II. DESCRIPTION OF THE PROPOSED PROJECT

A. Right-of-way (ROW)

9. 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) advise of each electric utility affected; (2) whether any affected electric utility objects to such construction and (3) the length of line proposed to be located in the service area of an electric utility other than the applicant;

b. Provide three (3) copies of the Virginia Department of Transportation “General Highway Map” of 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 showing the line outside of the applicant’s certificated service area, have the appropriate individual of the affected electric utility sign if his/her company is not opposed to the proposed construction.

Response: a. Approximately 28.7 miles of the Project are within Augusta County and approximately 10.4 miles are within Rockbridge County. Shenandoah Valley Electric Cooperative (“SVEC”) is the service provider for approximately 22.6 miles of the existing corridor, and BARC Electric Cooperative (“BARC”) is the service provider for approximately 7.7 miles. The remaining approximately 8.8 miles of the Project is located within Dominion Virginia Power’s service territory. BARC and SVEC do not object to Dominion Virginia Power’s construction of the Project.

b. Three copies of the Augusta and Rockbridge County maps are marked as required and have been submitted to the Commission’s Division of Energy Regulation. These maps reflect Virginia Department of Transportation and other road data obtained from Navteq and County data. Reduced copies of the Augusta and Rockbridge maps are provided as Attachment II.A.9.b.1 and 2, respectively.
II. DESCRIPTION OF THE PROPOSED PROJECT

B. Line Design and Operational Features

1. Detail number of circuits and their design voltage and transfer capabilities.

Response: The Project proposes to locate a single circuit 230 kV Line #2168 with a transfer capability of 1047 MVA and the approved 500 kV Rebuild on the 500/230 kV double circuit structures modified as described in this Application.
II. DESCRIPTION OF THE PROPOSED PROJECT

B. Line Design and Operational Features

2. Detail number, size(s), type(s), and typical configurations of conductors;

Response: The proposed 230 kV circuit for the Project, located on structures with the 500 kV Rebuild described in Section II.B.3 and 4, will have twin-bundled 636 ACSR phase conductors arranged as shown in Attachments II.A.3.b, d, f, h, and j.
II. DESCRIPTION OF THE PROPOSED PROJECT

B. Line Design and Operational Features

3. With regard to the proposed supporting structures over each portion of the ROW provide:
   a. types of structures;
   b. length of ROW with each type of structure;
   c. material for typical structure (steel, oxidizing steel, etc.);
   d. foundation material;
   e. width at cross arms of typical structure;
   f. width at base of typical structures;
   g. typical span length;
   h. approximate average heights of structures;
   i. a schematic drawing of each typical structure; and
   j. minimum conductor-to-ground clearance under maximum operating conditions

Response: (Attachment II.A.3.b)
   a. Structure type — Lattice Steel Tower
   b. ROW length — approximately 3.56 miles
   c. Structure material — Galvanized Steel
   d. Foundation material — Concrete
   e. Cross arm width of typical structure — 94.5 feet
   f. Base width of typical structure — 37 feet
   g. Average span length — 1105 feet
   h. Approximate average structure height — 137 feet
   i. Typical structure — see Attachment II.A.3.b
   j. Minimum clearance over ground — 22.5 feet

(Attachment II.A.3.d)
   a. Structure type — Lattice Steel Tower
   b. ROW length — approximately 21.49 miles
   c. Structure material — Galvanized Steel
   d. Foundation material — Concrete
e. Cross arm width of typical structure — 94.5 feet
f. Base width of typical structure — 37 feet
g. Average span length — 1113 feet
h. Approximate average structure height — 141 feet
i. Typical structure — see Attachment II.A.3.d
j. Minimum clearance over ground — 22.5 feet

(Attachment II.A.3.f)
a. Structure type — Lattice Steel Tower
b. ROW length — approximately 9.13 miles
c. Structure material — Galvanized Steel
d. Foundation material — Concrete
e. Cross arm width of typical structure — 94.5 feet
f. Base width of typical structure — 40 feet
g. Average span length — 1120 feet
h. Approximate average structure height — 148 feet
i. Typical structure — see Attachment II.A.3.f
j. Minimum clearance over ground — 22.5 feet

(Attachment II.A.3.h)
a. Structure type — Lattice Steel Tower
b. ROW length — approximately 1.32 miles
c. Structure material — Galvanized Steel
d. Foundation material — Concrete
e. Cross arm width of typical structure — 94.5 feet
f. Base width of typical structure — 40 feet
g. Average span length — 1161 feet
h. Approximate average structure height — 150 feet
i. Typical structure — see Attachment II.A.3.h
j. Minimum clearance over ground — 22.5 feet

(Attachment II.A.3.j)
a. Structure type — Lattice Steel Tower
b. ROW length — approximately 3.59 miles

c. Structure material — Galvanized Steel

d. Foundation material — Concrete

e. Cross arm width of typical structure — 94.5 feet

f. Base width of typical structure — 37 feet

g. Average span length — 1,114 feet

h. Approximate average structure height — 139 feet

i. Typical structure — see Attachment II.A.3.j

j. Minimum clearance over ground — 22.5 feet
II. DESCRIPTION OF THE PROPOSED PROJECT

B. Line Design and Operational Features

4. Describe why the proposed structure type(s) was selected for this line.

Response: The proposed Project will be located on the structures supporting the 500 kV Rebuild. The Company, as part of this application, proposes modified structures to those proposed and approved in that case.

Following the Commission's approval of the 500 kV Rebuild, the Company created a new design of the tower geometry for the double circuit galvanized steel 500/230 kV lattice tower to increase the vertical clearance between the 500 kV and 230 kV circuits for the 500 kV Relocation and the Project. The modified design set forth in Section II.B.3 is more beneficial than the prior design approved in Case No. PUE-2012-00134, because it will provide circuit-to-circuit clearance for the installation of the Company's standard ACSR conductor for both the 500 kV circuit associated with the 500 kV Rebuild and the underbuilt 230 kV circuit for the Project. This structure design also improves the working clearance for maintenance purposes.

This improved design has resulted in an increase in the approximate average height of the proposed towers and the cross arm width, as shown in Attachments II.A.3.b, d, f, h, and j compared to the previously approved towers. These structures represent an increase ranging between 2 and 14 feet in the approximate average height, and 10.5 feet in cross arm width compared to the structures approved for the 500 kV Rebuild.
II. DESCRIPTION OF THE PROPOSED PROJECT

C. Describe and furnish plan drawings of all new substations, switching stations, and other ground facilities associated with the proposed project.

Response: This Project requires work at Dominion Virginia Power’s existing Lexington and Dooms Stations.

At Dooms Station, the fence will be extended to the east within Dominion Virginia Power’s existing property. One new 230 kV breaker row will be added next to the existing 230 kV breaker rows. The 230 kV equipment to be installed will consist of two 3000A circuit breakers, five 3000A switches, three coupling capacitor voltage transformers ("CCVTs"), three surge arresters, one 3000A wave trap, control panels and associated equipment.

At Lexington Station, the fence will be extended to the north within the property currently owned by the Company. The extended area will be used to install aluminum rigid bus between the existing 230 kV bus and up to a point near the last transmission structure supporting the proposed line. In addition to the bus work, one 3000A breaker, two 3000A switches, three CCVTs, three surge arresters, one 3000A wave trap, control panels and associated equipment will be installed.

Also at both stations, clearing and grading work will be required and the ground grid will be extended to the expanded area.

One-line drawings for Dooms and Lexington Stations are provided as Attachments II.C.1 and II.C.2, respectively. The general arrangements for Dooms and Lexington Stations are provided as Attachments II.C.3 and II.C.4, respectively.
III. IMPACT OF LINE ON SCENIC, ENVIRONMENTAL AND HISTORIC FEATURES

A. Describe the character of the area which will be traversed by this line, including, land use, wetlands, etc. Provide the number of dwellings within 500 feet of the line for each route considered.

Response: The Project crosses portions of Augusta and Rockbridge Counties, including approximately 22.6 miles of SVEC service territory, 7.7 miles of BARC service territory and 8.8 miles of the Company’s service territory.

No new structures are proposed for the Project beyond the five new structures required to connect to the Company’s Dooms Station. There are minimal incremental ground impacts of the Project beyond those considered in the 500 kV Rebuild.

The general character of the Project area is predominantly rural with agricultural and scattered residential uses, and occasional areas of commercial/industrial and residential development in the vicinity of the communities of Fishersville and Dooms at the northern end of the route.

A desktop wetlands review of the transmission line corridor evaluating potential impacts on wetlands and streams from the Project was prepared in September 2012 and submitted to the Virginia Department of Environmental Quality (“DEQ”). Based on several desktop resources including NWI mapping, aerial photography, color infrared photography, U.S. Geological Survey (“USGS”) Digital Elevation Models, USGS topographic maps, USGS National Hydrography Dataset (“NHD”), and U.S. Department of Agriculture Natural Resource Conservation Service soil survey data, probable wetland areas along the transmission line corridor were identified and assigned a probability ranking ranging from high probability to very low probability using criteria that are specified in the evaluation report. The results of the evaluation are summarized in the following table:

<table>
<thead>
<tr>
<th>Probability</th>
<th>Total Acres</th>
<th>Forested</th>
<th>Scrub-Shrub</th>
<th>Emergent</th>
<th>Open Water</th>
</tr>
</thead>
<tbody>
<tr>
<td>High</td>
<td>0.6</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.6</td>
</tr>
<tr>
<td>Medium/High</td>
<td>2.9</td>
<td>0.0</td>
<td>0.0</td>
<td>0.6</td>
<td>2.3</td>
</tr>
<tr>
<td>Medium</td>
<td>8.3</td>
<td>0.2</td>
<td>1.8</td>
<td>5.4</td>
<td>0.9</td>
</tr>
<tr>
<td>Medium/Low</td>
<td>15.5</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Low</td>
<td>40.7</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
</tbody>
</table>

N/A = Not applicable because areas assigned a probability based on the presence of hydric soils alone do not have an associated cover type.
In addition to the information presented above, approximately 826.1 acres had no indication of wetlands.

Although the existing transmission line right-of-way is maintained and generally clear of trees, the desktop review found a medium probability that 0.2 acre of forested wetlands could be impacted by the project. Based on NHD, the Project centerline crosses 12 perennial streams and 39 intermittent streams.

The DEQ completed its review of the Company’s September 2012 desktop wetlands analysis for the 500 kV Rebuild and advised in response dated November 7, 2012, that a wetland delineation be conducted and verified by the U.S. Army Corps of Engineers. The DEQ response was included as Attachment 2.D.2 of the DEQ Supplement for the 500 kV Rebuild, and the Company will follow this directive and obtain any necessary permits prior to construction of the combined projects. A description of the incremental impacts of the Project compared to the 500 kV Rebuild is presented in the pre-filed direct testimony of Company witness Stefan R. Brooks.

In accordance with the Guidelines for Assessing Impacts of Proposed Transmission Lines and Associated Facilities on Historic Resources in the Commonwealth of Virginia (2008), a Stage I pre-application analysis was conducted by the Cultural Resources, Inc. (“CRI”) for the 500 kV Rebuild. This report was forwarded to the Virginia Department of Historic Resources (“DHR”) and was included as Attachment 2.H.1 to the DEQ Supplement provided in the application for approval of the 500 kV Rebuild. The background archival research identified six resources that are listed on the National Register of Historic Places (“NRHP”) within the 1.0-mile buffer; three NRHP-eligible or potentially eligible properties within the 0.5-mile buffer; and one unevaluated battlefield, one unevaluated architectural resource, and no archeological sites within the right-of-way.

For the 500 kV Rebuild, a search of the Virginia Department of Game and Inland Fisheries (“DGIF”) public database, other on-line resources, and agency consultation identified certain state-listed threatened or endangered species that have the potential to occur within the Project area. The Company intends to minimize any impact on these resources and coordinate with DGIF as appropriate.

Based on review of aerial photography and data obtained from Rockbridge and Augusta Counties for the 500 kV Rebuild, there are approximately 117 dwellings located within 500 feet of the centerline of the existing right-of-way. None of these are within 100 feet of the centerline.
III. IMPACT OF LINE ON SCENIC, ENVIRONMENTAL AND HISTORIC FEATURES

B. Advise of any public meetings the Company has had with neighborhood associations and officials of local, state or federal governments who would have an interest or responsibility with respect to affected area or areas.

Response: In August 2012 the Company met or spoke with a number of local, state and federal officials to inform them of the 500 kV Rebuild in Virginia. At that time, Company representatives also discussed the future need for a 230 kV line in the same corridor, which necessitated the 500/230 kV structures.

In September 2013, Dominion representatives met with both the Rockbridge and Augusta County Administrators to reintroduce the 230 kV line work as part of the 500 kV rebuild project. Letters dated September 17, 2013, were sent to Mr. Spencer Suter, County Administrator for the County of Rockbridge, and Mr. Patrick Coffield, County Administrator for the County of Augusta, advising of the Company’s intention to file an application for the 230 kV line. See Attachment III.B.1

In the fall of 2012, when the 500 kV Rebuild was introduced, Dominion Virginia Power held a public information open house in Staunton, Virginia to inform the public about the project. In addition to large print ads that ran in four local papers, approximately 250 letters were mailed to area property owners within 300 feet of the existing transmission line corridor. The mailing to these property owners included a fact sheet with information regarding the 500 kV Rebuild and a “future 230kV line to support local economic development opportunities” to be located on the same structures. See Attachment III.B.2.

Approximately 28 people attended the information open house.

An update letter was mailed to these property owners in November 2013 with information on construction activities underway for the 500 kV Rebuild and details regarding the proposed Project. See Attachment III.B.3.

Additional information regarding the 500 kV Rebuild and this Project is provided by the Company to the public through an internet website:

www.dom.com/about/electric-transmission/dooms-lexington/index.jsp

The website includes route maps, an explanation of need, a description of the Project and its benefits, information on the Commission review process, structure diagrams and answers to frequently asked questions. All mailings to property owners along the existing line route advise readers to visit www.dom.com and enter the search word “Lexington” for more information regarding the Project.
September 17, 2013

BY MAIL

Mr. Patrick Coffield
County Administrator
Augusta County
18 Government Center Lane
Verona, Virginia 24482

RE: Dominion Virginia Power Proposed Lexington - Dooms 230 kV Transmission Conductor

Dear Mr. Coffield:

Dominion Virginia Power (Dominion) currently plans to file with the State Corporation Commission an application for approval of the installation of a 230 kilovolt (kV) line in Augusta County. As we presented to you in August of 2012, with increasing loads on our transmission system, Dominion will be rebuilding the 500 kV line with a lattice tower structure that will be located within the existing right-of-way corridor. The type of lattice structure proposed with the rebuild of the existing 500 kV line will accommodate the proposed 230 kV conductors to be installed on the same lattice structures and underneath the 500 kV line and with no additional right of way required.

Pursuant to § 15.2-2202 of the Code of Virginia, Dominion is providing this information to the County. To facilitate your review, I have enclosed a map of the project vicinity for your consideration.

As we move through the process with the State Corporation Commission, we invite Augusta County to share any additional interests related to our proposal. If you have any questions about this project, you may contact me directly at (804) 771-6430 or stefan.r.brooks@dom.com.

Sincerely,

Stefan R. Brooks, PE
Engineer II, Electric Transmission Project Support
Dominion Virginia Power

Enclosure
September 17, 2013

BY MAIL

Mr. Spencer H. Suter
County Administrator
Rockbridge County
150 S Main Street
Lexington, Virginia 24450

RE: Dominion Virginia Power Proposed Lexington - Dooms 230 kV Transmission Conductor

Dear Mr. Suter:

Dominion Virginia Power (Dominion) currently plans to file with the State Corporation Commission an application for approval of the installation of a 230 kilovolt (kV) line in Rockbridge County. As we presented to you in August of 2012, with increasing loads on our transmission system, Dominion will be rebuilding the 500 kV line with a lattice tower structure that will be located within the existing right-of-way corridor. The type of lattice structure proposed with the rebuild of the existing 500 kV line will accommodate the proposed 230 kV conductors to be installed on the same lattice structures and underneath the 500 kV line and with no additional right of way required.

Pursuant to § 15.2-2202 of the Code of Virginia, Dominion is providing this information to the County. To facilitate your review, I have enclosed a map of the project vicinity for your consideration.

As we move through the process with the State Corporation Commission, we invite Rockbridge County to share any additional interests related to our proposal. If you have any questions about this project, you may contact me directly at (804) 771-6430 or stefan.r.brooks@dom.com.

Sincerely,

Stefan R. Brooks, PE
Engineer II, Electric Transmission Project Support
Dominion Virginia Power

Enclosure
Dooms to Lexington 500kV Rebuild Project

Dooms to Lexington 500kV Rebuild Project

Dominion plans to rebuild an aging transmission line within existing right-of-way

BACKGROUND

The Dooms-Lexington line is an important part of Dominion's 500 kilovolt (kV) Extra High Voltage network, which is the major transportation system providing electrical energy to Dominion's customers, including many local electric cooperatives, as well as a large portion of the eastern United States. The purpose of this network is to deliver bulk power from generation sources to the populated areas where most power is used.

This line was put into service in 1966 and, after more than four decades of operation, the structures and equipment are approaching the end of their expected service life and require replacement to maintain reliability. By 2016, this line will be required to carry even more electricity. Our studies show that the line needs to be upgraded by 2016 to avoid violations of the mandatory reliability standards established by the North American Electric Reliability Corporation (NERC).

PROJECT OVERVIEW

Remove existing structures and rebuild approximately 39 miles of 500kV line between Lexington and the Dooms Substation north of Waynesboro. Rebuilding this line now will:

- NOT require new right-of-way
- Allow the Lexington to Dooms line to be rebuilt during off-peak periods without disrupting power service to customers
- Replace aging infrastructure prior to equipment failure
- Replace structures at, or very near, the current locations with taller structures to maintain required ground clearances and allow for a second line, see diagrams below

PROJECT BENEFITS

- Reduces the risk of a major failure of the high-voltage network
- Maintains local and regional electric reliability
- Increases capacity of the line by nearly 50%
- Enables future 230kV line to support local economic development opportunities

PROPOSED TIMELINE

Fall 2012 — Outreach to stakeholders and regulatory entities for necessary approvals
Spring 2014 — Notify neighbors about construction plans
Fall 2014 — Initiate construction activities
Summer 2016 — Energize rebuilt line

Existing Structures
(average height approximately 108', typical cross section)

Proposed Structure
(average height approximately 133', typical cross section)

See reverse side for a map of the Dooms to Lexington 500kV Rebuild Project.
Dominion Virginia Power
Dooms to Lexington Transmission Line Rebuild

Legend
Existing 500 kV Transmission Line
Existing Substation

If you have questions or comments regarding the Dooms to Lexington 500 kV Rebuild Project, please send an email to: powerline@dom.com or phone one of our transmission customer service agents at 1-888-291-0190 from 7 a.m. to 5 p.m., Monday–Friday. You can also obtain information about this project and updates as we proceed at www.dom.com, keyword: Lexington
November 5, 2013

RE: Project Update: Dooms-Lexington Transmission Line Rebuild Project

Dear Neighbor:

Last year, we notified you of plans to rebuild and upgrade a transmission line near your property.

The Dooms-Lexington line was put into service in 1966 and our studies show that the line needs to be upgraded by 2016 to avoid violations of the mandatory reliability standards established by the North American Electric Reliability Corporation (NERC).

Within its existing right-of-way corridor, Dominion is preparing to replace the tall, lattice-style towers with new, galvanized steel towers that will be approximately 35’ taller. These new towers will support conductors (wires) with greater capacity, and, will include arms for a new 230kV line to be installed with minimal additional impact. The new structures will be located on the same center line and in close proximity to the current structure locations. Next month, Dominion plans to file an SCC application for the new 230kV line to be installed on the same structures. In order to complete the rebuild by 2016, Dominion needs to begin construction in the spring of 2014.

Later this fall, you will begin to see Dominion employees and contractors accessing properties along this right-of-way to perform various types of work related to the project. These activities can include, but are not limited to:

- Mowing within the right-of-way; followed by survey work
- Clearing and cutting other vegetation as required by federal electric transmission guidelines.
- Establishing access routes for construction equipment. These routes may differ from the routes used for routine maintenance, due to vehicle size.

You do not need to be home while work is being done. Dominion and its crews are committed to working safely and courteously in your neighborhood and will restore the right-of-way to pre-construction conditions when the project is complete.

For more information, please see the enclosed construction brochure, which describes many of the standard pre-construction and construction activities that you may observe. You may learn more about this project by visiting our website, www.dom.com, and entering the search word “Lexington.” You may also contact one of our dedicated transmission team members by sending an e-mail to Powerline@dom.com or by calling 1-888-291-0190 Monday through Friday, 7:00 a.m. to 5:00 p.m.

Sincerely.

Carla Y. Picard
Manager, Electric Transmission Project Communications
Dooms to Lexington Transmission Line
Rebuild Project

Dominion plans to rebuild an aging transmission line within existing right-of-way

BACKGROUND

The Dooms-Lexington line is an important part of Dominion's 500 kilovolt (kV) Extra High Voltage network, which is the major transportation system providing electrical energy to Dominion's customers, including many local electric cooperatives, as well as a large portion of the eastern United States. The purpose of this network is to deliver bulk power from generation sources to the populated areas where most power is used.

This line was put into service in 1966 and, after more than four decades of operation, the structures and equipment are approaching the end of their expected service life and require replacement to maintain reliability. Our studies show that the line needs to be upgraded by 2016 to avoid violations of the mandatory reliability standards established by the North American Electric Reliability Corporation (NERC). At the same time, a new 230kV line will be added onto the new structures for better regional reliability.

PROJECT OVERVIEW

Remove existing structures and rebuild approximately 39 miles of 500kV line between Lexington and the Dooms Substation north of Waynesboro. A new 230kV line will be installed on the lower set of arms on the new structures. Both lines will operate safely within the existing right-of-way corridor. Rebuilding this line now will:

- Allow the Lexington to Dooms line to be rebuilt during off-peak periods without disrupting power service to customers
- Replace aging infrastructure prior to equipment failure
- Replace structures at, or very near, the current locations with taller structures to maintain required ground clearances and allow for a second line, see diagrams below

PROJECT BENEFITS

- Reduces the risk of a major failure of the high-voltage network
- Maintains local and regional electric reliability
- Increases capacity of the 500 kV line by nearly 50 percent
- Creates a new 230kV line to support local growth and future economic development opportunities

PROPOSED TIMELINE

Fall 2012 — Outreach to stakeholders and regulatory entities for necessary approvals
Fall 2013 — Notify neighbors about construction plans
Fall/Winter 2013 — Initiate construction activities
December 2015 — Energize lines

See reverse side for a map of the Dooms to Lexington Transmission Line Rebuild Project.
Dominion Virginia Power

Dooms to Lexington Transmission Line Rebuild

If you have questions or comments regarding the Dooms to Lexington Transmission Line Rebuild Project, please send an email to: powerline@dom.com or phone one of our transmission customer service agents at 1-888-291-0190 from 7 a.m. to 5 p.m., Monday-Friday. You can also obtain information about this project and updates as we proceed at www.dom.com, keyword: Lexington
III. IMPACT OF LINE ON SCENIC, ENVIRONMENTAL AND HISTORIC FEATURES

C. Detail the nature, location, and ownership of all buildings which would have to be demolished or relocated if the project is built as proposed.

Response: During the Company’s initial review of the transmission corridor for the 500 kV Rebuild, it became aware of encroachments on the existing right-of-way such as sheds, outbuildings and other similar structures that needed to be addressed. Property owners have been contacted by the Company and these encroachments have been resolved as part of the 500 kV Rebuild.

The Company is not aware of any residences encroaching within the right-of-way and does not expect to have any residences demolished or relocated in connection with the 500 kV Rebuild or Project.
III. IMPACT OF LINE ON SCENIC, ENVIRONMENTAL AND HISTORIC FEATURES

D. What existing physical facilities will the line parallel, if any, such as existing transmission lines, railroad tracks, highways, pipelines, etc.? Describe the current use and physical appearance and characteristics of the existing right-of-way that would be paralleled. How long has the right-of-way been in use?

Response: Construction of Line #555 was completed in 1966, and the existing right-of-way has been in use since that time. Except at Dooms Station, as described in Section II.C, the Project will be constructed on the same structures supporting the 500 kV Rebuild of Line #555.

See Section II.A.4 for a description and Attachment I.E.1 for a general map of adjacent, parallel transmission lines that are present with the existing maintained right-of-way and Company-owned property.
III. IMPACT OF LINE ON SCENIC, ENVIRONMENTAL AND HISTORIC FEATURES

E. Has the Company investigated land use plans in the areas of the proposed route? How would the building of the proposed line effect future land use of the areas affected?

1. Has the Company determined from the governing bodies of each county, city and town in which the proposed facilities will be located whether those bodies have designated the important farmlands within their jurisdictions, as required by Virginia Code Section 3.1-18.5.3?

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

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

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

   c. Describe the applicant’s proposals to minimize the impact of the facilities on the affected farmland.

Response: The comprehensive plans for Augusta and Rockbridge Counties were reviewed to evaluate the potential effect the Project could have on future development. The placement and construction of electric transmission lines is not addressed in these comprehensive plans. The comprehensive plans instead address organized development of the counties, including existing and future plans, and the preservation of important features such as farmland and environmentally sensitive areas. The Project will not impact future development plans in the Counties because the Project is included in a rebuild of an existing transmission line.

1. Augusta and Rockbridge Counties have not designated any such important farmland. Both counties have designated agricultural-forestal districts for the production of agricultural products and timber and the maintenance of open space. The Project crosses parcels within the Middlebrook Agricultural-Forestal District in Augusta County and the Turkey Hill Agricultural-Forestal District in Rockbridge County. The Project is compatible with the provisions for these districts.

2. Not applicable.
III. IMPACT OF LINE ON SCENIC, ENVIRONMENTAL AND HISTORIC FEATURES

F. Identify the following that lie within or adjacent to the proposed right-of-way:

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

2. Any historic landmark, site, building, structure, district or object included in the Virginia Landmarks Register maintained by the Virginia Board of Historic Resources;

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

4. Any state archaeological site or zone designated by the Director of the Virginia Department of Historic Resources, or his predecessor, and any site designated by a local archaeological commission, or similar body;

5. Any underwater historic property designated by the Virginia Department of Historic Resources, or predecessor agency or board;

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

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

8. Any area accepted by the Director of the Virginia Department of Conservation and Recreation for the Virginia Natural Area Preserves System;

9. Any conservation easement qualifying under Sections 10.1-1009 to -1016 of the Code of Virginia, or prior provision of law;

10. Any state scenic river;

11. Any federal state, or local park, forest, game or wildlife preserve, recreational area, or similar facility; Features, sites, and the like listed in 1 through 10 above need not be identified again.

Response: 1. None. The existing 500 kV line crosses and the approved 500 kV Rebuild
will cross a DHR conservation easement that contains Chapel Hill, an architectural resource that is listed on the National Register of Historic Places and the Virginia Landmarks Register. However, the boundary of this architectural site is approximately 0.2 mile from the corridor at its nearest point. The existing corridor also crosses the Battle of Waynesboro battlefield, which has not yet been evaluated for eligibility. However, because the transmission line right-of-way passes through the resource at a single point and the area is heavily developed, CRI recommends that the resource will be only minimally impacted by the Project.

2. None.

3. None.

4. None.

5. None.

6. None.

7. None.

8. None.

9. The existing Dooms-Lexington 500 kV line crosses seven conservation/open space easements held by a number of entities, including the Virginia Outdoors Foundation ("VOF"), the Ward Burton Wildlife Foundation, DHR, the Valley Conservation Council and the Headwaters Soil and Water Conservation District. Each of these easements was created subsequent to the construction of the existing line, and because the existing right-of-way is maintained and no new right-of-way will be required for the Project, the Company does not anticipate that there will be any significant conflict between the Project and the conservation easements as long as maintenance occurs within the designated right-of-way. The Company contacted each of these agencies to inform them of the combined 500 kV Rebuild and the Project, including by contacting VOF about the Project in a letter dated August 17, 2012. VOF subsequently indicated that it did not have any initial comments because the Project will be constructed within an existing transmission line right-of-way.

10. None.
11. None; however, the Shenandoah National Park lies approximately 1 mile to the east of the existing corridor.
III. IMPACT OF LINE ON SCENIC, ENVIRONMENTAL AND HISTORIC FEATURES

G. List any airports where the proposed route would place a structure or conductor within the glide path of the airport. Advise of contacts and results of contacts made with appropriate officials regarding the effect on the airport’s operations.

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

Dominion Virginia Power reviewed the FAA’s website (https://oeaaa.faa.gov/oeaaa/external/portal.jsp) to identify airports within 10 miles of the approved 500 kV Rebuild, on which structures the Project will be installed. Based on this review, the nearest airports are the Waynesboro Eagles Nest Airport, located approximately 1.3 miles southeast of the route, and the Shenandoah Valley Regional Airport, located approximately 8.9 miles north of the route. In order to evaluate whether the proposed Project would require providing notification to the FAA, the Company completed the FAA’s online Notice Criteria Tool. Based on the results of this review, the structures proposed herein to support both the approved 500 kV Rebuild and the Project will not exceed Notice Criteria and notification to the FAA is not required.
III. IMPACT OF LINE ON SCENIC, ENVIRONMENTAL AND HISTORIC FEATURES

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

Response: The existing corridor crosses the Appalachian Waters Scenic Byway (State Route 39) which is designated as a Virginia Byway. The right-of-way crosses the eastern portion of the byway near Cedar Grove. This portion of the byway parallels the Maury River and runs through agricultural areas scattered with small patches of forested land. The existing right-of-way is cleared, and no new right-of-way will be required for the Project. Additionally, the existing transmission line has been operating within the right-of-way for several decades. The proposed Project's new 230 kV facilities to be installed on the structures for the approved 500 kV Rebuild in this area will not substantially change the existing character of the current crossing of the Appalachian Waters Scenic Byway.
IV. HEALTH ASPECTS OF EMF

A. State the calculated maximum electric and magnetic field (EMF) levels that are expected to occur at the edge of the right-of-way. If the new transmission line is to be constructed on an existing electric transmission line right-of-way, provide the present EMF levels as well as the maximum levels calculated at the edge of right-of-way after the new line is operational.

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

This section describes the levels of EMF associated with the existing transmission lines and the proposed 230 kV transmission line. EMF levels are provided for both historical (2012) and future (2016) annual average and maximum (peak) loading conditions.

Existing lines – Average historical loading

EMF levels were calculated for the existing lines at the historical average load condition (276 amps for Line #117, 70 amps for Line #194, 412 amps for Line #549, and 406 amps for Line #555) and at an operating voltage of 120.75 kV, and 525 kV when supported on existing structures – see Attachments II.A.3.a, c, e, g, and i.

These field levels were calculated at mid-span where the conductors are closest to the ground and the conductors are at an average historical load operating temperature and at a clearance to ground of 29.06 feet for Line #117, 25.6 feet for Line #194, 35.59 feet for Line #549, and 35.59 feet for Line #555.

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

<table>
<thead>
<tr>
<th></th>
<th>Northwestern Edge</th>
<th></th>
<th>Southeastern Edge</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Electric Field</td>
<td>Magnetic Field</td>
<td>Electric Field</td>
<td>Magnetic Field</td>
</tr>
<tr>
<td></td>
<td>(kV/m)</td>
<td>(mG)</td>
<td>(kV/m)</td>
<td>(mG)</td>
</tr>
<tr>
<td>Attachment II.A.3.a</td>
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<td>2.846</td>
<td>23.016</td>
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<tr>
<td>Attachment II.A.3.c</td>
<td>2.832</td>
<td>22.942</td>
<td>2.832</td>
<td>22.942</td>
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<tr>
<td>Attachment II.A.3.e</td>
<td>2.849</td>
<td>23.682</td>
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<td>22.942</td>
<td>2.832</td>
<td>22.942</td>
</tr>
<tr>
<td>Attachment II.A.3.i</td>
<td>2.837</td>
<td>22.658</td>
<td>2.839</td>
<td>22.317</td>
</tr>
</tbody>
</table>
Existing lines – Peak historical loading

EMF levels were calculated for the existing lines at the historical peak load condition (638 amps for Line #117, 370 amps for Line #194, 1506 amps for Line #549, and 1861 amps for Line #555) and at an operating voltage of 120.75 kV, and 525 kV when supported on existing structures – see Attachments II.A.3.a, c, e, g, and i.

These field levels were calculated at mid-span where the conductors are closest to the ground and the conductors are at a peak historical load operating temperature and at a clearance to ground of 27.51 feet for Line #117, 24.78 feet for Line #194, 34.76 feet for Line #549, and 34.28 feet for Line #555.

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

<table>
<thead>
<tr>
<th>Northwestern Edge</th>
<th>Southeastern Edge</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electric Field</td>
<td>Magnetic Field</td>
</tr>
<tr>
<td>(kV/m)</td>
<td>(mG)</td>
</tr>
<tr>
<td>Attachment II.A.3.a</td>
<td>0.365</td>
</tr>
<tr>
<td>Attachment II.A.3.c</td>
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</tr>
<tr>
<td>Attachment II.A.3.e</td>
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<tr>
<td>Attachment II.A.3.g</td>
<td>2.836</td>
</tr>
<tr>
<td>Attachment II.A.3.i</td>
<td>2.840</td>
</tr>
</tbody>
</table>

Proposed project – Projected average loading in 2016

EMF levels were calculated for the Project at the projected average load condition (303 amps for Line #117, 77 amps for Line #194, 454 amps for Line #549, 446 amps for Line #555, and 181 amps for Line #2168) and at an operating voltage of 120.75 kV, 241.5 kV, and 525 kV when supported on the Project structures – see Attachments II.A.3.b, d, f, h, and j.

These field levels were calculated at mid-span where the conductors are closest to the ground and the conductors are at a projected average load operating temperature and at a clearance to ground of 28.95 feet for Line #117, 25.6 feet for Line #194, 35.57 feet for Line #549, 62.31 feet for Line #555, and 29.22 feet for Line #2168.

EMF levels at the edge of the rights-of-way for the proposed project at projected average loading:
**Proposed project – Peak loading in 2016**

EMF levels were calculated for the Project at the *projected peak* load condition (701 amps for Line #117, 407 amps for Line #194, 1655 amps for Line #549, 2044 amps for Line #555, and 830 amps for Line #2168) and at an operating voltage of 120.75 kV, 241.5 kV, and 525 kV when supported on the Project structures – see Attachments II.A.3.b, d, f, h, and j.

These field levels were calculated at mid-span where the conductors are closest to the ground and the conductors are at a projected peak load operating temperature and at a clearance to ground of 27 feet for Line #117, 24.78 feet for Line #194, 34.57 feet for Line #549, 61.32 feet for Line #555, and 28.4 feet for Line #2168.

EMF levels at the edge of the rights-of-way for the proposed project at projected peak loading:

<table>
<thead>
<tr>
<th>Northwestern Edge</th>
<th>Southeastern Edge</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electric Field (kV/m)</td>
<td>Magnetic Field (mG)</td>
</tr>
<tr>
<td>Attachment II.A.3.b</td>
<td>0.481</td>
</tr>
<tr>
<td>Attachment II.A.3.d</td>
<td>2.156</td>
</tr>
<tr>
<td>Attachment II.A.3.f</td>
<td>2.164</td>
</tr>
<tr>
<td>Attachment II.A.3.h</td>
<td>2.156</td>
</tr>
<tr>
<td>Attachment II.A.3.j</td>
<td>2.836</td>
</tr>
</tbody>
</table>
IV. HEALTH ASPECTS OF EMF

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

Response: The foundation of the Company's opinion is the conclusions of expert panels formed by national and international scientific agencies; each of these panels has evaluated the scientific research related to health and power-frequency EMF and provided conclusions that form the basis of guidance to governments and industries. The Company regularly monitors the recommendations of these expert panels to guide their approach to EMF.

Major reviews on this topic, in order of their most recent publication, include those published by the European Health Risk Assessment Network on Electromagnetic Fields Exposure (EFHRAN), the International Commission on Non-Ionizing Radiation Protection (ICNIRP), the Scientific Committee on Emerging and Newly Identified Health Risks (SCENIHR), the World Health Organization (WHO), and the International Committee on Electromagnetic Safety (ICES) (EFHRAN, 2010; ICNIRP, 2003, 2010; SCENIHR 2007, 2009; WHO, 2007; ICES, 2002).

Research on this topic varies widely in its approach. Some studies evaluate the effects of high EMF exposures not typically found in our day-to-day lives, while others evaluate the effects of common EMF exposures. The studies evaluate long-term effects (e.g., cancer, neurodegenerative diseases, and reproductive effects) and short-term biological responses. This research includes hundreds of epidemiology studies of people in their natural environment and laboratory studies of animals (in vivo) and isolated cells and tissues (in vitro). Standard scientific procedures are used by the expert panels to identify, review and summarize this large and diverse research area.

The general scientific consensus of the health agencies reviewing this research is that at levels associated with the operation of the proposed transmission line, or other common sources of EMF in our environment, the research does not support the conclusion that EMF causes any long-term, adverse health effects.

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

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6 EFHRAN is funded by the European Commission's Executive Agency for Health and Consumers.
IV. HEALTH ASPECTS OF EMF

C. Describe any research studies the Company is aware of that meet the following criteria:

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

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

3. Have been subjected to peer review.

Response: The Virginia Department of Health’s most recent review of studies on EMF was completed in 2000; many peer-reviewed research studies have become available since that time and were reviewed by the scientific organizations discussed above. The WHO recently conducted one of the most comprehensive and detailed reviews, which summarized peer-reviewed research published through early 2006 (WHO, 2007).

Research published in the peer-reviewed literature subsequent to the WHO report has been reviewed by several scientific organizations, all of which support the conclusions of the WHO (2007) report, including:

- The Health Council of the Netherlands (HCN) reviewed new research in 2007.
- SCENIHR, a committee of the European Commission, published their most recent assessment in 2009.
- The Swedish Radiation Protection Authority (SSI) updates their review annually; their most recent review evaluated research through 2007 (SSI, 2008).
- EFHRAN published the most recent review in February 2010.

These reviews can be consulted for commentary on recent studies. In addition, other recent peer-reviewed studies (e.g., Chung et al., 2010; Coble et al., 2009; Kheifets et al., 2010a, 2010b; Kroll et al., 2010; McNamee et al., 2010) provide evidence that clarifies previous findings.

- Chung et al. (2010) found no difference in lymphoma rates between cancer-prone mice exposed long-term to strong magnetic fields and an unexposed control group. Mice were exposed 21 hours per day for 40 weeks to magnetic fields up to 5,000 mG, which is hundreds to thousands of times greater than routine residential exposures. This study is consistent with previous in vivo
studies that found no evidence that magnetic fields promote the development of lymphoma or leukemia in laboratory animals.

- Coble et al. (2009) conducted a case-control study in the United States of brain tumors (gliomas and meningiomas) in U.S. workers. This study was advanced because several different measures were used to assess individual exposure, and exposure duration was incorporated into lifetime magnetic-field exposure. No association was reported between any of the exposure metrics and brain tumors. This study's strengths are its large size and advanced exposure assessment.

- Kheifets et al. (2010a) conducted a pooled analysis of epidemiologic studies of childhood brain tumors and magnetic fields to explore the association in the larger pooled population. Ten case-control studies of childhood brain tumors were identified that met the inclusion criteria. No statistically significant associations with brain tumors were found in any of the three exposure levels, compared to average exposure less than 1 mG. A sub-group of five studies with information on calculated or measured magnetic fields greater than 3-4 mG reported a combined odds ratio that was elevated but not statistically significant.

- Kheifets et al (2010b) pooled data from studies of childhood leukemia and magnetic fields to update the previous meta-analyses on this topic published in 2000. The authors identified seven subsequent case-control studies of childhood leukemia that included measured or calculated magnetic field levels. Results showed an overall weak association with leukemia for the highest estimated long-term average exposure level (4 mG or higher) that was slightly elevated, but could not be distinguished from chance. This study confirms a positive association between average magnetic field levels greater than 3 mG and childhood leukemia, but the association could not be distinguished from chance due to small numbers.

- Kroll et al. (2010) re-evaluated a previous study in the United Kingdom that had reported childhood leukemia was associated with distance of a child’s home at birth from a power line (Draper et al, 2005). Distance is considered a poor estimate of magnetic field exposure; therefore, Kroll et al. repeated the study using calculated magnetic field levels from nearby power lines. The results showed a weak, non-significant association between leukemia and the calculated magnetic fields from high-voltage power lines. As a result of small numbers and incomplete information, no strong conclusions can be drawn from this study.

- Recent research by McNamee et al. (2010a) examined how acute exposure of human subjects to 60-Hz magnetic fields affected human heart rate, heart rate variability and skin blood perfusion; no effects of exposure to an 18,000 mG magnetic field on these measures were reported. A similar study by these
investigators also reported no effects of these parameters at a lower magnetic field intensity of 2,000 mG (McNamee et al., 2010b).

References


http://efhran.polimi.it/dissemination.html


http://www.icnirp.net/documents/RFReview.pdf


V. NOTICE

A. Furnish a proposed route description to be used for public notice purposes. Provide a map of suitable scale showing the route of the proposed project.

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

The route for the Project is approximately 39.1 miles long and entirely within an existing transmission line corridor. The route originates at the existing Dooms Station and initially heads west and northwest for approximately 3.6 miles, crossing Rte. 865 (Rockfish Road). The route then turns and runs in a generally southwest direction for approximately 6.4 miles, crossing Rte. 254 (Hermitage Road), Rte. 250 (Jefferson Highway), and Rte. 285 (Tinkling Springs Road) before reaching U.S. Interstate 64. The route crosses the interstate and continues to the southwest for another 18.7 miles, crossing Rte. 654 (White Hill Road), U.S. Interstate 64/81, Route 11 (Lee Jackson Highway), Rte. 701 (Howardsville Road), and Rte. 620 (Newport Road) before reaching the Augusta/Rockbridge County line. Upon entering Rockbridge County, the route continues running southwest for approximately 10.4 miles, crossing Rte. 252 (Brownsburg Turnpike) and Rte. 39 (Maury River Road), to its terminus adjacent to existing Lexington Station.

All distances are approximate.
V. NOTICE

B. List Company offices at which members of the public may inspect the application.

Response: The application is available at the following locations:

Dominion Virginia Power
OJRP 12th Floor
701 E. Cary Street
Richmond, Virginia 23219
Attn: Stefan R. Brooks

County of Augusta
Department of Community Development
18 Government Center Lane
Verona, Virginia 24482
Attn: Timothy Fitzgerald

County of Rockbridge
Department of Community Review
150 South Main Street
Lexington, Virginia 24450
Attn: Sam Crickenberger
V. NOTICE

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

Response: Ms. Ellie Irons, Director (4 hard copies and 14 electronic copies, plus 14 electronic copies of the DEQ Supplement filed with 500 kV Dooms-Lexington Line #555 Rebuild, Case No. PUE-2012-00134/reviewed under DEQ #12-222S) Office of Environmental Impact Review Department of Environmental Quality 629 East Main Street Richmond, Virginia 23219

Mr. Keith Fowler Department of Environmental Quality, Valley Regional Office P.O. Box 3000 Harrisonburg, Virginia 22801

Mr. James R. Cromwell District Environmental Programs Manager Virginia Department of Transportation 1401 E. Broad Street Richmond, Virginia 23219

Ms. Renee Hypes Virginia Natural Heritage Program 217 Governor Street Richmond, Virginia 23219

Ms. Amy Ewing Wildlife Biologist Virginia Game & Inland Fisheries 4010 West Broad Street Richmond, Virginia 23230

Ms. Ethel Eaton Virginia Department of Historic Resources 2801 Kensington Avenue Richmond, Virginia 23221

Mr. Tony Watkinson Chief of Habitat Management Virginia Marine Resources Commission 2600 Washington Avenue – 3rd Floor Newport News, Virginia 23607
Mr. Peter Kube  
U.S. Army Corps of Engineers  
Western Virginia Field Office  
920 Gardens Blvd, Suite 200  
Charlottesville, Virginia 22901

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

Ms. Martha Little  
Director of Stewardship  
Virginia Outdoors Foundation  
Capitol Place Building  
1108 East Main Street, Suite 700  
Richmond, Virginia 23219

Mr. Buck Kline  
Director, Forestland Conservation Division  
Virginia Department of Forestry  
Fontaine Research Park  
900 Natural Resources Drive, Suite 800  
Charlottesville, Virginia 22903

Mr. John T. Hart  
Virginia Department of Aviation  
5702 Gulfstream Road  
Richmond, Virginia 23250-2422