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April 30, 2021

VIA HAND DELIVERY

Mr. Bernard J. Logan
State Corporation Commission
Document Control Center
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1300 East Main Street
Richmond, VA 23219

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**Re: Reusens to New London 138 kV Rebuild Project
SCC Case No. PUR-2021-00049**

Dear Mr. Logan:

Appalachian Power Company (the "Company") has prepared a two-volume Application for approval and certification of the Reusens to New London 138 kV Rebuild Project, including direct testimony, Response to Guidelines, Siting Memo, VDEQ Supplement, and related tables, exhibits, attachments and maps, including one confidential exhibit.

I enclose for filing with this letter an original and fifteen copies of the Application. Please note that exhibit 13-C in the filing is confidential, and therefore a slip sheet has been inserted in the filing to show where this confidential exhibit will appear. Under separate cover, we will be filing under seal an original and fifteen copies of exhibit 13-C. The Company is also filing today under separate cover a Motion for Protective Ruling.

Under separate cover, we have delivered to the Commission Staff today three copies of the Virginia Department of Transportation county road maps for Bedford and Campbell Counties, in response to Section II.A.12. of the Commission Staff's "Guidelines for Transmission Line Applications Filed under Title 56 of the Code of Virginia" (the "Guidelines"). A reduced copy of the highway maps are included as Exhibit 10 to the Application.

Access to an electronic copy of the non-confidential portions of the Application, direct testimony, Response to Guidelines, Siting Memo, VDEQ Supplement, related tables, exhibits, attachments and maps (including the digital geographic information system map required by Virginia Code §56-46.1), is being provided to Commission Staff via the Company's iManage site.

Members of the public may inspect a copy of the non-confidential portions of the Application and related materials at the locations listed in the response to Section V.B. of the

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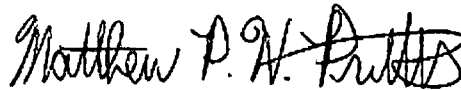
Bernard J. Logan
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Guidelines, as well as on the Internet at: www.aeptransmission.com/virginia/Reusens-NewLondon/.

Please contact me if you have any questions regarding this filing. Thank you for your assistance in this matter.

Very truly yours,

WOODS ROGERS PLC



Matthew P. Pritts

MPP:ck
Enclosures

- c: C. Meade Browder, Esq., Division of Consumer Counsel, Office of the Attorney General (w/encl.)
William H. Chambliss, Esq., SCC General Counsel (w/encl.)
Julia Wellman, Envir. Impact Coordinator, VDEQ (submitted via electronic upload)

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Records to New York
of the Records Project

1941-1942

Records of the Army, Response to Guidelines of
1941-1942

1941-1942

APPALACHIAN POWER COMPANY
BEFORE THE
VIRGINIA STATE CORPORATION COMMISSION
CASE NO. PUR-2021-00049

APPLICATION FOR APPROVAL AND CERTIFICATION OF
ELECTRICAL TRANSMISSION LINE

Reusens to New London
138 kV Rebuild Project

VOLUME 1 OF 2

Application, Testimony, Response to Guidelines &
Exhibits

April 2021

210440220

VOLUME 1 - Application, Testimony, Response to Guidelines & Exhibits

LIST OF EXHIBITS, MAPS & ATTACHMENTS

GLOSSARY OF TERMS & ABBREVIATIONS

EXECUTIVE SUMMARY

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TESTIMONY

Direct Testimony of Nicolas C. Koehler, P.E. (Project Need)

Direct Testimony of Mary Jane L. McMillen, P.E. (Transmission Line Engineering)

Direct Testimony of Xin Liu, P.E. (EMF)

Direct Testimony of Roya A. Pardis (Environmental Analysis and Route Review)

RESPONSE TO GUIDELINES

Section I: Necessity for the Proposed Project

Section II: Description of the Proposed Project

Section III: Impact of Line on Scenic, Environmental, and Historic Features

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EXHIBITS

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LIST OF EXHIBITS, MAPS & ATTACHMENTS

REUSENS TO NEW LONDON 138 KV SITING MEMO

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LIST OF EXHIBITS, MAPS & ATTACHMENTS

VOLUME 1

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- 3 GIS CONSTRAINTS MAP
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- 13-C ONE-LINE DRAWING OF THE IMPROVEMENTS AT BRUSH
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SEAL)
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REUSENS TO NEW LONDON 138 KV SITING MEMO

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ATTACHMENT B: GIS DATA SOURCES

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ATTACHMENT 2.H.1: VDHR PRE-APPLICATION ANALYSIS

GLOSSARY OF TERMS

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°	degree
ACSR	Aluminum Conductor Steel Reinforced
ACSS	Aluminum Conductors Steel Supported
AEP	American Electric Power Company, Inc. (parent company of Appalachian)
AEPSC	American Electric Power Service Corporation
APCo	Appalachian Power Company (a unit of AEP)
Appalachian	Appalachian Power Company (a unit of AEP)
Application	Collectively refers to the application requesting Commission approval for the proposed Project, together with all of the supporting testimony, Response to Guidelines, Siting Memo, VDEQ Supplement, tables, exhibits, attachments, figures and maps, etc.
ASCE	American Society of Civil Engineers
BMP	Best Management Practice
CI	Customers Interrupted
CIR	Color Infrared aerial imagery
CMI	Customer Minutes of Interruptions
cmil	circular mil
Code	Code of Virginia
Company	Appalachian Power Company (a unit of AEP)
CPCN	Certificate of Public Convenience and Necessity
DEM	Digital Elevation Model
ELF	Extremely Low Frequency
EMF	Electric and Magnetic Fields
EMF RAPID	Electric and Magnetic Fields Research and Public Information Dissemination
EPRI	Electric Power Research Institute
FAA	Federal Aviation Administration
FEMA	Federal Emergency Management Agency
FERC	Federal Energy Regulatory Commission
FHA	Federal Highway Administration of the United States Department of Transportation
GIS	Geographic Information System
Hz	hertz
IARC	International Agency for Research on Cancer
ICNIRP	International Commission on Non-Ionizing Radiation Protection
IEEE	Institute of Electrical and Electronics Engineers
kHz	kilohertz
kV	kilovolt (1,000 volts)
kV/m	kilovolt/meter (a unit of measurement for electric fields)
LiDAR	Light Detection and Ranging imagery
Line	Transmission Line or Power Line
Load Area	The load area depicted on Figure 2 in Section I of the Response

GLOSSARY OF TERMS

	to Guidelines representing a combined peak load of approximately 100 MVA and comprising parts of the City of Lynchburg and Bedford County, Virginia
mG	milligauss (a unit of measurement for magnetic fields)
MVA	megavolt ampere
MVA _r	megavolt amps reactive
MW	milliwatt
NERC	North American Electric Reliability Corporation
NESC	National Electrical Safety Code
NHD	National Hydrography Dataset
NHL	National Historic Landmark
NIEHS	National Institute of Environmental Health Services
NLCD	National Land Cover Database
NPL	National Priority List (maintained by USEPA)
NRCS	National Resources Conservation Service of the United States Department of Agriculture
NRHP	National Register of Historic Places
NUG	Non-Utility Generator
NWI	National Wetlands Inventory (maintained by the USFWS)
OPGW	Optical Ground Wire
PEM	Palustrine emergent wetland
PFO	Palustrine forested wetland
PJM	PJM Interconnection, L.L.C. - the RTO that coordinates the movement of wholesale electricity in parts of the Northeast, Mid-Atlantic and Midwest
POWER	POWER Engineers, Inc.
Project	The proposed transmission line rebuild, substation improvements, and other proposed work detailed in Section I of the Response to Guidelines.
PUB	Palustrine unconsolidated bottom wetland
PSS	Palustrine scrub-shrub wetland
QF	Qualifying Facilities
RCRA	Resource Conservation and Recovery Act Information System (maintained by USEPA)
Response to Guidelines	Response to "Guidelines of Minimum Requirements for Transmission Line Applications Filed under Title 56 of the Code of Virginia."
ROW(s)	Right(s)-of-Way
RTO	Regional Transmission Organization
RTEP	Regional Transmission Expansion Plan
SCC	Virginia State Corporation Commission
SCENIHR	Scientific Committee on Emerging and Newly Identified Health Risks
Siting Memo	The Reusens to New London 138 kV Rebuild Siting Memo for the portion of the Reusens – Altavista 138 kV transmission line to be

GLOSSARY OF TERMS

	rebuilt
Siting Team	A multidisciplinary team of experts in transmission line routing, impact assessment for a wide variety of natural resources and the human environment, impact mitigation, engineering, and construction management
SSURGO	Soil Survey Geographic Database
Supplemental Work	See Section IA, Response to Guidelines
TRI	Toxics Release Inventory (maintained by USEPA)
U.S.	United States
USACE	United States Army Corps of Engineers
USDOT	United States Department of Transportation
USEPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
VDCR	Virginia Department of Conservation and Recreation
VDEQ	Virginia Department of Environmental Quality
VDEQ Supplement	The analysis included in Volume 2 of this application, which addresses the environmental and historic features associated with the Project
VDWR	Virginia Department of Wildlife Resources
VDH	Virginia Department of Health
VDHR	Virginia Department of Historic Resources
VDOF	Virginia Department of Forestry
VDOT	Virginia Department of Transportation
VGIN	Virginia Geographic Information Network
VMRC	Virginia Marine Resources Commission
VOF	Virginia Outdoors Foundation
VPDES	Virginia Pollutant Discharge Elimination System
WHO	World Health Organization

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**Executive
Summary**

Executive Summary

In order to maintain and improve the reliability of electric service to customers in its service territory, Appalachian Power Company ("Appalachian" or "Company") is seeking permission for the Reusens to New London 138 kV Rebuild Project (the "Project"), which consists of the following:

- (a) Rebuild, almost entirely within existing right-of-way ("ROW"), an 11.6-mile section of the Reusens – Altavista 138 kilovolt ("kV") transmission line asset from the Reusens Substation to the New London Substation, of which approximately 5.5 miles consists of double-circuit 138 kV construction and approximately 6.1 miles consists of single-circuit 138 kV construction;
- (b) Install a 57.6 megavolt amps reactive ("MVA_r") cap bank at the Brush Tavern Substation to address low voltage concerns from operations during construction outages for this Project and upcoming projects in the area; and
- (c) Remove two structures and replace with one structure on the Reusens – South Lynchburg 138 kV transmission line where it crosses the Reusens – Altavista 138 kV transmission line in order to co-locate the two transmission lines onto one new structure at the point of intersection.

See Exhibit 1 for a map of the Project area.

The Project rebuilds an existing 138 kV transmission line which is over 70 years old and needs to be rebuilt in part due to the combination of risk, condition and performance of the infrastructure. The Project connects several area substations and which serve a large, combined peak load of approximately 100 megavolt amperes ("MVA"). The single-circuit section generally consists of wooden H-frame structures from the 1940s, close to 20% of which contain at least one open structural condition due to age-related deterioration, such as woodpecker damage, corroded cross arms, insect damage, or wood rot. The double-circuit section generally consists of steel lattice towers from the 1940s, which are showing signs of wear, loss of galvanizing and groundline deterioration. The shield wire and most of the conductor on both sections is over 70 years old. In addition, the typical structure used during the time of construction for both the wooden pole section and for the steel tower section fails to comply with the current National Electrical Safety Code ("NESC") 250B and 250D design standards. This section also has inadequate shielding from lightning strikes as the existing shielding angle fails to comply with current standards, making it more susceptible to lightning strikes.

With very few exceptions, the proposed transmission line route will follow the existing centerline and will be rebuilt almost entirely within the existing 100-foot-wide ROW. Where the line intersects with the Reusens – South Lynchburg 138 kV transmission line, the ROWs will be shifted slightly to enable the co-location discussed above. Where the ROW crosses a golf course, the ROW will be shifted slightly in order to relocate structures further away from the fairways and greens of the course.

The Company will rebuild the transmission line primarily using 138 kV steel monopoles with davit arms for the double-circuit portion of the Project, and 138 kV steel braced monopoles for the single-circuit section. The anticipated heights of the proposed structures on the single-circuit section of the Project range between 55 and 100 feet, with an average structure height of approximately 85 feet. The anticipated heights of the proposed structures on the double-circuit section of the Project range between 90 to 140 feet, with an average structure height of

approximately 115 feet.

The existing ROW is adequate to rebuild the portion of the Reusens – Altavista 138 kV transmission line for almost the entirety of the 11.6-mile section and therefore very limited new ROW is necessary and any shifts do not result in any newly affected landowners. Given the availability of existing ROW, the statutory preference to the use of existing ROWs, and because additional residential and environmental impacts associated with the acquisition of and construction on new ROW, the Company did not consider any alternate routes requiring significantly new ROW for the Project.

The estimated conceptual cost of the Project is approximately \$39.8 million, which includes approximately \$38.1 million for transmission-related work and \$1.7 million for substation-related work.

The proposed in-service date for the Project is December 15, 2023. If the Commission approves the Project, the Company estimates that it will need approximately 18 months after entry of the Commission's final approving order for engineering, design, ROW acquisition, permitting, material procurement and construction to place the Project in service.

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Application

COMMONWEALTH OF VIRGINIA
STATE CORPORATION COMMISSION

**APPLICATION OF
APPALACHIAN POWER COMPANY**

CASE NO. PUR-2021-00049

**for Approval and Certification of the
Reusens to New London 138 kV Rebuild Project
under Title 56 of the Code of Virginia**

APPALACHIAN POWER COMPANY (“Appalachian” or the “Company”), a corporation duly organized and existing under the laws of the Commonwealth of Virginia, represents as follows:

1. Appalachian is a Virginia public service corporation providing electric service in Virginia and West Virginia and having an address of P.O. Box 2021, Roanoke, Virginia 24022.
2. In order to perform its legal duty to furnish adequate and reliable electric service, Appalachian must, from time to time, replace existing transmission facilities or construct new transmission facilities in its system.
3. In this Application, the Company proposes to construct, own, operate and maintain the Reusens to New London 138 kV Rebuild Project, to be located in Bedford and Campbell Counties, Virginia and in the City of Lynchburg, Virginia. This project consists of: (a) an 11.6-mile long rebuild of the Reusens – Altavista 138 kV transmission line asset between the Company’s Reusens Substation and New London Substation; (b) associated improvements at the Company’s Brush Tavern Substation in Campbell County, Virginia; and (c) the removal of two structures and replacement with one structure on the Reusens – South Lynchburg 138 kV transmission line where it crosses the Reusens – Altavista 138 kV transmission line in order to co-locate the two transmission lines onto one new structure at the point of intersection. All of the above is listed and more fully described in Section I of the Company’s Response to Guidelines filed with this

Application, such rebuild and other improvements collectively, the "Project." The Project will rebuild infrastructure that is over 70 years old due to the combination of risk, condition and performance of the infrastructure. The Project is necessary to ensure adequate and reliable electric service and accommodate future growth in Bedford County, the City of Lynchburg, and the surrounding area.

4. Because the Project rebuilds an existing transmission line asset between the Reusens and New London Substations, the vast majority of the Project will be constructed on ROW already acquired by the Company.

5. In support of this application, the Company is filing the testimony of:

- (a) Nicolas C. Koehler, P.E. as to need for the Project;
- (b) Mary Jane L. McMillen, P.E., with regard to the engineering characteristics of the Project;
- (c) Xin Liu, P.E., regarding electric and magnetic field levels associated with the Project; and
- (d) Roya A. Pardis as to route review and certain environmental matters associated with the Project.

6. The Company is also filing: (a) a Response to Guidelines, responding to the "Guidelines of Minimum Requirements for Transmission Line Applications Filed Under Title 56 of the Code of Virginia" issued by the Commission's Division of Public Utility Regulation on August 10, 2017; (b) a Reusens to New London 138 kV Rebuild Siting Memo ("Siting Memo") and Virginia Department of Environmental Quality ("VDEQ") supplement prepared by the Company's siting and environmental consultant, POWER Engineers, Inc.; and (c) related tables, exhibits, attachments and maps (including a digital geographic information system ("GIS") constraints map and GIS shapefiles of the Project via electronic filing).

7. The Company's testimony, Response to Guidelines, Siting Memo, VDEQ supplement and related materials filed with this application establish that:

- (a) The Project is needed and the public convenience and necessity require the construction of the Project by Appalachian;
- (b) The Proposed Route for the Project reasonably minimizes adverse impact on the scenic assets, historic districts and environment of the area in which the Project will be located; and
- (c) The Project will ensure adequate and reliable electric service and accommodate future growth in Bedford County, the City of Lynchburg, and the surrounding area.

8. The proposed in-service date for the Project is December 15, 2023. If the Commission approves the Project, the Company estimates that it will need approximately 18 months after entry of the Commission's final approving order for engineering, design, ROW acquisition, permitting, material procurement and construction to place the Project in service. Accordingly, the Company asks that the Commission expedite its consideration of this Application to the extent permitted under applicable law.

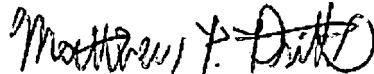
The Company therefore requests:

- (a) That this Application be filed and docketed;
- (b) That the Commission cause notice of this Application to be given as required by Virginia Code Section 56-46.1 and the Utility Facilities Act, Virginia Code Sections 56-265.1 et seq.;
- (c) That the Commission Staff undertake an investigation of this Application and report its findings to the Commission;
- (d) That the Commission determine, as required by Virginia Code Sections 56-46.1 and 265.2 (1) that the Project is needed and the public convenience and

necessity require the construction by Appalachian of the Project; and (2) that the proposed route for the transmission line included in the Project reasonably minimizes adverse impact on the scenic assets, historic districts and environment of the area concerned;

- (e) That the Commission approve the construction of the Project pursuant to Virginia Code Section 56-46.1 and any other applicable law; and
- (f) That the Commission grant Appalachian a certificate of public convenience and necessity under the Utility Facilities Act and grant such other relief as may be necessary for the construction and operation of the Project.

APPALACHIAN POWER COMPANY



By: _____
Of Counsel

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