COMMONWEALTH OF VIRGINIA

STATE CORPORATION COMMISSION

DIVISION OF ENERGY REGULATION

Guidelines of Minimum Requirements for Transmission Line Applications Filed Under Title 56 of the Code of Virginia

_____, 2016

INTRODUCTION

The Purpose of this document is to define the minimum requirements for applications for approval of electric transmission lines filed with the State Corporation Commission ("SCC" or "Commission"). Applications should be filed in a timely fashion, so as to provide the SCC Staff and the Commission ample time to review and rule on the application. All transmission line applications filed with the SCC for approval in accordance with Title 56 of the Code of Virginia ("Code") shall be filed as required in the Commission's Rules of Practice and Procedures, latest edition. These guidelines supersede the May 10, 1991 guidelines issued by the SCC Staff.

TYPES OF APPLICATIONS

The type of application will determine which guidelines will apply. Listed below are the four different types of applications:

A. Applications for overhead, underground and submerged transmission lines capable of operating at 138 kilovolts ("kV") or greater, filed pursuant to § 56-46.1 of the Code and the Utility Facilities Act (§ 56-265.1 *et seq*. of the Code);

B. Applications for underground transmission lines less than 138 kV filed pursuant to § 56-265.2 of the Code;

C. Applications for overhead transmission lines not capable of operating at 138 kV or greater, other than ordinary extensions or improvements in the usual course of business, filed pursuant to § 56-265.2 of the Code. Examples of such lines may include, but not be limited to the following:
   (1) Lines requiring atypical construction activities;
   (2) Lines for which the right-of-way width or per-mile cost is significantly greater than what is typical for existing lines of similar voltage;
   (3) River or other water crossings requiring three or more structures;
   (4) Lines expected to cause significant impact to residential areas, future land use plans or the scenic, environmental, and historic features of the area;
   (5) Lines requiring an Act of the General Assembly for the conveyance of an easement;
   (6) Rebuilds of existing lines requiring significant additional right-of-way or that may materially alter the footprint, viewshed, and impact of the existing line;
   (7) Lines to be located partially in the certificated service area of another electric utility.

   To the extent an applicant has questions concerning whether a line requires Commission approval, it may contact the Division of Energy Regulation to request an informal determination as to whether the line is an ordinary extension

or improvement. Such requests should be in writing to the Director of the Division and include a description of the project and the applicant's position and associated rationale for such position on whether the line requires a certificate of public convenience and necessity.

D. Applications for switching stations or substations, where the low side voltage is 138 kV or greater and the project is not associated with the construction of a proposed transmission line, filed pursuant to § 56-265.2 of the Code.

FILING REQUIREMENTS APPLICABLE BY APPLICATION TYPE

A. Sections I through V.

B. Section I; Section II, except for B.3, B.4 and B.5; Section III, except for G & H; Section IV; and Section V.

C. Sections I through III and V.

D. Section I, except F, I and J; Section II, A.9b and C; Section III, A through F; Section IV; and Section V. All of these requirements should be modified by the applicant to apply to a proposed switching station site or location rather than a transmission line or route.

GUIDELINES

I. NECESSITY FOR THE PROPOSED PROJECT

The necessity statement should include but need not be limited to the following:

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 the transmission planning standards that would be violated (Company, regional transmission organization ("RTO"), or North American Electric Reliability Corporation).

B. Detail the engineering justifications for the proposed project (for example, provide narrative to support why 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 Company's system, etc.). Detail the later plans for the proposed project, if appropriate. Verify that the planning studies used to justify the need for the proposed project considered all other transmission facilities impacting the affected load area that have been approved by this Commission but not yet placed into service.

C. Describe the present system and detail how the proposed project will effectively satisfy present and 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 right-of-way cannot adequately serve the needs of the Company (if that is the case). Indicate the date by which the existing system is projected to be inadequate.

D. If the existing system is, or will at some future time be, inadequate in a contingency situation, please describe this critical contingency including the affected elements and the year and season when the violation 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.

E. Provide, in machine-executable format, all of the power flow models, monitored element files, contingency description files, subsystem definition files, load throw-over files, and economic dispatch files used to evaluate the reliability violations and need for the project. Provide all output files, in machine-executable and readable format, for any power flow analysis conducted in support of the proposed project.

F. Describe the project alternatives considered, if any, for meeting the identified need including any associated studies conducted by the Company or RTO. Explain why each alternative was rejected.

G. 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.

H. Provide a system map, in color and of suitable scale, showing the location and voltage of the Company'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.

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

J. Provide the estimated total cost of the project as well as total transmission related costs and total substation related costs. Provide the estimated total cost for each alternative considered.

K. If the proposed project is required 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.

L. If the proposed project is a rebuild of an existing transmission line, provide five years of outage history, 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 Company 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 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.

M. In addition to the other information required by these guidelines, applications for approval to construct facilities and transmission lines inter-connecting 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 the FERC;

4. Provide the project number and project name used by the 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.

N. Describe the new 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.

II. DESCRIPTION OF THE PROPOSED PROJECT

Note: If the specific data requested in this section is not available prior to actual survey and design of the project, provide all information that is available at the time of the filing of the application.

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

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

2. Provide color maps of suitable scale (including both general location mapping and more detailed GIS constraints mapping in a software format suitable for import into GIS programs) 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, 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 ROW sections that are to be retired;

3. Provide a separate color map of all electrical lines/ROW, either existing or proposed within a 20-mile radius of the proposed project.

4. Provide drawings of the ROW cross section showing typical transmission line structure placements referenced to the edge of the right-of way. This drawing should include:

    a. ROW width for each cross section drawing;

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

    c. Existing utility facilities on the ROW;

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

    e. Provide mapping showing existing and proposed tower heights for each individual structure within the ROW, as proposed in the application, as well as for existing line towers and towers in alternative routes to be noticed.

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

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

7. Indicate the permitted uses of the proposed ROW by the easement landowner and the Company;

8. Describe the Company's route selection procedures. Detail alternative routes considered. Describe the Company's efforts in considering these alternatives. Detail why the proposed route was selected and other alternatives were rejected. In the event the proposed or rejected routes cross land managed by federal or state agencies or private organizations, describe the Company's efforts to secure the necessary ROW;

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

10. Indicate how the construction of this transmission line complies with § 380.15 of Title 18 of the Code of Federal Regulations - Siting and maintenance requirements. For reference purposes, a copy of § 380.15 is included.

11. 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, advise: (1) of each electric utility affected; (2) whether any affected electric utility objects to such construction; and (3) the length of lines proposed to be located in the service area of an electric utility other than the applicant;

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.

B. Line Design and Operational Features

1. Detail the number of circuits and their design voltage, initial operational voltage, any anticipated voltage upgrade, and transfer capabilities;

2. Detail the number, size(s), type(s), coating and typical configurations of conductors. Provide the rationale for any special type of conductor;

3. With regard to the proposed supporting structures over each portion of the ROW please provide:

    a. diagrams and descriptions of all types of structures;

    b. the number of structures and length of ROW relative to each type of structure:

    c. the material for typical structures (steel, oxidizing steel, etc.) and rationale for the selection of such material;

    d. the foundation material;

    e. the width at cross arms for typical structures;

    f. the width at the base of typical structures;

    g. the typical and average span length;

h. the approximate minimum, maximum and average heights of structures;

i. a schematic drawing of each typical structure, including foundation base; and

j. the minimum conductor-to-ground clearances under maximum operating conditions;

4. Describe why the proposed structure types were selected for this line.

5. Provide photographs for typical existing facilities to be removed, comparable photographs for proposed structures, and visual simulations showing the appearance of all planned transmission structures in key locations.

C. Describe and furnish plan drawings of all new substations, switching stations, and other ground facilities associated with the proposed project. Include size, acreage, and bus configurations. Describe substation expansion capability and plans. Provide one-line diagrams for each. Provide usage plans for transmission facilities to be retired, if known.

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

A. Describe the character of the area that will be traversed by this line, including, land use, wetlands, etc. Provide the number of dwellings within 500 feet, 250 feet and 100 feet of the centerline, and within the ROW for each route considered. List any residences the Company may consider purchasing.

B. Describe 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 the affected area or areas.

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

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

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

1. Indicate if 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 § 3.2-205 B of the Code.

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

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

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

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

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

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

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

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

4. Any underwater or underground historic assets designated by the DHR, or predecessor agency or board;

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

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

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

8. Any conservation easement qualifying under §§ 10.1-1009—1016 of the Code, or prior provision of law;

9. Any state scenic river;

10. Any federal, state, or local battlefield, park, forest, game or wildlife preserve, recreational area, or similar facility; features, sites, and the like listed in 1 through 9 above need not be identified again.

11. Any lands owned by a municipality or an associated school board.

G. List any facilities (airports, helipads) where the proposed route would place a structure or conductor within the glide path of the facilities. Advise of contacts, and results of contacts, made with appropriate officials regarding the effect on the facilities' operations.

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 highways' crossings.

I. Provide evidence of coordination with appropriate municipal, state, and federal agencies and summarize those discussions.

J. Provide evidence of coordination with any non-governmental organizations or private citizen groups and summarize those discussions.

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

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

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

B. Describe whether or not significant health effects will result from the construction and operation of the line, and describe in detail the reasons for that opinion and provide references or citations to supporting documentation.

C. Describe any research studies on EMF 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 been reported previously and/or provide substantial additional insight into findings; and

3. Have been subjected to peer review.

V. NOTICE

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

B. List Company offices and, if applicable, any other public locations where members of the public may inspect the application.

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 or will furnish a copy of the application.

D. Verify that prior to the filing of the application with the SCC for approval of construction of the proposed project, the Company has notified the chief administrative officer of every locality in which the electric utility plans to undertake construction of any electric transmission line of 138 kV or more of its intention to file such an application and that the Company gave the locality a reasonable opportunity for consultation about the proposed line (similar to the requirements of § 15.2-2202 of the Code for electric transmission lines of 150 kV or more).

E. Please provide recommendations for potential locations for local hearings to be held, should such hearings become necessary.

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Additional SCC Staff Guidelines Adopted from the FERC Regulations for Filing Applications for Permits to Site Interstate Electric Transmission Facilities

Code of Federal Regulations
Title 18 - Conservation of Power and Water Resources
Volume: 1
Date: 2012-04-01
Original Date: 2012-04-01
Title: Section 380.15 - Siting and maintenance requirements.

Context: Title 18 - Conservation of Power and Water Resources.
CHAPTER I - FEDERAL ENERGY REGULATORY COMMISSION, DEPARTMENT OF ENERGY. SUBCHAPTER W - REVISED GENERAL RULES. PART 380 - REGULATIONS IMPLEMENTING THE NATIONAL ENVIRONMENTAL POLICY ACT.

§ 380.15 Siting and maintenance requirements.

(a) *Avoidance or minimization of effects*. The siting, construction, and maintenance of facilities shall be undertaken in a way that avoids or minimizes effects on scenic, historic, wildlife, and recreational values.

(b) *Landowner consideration*. The desires of landowners should be taken into account in the planning, locating, clearing, and maintenance of rights-of-way and the construction of facilities on their property, so long as the result is consistent with applicable requirements of law, including laws relating to land-use and any requirements imposed by the Commission.

(c) *Safety regulations*. The requirements of this paragraph do not affect a project sponsor's obligations to comply with safety regulations of the U.S. Department of Transportation and recognized safe engineering practices for Natural Gas Act projects and the National Electric Safety Code for section 216 Federal Power Act projects.

(d) *Pipeline and electric transmission facilities construction.*

(1) The use, widening, or extension of existing rights-of-way must be considered in locating proposed facilities.

(2) In locating proposed facilities, the project sponsor shall, to the extent practicable, avoid places listed on, or eligible for listing on, the National Register of Historic Places; natural landmarks listed on the National Register of Natural Landmarks; officially designated parks; wetlands; and scenic, recreational, and wildlife lands. If rights-of-way must be routed near or through such places, attempts should be made to minimize visibility from areas of public view and to preserve the character and existing environment of the area.

(3) Rights-of-way should avoid forested areas and steep slopes where practical.

(4) Rights-of-way clearing should be kept to the minimum width necessary.

(5) In selecting a method to clear rights-of-way, soil stability and protection of natural vegetation and adjacent resources should be taken into account.

(6) Trees and vegetation cleared from rights-of-way in areas of public view should be disposed of without undue delay.

(7) Remaining trees and shrubs should not be unnecessarily damaged.

(8) Long foreground views of cleared rights-of-way through wooded areas that are visible from areas of public view should be avoided.

(9) Where practical, rights-of-way should avoid crossing hills and other high points at their crests where the crossing is in a forested area and the resulting notch is clearly visible in the foreground from areas of public view.

(10) Screen plantings should be employed where rights-of-way enter forested areas from a clearing and where the clearing is plainly visible in the foreground from areas of public view.

(11) Temporary roads should be designed for proper drainage and built to minimize soil erosion. Upon abandonment, the road area should be restored and stabilized without undue delay.

(e) *Right-of-way maintenance*.

(1) Vegetation covers established on a right-of-way should be properly maintained.

(2) Access and service roads should be maintained with proper cover, water bars, and the proper slope to minimize soil erosion. They should be jointly used with other utilities and land-management agencies where practical.

(3) Chemical control of vegetation should not be used unless authorized by the landowner or land-managing agency. When chemicals are used for control of vegetation, they should be approved by EPA for such use and used in conformance with all applicable regulations.

(f) *Construction of aboveground facilities*.

(1) Unobtrusive sites should be selected for the location of aboveground facilities.

(2) Aboveground facilities should cover the minimum area practicable.

(3) Noise potential should be considered in locating compressor stations, or other aboveground facilities.

(4) The exterior of aboveground facilities should be harmonious with the surroundings and other buildings in the area.

(5) For Natural Gas Act projects, the site of aboveground facilities which are visible from nearby residences or public areas, should be planted in trees and shrubs, or other appropriate landscaping and should be installed to enhance the appearance of the facilities, consistent with operating needs.

[Order 603, 64 FR 26619, May 14, 1999, as amended by Order 689, 71 FR 69741, Dec. 1, 2006; Order 756, 77 FR 4895, Feb. 1, 2012]