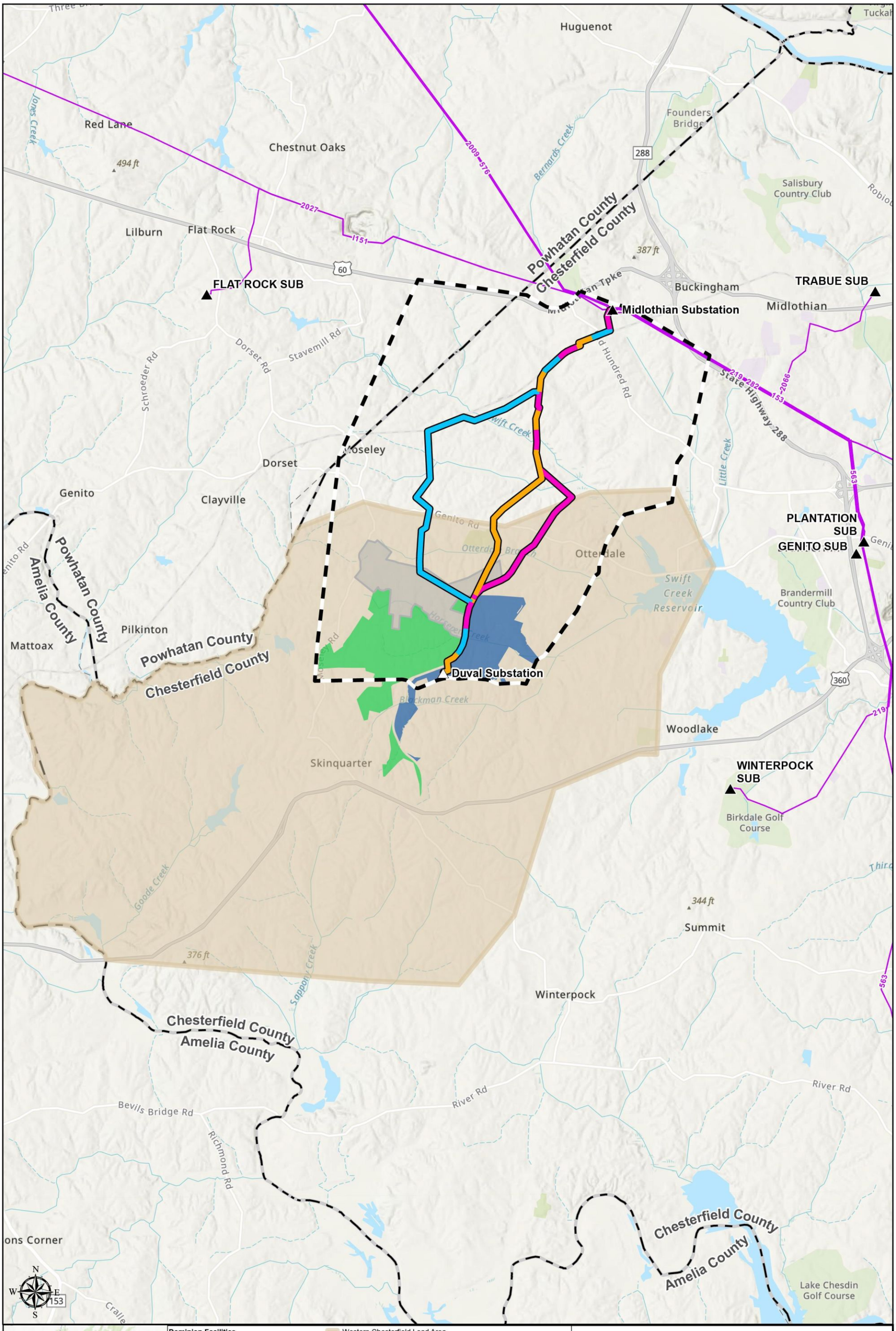
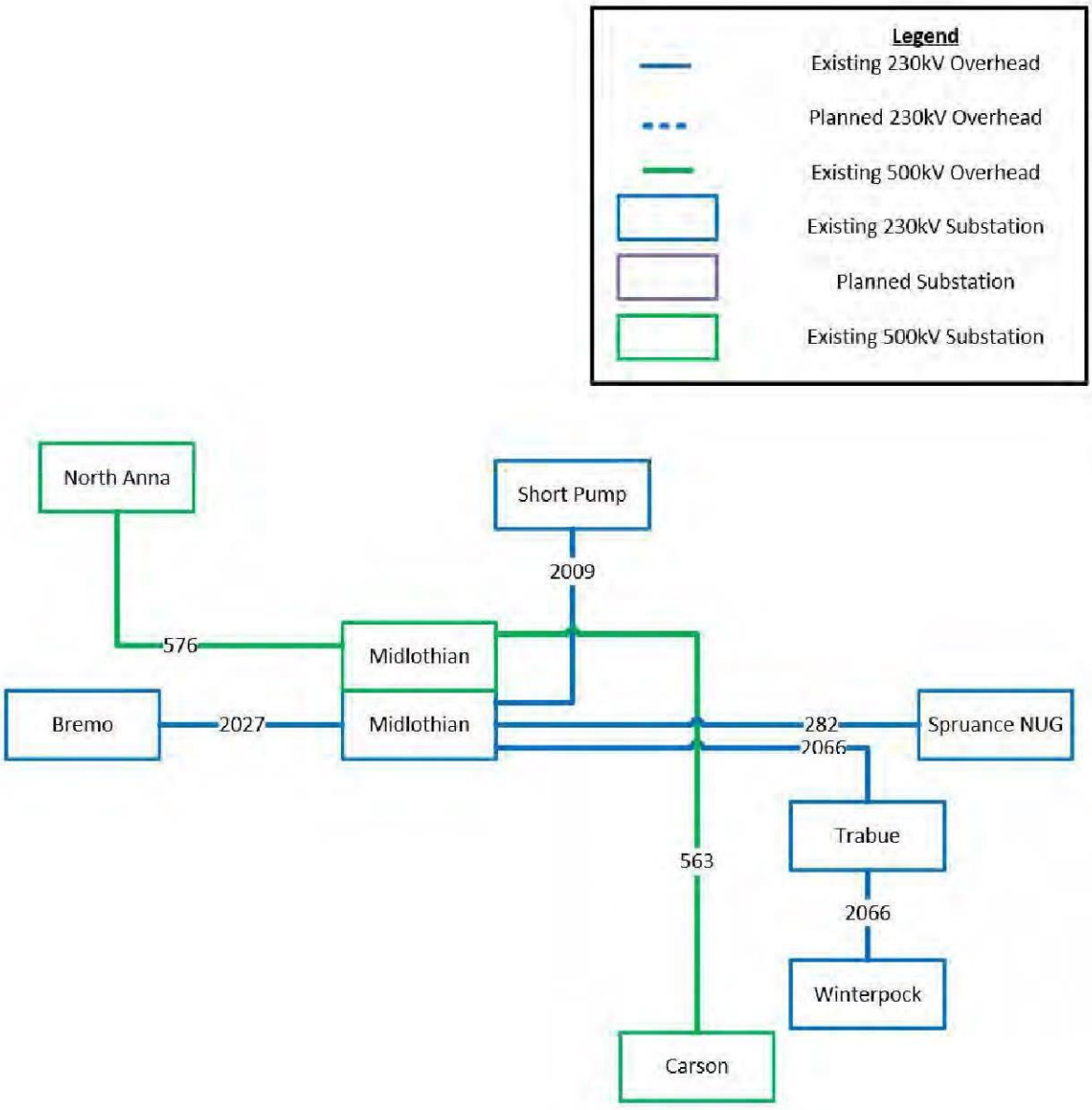
In summary, the proposed Project will provide electric service required to support significant growth in the load area, maintain and ensure reliable service for the overall load growth in the area thereby supporting economic growth in Chesterfield County and Virginia, and comply with mandatory NERC Reliability Standards.

[22] *See supra*, n. 7.

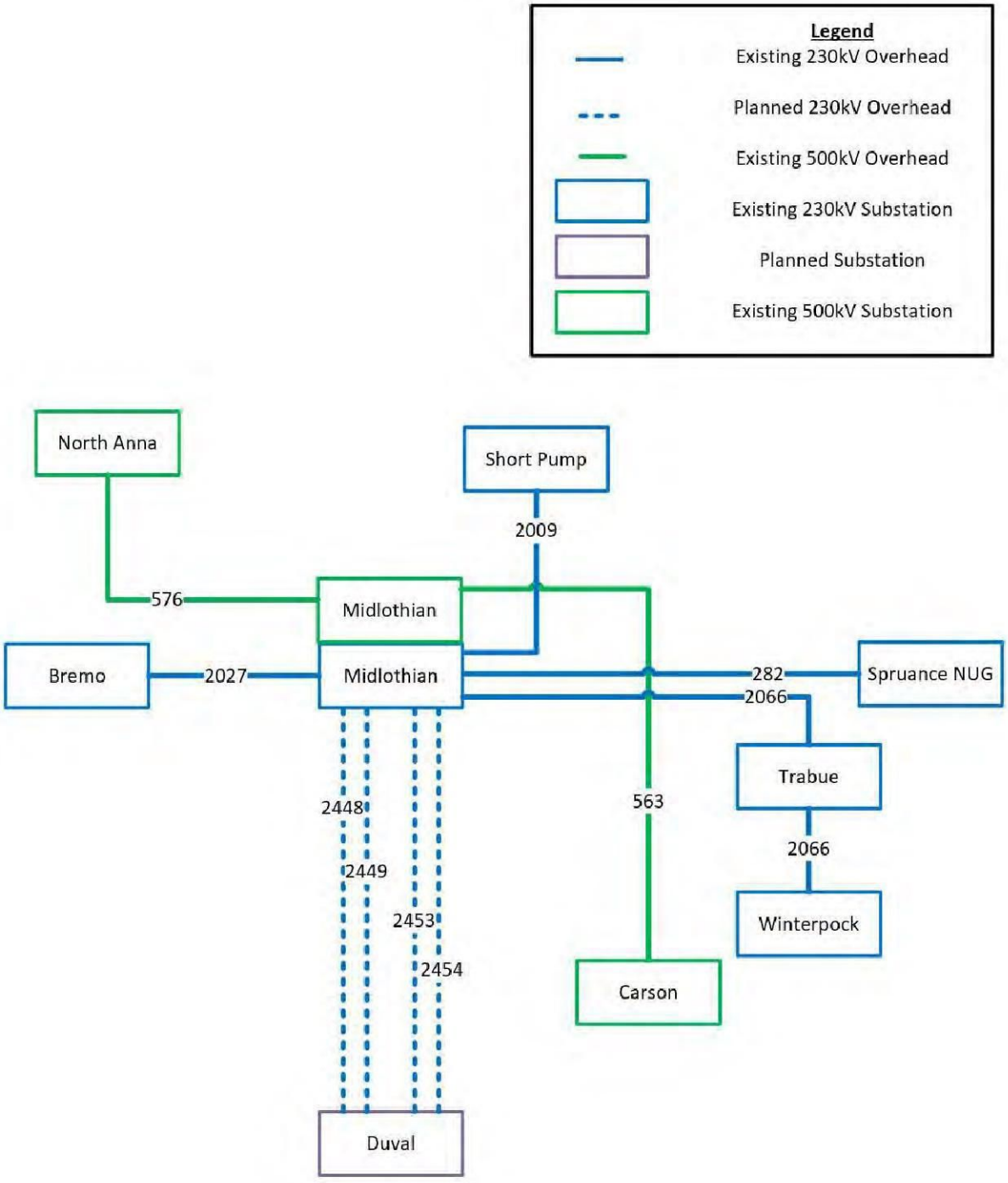
[23] *See supra*, n. 4.


Huguenot
Red Lane
Chestnut Oaks
Jones Creek
494 ft
Bernards Creek
Founders Bridge
288
Salisbury Country Club
2009-576
2027
I151
Lilburn
Flat Rock
60
Powhatan County
Chesterfield County
387 ft
FLAT ROCK SUB
Midlothian Substation
TRABUE SUB
Buckingham
Midlothian
Dorset Rd
Stavemill Rd
Schroeder Rd
Hundred Rd
State Highway 288
219-282
-2066
153
563
Moseley
Dorset
Genito
Clayville
Genito Rd
PLANTATION SUB
GENITO SUB
Otterdale
Swift Creek Reservoir
Brandermill Country Club
Amelia County
Powhatan County
Pilkinton
Mattoax
Chesterfield County
Duval Substation
Blackman Creek
360
219
Woodlake
Skinquarter
WINTERPOCK SUB
Birkdale Golf Course
Goode Creek
344 ft
Summit
376 ft
Winterpock
Chesterfield County
Amelia County
Bevils Bridge Rd
River Rd
Richmond Rd
563
Lake Chesdin Golf Course
ons Corner
N
W
E
S
153
Project Location
Dominion Facilities
Existing Substation
Proposed Substation
Existing Dominion Transmission Line
Overhead Route Alternatives
Proposed Route (Route 3B)
Alternative Route 2B
Alternative Route 3A
Study Area
Western Chesterfield Load Area
Upper Magnolia Green - East (Chesterfield County EDA)
Upper Magnolia Green - West (Chesterfield County EDA)
Upper Magnolia Green - West (Non-Chesterfield County EDA)
0 0.5 1
Miles
1:90,000
ERM
Attachment I.A.1
Project Overview
Western Chesterfield Electric
Transmission Project
Dominion Energy Virginia
Chesterfield County, Virginia
Dominion Energy

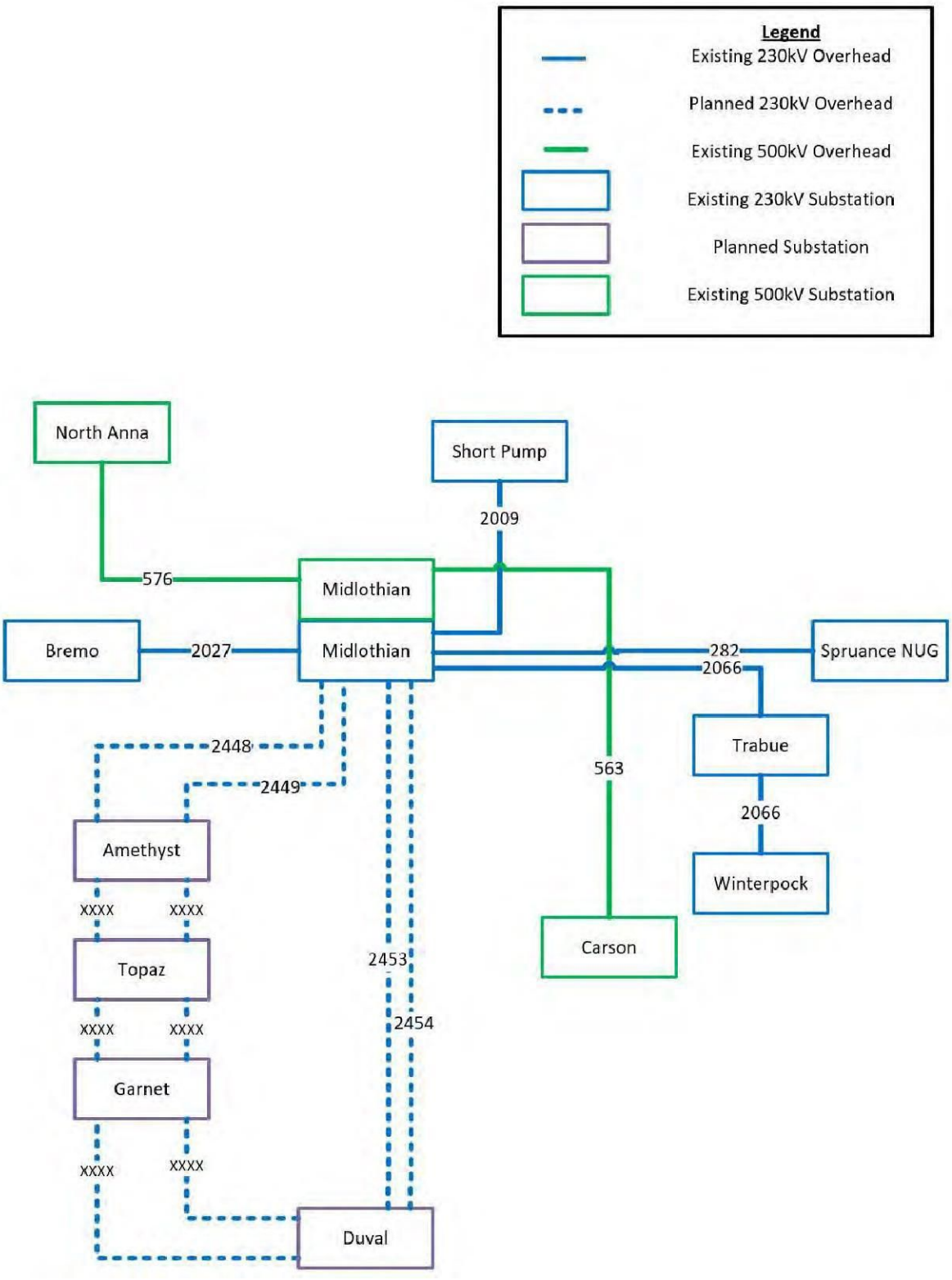
Attachment I.A.2
Existing Transmission One Line – February 2025



Attachment I.A.3
Transmission One
Line – June 2028



Attachment I.A.4
Transmission One
Line - October 2031



I. NECESSITY FOR THE PROPOSED PROJECT

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

Response: **Engineering Justification for Project**

Detail the engineering justifications for the proposed project (for example, provide narrative to support whether the proposed project is necessary to upgrade or replace an existing facility, to significantly increase system reliability, to connect a new generating station to the Applicant's system, etc.).

See Section I.A of the Appendix.

Known Future Projects

Describe any known future project(s), including but not limited to generation, transmission, delivery point or retail customer projects, that require the proposed project to be constructed.

The proposed Project is needed to ensure that Dominion Energy Virginia can adequately and reliably serve significant projected residential and commercial load growth identified by the Company's Distribution Planning group as well as ensure a plan is in place to mitigate a potential load drop exceeding 300 MW, consistent with the Company's Planning Criteria and NERC Reliability Standards. See Section I.A. As discussed in Section I.A, while the future Garnet, Topaz, and Amethyst Substations have their own unique load drivers (*i.e.*, a new planned data center development in Upper Magnolia Green – West), they require construction of the proposed Project—specifically, construction of the Duval-Midlothian Lines as two new double circuit 230 kV transmission lines.[24]

Planning Studies

Verify that the planning studies used to justify the need for the proposed project considered all other generation and transmission facilities impacting the affected load area, including generation and transmission facilities that have not yet been

[24] *See supra*, n. 1 and n. 20.

placed into service.

Distribution

For this Project, the Company's Distribution Planning group used historical load data and existing and proposed development projects in the Western Chesterfield Load Area to project future load growth. Based on the forecasted load, the Distribution Planning group determined that it was not feasible to serve the future Duval Substation load from any of the Company's primary sources of distribution power in the Western Chesterfield Load Area (*e.g.*, Genito, Midlothian, and Winterpock Substations) due to practical considerations, geographic constraints, and/or lack of available capacity. See Section I.C.

Transmission

In order to maintain reliable service to the Company's customers and to comply with mandatory NERC Reliability Standards, specifically FAC-001,[25] the Company's FIR document addresses the interconnection requirements of generation, transmission, and electricity end-user facilities. The purpose of the NERC FAC standards is to avoid adverse impacts on reliability by requiring that each TO establish facility connection and performance requirements in accordance with FAC-001, and the TO's and end-users meet and adhere to the established facility connection and performance requirements in accordance with FAC-002.[26]

NERC Reliability Standards TPL-001 requirements R2, R5, and R6 require PJM, the Planning Coordinator ("PC"), and the TO have criteria. PJM's planning criteria outlined in Attachment D of Manual 14B requires the Company, as a TO, to follow NERC and Regional Planning Standards and criteria as well as the TO Standards filed in Dominion Energy Virginia's FERC 715 filings. The Company's FERC 715 filing contains the Dominion Energy Virginia Transmission Planning Criteria in Attachment 1 of the FIR document.

The four major criteria considered as part of this Project were:

1) Four-breaker ring bus arrangement is required for load interconnections in excess of 100 MW (Company's FIR V21.0, Section 4.3.2);
2) The amount of direct-connected load at any substation is limited to 300 MW (Company's Transmission Planning Criteria Attachment 1, Section C.2.8);
3) N-1-1 contingencies load loss is limited to 300 MW (PJM Manual 14B Section 2.3.8, Attachment D, Attachment D 1, Attachment F); and
4) The minimum load levels within a 10-year planning horizon for the direct interconnection to existing transmission lines is 30 MW for a 230 kV

[25] *See supra*, n. 13.

[26] *See* https://www.nerc.com/pa/Stand/Reliability%20Standards/FAC-002-2.pdf.

delivery (Company's FAC-001 Section 4.3, Load Criteria – End User).

The Project is being constructed as double circuit 230 kV lines to comply with Section 4.3.2 of the Company's FIR, which requires a ring bus arrangement for load interconnections in excess of 100 MW.

Facilities List

Provide a list of those facilities that are not yet in service.

See Attachments I.A.2, I.A.3, and I.A.4 for the existing and planned transmission infrastructure for the Western Chesterfield Load Area. See Attachment I.G.1 for existing and future transmission facilities in the area of the proposed Project.

I. NECESSITY FOR THE PROPOSED PROJECT

C. Describe the present system and detail how the proposed project will effectively satisfy present and projected future electrical load demand requirements. Provide pertinent load growth data (at least five years of historical summer and winter peak demands and ten years of projected summer and winter peak loads where applicable). Provide all assumptions inherent within the projected data and describe why the existing system cannot adequately serve the needs of the Applicant (if that is the case). Indicate the date by which the existing system is projected to be inadequate.

Response: For purposes of this Application, the Western Chesterfield Load Area extends generally southwest from Midlothian Substation and is defined generally as the area south of Genito and Otterdale Roads, west of the Swift Creek Reservoir and the Woodlake area, north of the Appomattox River and Winterpock area, and east of the Amelia and Powhatan County borders located within western Chesterfield County, Virginia. See Attachment I.A.1 for a map of the general location of the Western Chesterfield Load Area, and Attachment I.G.1 for the Company's transmission facilities in the area of the proposed Project.

While the Company's existing Genito, Midlothian, and Winterpock Substations are the primary sources of distribution power in the Western Chesterfield Load Area, they are unable to serve the approximately 134 MW of residential and commercial load identified in the DP request, as discussed in Section I.A, due to practical considerations, geographic constraints, and/or lack of available capacity.

As to Genito Substation, it currently serves approximately 30 MW and has available capacity to initially serve the 134 MW of residential and commercial load identified in the DP request; however, Genito Substation cannot serve this load due to practical considerations and geographic constraints. Geographic constraints pose a challenge to routing out of the Genito Substation; namely, any distribution circuit route would require undergrounding at least six distribution circuits[27] approximately 8.4 miles from the Genito Substation to the center of the Western Chesterfield Load Area, beneath the Swift Creek Reservoir, resulting in related impacts and additional permitting requirements. Further, any such routing from Genito Substation likely would require upgrades, including potentially installing a ring bus at Genito Substation and reconductoring existing transmission lines to support this additional 134 MW of load. More importantly, serving the 134 MW of residential and commercial load identified in the DP request with Genito Substation is not practical, as it would provide only a short-term solution that could not resolve the need to serve the additional 900 MW of projected data center load anticipated in the load area. The present configuration of the Genito Substation supports 34.5 kV service, and therefore, it cannot support the 230 kV service requested for the new planned data center development. See Section I.A.

[27] Six distribution circuits would allow for normal loading as well as address potential N-1 violation due to loss of substation transformer or a circuit contingency.

Accordingly, if Genito Substation were to serve the 134 MW of residential and commercial load identified in the DP request, at least one double circuit 230 kV transmission line from Midlothian Substation, along a similar route as the proposed Duval-Midlothian Lines, still would be required to serve the additional 900 MW of projected data center load anticipated in the load area.

As to Midlothian and Winterpock Substations, the Company determined that connecting the 134 MW of projected residential and commercial load to either substation would cause transformer overloads and transformer contingency criteria violations resulting in unrestorable load, as shown in Attachment I.C.1.a and Attachment I.C.1.b and discussed below. Further, adding transformer capacity to either substation by uprating the existing transformers or installing an additional transformer would only be a short-term solution, as both substations are projected to exceed 300 MW by 2038 with the projected 134 MW of new load, as shown in Attachment I.C.1.a. Adding transformer capacity at either substation, therefore, would not provide a long-term solution to the future 900 MW need that is anticipated in the load area. Note that Attachment I.C.1.a and Attachment I.C.1.b do not reflect the 900 MW of data center load because, as with Genito Substation, the present configurations of Midlothian and Winterpock Substations support 34.5 kV service and cannot support the 230 kV service requested for the new planned data center development.

Accordingly, to serve the projected load and maintain and ensure reliable service for the overall load growth in the area, consistent with NERC Reliability Standards, the Company is proposing to construct the Duval-Midlothian Lines and Duval Substation. With the proposed Project, the existing system transformers are not overloaded, and reliability criteria are met.

Attachment I.C.1 shows loading (MVA and MW) at Midlothian and Winterpock Substations, as follows:

- Attachment I.C.1.a shows historical and projected loading at Midlothian and Winterpock Substations with existing project loads, which includes the projected load identified in the DP request (134 MW) as that load is native to this load area, and without the Duval Substation.

- Attachment I.C.1.b shows historical and projected loading at Midlothian and Winterpock Substations with existing project loads, which includes the projected load identified in the DP request (134 MW) as that load is native to this load area, and with Duval Substation upon energization (2028).

Note that all of the Section I.C attachments include only normal feed circuits to the Company's customers; they do not include any alternate feed loads. To be clear, that means there are no circuits normally open that serve as alternate feeds for customers with existing alternate feed arrangements shown in the Section I.C attachments. Also note that the load tables in the Section I.C attachments show actual and projected peak loading in MVA and MW based on the Distribution

Planning group's load projections inclusive of existing project load in the Western Chesterfield Load Area.

Each substation transformer has a nameplate rating and normal overload ("NOL") rating. The Company serves load on substation transformers up to the transformer's nameplate rating. The NOL rating is used for N-1 contingency service restoration scenarios in the event of failure of a substation transformer, and the NOL rating cannot be exceeded. Specifically, substation transformer loading beyond the limits of the NOL ratings for N-1 scenarios can result in unrestorable load, meaning the load exceeds all available capacity in the substation and adjacent circuits which, in turn, results in sustained outages.

Similarly, distribution circuits each have a thermal overload rating (*i.e.*, a nameplate rating) that is based on the type of equipment and the configuration of the equipment in the field. To prevent overloads that could cause equipment damage or failure, the maximum capacity limits of the distribution circuits and the substation transformers cannot be exceeded.

To ensure reliability to its customers, the Company maintains a substation transformer contingency plan. Because of the negative impact to customers due to the outage duration if a substation transformer were to fail, the Company creates a switching plan that allows customer load to be picked up on other equipment for the loss of any substation transformer. There are various switching methods that can be used for these substation transformer contingency plans. If the contingency plan creates overloads in other equipment because of the switching, new substation capacity, such as constructing the proposed Duval Substation, is necessary.

The Company's mandatory transmission Planning Criteria in Attachment 1 of the FIR document restricts total substation loading to no more than 300 MW. If the projected load inside a given substation will exceed 300 MW, the Company must create a project that eliminates the overload. As discussed above and as shown in Attachment I.C.1.a, the Midlothian and Winterpock Substations both are projected to exceed 300 MW by 2038 with the projected 134 MW of new load. Accordingly, constructing a new substation like the proposed Duval Substation is needed. See Section I.B.

Further, as shown in Attachment I.C.1.a, the circuits and transformers at the Midlothian and Winterpock Substations are overloaded with the addition of the projected load (134 MW) and without the proposed Duval Substation.[28]

As shown in Attachment I.C.1.a, the circuits at the Midlothian and Winterpock Substations are overloaded beginning in 2034 and 2030, respectively, in excess of their nameplate ratings. Specifically, at Midlothian Substation, Circuits #327 and

[28] As shown on Attachment I.C.1.b, even with the Duval Substation energized, the Midlothian Substation TX#1 currently is projected to exceed its nameplate rating starting in 2035 and its NOL rating starting in 2038. The Company will address the Midlothian Substation TX#1 loading if it exceeds its nameplate and/or NOL ratings in the future, which potentially may include new infrastructure in the area.

#440 are overloaded beginning in 2034. At Winterpock Substation, Circuit #339 is overloaded beginning in 2030, Circuit #414 is overloaded beginning in 2034, and Circuit #435 is overloaded beginning in 2036.

Moreover, transformers at the Midlothian and Winterpock Substations are overloaded in excess of their nameplate ratings beginning in 2029 and 2030, respectively, as shown in Attachment I.C.1.a. Specifically, at Midlothian Substation, TX#1 is overloaded beginning in 2029, TX#3 is overloaded beginning in 2037, and TX#5 is overloaded beginning in 2034. At Winterpock Substation, TX#1, is overloaded beginning in 2030, TX#2 is overloaded beginning in 2035, and TX#3 is overloaded beginning in 2037.

Accordingly, the Duval-Midlothian Lines and Duval Substation are needed to ensure that Dominion Energy Virginia can adequately and reliably serve significant projected residential and commercial load growth identified by the Company's Distribution Planning group, as well as ensure a plan is in place to mitigate a potential load drop exceeding 300 MW, consistent with the Company's Planning Criteria and NERC Reliability Standards. See Section I.A.

Western Chesterfield Load Forecast

Area Substations WITHOUT Duval Substation or Capacity Improvements

Includes:
Native Area Load Growth
Forecasted Block Load Connections
Residential EV Charger Forecast

Excludes:
Commercial/Fleet Charging

This forecast shows expected future loading on existing area facilities if no capacity projects are worked.

Load and Ratings (Summer Peak)

				Load (MVA) S2020 Actual	Load (MVA) S2021 Actual	Load (MVA) S2022 Actual	Load (MVA) S2023 Actual	Load (MVA) S2024 Actual	Load (MVA) S2025 Projection	Load (MVA) S2026 Projection	Load (MVA) S2027 Projection	Load (MVA) S2028 Projection	Load (MVA) S2029 Projection	Load (MVA) S2030 Projection	Load (MVA) S2031 Projection	Load (MVA) S2032 Projection	Load (MVA) S2033 Projection	Load (MVA) S2034 Projection	Load (MVA) S2035 Projection	Load (MVA) S2036 Projection	Load (MVA) S2037 Projection	Load (MVA) S2038 Projection
	Projection Year			T-4	T-3	T-2	T-1	T=0	T+1	T+2	T+3	T+4	T+5	T+6	T+7	T+8	T+9	T+10	T+11	T+12	T+13	T+14
Winterpock	*Total (MVA)*			*128.0*	*130.6*	*135.6*	*126.7*	*129.2*	*139.2*	*154.5*	*165.9*	*179.3*	*191.7*	*203.5*	*215.3*	*227.6*	*240.3*	*253.6*	*267.4*	*281.8*	*296.8*	**312.3**
	Total (MW)			*127.0*	*129.6*	*134.5*	*125.7*	*128.1*	*138.1*	*153.3*	*164.6*	*177.9*	*190.1*	*201.9*	*213.6*	*225.8*	*238.4*	*251.6*	*265.3*	*279.6*	*294.4*	**309.8**
Transformer	Nameplate	NOL																				
TX#1	84	92.4		59.1	60.3	61.2	55.6	60.2	64.0	67.9	71.9	76.1	80.4	**84.8**	**88.8**	**93.0**	**97.3**	**101.7**	**106.3**	**110.9**	**115.8**	**120.7**
TX#2	84	92.4		68.9	70.3	63.9	47.2	43.8	47.6	51.5	55.5	59.7	64.1	67.7	71.4	75.3	79.3	83.4	**87.8**	**92.3**	**97.0**	**101.8**
TX#3	84	92.4		0.0	0.0	10.5	23.9	25.2	27.7	35.2	38.5	43.5	47.2	51.0	55.1	59.3	63.8	68.5	73.4	78.6	**84.0**	**89.7**
Circuits	Rating																					
339	35.9			29.1	30.0	29.7	35.8	24.7	26.4	28.2	30.1	32.0	33.9	**36.0**	**38.0**	**40.2**	**42.4**	**44.7**	**47.0**	**49.4**	**51.9**	**54.4**
414	35.9			0.0	0.0	0.0	1.4	13.7	15.8	18.0	20.3	22.7	25.2	27.5	29.9	32.3	35.0	**37.7**	**40.6**	**43.6**	**46.8**	**50.2**
435	35.9			20.4	21.0	21.7	22.5	16.7	18.1	19.5	21.0	22.6	24.1	25.8	27.4	29.2	30.9	32.8	34.6	**36.6**	**38.6**	**40.6**

Midlothian	*Total (MVA)*			*118.1*	*120.5*	*127.7*	*113.0*	*148.5*	*154.5*	*165.4*	*175.4*	*185.6*	*196.4*	*206.7*	*218.3*	*230.3*	*242.7*	*255.5*	*268.8*	*282.5*	*296.8*	**311.5**
	Total (MW)			*117.6*	*120.0*	*127.1*	*112.5*	*147.8*	*153.8*	*164.7*	*174.6*	*184.8*	*195.6*	*205.8*	*217.3*	*229.3*	*241.6*	*254.4*	*267.6*	*281.3*	*295.5*	**310.1**
Transformer	Nameplate	NOL																				
TX#1	75	82.5		69.0	70.4	64.6	50.6	57.8	58.7	64.3	68.8	73.5	**78.3**	**79.5**	**83.9**	**88.4**	**93.1**	**97.8**	**102.8**	**107.9**	**113.1**	**118.5**
TX#3	84	92.4		8.7	8.9	21.5	22.8	42.3	44.8	47.3	49.9	52.6	55.7	58.8	62.1	65.5	68.9	72.6	76.3	80.2	**84.2**	**88.3**
TX#5	84	91.5		40.4	41.2	41.6	39.6	48.4	51.1	53.8	56.6	59.5	62.5	68.4	72.3	76.4	80.7	**85.1**	**89.7**	**94.5**	**99.5**	**104.7**
Circuits	Rating																					
327	35.9			21.1	21.5	22.0	14.2	18.5	20.1	21.8	23.6	25.5	27.4	29.4	31.4	33.6	35.8	**38.2**	**40.6**	**43.1**	**45.8**	**48.5**
440	35.9			17.9	18.4	14.9	17.8	16.5	17.1	18.9	20.7	22.7	24.7	26.8	29.1	31.6	34.2	**36.9**	**39.7**	**42.7**	**45.8**	**49.1**

Western Chesterfield Load Forecast

Area Substations WITH Duval Substation

Includes:
Native Area Load Growth
Forecasted Block Load Connections
Residential EV Charger Forecast

Excludes:
Commercial/Fleet Charging

This forecast shows expected future loading on area facilities with Duval substation serving load.

Load and Ratings (Summer Peak)

			Load (MVA) S2020 Actual	Load (MVA) S2021 Actual	Load (MVA) S2022 Actual	Load (MVA) S2023 Actual	Load (MVA) S2024 Actual	Load (MVA) S2025 Projection	Load (MVA) S2026 Projection	Load (MVA) S2027 Projection	Load (MVA) S2028 Projection	Load (MVA) S2029 Projection	Load (MVA) S2030 Projection	Load (MVA) S2031 Projection	Load (MVA) S2032 Projection	Load (MVA) S2033 Projection	Load (MVA) S2034 Projection	Load (MVA) S2035 Projection	Load (MVA) S2036 Projection	Load (MVA) S2037 Projection	Load (MVA) S2038 Projection
			T-4	T-3	T-2	T-1	T=0	T+1	T+2	T+3	T+4	T+5	T+6	T+7	T+8	T+9	T+10	T+11	T+12	T+13	T+14
Winterpock	*Total MVA*		*128.0*	*130.6*	*135.6*	*126.7*	*129.2*	*139.2*	*154.5*	*165.9*	*151.2*	*155.3*	*153.6*	*161.9*	*170.5*	*179.3*	*188.5*	*197.9*	*207.6*	*217.7*	*228.0*
	Total MW		*127.0*	*129.6*	*134.5*	*125.7*	*128.1*	*138.1*	*153.3*	*164.6*	*150.0*	*154.0*	*152.3*	*160.6*	*169.1*	*177.9*	*187.0*	*196.3*	*206.0*	*215.9*	*226.2*
Transformer	Nameplate	NOL																			
TX#1	84	92.4	59.1	60.3	61.2	55.6	60.2	64.0	67.9	71.9	62.1	60.8	58.6	61.4	64.2	67.1	70.1	73.2	76.4	79.7	83.1
TX#2	84	92.4	68.9	70.3	63.9	47.2	43.8	47.6	51.5	55.5	52.3	54.9	52.5	55.1	57.7	60.5	63.3	66.2	69.2	72.2	75.4
TX#3	84	92.4	0.0	0.0	10.5	23.9	25.2	27.7	35.2	38.5	36.8	39.6	42.5	45.5	48.6	51.8	55.1	58.5	62.0	65.7	69.5
Circuits	Rating																				
339	35.9		29.1	30.0	29.7	35.8	24.7	26.4	28.2	30.1	22.1	21.0	22.4	23.8	25.3	26.8	28.3	29.9	31.6	33.3	35.0
414	35.9		0.0	0.0	0.0	1.4	13.7	15.8	18.0	20.3	18.6	20.5	22.6	19.8	21.1	22.5	24.0	25.4	26.9	28.5	30.1
435	35.9		20.4	21.0	21.7	22.5	16.7	18.1	19.5	21.0	18.1	19.7	19.0	20.3	21.7	23.1	24.5	26.0	27.5	29.1	30.7
Midlothian	*Total MVA*		*118.1*	*120.5*	*127.7*	*113.0*	*148.5*	*154.5*	*165.4*	*179.2*	*172.4*	*180.8*	*171.5*	*178.8*	*186.3*	*193.9*	*201.8*	*209.8*	*218.1*	*226.5*	*235.2*
	Total MW		*117.6*	*120.0*	*127.1*	*112.5*	*147.8*	*153.8*	*164.7*	*178.4*	*171.6*	*180.0*	*170.7*	*178.0*	*185.4*	*193.1*	*200.9*	*208.9*	*217.1*	*225.5*	*234.1*
Transformer	Nameplate	NOL																			
TX#1	75	82.5	69.0	70.4	64.6	50.6	57.8	58.7	64.3	68.8	65.2	68.4	62.8	65.4	68.0	70.7	73.5	**76.3**	**79.2**	**82.2**	**85.3**
TX#3	84	92.4	8.7	8.9	21.5	22.8	42.3	44.8	47.3	53.7	52.4	55.0	53.1	55.4	57.8	60.3	62.8	65.3	68.0	70.7	73.4
TX#5	84	91.5	40.4	41.2	41.6	39.6	48.4	51.1	53.8	56.6	54.8	57.4	55.6	58.0	60.4	63.0	65.5	68.2	70.9	73.6	76.5
Circuits	Rating																				
327	35.9		21.1	21.5	22.0	14.2	18.5	20.1	21.8	18.5	20.1	21.8	19.4	20.6	21.8	23.1	24.4	25.7	27.1	28.6	30.1
440	35.9		17.9	18.4	14.9	17.8	16.5	17.1	19.4	17.2	19.3	15.3	16.3	17.4	18.5	19.6	20.8	22.0	23.3	24.6	26.0
Duval	*Total MVA*		*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*32.0*	*50.2*	*74.2*	*79.3*	*90.0*	*106.7*	*111.9*	*117.3*	*122.8*	*128.5*	*134.4*
	Total MW										*31.8*	*49.9*	*73.7*	*78.8*	*89.4*	*106.1*	*111.2*	*116.6*	*122.1*	*127.7*	*133.5*
Transformer	Nameplate	NOL																			
TX#1	84	92.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	32.0	50.2	54.2	57.9	60.9	63.9	67.1	70.4	73.7	77.2	80.8
TX#2	84	92.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	20.0	21.4	29.1	42.8	44.8	46.9	49.1	51.3	53.6
Circuits	Rating																				
4X1	35.9		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	12.0	17.0	18.7	19.9	20.8	21.6	22.5	23.5	24.4	25.4	26.4
4X2	35.9		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.0	16.4	17.6	18.8	19.8	20.9	22.0	23.2	24.4	25.6	26.9
4X3	35.9		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.0	16.8	18.0	19.2	20.3	21.4	22.5	23.7	24.9	26.1	27.4
4X4	35.9		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.0	10.9	11.8	18.5	19.6	20.6	21.8	22.9	24.1
4X5	35.9		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.0	10.5	17.3	24.3	25.3	26.3	27.3	28.4	29.5

I. NECESSITY FOR THE PROPOSED PROJECT

D. If power flow modeling indicates that the existing system is, or will at some future time be, inadequate under certain contingency situations, provide a list of all these contingencies and the associated violations. Describe the critical contingencies including the affected elements and the year and season when the violation(s) is first noted in the planning studies. Provide the applicable computer screenshots of single-line diagrams from power flow simulations depicting the circuits and substations experiencing thermal overloads and voltage violations during the critical contingencies described above.

Response: Not applicable.

I. NECESSITY FOR THE PROPOSED PROJECT

E. Describe the feasible project alternatives, if any, considered for meeting the identified need including any associated studies conducted by the Applicant or analysis provided to the RTO. Explain why each alternative was rejected.

Response: See Sections I.A and I.C. No transmission alternatives were considered due to the projected future loads in the Project area and future 300 MW load drop violation. No distribution alternatives were considered due to practical considerations, geographic constraints, and/or lack of available capacity to serve the 134 MW of residential and commercial load identified in the DP request from the Company's primary sources of distribution power in the Project area.

Analysis of Demand-Side Resources:

Pursuant to the Commission's November 26, 2013, Order entered in Case No. PUE-2012-00029,[29] and its November 1, 2018, Final Order entered in Case No. PUR-2018-00075,[30] the Company is required to provide analysis of demand-side resources ("DSM") incorporated into the Company's planning studies. DSM is the broad term that includes both energy efficiency ("EE") and demand response ("DR"). In this case, the Company has identified a need for the Project in order to provide requested service and comply with mandatory NERC Reliability Standards, thereby enabling the Company to maintain and ensure the overall long-term reliability of its transmission system.[31] Notwithstanding, when performing an analysis based on PJM's 50/50 load forecast, there is no adjustment in load for DR programs because PJM only dispatches DR when the system is under stress (*i.e.*, a system emergency). Accordingly, while existing DSM is considered to the extent the load forecast accounts for it, DR that has been bid previously into PJM's capacity market is not a factor in this particular Application because of the identified need for the Project. Based on these considerations, the evaluation of the Project demonstrated that despite accounting for DSM consistent with PJM's methods, the Project is necessary.

Incremental DSM also will not eliminate the need for the Project. As discussed in Section I.A, the need for the Project is based on the Company's obligation to serve to serve significant residential and commercial load growth in the Western

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[29] *Application of Virginia Electric and Power Company d/b/a Dominion Virginia Power for approval and certification of electric facilities: Surry-Skiffes Creek 500 kV Transmission Line, Skiffes Creek-Whealton 230 kV Transmission Line, and Skiffes Creek 500 kV-230 kV-115 kV Switching Station*, Case No. PUE-2012-00029, Final Order (Nov. 26, 2023).

[30] *Application of Virginia Electric and Power Company for approval and certification of electric transmission facilities under Va. Code § 56-46.1 and the Utility Facilities Act, Va. Code § 56-265.1 et seq.*, Case No. PUR-2018-00075, Final Order (Nov. 1, 2018).

[31] While the PJM load forecast does not directly incorporate DR, its load forecast incorporates variables derived from Itron that reflect EE by modeling the stock of end-use equipment and its usages. Further, because PJM's load forecast considers the historical non-coincident peak ("NCP") for each load serving entity ("LSE") within PJM, it reflects the actual load reductions achieved by DSM programs to the extent an LSE has used DSM to reduce its NCPs.

Chesterfield Load Area, as well as future identified load growth, which is expected to approach approximately 1 GW by 2033. By way of comparison, statewide, the Company achieved demand savings of 276.5 MW (net) / 350.0 MW (gross) from its DSM Programs in 2023.

I. NECESSITY FOR THE PROPOSED PROJECT

F. Describe 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.

Response: Not applicable.[32]

[32] *But see supra*, n. 4.

I. NECESSITY FOR THE PROPOSED PROJECT

G. Provide a system map, in color and of suitable scale, showing the location and voltage of the Applicant's transmission lines, substations, generating facilities, etc., that would affect or be affected by the new transmission line and are relevant to the necessity for the proposed line. Clearly label on this map all points referenced in the necessity statement.

Response: See Attachment I.G.1.

WESTERN CHESTERFIELD PROJECT

- 0 kV Transmission Line (Idle)
- 115 kV Transmission Line
- 230 kV Transmission Line
- 500 kV Transmission Line
- ▲ Switching Station, Substation, DP

0 0.5 1 2 3 4 Miles

MIDLOTHIAN SUB

AMETHYST SUB (Future)

TOPAZ SUB (Future)

GARNET SUB (Future)

DUVAL SUB

GENITO SUB

WINTERPOCK SUB

2009

2027

2066

Red Lane
Chestnut Oaks
Lilburn
Flat Rock
Midlothian
Founders Bridge
Huguenot
Salisbury Country Club
Robious Rd
Manchester
McGuire Manor
Brookhaven Farms
British Camp Farms
Brookbury
Rockwood
Longwood Acres
Mayfair Estates
Land O'Pines
Rolling Hills
Qualla Farms
Five Forks
Pocahontas State Park
Brandermill
Brandermill Country Club
Woodlake
Birkdale Golf Course
Summit
Otterdale
Moseley
Dorset
Clayville
Genito
Pilkinton
Mattoax
Skinquarter
Old Hundred Rd
Dorset Rd
Schroeder Rd
Swift Creek
Turkey Creek
Genito Rd
Otterdale Branch
Horsepen Creek
Skinquarter Creek
Moseley Rd
Goode Creek
Little Creek
Courthouse Rd
S Providence Rd
Hicks Rd
Turner Rd
Beach Rd
Centralia Rd
Salem Church Rd
Hopkins Rd
Bernards Creek
Dutch Creek
Boiling Creek
Third Branch
494 ft
387 ft
358 ft
374 ft
344 ft
376 ft
177 ft
288
147
60
76
360
10

26

250430046

Attachment I.G.1

I. NECESSITY FOR THE PROPOSED PROJECT

H. Provide the desired in-service date of the proposed project and the estimated construction time.

Response: The desired in-service target date for the proposed Project is June 1, 2028.

The Company estimates it will take approximately 28 months for detailed engineering, materials procurement, permitting, real estate, and construction after a final order from the Commission. Accordingly, to support this estimated construction timeline and construction plan, the Company respectfully requests a final order by February 1, 2026. Should the Commission issue a final order by February 1, 2026, the Company estimates that construction should begin around February 2027, and be completed by June 1, 2028. This schedule is contingent upon obtaining the necessary permits and outages, the latter of which may be particularly challenging due to the amount of new load growth, rebuilds, and new builds scheduled to occur in this load area. Dates may need to be adjusted based on permitting delays or design modifications to comply with additional agency requirements identified during the permitting application process, as well as the ability to schedule outages, and unpredictable delays due to labor shortages or materials/supply issues. This schedule is also contingent upon the Company's ability to negotiate for easements with property owners along the approved route and to obtain property rights for substation use without the need for additional litigation.

In addition, the Company is monitoring actively regulatory changes and requirements associated with the NLEB and how they could potentially impact construction timing associated with TOYRs. The USFWS issued the final guidance, replacing the interim guidance, on October 23, 2024, and the final guidance was fully implemented November 30, 2024. The Company is reviewing the final guidance to the extent it applies to the Company's projects and will coordinate with USFWS during the permitting stage.

The Company is also monitoring potential regulatory changes associated with the potential up-listing of the TCB. On September 14, 2022, the USFWS published the proposed rule to the Federal Register to list the TCB as endangered under the Endangered Species Act. USFWS extended its Final Rule issuance target from September 2023 to September 2024, but as of the date of this filing, the TCB listing decision has not been issued. The Company is tracking actively this ruling and evaluating the effects of potential outcomes on Company projects' permitting, construction, and in-service dates, including electric transmission projects.

Any adjustments to this Project schedule resulting from these or similar challenges could necessitate a minimum of a six- to twelve-month delay in the targeted in-service date. Accordingly, for purposes of judicial economy, the Company requests that the Commission issue a final order approving both a desired in-service target date (*i.e.*, June 1, 2028) and an authorization sunset date (*i.e.*, June 1, 2029) for

energization of the Project.[33]

[33] *See supra*, n. 11.

I. NECESSITY FOR THE PROPOSED PROJECT

I. Provide the estimated total cost of the project as well as total transmission-related costs and total substation-related costs. Provide the total estimated cost for each feasible alternative considered. Identify and describe the cost classification (e.g. "conceptual cost," "detailed cost," etc.) for each cost provided.

Response: The total estimated conceptual cost of the Project utilizing the Proposed Route is approximately $121.1 million, which includes approximately $93.1 million for transmission-related work and approximately $28.0 million for substation-related work (2025 dollars).[34]

A breakdown of the estimated conceptual costs for transmission-related work associated with the Proposed and Alternative Routes are provided below. The substation-related costs are the same for the Alternative Routes as those identified along the Proposed Route (Route 3B).

Proposed Route (Route 3B): $93.1 million

Alternative Route 2B: $118.5 million

Alternative Route 3A: $103.9 million

A breakdown of the estimated conceptual costs for substation work is provided below.

Duval Substation: $10.7 million

Midlothian Substation: $17.3 million

See Section II.C for costs associated with minor substation-related work at the Company's existing Bremo, Short Pump, and Spruance NUG Substations, which are not included in the total Project costs described above but are provided for informational purposes.

[34] *See supra*, n. 10.

I. NECESSITY FOR THE PROPOSED PROJECT

J. If the proposed project has been approved by the RTO, provide the line number, regional transmission expansion plan number, cost responsibility assignments, and cost allocation methodology. State whether the proposed project is considered to be a baseline or supplemental project.

Response: The Project is classified as a supplemental project (Supplemental Project DOM-2024-0031) initiated by the TO in order to interconnect new customer load. The Project need slide was submitted to PJM at the April 30, 2024 TEAC Meeting, and the solution slide was submitted to PJM at the February 4, 2025 TEAC Meeting. See Attachment I.J.1 and Attachment I.J.2, respectively. While, the Company has not received a Supplemental ID# for this Project, the Project as originally submitted to PJM will be included in the 2026 Local Plan.

The Project is presently 100% cost allocated to the DOM Zone.

Dominion Supplemental Projects

Transmission Expansion Advisory Committee
April 30, 2024

Needs

Stakeholders must submit any comments within 10 days of this meeting in order to provide time necessary to consider these comments prior to the next phase of the M-3 process

Dominion Transmission Zone: Supplemental Customer Load Request

Need Number: DOM-2024-0031

Process Stage: Need Meeting 04/30/2024

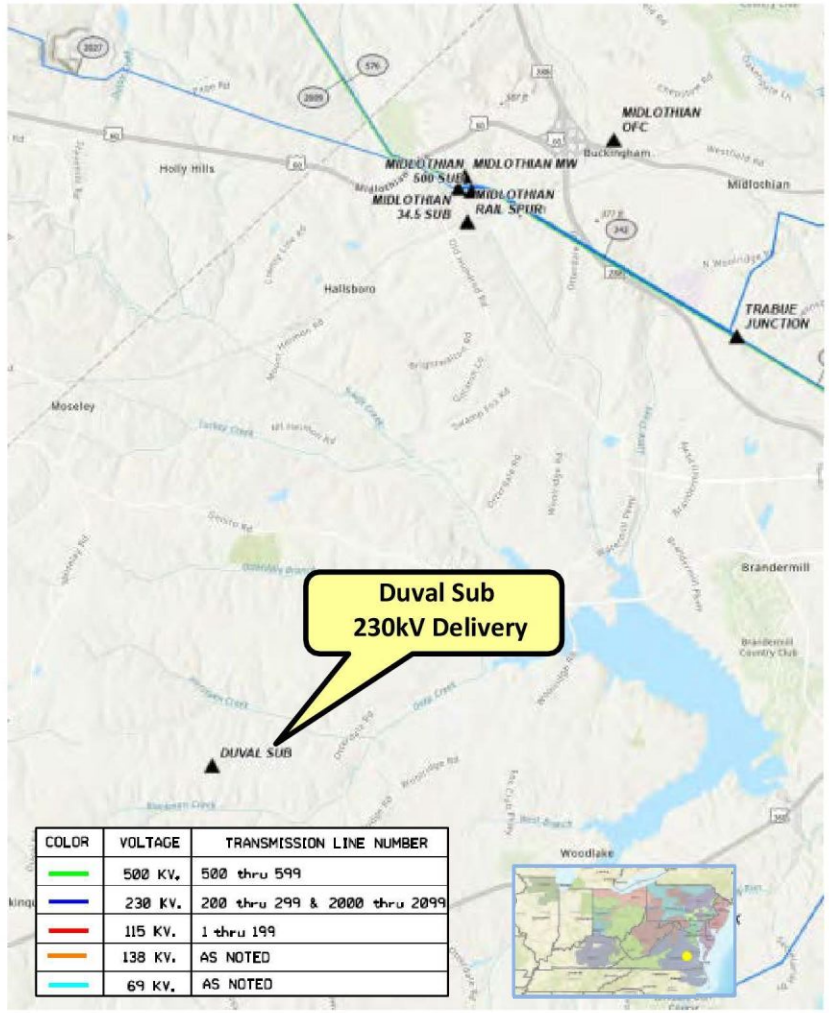
Project Driver: Customer Service

Specific Assumption References:

Customer load request will be evaluated per Dominion's Facility Interconnection Requirements Document and Dominion's Transmission Planning Criteria.

Problem Statement:

DEV Distribution has submitted a DP Request for a new substation (Duval) to serve new residential and commercial load in Chesterfield County with a total load in excess of 100 MW. The requested in-service date is 5/01/2027.



Initial In-Service Load	Projected 2029 Load
Summer: 35.9 MW Winter: 31.0 MW	Summer: 76.1 MW Winter: 76.9 MW

Dominion Supplemental Projects

Transmission Expansion Advisory Committee
February 04, 2025

Solutions

Stakeholders must submit any comments within 10 days of this meeting in order to provide time necessary to consider these comments prior to the next phase of the M-3 process

Dominion Transmission Zone: Supplemental Customer Load Request

Need Number: DOM-2024-0031

Process Stage: Solution Meeting 2/04/2024

Previously Presented: Need Meeting 04/30/2024

Project Driver: Customer Service

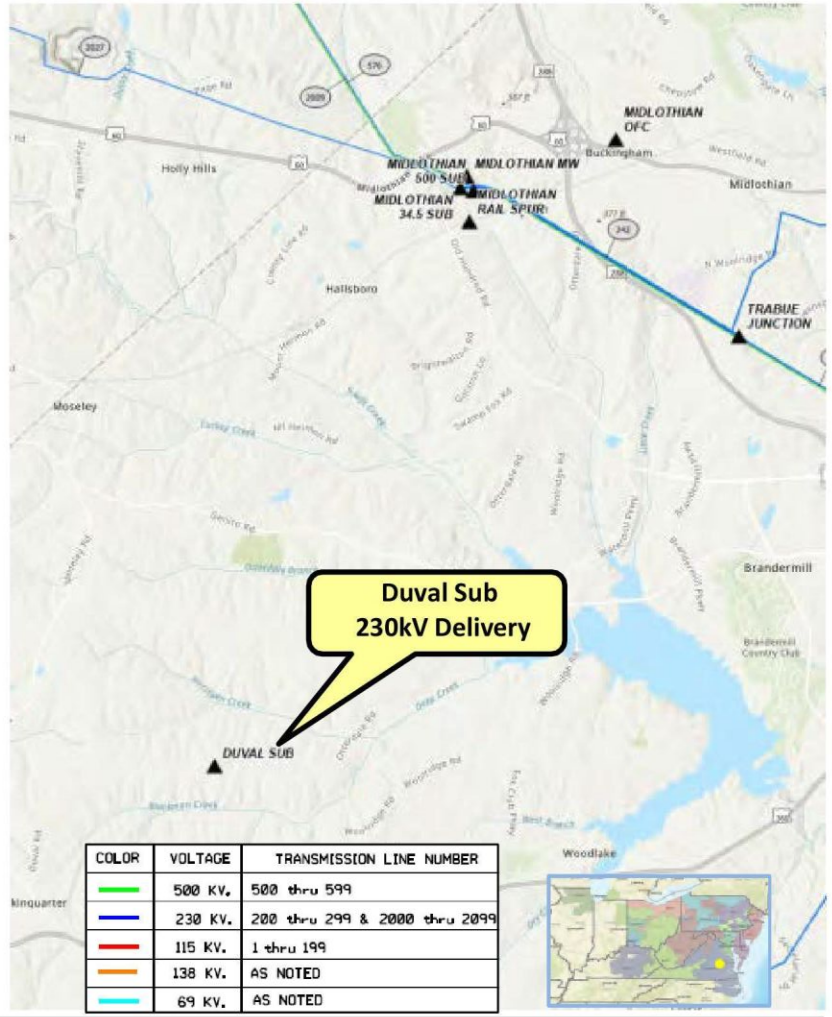
Specific Assumption References:

Customer load request will be evaluated per Dominion's Facility Interconnection Requirements Document and Dominion's Transmission Planning Criteria.

Problem Statement:

DEV Distribution has submitted a DP Request for a new substation (Duval) to serve new residential and commercial load in Chesterfield County with a total load in excess of 100 MW. The requested in-service date is 5/01/2027.

Initial In-Service Load	Projected 2029 Load
Summer: 35.9 MW Winter:31.0 MW	Summer: 76.1 MW Winter: 76.9 MW



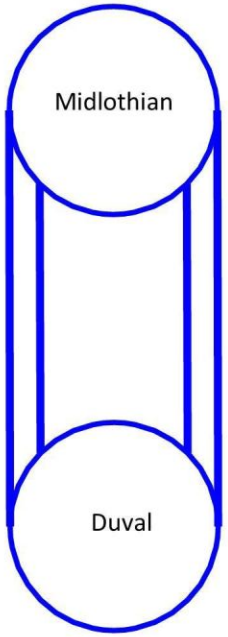
Dominion Transmission Zone: Supplemental Duval 230kV Delivery - DEV

Need Number: DOM-2024-0031

Process Stage: Solution Meeting 2/04/2025

Project Driver: Customer Service

Proposed Solution:
Connect the new substation by extending four new 230kV lines from Midlothian substation to proposed Duval substation. Lines to terminate in a 230kV six-breaker ring arrangement.



Estimated Project Cost: $30.0M Substation, $80M Transmission Lines

Alternatives Considered: Extend two new 230kV lines from Winterpock substation to proposed Duval substation. Not feasible due to inability to expand Winterpock substation.

Projected In-service Date: 1/1/2028

Project Status: Engineering

Model: 2029 RTEP

I. NECESSITY FOR THE PROPOSED PROJECT

K. If the need for the proposed project is due in part to reliability issues and the proposed project is a rebuild of an existing transmission line(s), provide five years of outage history for the line(s), including for each outage the cause, duration and number of customers affected. Include a summary of the average annual number and duration of outages. Provide the average annual number and duration of outages on all Applicant circuits of the same voltage, as well as the total number of such circuits. In addition to outage history, provide five years of maintenance history on the line(s) to be rebuilt including a description of the work performed as well as the cost to complete the maintenance. Describe any system work already undertaken to address this outage history.

Response: Not applicable. See Section I.A.

I. NECESSITY FOR THE PROPOSED PROJECT

L. If the need for the proposed project is due in part to deterioration of structures and associated equipment, provide representative photographs and inspection records detailing their condition.

Response: Not applicable. See Sections I.A and I.C.

I. NECESSITY FOR THE PROPOSED PROJECT

M. In addition to the other information required by these guidelines, applications for approval to construct facilities and transmission lines interconnecting a Non-Utility Generator ("NUG") and a utility shall include the following information:

1. The full name of the NUG as it appears in its contract with the utility and the dates of initial contract and any amendments;

2. A description of the arrangements for financing the facilities, including information on the allocation of costs between the utility and the NUG;

3. a. For Qualifying Facilities ("QFs") certificated by Federal Energy Regulatory Commission ("FERC") order, provide the QF or docket number, the dates of all certification or recertification orders, and the citation to FERC Reports, if available;

b. For self-certificated QFs, provide a copy of the notice filed with FERC;

4. Provide the project number and project name used by FERC in licensing hydroelectric projects; also provide the dates of all orders and citations to FERC Reports, if available; and

5. If the name provided in 1 above differs from the name provided in 3 above, give a full explanation.

Response: Not applicable.

I. NECESSITY FOR THE PROPOSED PROJECT

N. Describe 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.

Response: The proposed Project will serve the significant projected residential and commercial load growth in the Western Chesterfield Load Area generally depicted in Attachment I.A.1. The Project will be used to support future load in the area as described in Sections I.A and I.C.

II. DESCRIPTION OF THE PROPOSED PROJECT

A. Right-of-way ("ROW")

1. Provide the length of the proposed corridor and viable alternatives.

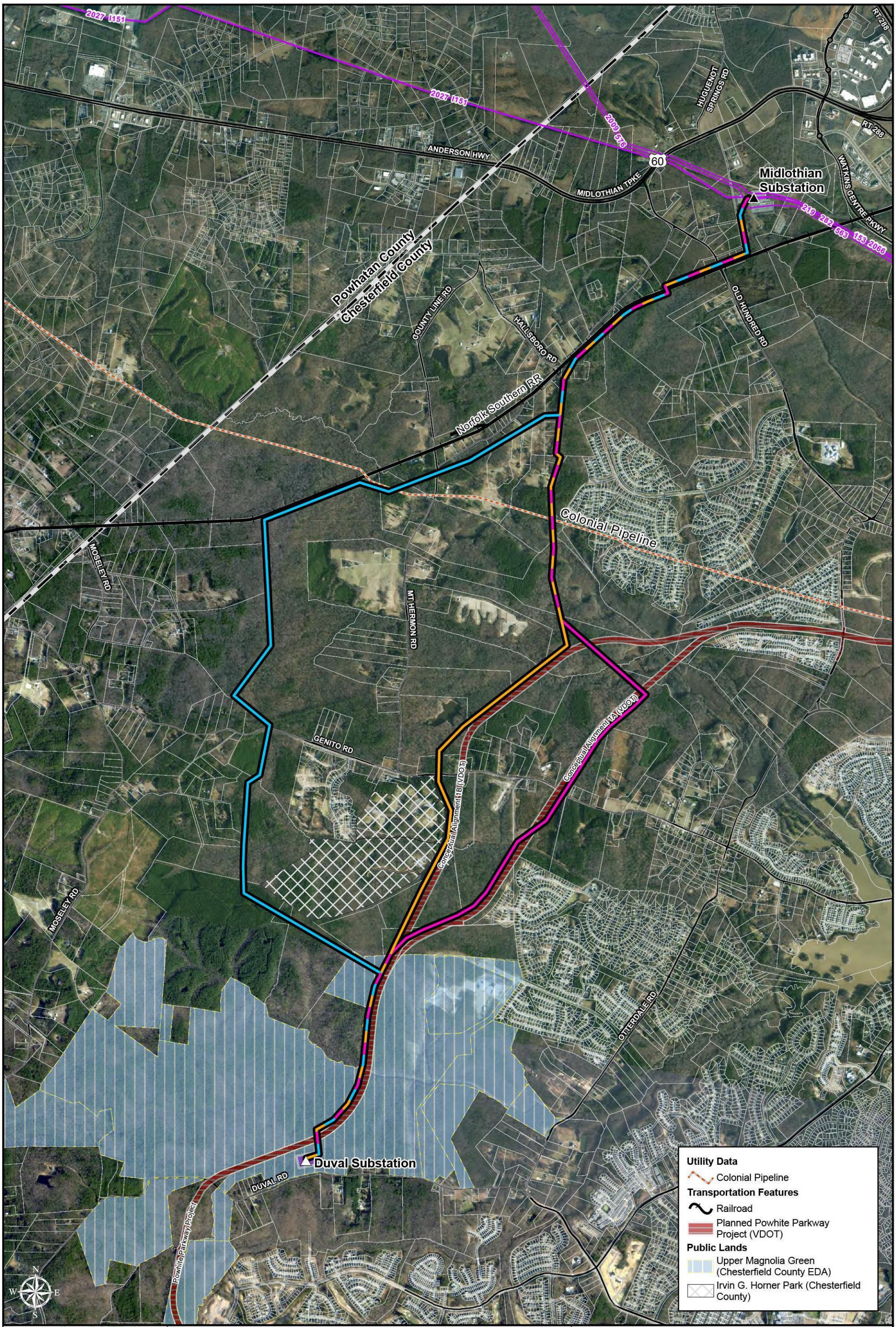
Response: The approximate lengths of the Proposed and Alternative Routes for the Duval-Midlothian Lines are as follows:

Proposed Route (Route 3B): 7.1 miles

Alternative Route 2B: 8.6 miles

Alternative Route 3A: 7.5 miles

See Section II.A.9 for an explanation of the Company's route selection process, as well as Section 2 of the Environmental Routing Study. Also, see Attachment II.A.1 for an overview map of the Proposed and Alternative Routes.


2027-I151
2027-I151
2009-576
ANDERSON HWY
MIDLOTHIAN TPKE
60
HUGUENOT SPRINGS RD
RT 288
RT 288
WATKINS CENTRE PKWY
Midlothian Substation
219
232
563
153
2066
Powhatan County
Chesterfield County
COUNTY LINE RD
HALLSBORO RD
OLD HUNDRED RD
Norfolk Southern RR
Colonial Pipeline
MOSELEY RD
MT HERMON RD
GENITO RD
Conceptual Alignment 1B (VDOT)
Conceptual Alignment 1A (VDOT)
MOSELEY RD
OTTERDALE RD
Duval Substation
DUVAL RD
Powhite Parkway Project
N
W
E
S
Utility Data
Colonial Pipeline
Transportation Features
Railroad
Planned Powhite Parkway Project (VDOT)
Public Lands
Upper Magnolia Green (Chesterfield County EDA)
Irvin G. Horner Park (Chesterfield County)
Project Location
Dominion Facilities
Existing Substation
Proposed Substation
Existing Dominion Transmission Line
Proposed Substation
Overhead Route Alternatives
Proposed Route (Route 3B)
Alternative Route 2B
Alternative Route 3A
County Boundary
Parcels
0
0.25
0.5
Miles
1:34,000
ERM
Attachment II.A.1
Route Overview
Western Chesterfield Electric Transmission Project
Dominion Energy Virginia
Chesterfield County, Virginia
Dominion Energy

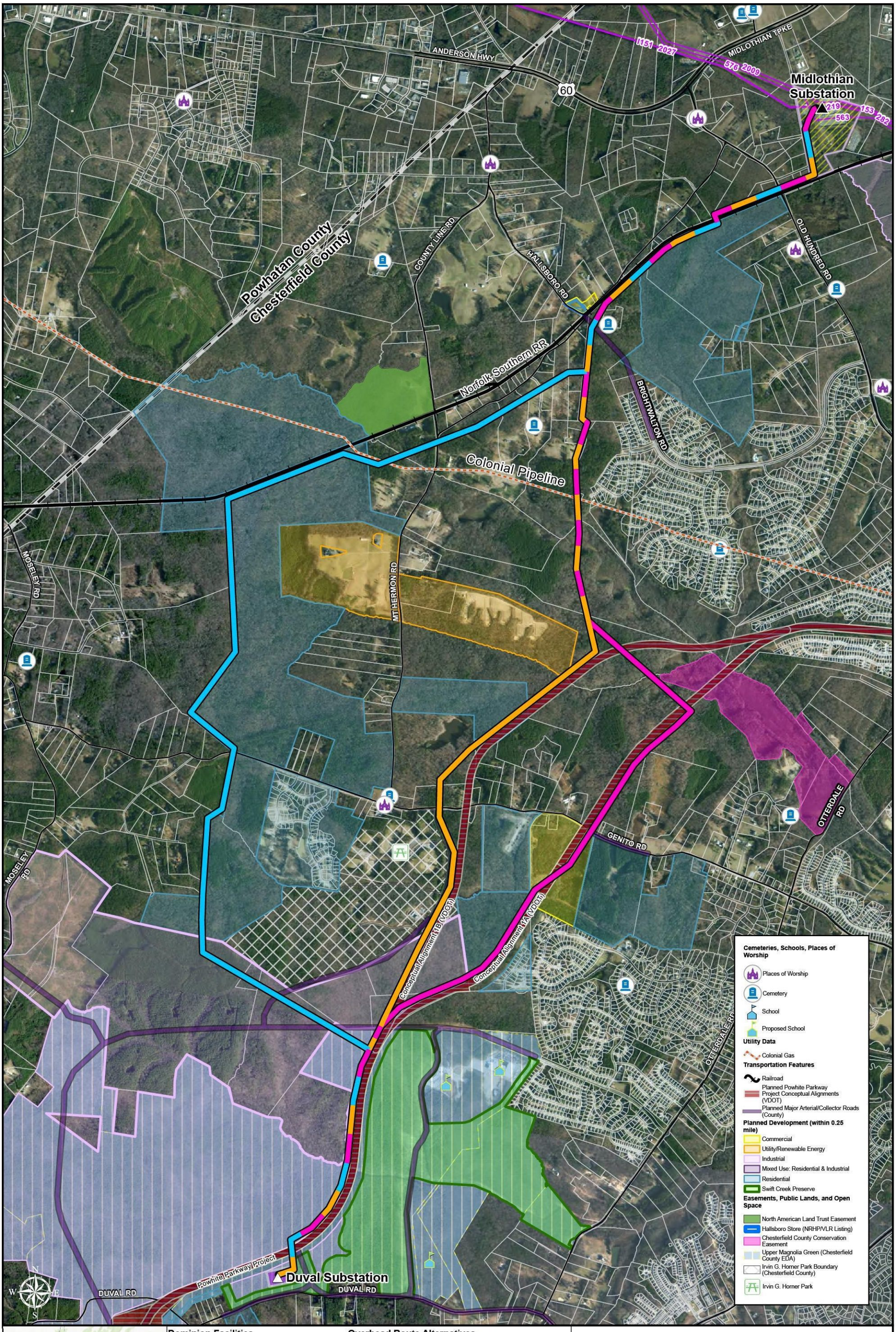
II. DESCRIPTION OF THE PROPOSED PROJECT

A. Right-of-way ("ROW")

2. Provide color maps of suitable scale (including both general location mapping and more detailed GIS-based constraints mapping) showing the route of the proposed line and its relation to: the facilities of other public utilities that could influence the route selection, highways, streets, parks and recreational areas, scenic and historic areas, open space and conservation easements, schools, convalescent centers, churches, hospitals, burial grounds/cemeteries, airports and other notable structures close to the proposed project. Indicate the existing linear utility facilities that the line is proposed to parallel, such as electric transmission lines, natural gas transmission lines, pipelines, highways, and railroads. Indicate any existing transmission ROW sections that are to be quitclaimed or otherwise relinquished. Additionally, identify the manner in which the Applicant will make available to interested persons, including state and local governmental entities, the digital GIS shape file for the route of the proposed line.

Response: See Attachment II.A.2. No portion of the right-of-way is proposed to be quitclaimed or relinquished.

Dominion Energy Virginia will make the digital Geographic Information System shape file available to interested persons upon request to the Company's legal counsel as listed in the Project Application.


ANDERSON HWY
60
MIDLOTHIAN TPKE
1131 2027
576 2009
Midlothian Substation
219
153
563
282
Powhatan County
Chesterfield County
COUNTY LINE RD
HALLSBORO RD
OLD HUNDRED RD
Norfolk Southern RR
BRIGHTWALTON RD
Colonial Pipeline
MOSELEY RD
MT HERMON RD
GENITO RD
OTTERDALE RD
Conceptual Alignment 1B (VDOT)
Conceptual Alignment 1A (VDOT)
Powhite Parkway Project
Duval Substation
DUVAL RD
Cemeteries, Schools, Places of Worship
Places of Worship
Cemetery
School
Proposed School
Utility Data
Colonial Gas
Transportation Features
Railroad
Planned Powhite Parkway Project Conceptual Alignments (VDOT)
Planned Major Arterial/Collector Roads (County)
Planned Development (within 0.25 mile)
Commercial
Utility/Renewable Energy
Industrial
Mixed Use: Residential & Industrial
Residential
Swift Creek Preserve
Easements, Public Lands, and Open Space
North American Land Trust Easement
Hallsboro Store (NRHP/VLR Listing)
Chesterfield County Conservation Easement
Upper Magnolia Green (Chesterfield County EDA)
Irvin G. Horner Park Boundary (Chesterfield County)
Irvin G. Horner Park
Project Location
Dominion Facilities
Existing Substation
Proposed Substation
Existing Dominion Transmission Line
Existing Dominion Property Rights
Proposed Substation
Overhead Route Alternatives
Proposed Route (Route 3B)
Alternative Route 2B
Alternative Route 3A
County Boundary
0
0.25
0.5
Miles
1:28,000
ERM
Attachment II.A.2
Route Overview and Constraints
Western Chesterfield Electric Transmission Project
Dominion Energy Virginia
Chesterfield County, Virginia
Dominion Energy

II. DESCRIPTION OF THE PROPOSED PROJECT

A. Right-of-way ("ROW")

3. Provide a separate color map of a suitable scale showing all the Applicant's transmission line ROWs, either existing or proposed, in the vicinity of the proposed project.

Response: See Attachment I.G.1 for existing transmission line rights-of-way and Attachment II.B.3.d for proposed transmission line rights-of-way in the Project area.

II. DESCRIPTION OF THE PROPOSED PROJECT

A. Right-of-way ("ROW")

4. To the extent the proposed route is not entirely within existing ROW, explain why existing ROW cannot adequately service the needs of the Applicant.

Response: There is no existing electric transmission right-of-way that connects the proposed Duval Substation to the existing transmission system.

II. DESCRIPTION OF THE PROPOSED PROJECT

A. Right-of-way ("ROW")

5. Provide drawings of the ROW cross section showing typical transmission line structure placements referenced to the edge of the ROW. These drawings should include:

a. ROW width for each cross section drawing;

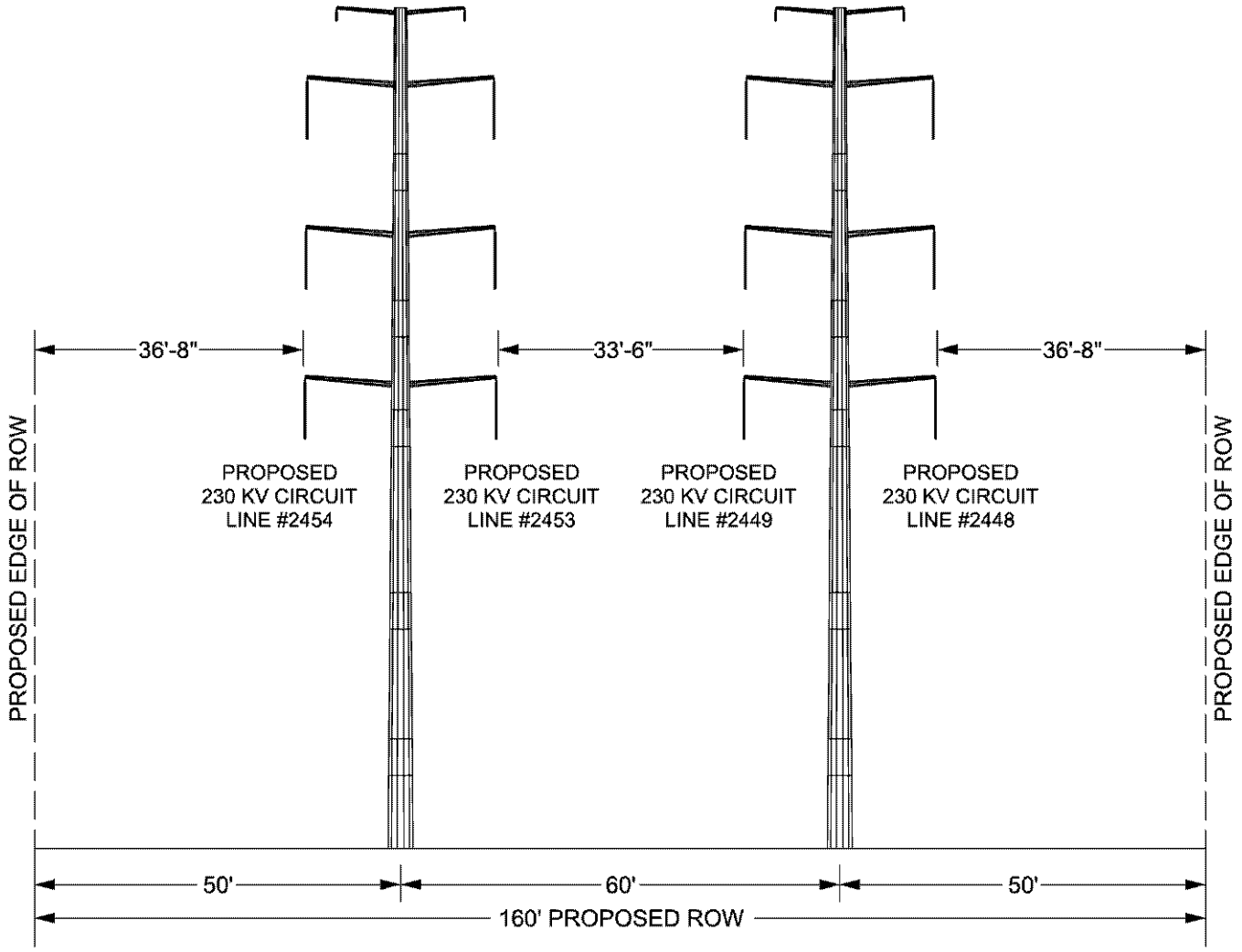
b. Lateral distance between the conductors and edge of ROW;

c. Existing utility facilities on the ROW; and

d. For lines being rebuilt in existing ROW, provide all of the above (i) as it currently exists, and (ii) as it will exist at the conclusion of the proposed project.

Response: See Attachment II.A.5.a.

For additional information on the structures, see Section II.B.3.



PROPOSED ROW CONFIGURATION

DISCLAIMER		DESCRIPTION & VIEW	ATTACHMENT NO.
THE INFORMATION CONTAINED ON THIS DRAWING IS CONSIDERED PRELIMINARY IN NATURE AND IS SUBJECT TO CHANGE BASED ON FINAL DESIGN	Dominion Energy 5000 Dominion Blvd. Glen Allen, VA 23060	TYPICAL RIGHT OF WAY LOOKING TOWARDS MIDLOTHIAN SUBSTATION	II.A.5.a
			DRAWN BY: TMR

II. DESCRIPTION OF THE PROPOSED PROJECT

A. Right-of-way ("ROW")

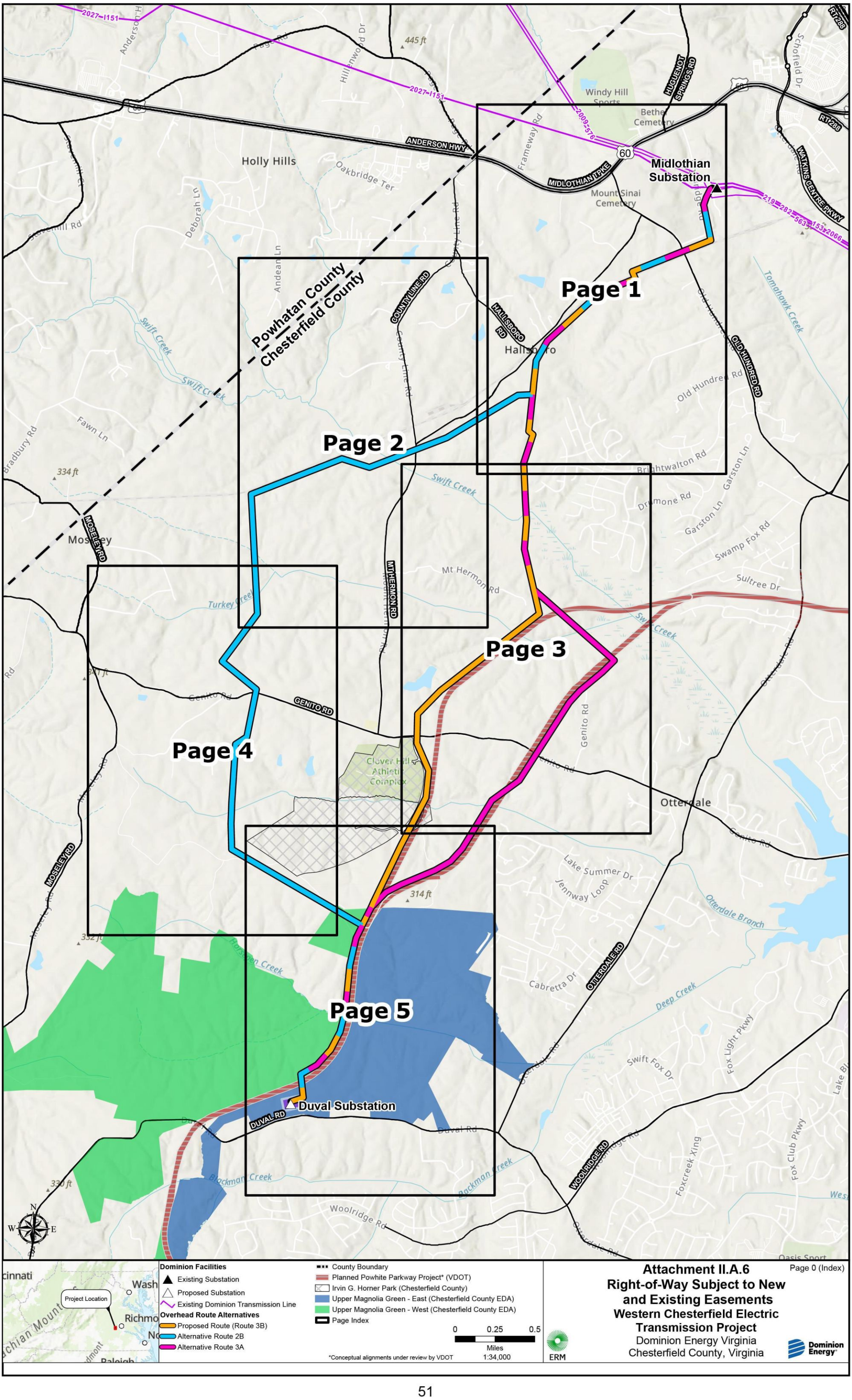
6. Detail what portions of the ROW are subject to existing easements and over what portions new easements will be needed.

Response: As discussed in Section II.A.4, there is no existing electric transmission right-of-way that connects the proposed Duval Substation to the existing transmission system. See Attachment II.A.6. Accordingly, the entire right-of-way for each of the Proposed and Alternative Routes will require easements for a new-build transmission line, with the exception of where the routes cross the Company's existing property rights at Midlothian Substation for about 0.3 mile.

The Company developed potential route alternatives for the Duval-Midlothian Lines that generally collocate alongside certain portions of conceptual alignments for Virginia Department of Transportation's ("VDOT") Powhite Parkway project, which consists of extending the Powhite Parkway from Woolridge Road to U.S. 360 (Hull Street). The conceptual alignments, which include Conceptual Alignments 1A and 1B, cross through the Project study area west of Woolridge Road and south of Genito Road. Based on publicly available information and preliminary design,[35] all of the Proposed and Alternative Routes cross the planned highway extension where the Company will require new easements once an alignment for the extension is selected. See Attachment II.A.6 and Section III.E.

The Company will also require new easements where the Proposed and Alternative Routes cross an existing Colonial Pipeline Company ("Colonial Pipeline") natural gas pipeline and a Norfolk Southern Railway railroad. The Company will continue to coordinate with Colonial Pipeline and Norfolk Southern Railway to obtain the necessary easements and minimize impacts during construction and future operation of the Duval-Midlothian Lines.

[35] Information regarding the Powhite Parkway project is publicly available at: https://www.vdot.virginia.gov/projects/richmond-district/chesterfield---powhite-parkway-study/. While the project was initially proposed as one single alignment extending between Woolridge Road and Hull Street Road, as of April 2025, VDOT is evaluating two conceptual alignments (*i.e.*, alternate corridors) for the Powhite Parkway project within the Company's Project area—Conceptual Alignment 1A and Conceptual Alignment 1B—as shown on Attachment II.A.2. The Company's Proposed and Alternative Routes for the proposed Project all collocate along a single alignment of the highway extension within the Project area (*i.e.*, the proposed single alignment for the Powhite Parkway project where no other alternative highway alignment exists) for approximately 1.2 miles, which is in the Chesterfield County EDA's Upper Magnolia Green – West development. Additionally, Proposed Route 3B collocates with Conceptual Alignment 1B for approximately 1.7 miles, and Alternative Route 3A collocates with Conceptual Alignment 1A for approximately 2.4 miles. While the final alignment of the Powhite Parkway project has not yet been determined, the Company supports Route 3B as the Proposed Route for all of the reasons discussed in Section II.A.9 and the Environmental Routing Study.


Midlothian Substation
Duval Substation
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Powhatan County
Chesterfield County
ANDERSON HWY
MIDLOTHIAN TPKE
HUGUENOT SPRINGS RD
WATKINS CENTRE PKWY
COUNTY LINE RD
HALLSBORO RD
OLD HUNDRED RD
MOSELEY RD
MT HERMON RD
GENITO RD
OTTERDALE RD
DUVAL RD
WOOLRIDGE RD
Holly Hills
Windy Hill Sports
Bethel Cemetery
Mount Sinai Cemetery
Hallsboro
Moseley
Clover Hill Athletic Complex
Otterdale
Brightwalton Rd
Drumone Rd
Garston Ln
Swamp Fox Rd
Sultree Dr
Lake Summer Dr
Jennway Loop
Cabretta Dr
Swift Fox Dr
Foxcreek Xing
Fox Club Pkwy
Fox Light Pkwy
Deep Creek
Otterdale Branch
Swift Creek
Turkey Creek
Horsepen Creek
Blackman Creek
Tomahawk Creek
Woolridge Rd
Duval Rd
Genito Rd
Old Hundred Rd
Oasis Sport
2027-I151
2009-576
219-282-563-153-2066
445 ft
334 ft
352 ft
314 ft
330 ft
Project Location
Dominion Facilities
Existing Substation
Proposed Substation
Existing Dominion Transmission Line
Overhead Route Alternatives
Proposed Route (Route 3B)
Alternative Route 2B
Alternative Route 3A
County Boundary
Planned Powhite Parkway Project* (VDOT)
Irvin G. Horner Park (Chesterfield County)
Upper Magnolia Green - East (Chesterfield County EDA)
Upper Magnolia Green - West (Chesterfield County EDA)
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*Conceptual alignments under review by VDOT
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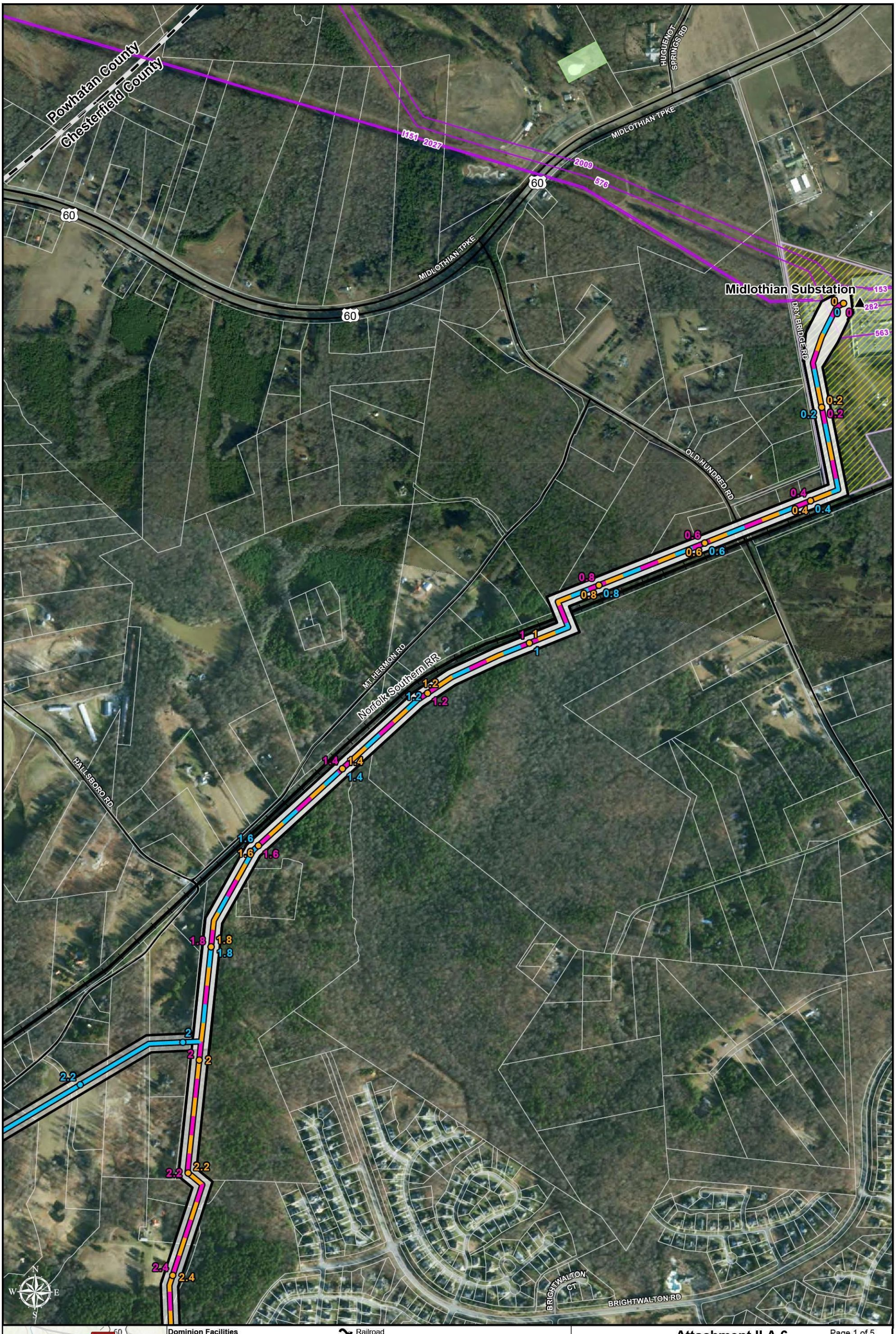
Right-of-Way Subject to New and Existing Easements
Western Chesterfield Electric Transmission Project
Dominion Energy Virginia
Chesterfield County, Virginia
Dominion Energy


Powhatan County
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OLD HUNDRED RD
MT HERMON RD
Norfolk Southern RR
HALLSBORO RD
BRIGHTWALTON CT
BRIGHTWALTON RD
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Dominion Facilities
Existing Substation
Existing Dominion Transmission Line
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Alternative Route 3A
Milepost
Proposed 160-Foot-Wide Right-of-Way
Railroad
Existing Dominion Property Rights
Local Land Ownership
Parcel Boundary
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Right-of-Way Subject to New and Existing Easements
Western Chesterfield Electric Transmission Project
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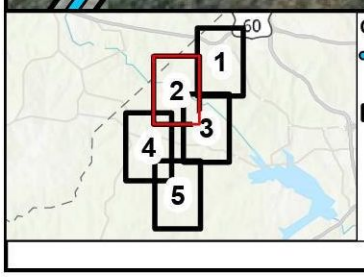

Overhead Route Alternatives
- Alternative Route 2B
- Milepost
- Proposed 160-Foot-Wide Right-of-Way
- Colonial Pipeline
- Railroad
- Parcel Boundary
- North American Land Trust Easement

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ERM

Attachment II.A.6
Right-of-Way Subject to New and Existing Easements
Western Chesterfield Electric Transmission Project
Dominion Energy Virginia
Chesterfield County, Virginia

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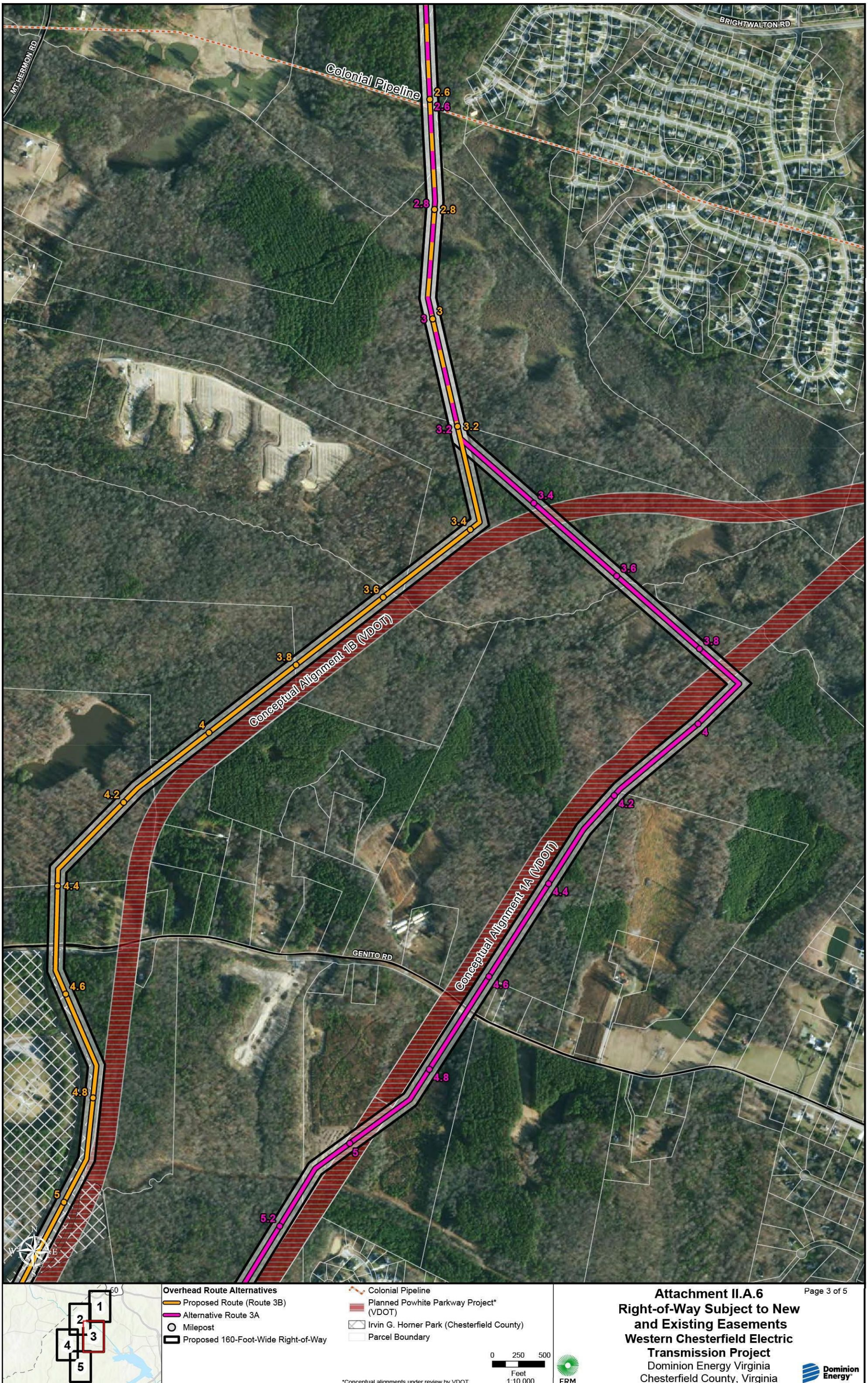
Dominion Energy


MT HERMON RD
BRIGHTWALTON RD
Colonial Pipeline
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5.2
Conceptual Alignment 1B (VDOT)
Conceptual Alignment 1A (VDOT)
GENITO RD
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Overhead Route Alternatives
Proposed Route (Route 3B)
Alternative Route 3A
Milepost
Proposed 160-Foot-Wide Right-of-Way
Colonial Pipeline
Planned Powhite Parkway Project* (VDOT)
Irvin G. Horner Park (Chesterfield County)
Parcel Boundary
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*Conceptual alignments under review by VDOT
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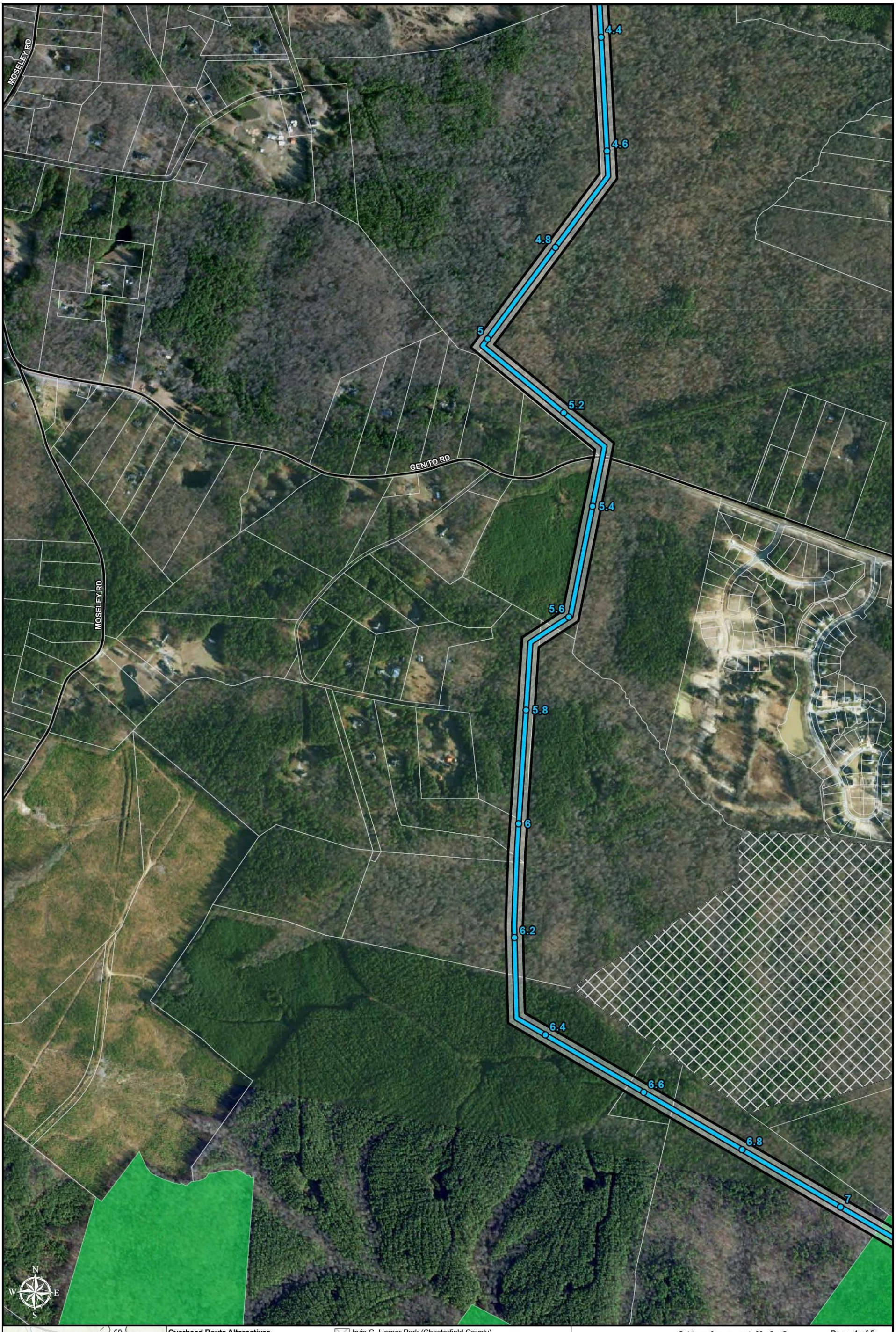

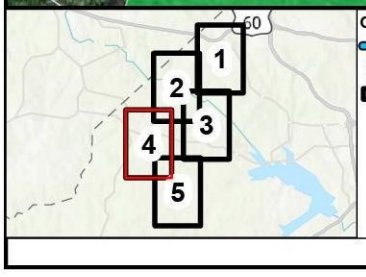

Overhead Route Alternatives
- Alternative Route 2B
- Milepost
- Proposed 160-Foot-Wide Right-of-Way
- Irvin G. Horner Park (Chesterfield County)
- Upper Magnolia Green - West (Chesterfield County EDA)
- Parcel Boundary

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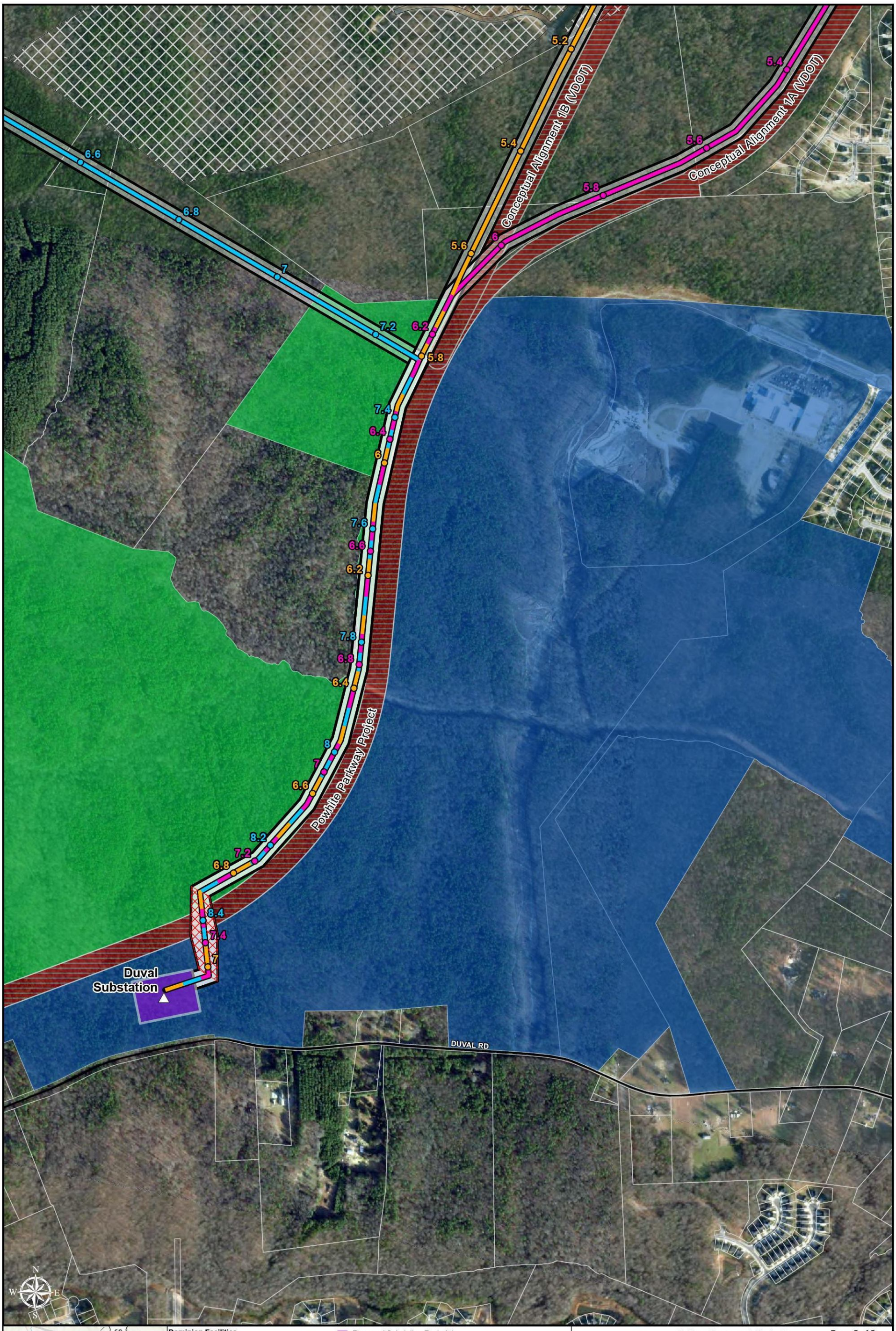
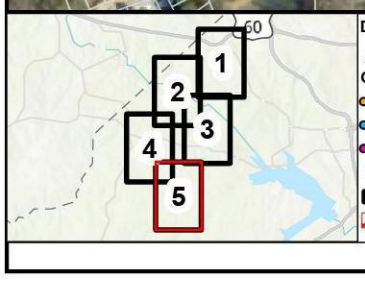
ERM

Attachment II.A.6
Right-of-Way Subject to New and Existing Easements
Western Chesterfield Electric Transmission Project
Dominion Energy Virginia
Chesterfield County, Virginia

Dominion Energy





Dominion Facilities
- Proposed Substation

Overhead Route Alternatives
- Proposed Route (Route 3B)
- Alternative Route 2B
- Alternative Route 3A
- Milepost
- Proposed 160-Foot-Wide Right-of-Way
- Proposed 250-Foot-Wide Right-of-Way
- Proposed Substation Footprint
- Planned Powhite Parkway Project* (VDOT)
- Irvin G. Horner Park (Chesterfield County)
- Upper Magnolia Green - East (Chesterfield County EDA)
- Upper Magnolia Green - West (Chesterfield County EDA)
- Parcel Boundary

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*Conceptual alignments under review by VDOT

ERM

Attachment II.A.6
Right-of-Way Subject to New and Existing Easements
Western Chesterfield Electric Transmission Project
Dominion Energy Virginia
Chesterfield County, Virginia

Dominion Energy

II. DESCRIPTION OF THE PROPOSED PROJECT

A. Right-of-way ("ROW")

7. Detail the proposed ROW clearing methods to be used and the ROW restoration and maintenance practices planned for the proposed project.

Response: The right-of-way for the Proposed Route primarily will be 160 feet wide.[36] Based on anticipated conditions, tree clearing will be required along the majority of the Proposed Route.

Trimming of tree limbs along the edge of the right-of-way also may be conducted to support construction activities for the Project. For any such minimal clearing within the right-of-way where development has already occurred, trees will be cut to no more than three inches above ground level. Trees located outside of the right-of-way that are tall enough to potentially impact the transmission facilities, commonly referred to as "danger trees," may also need to be cut. Danger trees will be cut to be no more than three inches above ground level, limbed, and will remain where felled. Debris that is adjacent to homes will be disposed of by chipping or removal. In other areas, debris may be mulched or chipped as practicable. Danger tree removal will avoid land disturbance in wetland areas and within 100 feet of streams, if applicable. Care will be taken not to leave debris in streams or wetland areas. Matting will be used for heavy equipment in these areas. Erosion control devices will be used where applicable on an ongoing basis during all clearing and construction activities accompanied by weekly Virginia Stormwater Management Program inspections.

Erosion control will be maintained and temporary stabilization for all soil disturbing activities will be used until the right-of-way has been restored. Upon completion of the Project, the Company will restore the right-of-way utilizing site rehabilitation procedures outlined in the Company's *Standards & Specifications for Erosion & Sediment Control and Stormwater Management for Construction and Maintenance of Linear Electric Transmission Facilities* that was approved by the Virginia Department of Environmental Quality ("DEQ"). Time of year and weather conditions may affect when permanent stabilization takes place.

This right-of-way will continue to be maintained on a regular cycle to prevent interruptions to electric service and provide ready access to the right-of-way in order to patrol and make emergency repairs. Periodic maintenance to control woody growth will consist of hand cutting, machine mowing and/or herbicide application.

[36] *See supra*, n. 2.

II. DESCRIPTION OF THE PROPOSED PROJECT

A. Right-of-way ("ROW")

8. Indicate the permitted uses of the proposed ROW by the easement landowner and the Applicant.

Response: Any non-transmission use will be permitted that:

- Is in accordance with the terms of the easement agreement for the right-of-way;
- Is consistent with the safe maintenance and operation of the transmission lines;
- Will not restrict future line design flexibility; and
- Will not permanently interfere with future construction.

Subject to the terms of the easement, examples of typical permitted uses include but are not limited to:

- Agriculture
- Hiking Trails
- Fences
- Perpendicular Road Crossings
- Perpendicular Utility Crossings
- Residential Driveways
- Wildlife / Pollinator Habitat

II. DESCRIPTION OF THE PROPOSED PROJECT

A. Right-of-way ("ROW")

9. Describe the Applicant's route selection procedures. Detail the feasible alternative routes considered. For each such route, provide the estimated cost and identify and describe the cost classification (e.g. "conceptual cost," "detailed cost," etc.). Describe the Applicant's efforts in considering these feasible alternatives. Detail why the proposed route was selected and other feasible alternatives were rejected. In the event that the proposed route crosses, or one of the feasible routes was rejected in part due to the need to cross, land managed by federal, state, or local agencies or conservation easements or open space easements qualifying under §§ 10.1-1009 – 1016 or §§ 10.1-1700 – 1705 of the Code (or a comparable prior or subsequent provision of the Code), describe the Applicant's efforts to secure the necessary ROW.

Response: The Company's route selection for a new transmission line typically begins with identification of the project "origin" and "termination" points provided by the Company's Transmission Planning group. This is followed by the development of a study area for the project. The study area represents a circumscribed geographic area from which potential routes suitable for a transmission line can be identified. The Company also considers the facilities required to construct and operate the new infrastructure, the length of the new right-of-way required for the project, existing and future land uses, the potential for environmental impacts and impacts on communities, constructability, and cost.

For this Project, the Company retained the services of Environmental Resources Management ("ERM") to help collect information within the study area, identify potential routes, perform a routing analysis comparing the route alternatives, and document the routing efforts in an Environmental Routing Study. After review of the new build options, the Company identified one electrical option for the Project, which is located entirely within Chesterfield County, Virginia.

The study area encompasses an area containing the Project origin and termination points, and is bounded by the following features:

- U.S. Route 60 (Midlothian Turnpike), the Company's existing Lines #219, #282, and #576 connecting Midlothian Substation to the north;
- Route 667 (Otterdale Road) to the east;
- Route 605 (Moseley Road) to the west; and
- Route 668 (Duval Road) and the proposed Duval Substation to the south.

ERM initially identified five potential overhead routes for the Duval-Midlothian Lines, which are referred to in the Routing Study as Routes 1A, 1B, 2A, 2B, and 3.[37] Additionally, ERM initially identified five route variations, which are referred to in the Routing Study as the Mount Hermon Route Variations (Mount Hermon Routes 1, 2, and 3),[38] the Powhite Parkway Variation,[39] and the Railroad Collocation Variation.[40]

Of the five route alternatives initially identified, Route 2B was carried forward as a viable route alternative referred to herein as Alternative Route 2B, and Route 3 was carried forward as a viable route alternative referred to herein as Alternative Route 3A. The westernmost routes (*i.e.*, Routes 1A and 1B) were eliminated due to proximity to existing residences and overall length and construction footprint impacts, particularly on affected parcels in Powhatan County. And while Route 2A was initially identified due to the fact that it avoided crossing landowners in Powhatan County and minimized impacts to the number of active planned developments along Genito Road, it subsequently was eliminated due to its longer length when compared to Route 2B and additional impacts to existing residences, as discussed in Section III.B and Attachment III.B.5. See Figure 4.3-1 in Appendix A in the Environmental Routing Study for a map of the rejected overhead routes.

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[37] All five initial routes crossed portions of Chesterfield County EDA's planned Upper Magnolia Green – West (with the proposed Duval Substation on Upper Magnolia Green – East) adjacent to VDOT's Powhite Parkway project.

[38] The Mount Hermon Route Variations consisted of three variations (Mount Hermon Routes 1, 2, and 3) ranging in length from approximately 1.4 to 1.7 miles that were specifically intended to minimize impacts on the planned North Hallsley residential development where the lines exit Midlothian Substation. Based on impacts and because collocation opportunities for other routing options exist, the Mount Hermon Route Variations ultimately were rejected, as discussed herein. *See* Section 4.3.1.2 of the Routing Study and Figure 4.3-1 for a map depicting Mount Hermon Routes 1, 2, and 3.

[39] The Powhite Parkway Variation was developed after VDOT introduced Conceptual Alignment 1B for its Powhite Parkway project. As discussed herein, the Powhite Parkway Variation ultimately became the Proposed Route (Route 3B). *See* Attachment III.B.4 for simulations provided at the January 9, 2025 community meeting that depict the Powhite Parkway Variation. *See also* maps that were on display at the January 9, 2025 open house that depict the Powhite Parkway Variation, which are available on the Project website at: https://cdn-dominionenergy-prd-001.azureedge.net/-/media/pdfs/global/projects-and-facilities/electric-projects/power-line-projects/western-chesterfield/route-overview-map-series-smaller.pdf?rev=dcd436eeeb0e45efaea5b9b423b90b60&hash=874FB9BDC8472E82CBCF31AF65F6977B.

[40] For outreach purposes, all route alternatives carried forward slight modifications to a route variation referred to as the Railroad Collocation Variation during the Project's open house in January 2025. The Railroad Collocation Variation considered collocating along the south side of the Norfolk Southern Railway for the greatest length feasible generally in the area between Old Hundred Road and Hallsboro Road. After receipt of landowner and community feedback, two slight modifications (less than 100 feet shifts) were made to the route variation to minimize impacts on existing residences, planned and potential development, a road extension, and the Hallsboro Store (a listed historic resource). *See* Attachment III.B.4 for simulations provided at the January 9, 2025 community meeting that depict the Railroad Collocation Variation. *See also* maps that were on display at the January 9, 2025 open house that depict the Railroad Collocation Variation, which are available on the Project website at: https://cdn-dominionenergy-prd-001.azureedge.net/-/media/pdfs/global/projects-and-facilities/electric-projects/power-line-projects/western-chesterfield/route-overview-map-series-smaller.pdf?rev=dcd436eeeb0e45efaea5b9b423b90b60&hash=874FB9BDC8472E82CBCF31AF65F6977B.

As to the route variations initially identified, the Mount Hermon Route Variations (Mount Hermon Routes 1, 2, and 3) were eliminated due to added length, proximity to existing residences on Mount Hermon Road and Mt. Sinai Baptist Church (020-0405), a locally significant historic resource, and failure to utilize a crossing of existing Company property rights (*i.e.*, the Midlothian Substation parcel) or collocate alongside the existing Norfolk Southern Railway. Given its shorter length, the Powhite Parkway Variation was carried forward as a viable route alternative identified herein as the Proposed Route (Route 3B) after receipt of landowner and community feedback to follow VDOT's Powhite Parkway project (Conceptual Alignment 1B) where possible in order to minimize impacts on potential and planned development located widely throughout the Project study area. Based on feedback at the open house in January 2025, a slight modification to the Railroad Collocation Variation was incorporated into all of the viable route alternatives—the Proposed Route (Route 3B), Alternative Route 2B, and Alternative Route 3A. See Figure 4.3-1 in Appendix A in the Environmental Routing Study for a map of the rejected overhead route variations.

Discussion of routes and variations that were studied by ERM but ultimately rejected—including overhead, underground, or overhead/underground hybrid routes—is provided in Section 4.3 of the Routing Study. In addition to those alternative routes, the Company's Underground Engineering group reviewed underground construction of the Duval-Midlothian Lines and determined that while it is permittable and technically feasible to route the underground lines following the overhead Proposed Route (Route 3B), constructing the Project in such a manner would require an additional five years for completion (2033), meaning it could not meet the need date for the Project (June 1, 2028). The Underground Engineering group further determined that constructing the Duval-Midlothian Lines underground would cost approximately $902.4 million—more than nine times the transmission-related costs associated with overhead construction of the lines along the Proposed Route (Route 3B) of approximately $93.1 million. For these reasons, the Company rejected underground construction of the Duval-Midlothian Lines along the overhead Proposed Route (Route 3B).[41]

The table below provides a comparison summary of the key differences in resources affected by each route alternative relevant to route selection for the Duval-Midlothian Lines.

[41] If the Commission were to select underground construction of the Duval-Midlothian Lines along the overhead Proposed Route (Route 3B), the Company asserts that all property owners along Route 3B would have received notice that the route is proposed as overhead but underground construction could be chosen. The same would be true for overhead/underground hybrid construction of the lines along the overhead Proposed Route (Route 3B), with the location of a transition station subject to local approvals as needed and at the appropriate time. *See* Section 4.3.2 of the Routing Study for discussion of underground and overhead/underground hybrid construction of the Duval-Midlothian Lines and the challenges associated with constructing the Project underground. *See also*, *supra* n. 7.

Comparison of Route Alternatives

Resource	Unit	Proposed Route (Route 3B)	Alternative Route 2B	Alternative Route 3A
Total length	miles	7.1	8.6	7.5
Total construction footprint	acres	139.4	168.1	147.9
Collocation with existing and planned linear facilities	miles	5.2	3.7	5.4
Collocation with existing and planned linear facilities	percent of total	73%	43%	71%
County or EDA lands crossed	miles	1.6	1.3	1.2
Industrial/commercial zoned lands crossed [a]	percent of total	31%	31%	26%
Residential zoned lands crossed [a]	percent of total	19%	39%	24%
Existing residences within 500 feet of route centerline	number	17	18	19
Planned developments crossed [b]	acres	38.3	77.4	50.4
Planned developments crossed [b]	percent of total	34%	59%	40%
Existing and future roads crossed	number	5	7	11
Forested wetland impacts	acres	16.9	12.4	19.3
Waterbodies crossed	number	22	29	24
Permanent forest impacts	acres	131.4	160.7	142.0

EDA = Chesterfield County Economic Development Authority
[a] Includes existing zoning districts (Chesterfield County 2019) and parcels associated with rezoning cases (Chesterfield County 2025b, 2025d, 2025e) as of April 2025.
[b] As of April 2025 (Chesterfield County 2025b, 2025d, 2025e)

The three viable overhead route alternatives for the proposed Duval-Midlothian Lines identified between the Company's existing Midlothian Substation and the proposed Duval Substation[42] are discussed in more detail below and in the Environmental Routing Study. The transmission-related estimated conceptual costs associated with the route alternatives are provided in Section I.I.

[42] The proposed Duval Substation footprint consists of approximately 5.1 acres of forested land located within the County EDA's Upper Magnolia Green – East property. Based on ERM's desktop wetland and waterbody analysis, no streams and less than 0.1 acre of wetlands were identified within the proposed Duval Substation footprint. To the extent impacts are described herein for the Proposed and Alternative Routes, they are in addition to the Duval Substation impacts.

Proposed and Alternative Routes

Proposed Route (Route 3B)

The Proposed Route would involve constructing two new double circuit overhead 230 kV transmission lines (for a total of four circuits) on primarily double circuit monopoles in a new primarily 160-foot-wide right-of-way beginning at the Company's existing Midlothian Substation and extending approximately 7.1 miles to the proposed Duval Substation.

From the existing Midlothian Substation, the Proposed Route heads southeast and collocates along Dry Bridge Road and the Norfolk Southern Railway for about 1.6 miles. The Proposed Route then runs south and southeast across large, forested parcels, following parcel boundaries to the extent practicable, for approximately 1.8 miles to avoid existing and planned residential areas along Old Hundred Road and Mount Hermon Road. The Proposed Route then turns southwest and collocates along the Powhite Parkway project's Conceptual Alignment 1B for about 2.5 miles, with the exception of an approximately 0.7-mile segment near Genito Road where the route veers away from Conceptual Alignment 1B to avoid an existing residence. The Proposed Route continues 1.2 miles on the Upper Magnolia Green – West development, still collocating along the west side the planned Powhite Parkway project before crossing the planned highway to reach the proposed Duval Substation site from the east on the Upper Magnolia Green – East development.

The Proposed Route measures approximately 7.1 miles long. The right-of-way for the Proposed Route (139.4 acres) and the proposed Duval Substation site (5.1 acres) would encompass a combined 144.5 acres.

The Proposed Route crosses 33 parcels. Of these 33 parcels, four parcels are publicly owned. The Proposed Route crosses approximately 0.4 mile (5.3 acres) of three County-owned parcels encompassing Horner Park off Genito Road. The Proposed Route crosses approximately 1.2 miles (25.0 acres) of one parcel owned by Chesterfield County's EDA, mostly within the Upper Magnolia Green – West property. The Company coordinated with Chesterfield County and EDA to determine there were no conflicts with a crossing of the Duval-Midlothian Lines across these public lands. The Proposed Route crosses these public lands for approximately 1.6 miles and collocates alongside existing and planned linear corridors where feasible, such as Mount Hermon Road and the planned Powhite Parkway project alignments.

Land use along the Proposed Route right-of-way consists of 131.4 acres of forested land, 1.3 acres of agricultural land, 5.1 acres of open space, 1.6 acres of developed land, and 0.0 acre of open water.

Based on ERM's desktop wetland and waterbody analysis, the right-of-way of the Proposed Route will encompass approximately 13.7% (19.1 acres) of land with a medium or higher probability of containing wetlands and waterbodies. Of the approximately 19.1 acres, the majority (16.9 acres) consists of forested wetlands.

The Proposed Route crosses 22 waterbodies, 14 of which are mapped by the National Hydrography Dataset ("NHD"), including six crossings of perennial streams, including Swift Creek, Turkey Creek, Otterdale Branch, and Horsepen Creek, and eight unnamed, intermittent streams. Additionally, ERM identified eight unnamed, unclassified streams within the right-of-way using recent (2025) aerial imagery.

The Proposed Route (Route 3B) was considered because it is the shortest route, has the greatest amount of collocation with existing and planned linear facilities, and crosses commercial and industrial-zoned lands to the greatest extent and therefore has the smallest impact on residential areas. Importantly, the Proposed Route collocates alongside existing (such as the Norfolk Southern Railway railroad) and planned (such as the VDOT Powhite Parkway project) corridors (up to 73% of the total length)[43] to minimize overall impacts to existing residential areas and planned developments[44] crossed to the maximum extent practicable. While the alignment of the VDOT Powhite Parkway project has not yet been selected, the Proposed Route would collocate along a portion of the corridor where no conceptual alignment is located (*i.e.*, on Chesterfield County EDA's Upper Magnolia Green – West property for approximately 1.2 miles). Further, while all of the route alternatives cross parcels associated with planned developments, the Proposed Route crosses the least amount of planned residential developments (about 10% of its total length) compared to Alternative Route 3A (12%) and Alternative Route 2B (34%). Further, the Company coordinated with Riverstone Properties and Chesterfield County EDA regarding planned developments—the North Hallsley Rezoning and Upper Magnolia Green, respectively, where all of the routes cross. The Proposed Route maximizes collocation opportunities with like uses (transportation and industrial), and therefore, it minimizes overall impacts to forest fragmentation, viewsheds, and existing and planned developments.

Alternative Route 2B

Alternative Route 2B would involve constructing two new double circuit overhead 230 kV transmission lines (for a total of four circuits) on primarily circuit monopoles in a new primarily 160-foot-wide right-of-way beginning at the Company's existing Midlothian Substation and extending approximately 8.6 miles to the proposed Duval Substation.

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[43] The Company notes that the Proposed Route collocates alongside existing and planned facilities for up to approximately 73% of its total length, which includes an approximately 1.7-mile segment collocating along VDOT's Powhite Parkway project Conceptual Alignment 1B. If Conceptual Alignment 1B is not selected to be built, the Proposed Route also collocates with Mount Hermon Road for approximately 0.5 mile in that area.

[44] ERM and the Company considered "planned" development—defined as development of any type for which a plan has been submitted to the County for review or has been recently approved—as formal routing constraints and/or opportunities. The Company also met with owners and land developers who discussed other potential future land development concepts. The Company considered these "potential" developments—land development projects for which a formal plan has not yet been filed with the County—where appropriate and feasible during routing but did not consider potential development to be a formal constraint or opportunity. Further discussion is provided in Section 5.1.6 of the Environmental Routing Study.

From the existing Midlothian Substation, Alternative Route 2B follows the same alignment as the Proposed Route (Route 3B) for about 2.0 miles. The route then deviates from the Proposed Route alignment and turns south and southwest, crossing parcels south of Mount Hermon Road for about 1.1 miles. The route then turns northwest to follow a Colonial Pipeline and collocates along the south side of the Norfolk Southern Railway railroad for about 0.8 mile. The route turns south and follows boundaries of forested parcels for about 1.5 miles to Genito Road. Alternative Route 2B next crosses Genito Road and continues south then southeast, crossing forested parcels, including those associated with the Upper Magnolia Green – West development, for about 2.0 miles. Alternative Route 2B reaches the Chesterfield County EDA's Upper Magnolia Green – West parcel and continues in the same path as the Proposed Route for 1.2 miles to reach the proposed Duval Substation site on the Upper Magnolia Green – East development.

Alternative Route 2B measures approximately 8.6 miles long. The right-of-way for Alternative Route 2B (168.1 acres) and the proposed Duval Substation site (5.1 acres) would encompass a combined 173.2 acres.

Alternative Route 2B crosses 35 parcels. Of these 35 parcels, one is publicly owned by the Chesterfield County EDA (primarily the planned Upper Magnolia Green – West development). Alternative Route 2B crosses approximately 1.3 miles of land owned by the EDA, which is about 0.1 mile longer than the Proposed Route and Alternative Route 3A. Land use along the Alternative Route 2B right-of-way currently consists of 160.7 acres of forested land, 2.0 acres of agricultural land, 3.7 acres of open space, 1.6 acres of developed land, and 0.0 acre of open water.

Based on ERM's desktop wetland and waterbody analysis, the right-of-way of Alternative Route 2B will encompass approximately 8.4% (14.1 acres) of land with a medium or higher probability of containing wetlands and waterbodies. Of the approximately 14.1 acres, the majority (12.4 acres) consists of forested wetlands. Alternative Route 2B crosses 29 waterbodies, 16 of which are mapped by NHD, including four crossings of perennial streams, including Swift Creek, Turkey Creek, Otterdale Branch, and Horsepen Creek, and 12 unnamed, intermittent streams. Additionally, ERM identified 13 unnamed, unclassified streams, and one open waterbody feature within the right-of-way using recent (2025) aerial imagery.

Alternative Route 2B was considered because it collocates with both existing and planned facilities for up to 43% of its entire route length, which is less than the Proposed Route (up to 73%) and Alternative Route 3A (up to 71%, assuming Conceptual Alignment 1A is selected for the Powhite Parkway project). Alternative Route 2B crosses the greatest length of current and proposed industrial-zoned lands, including lands owned by the EDA and part of the Upper Magnolia Green – West development, for about 2.6 miles total, or about 30% of the total route), making it a viable alternative. Alternative Route 2B crosses the greatest amount of properties associated with a planned development (59% as compared to 34% and 40% for the Proposed Route and Alternative Route 3A, respectively), but do not include developments under construction based on recent (2025) aerial imagery.

Alternative Route 3A

Alternative Route 3A would involve constructing two new double circuit overhead 230 kV transmission lines (for a total of four circuits) on primarily double circuit monopoles in a new primarily 160-foot-wide right-of-way beginning at the Company's existing Midlothian Substation and extending approximately 7.5 miles to the proposed Duval Substation.

From the existing Midlothian Substation, Alternative Route 3A follows the same alignment as the Proposed Route for about 3.2 miles. Alternative Route 3A then deviates from the Proposed Route alignment for 0.7 mile to follow VDOT's Powhite Parkway project Conceptual Alignment 1A. Alternative Route 3A crosses VDOT's Conceptual Alignment 1A and collocates along the eastern side of the alignment for about 1.0 mile. South of Genito Road, Alternative Route 3A then crosses the conceptual highway alignment to the west and collocates alongside Conceptual Alignment 1A heading southwest for about 1.4 miles. Alternative Route 3A reaches the northern extents of the EDA's Upper Magnolia Green – West development and continues in the same path as the Proposed Route for 1.2 miles to reach the proposed Duval Substation from the east on the Upper Magnolia Green – East development.

Alternative Route 3A measures approximately 7.5 miles long. The right-of-way for Alternative Route 3A (147.9 acres) and the proposed Duval Substation site (5.1 acres) would encompass a combined 153.1 acres.

Alternative Route 3A crosses 27 parcels. Of these 27 parcels, one is publicly owned by the Chesterfield County EDA (primarily the Upper Magnolia Green – West development), and it crosses approximately 1.2 miles (25.0 acres) of that property. Land use along Alternative Route 3A right-of-way consists of 142.0 acres of forested land, 1.3 acres of agricultural land, 3.3 acres open space, 1.3 acres of developed land, and 0.0 acre of open water.

Based on ERM's desktop wetland and waterbody analysis, Alternative Route 3A's right-of-way will encompass approximately 14.5% (21.4 acres) of land with a medium or higher probability of containing wetlands and waterbodies. Of the approximately 21.4 acres, the majority (19.3 acres) consists of forested wetlands. Alternative Route 3A crosses 24 waterbodies, 16 of which are NHD-mapped waterbodies, including six crossings of perennial streams, including Swift Creek, Turkey Creek, Otterdale Branch, and Horsepen Creek, and 10 unnamed, intermittent streams. Additionally, ERM identified eight unnamed, unclassified streams, and one open waterbody feature within the right-of-way using recent (2025) aerial imagery.

Alternative Route 3A was considered because, similar to the Proposed Route, Alternative Route 3A, it collocates with existing and planned facilities (up to 71%

of its total length[45]) and crosses land owned by the Chesterfield County EDA, primarily its Upper Magnolia Green – West development, making it a viable alternative to the Proposed Route. While collocation opportunities are available for Alternative Route 3A, at least three crossings of the Powhite Parkway project could be required regardless of which conceptual alignment (Conceptual Alignment 1A or Conceptual Alignment 1B) is selected—the most for any route. Additionally, three of the four planned developments crossed by Alternative Route 3A are proposed single-family residential and a community resource (*i.e.*, FC Richmond's soccer complex). Alternative Route 3A is in closer proximity to existing residences and existing subdivisions overall than all other routes considered. And while viewsheds are generally minimized and/or obstructed by intervening vegetation and topography from most key observation points (see Attachment III.B.4), the Company received feedback from the community opposing Alternative Route 3A due to its proximity to existing subdivisions including Hallsley and Summer Lake and crossing the Swift Creek Berry Farm along Genito Road. Additionally, all planned developments crossed by Alternative Route 3A have received zoning approval or are under construction based on recent (2025) aerial imagery, which includes residential development.

Summary of Route Analysis

The Proposed Route is the shortest route, with the smallest construction footprint of all routes considered. Between the two alternative routes, Alternative Route 3A is shorter than Alternative Route 2B. While Alternative Route 3A crosses the fewest number of parcels of all routes considered, the Proposed Route has the greatest utilization of publicly owned parcels, which minimizes impacts on private parcels. There are no residences within 100 feet of the centerline for any of the route alternatives. The Proposed Route has one and two fewer residences within 500 feet than Alternative Route 2B and Alternative Route 3A, respectively. The Proposed Route crosses commercial and industrial zoned lands to the greatest extent and crosses residential zoned lands to the least extent (as a percentage of total length). To that end, the Proposed Route has the fewest crossings and shortest extent of crossings of planned residential and other developments[46] (as of April 2025). Overall, Alternative Route 2B crosses the greatest amount of areas planned for development (59%, as compared to 34% and 40% for the Proposed Route and Alternative Route 3A, respectively).

Given the changing land use and planned developments occurring in the Western Chesterfield Load Area, the Project team evaluated potential collocation opportunities with existing and planned linear facilities, including a Norfolk Southern Railway railroad, roadways and VDOT's Powhite Parkway project, for the Duval-Midlothian Lines. While Alternative Route 2B collocates with existing

[45] The Company notes that Alternative Route 3A collocates alongside existing and planned facilities for up to approximately 71% of its total length, which includes an approximately 2.3-mile segment collocating along VDOT's Powhite Parkway project Conceptual Alignment 1A. If Conceptual Alignment 1A is not selected to be built, Alternative Route 3A does not collocate with other existing or planned facilities in that area.

[46] *See supra*, n. 44.

linear facilities for the greatest length for all routes considered, it is the longest route. Overall, the Proposed Route has the greatest amount (as a percentage of total length) of collocation with existing and planned linear facilities, thus minimizing conflict between the rights-of-way and present and prospective uses of affected lands. The Proposed Route and Alternative Route 3A collocate with planned roads for a greater length than Alternative Route 2B, including the Conceptual Alignments 1A and 1B for the Powhite Parkway project, which are not a collocation opportunity for Alternative Route 2B. The Proposed Route also minimizes conflict with the Powhite Parkway project as it requires only one crossing of the planned limited access highway to reach the proposed Duval Substation, whereas Alternative Route 3A would require three crossings.

More than 90% of all routes cross forested lands. The Proposed Route has the smallest impact on forested areas, whereas Alternative Route 2B impacts approximately 19 or 29 acres more forested lands than Alternative Route 3A and the Proposed Route, respectively. Alternative Route 2B impacts the fewest number of NHD wetlands (about 5.0 and 7.3 acres less than the Proposed Route and Alternative Route 3A, respectively), but the Proposed Route crosses the fewest number of streams (22 versus 24 for Alternative Route 3A and 29 for Alternative Route 2B). No previously recorded archaeological sites were identified within or adjacent to the rights-of-way for any route alternative. Five aboveground historic resources were identified within the DHR study tiers for all three route alternatives. There would be no visibility of the Project infrastructure from four aboveground historic resources; however, all routes pass within 300 feet of the Hallsboro Store, an NRHP-listed historic resource (DHR ID: 020-0407), in a shared alignment.

Based on this analysis, the Company and ERM selected Route 3B as the Proposed Route for the Duval-Midlothian Lines as it avoids or reasonably minimizes adverse impact to the greatest extent reasonably practicable on the scenic assets, historic and cultural resources, and environment of the area concerned. The Proposed Route is the shortest route and overall has the least construction footprint for the proposed primarily 160-foot-wide right-of-way. See Sections 4 and 5 of the Environmental Routing Study for a discussion of resources and comparison of impacts by each route.

II. DESCRIPTION OF THE PROPOSED PROJECT

A. Right-of-way ("ROW")

10. Describe the Applicant's construction plans for the project, including how the Applicant will minimize service disruption to the affected load area. Include requested and approved line outage schedules for affected lines as appropriate.

Response: The Company plans to construct the Project in a manner that minimizes outage times on the lines and substation busses at Midlothian Substation. Assuming the Commission issues a final order by February 1, 2026, and construction commences around February 2027, the reconfiguration of lines at Midlothian Substation will start in Spring 2027. This work will require a number of short outages between Spring 2027 and Summer 2028 on Lines #282, #2009, #2027, and #576, along with miscellaneous substation equipment at Midlothian Substation. Most of the outages will be less than 28 days. No customers should be disrupted as a result of these outages, as all distribution service should be maintained. As noted in Section I.H of the Appendix, the Company estimates that construction of the Project will be completed by June 1, 2028.

The Company intends to complete this work during requested outage windows, as described above. However, as with all outage scheduling, these timeframes may change depending on whether PJM approves the outages and other relevant considerations allow for it. It is customary for PJM to hold requests for outages and approve only shortly before the outages are expected to occur and, therefore, the requested outages are subject to change. Therefore, the Company will not have clarity on whether this work will be done as requested until very close in time to the requested outages. If PJM approves different outage dates, the Company will continue to diligently pursue timely completion of this work.

II. DESCRIPTION OF THE PROPOSED PROJECT

A. Right-of-way ("ROW")

11. Indicate how the construction of this transmission line follows the provisions discussed in Attachment 1 of these Guidelines.

Response: Attachment 1 to these Guidelines provides a tool routinely used by the Company in routing its transmission line projects.

The Company utilized Guideline #1 (To the extent permitted by the property interest involved, rights-of-way should be selected with the purpose of minimizing conflict between the rights-of-way and present and prospective uses of the land on which they are to be located) by meeting with landowners and developers and minimizing conflict between the proposed right-of-way and present and prospective uses of the land on which the proposed Project is to be located.

The proposed Project is consistent with Guideline #2 (where practical, rights of-way should avoid sites listed on the National Register of Historic Places ("NRHP")), as it will have no impact to any site listed on the NRHP. A Stage I Pre-Application Analysis prepared by ERM on behalf of the Company is included with the Routing Study as Appendix G and was submitted to the Virginia Department of Historic Resources ("VDHR") on April 23, 2025.

The Company communicated with local, state, and federal agencies and relevant private organizations prior to filing this Application consistent with Guideline #4 (where government land is involved the applicant should contact the agencies early in the planning process). In particular, the Company consulted with Chesterfield County EDA and VDOT. See Sections III and V of this Appendix.

The Company follows recommended construction methods in the Guidelines on a site-specific basis for typical construction projects (Guidelines #8, #10, #11, #15, #16, #18, and #22).

The Company follows recommended guidelines in clearing right-of-way, constructing facilities, and maintaining rights-of-way after construction. Moreover, secondary uses of right-of-way that are consistent with the safe maintenance and operation of facilities are permitted.

II. DESCRIPTION OF THE PROPOSED PROJECT

A. Right-of-way ("ROW")

12. a. Detail counties and localities through which the line will pass. If any portion of the line will be located outside of the Applicant's certificated service area: (1) identify each electric utility affected; (2) state whether any affected electric utility objects to such construction; and (3) identify the length of line(s) proposed to be located in the service area of an electric utility other than the Applicant; and

b. Provide three (3) color copies of the Virginia Department of Transportation "General Highway Map" for each county and city through which the line will pass. On the maps show the proposed line and all previously approved and certificated facilities of the Applicant. Also, where the line will be located outside of the Applicant's certificated service area, show the boundaries between the Applicant and each affected electric utility. On each map where the proposed line would be outside of the Applicant's certificated service area, the map must include a signature of an appropriate representative of the affected electric utility indicating that the affected utility is not opposed to the proposed construction within its service area.

Response: a. The 7.1-mile proposed Project is located entirely within Chesterfield County, Virginia, and Dominion Energy Virginia's service territory.

b. An electronic copy of the VDOT "General Highway Map" for Chesterfield County has been marked as required and submitted with the Application. A reduced copy of the map is provided as Attachment II.A.12.b.