

PPL ELECTRIC UTILITIES CORPORATION SITING REQUIREMENTS FOR INDEPENDENT POWER PRODUCERS

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PURPOSE/APPLICABILITY

To ensure that Independent Power Producers (IPPs) selecting the “Option to Build” with the intent of turning the facilities (transmission lines, substations and switchyards) over to PPL Electric Utilities Corporation (PPL Electric), site said facilities in a responsible manner and in an appropriate location.

INTRODUCTION

When developers select the “Option to Build” in the PJM Generator Interconnection process or are otherwise siting facilities for which PPL Electric will take ownership, PPL Electric has a vested interest on behalf of itself and its customers in ensuring that facilities are properly sited. Proper siting ensures that facilities are located in appropriate locations that don’t increase operational costs, jeopardize safety of PPL Electric employees or contractors, jeopardize safety of the general public or have unreasonable impacts to both the natural and built environments.

In 1978, the Pennsylvania Public Utility Commission (PUC or the Commission) promulgated regulations regarding the siting of high-voltage transmission lines¹. In doing so, the Commission concluded:

Electric utility services are vital to commerce and industry, and to the general health, safety, and welfare of the people of Pennsylvania. The Commission is committed to the goal of ensuring the continuity of safe, adequate electric utility services at reasonable rate levels.

Increasing demand and changing patterns of electric power generation and consumption have required and will continue to require the construction of new electric transmission facilities. However, these facilities cannot be constructed without substantially affecting the environment and without impacting upon the public health and safety.

Overhead electric transmission facilities, with their required cleared rights-of-way and aerial structures, necessarily impact upon the environment. Also, as design capabilities increase, the potential threat of accidental grounding and of electrostatic interference with human activity becomes substantial.

¹ While the PUC does not require certification of substation and switchyard sites, PPL Electric uses the same process in selecting sites for these facilities due to their potential impacts on both the social and natural environment.

It is essential in the siting, construction, and maintenance of overhead electric transmission facilities to minimize any adverse effect upon the environment and upon the quality of human life in the areas in which new facilities will be located, and to minimize any potential hazards to public health and safety. Therefore, the Commission is proposing a regulation which will provide for Commission review of the siting and construction of overhead electric transmission lines.

Re Proposed Electric Regulation, 49 Pa. P. U. C. 709-10 (1976).

PPL Electric believes that the statements of the Commission that are cited above hold true to this day. PPL Electric recognizes that many actions necessary to produce and provide electricity impact both the social and natural environment. PPL Electric is committed to minimizing those impacts by acting in a responsible manner.

The IPP is responsible for conducting a proper Siting Study to determine the appropriate location for transmission lines with a design voltage of 69 kV or higher, and all substation and switchyard sites. PPL Electric strongly recommends that the developer engage a consulting firm experienced in siting high-voltage electric facilities in Pennsylvania to assist in the process. The Siting Study shall be consistent with PPL Electric's Guidelines to Siting Substation/Switchyard Sites and Transmission Lines included as Attachment 1.

At the conclusion of the siting study, and before PPL Electric takes ownership, the developer shall provide to PPL Electric a report that is acceptable to PPL Electric and clearly documents the entire siting process. At a minimum the report shall include the following:

- A project study area map.
- Environmental inventories, including a detailed description and mapping of the characteristics of the study area in accordance with Attachment 2).
- A description of routing/site alternatives.
- A discussion of the merits/detriments of each alternative.
- A discussion of the decision making used in selecting the preferred line route and/or substation/switchyard site.
- A discussion of the impacts and mitigating measures for the preferred alternative.

The siting study shall be provided and approved in writing by PPL Electric prior to the IPP initiating acquisition of the land or land rights needed to construct the facilities. Once the Siting Study is approved by PPL Electric, the IPP may begin acquisition of the property or land rights in accordance with PPL Electric's Right of Way Requirements for Independent Power Producers.

The IPP shall be responsible for providing all required documentation to PPL Electric such that PPL Electric can prepare and submit PUC applications, when needed. PPL Electric will file all required applications with the PUC.

ATTACHMENT 1

Guidelines to Siting Substation/Switchyard Sites and Transmission Lines

This document provides guidelines for the selection of sites and routes for transmission lines and substation/switchyard sites. This procedure discusses the methodologies and processes to be applied for the selection of substation sites, switching stations, and all new or rebuilt transmission lines, 69 kV and above. Since each project comes with its own set of challenges, the specific methodologies and processes applicable to each individual project shall be identified on a project by project basis and shall meet all regulatory requirements. However, at a minimum the following items shall be completed.

1. Project Study Area Defined

For transmission line projects, the Study Area encompasses the source and destination points. When the project involves siting of new substations, a functional area will be determined by Transmission or Distribution Asset Management. The functional area will include the location where the demand for electrical service is concentrated with consideration for source and destination transmission lines, existing distribution system infra-structure and will also be centrally located with respect to other existing substations. The functional area is located within the Project Study Area.

Defining the Study Area is important because it sets the limits on the amount of information to be collected (e. g., aerial photography, environmental inventories) and minimizes public concern by those not directly affected by the project.

Man-made or natural barriers that would restrict line construction determine lateral boundaries. Absent such barriers, boundaries are set at a location beyond which the length and/or costs of line construction become unreasonable.

2. Environmental Inventories

The PUC siting regulations require a description of studies and efforts to minimize impacts upon:

- The environment
- Scenic areas
- Historic areas and sites
- Land use
- Soil and sedimentation
- Plant and wildlife habitats
- Terrain
- Hydrology
- Landscape

Additionally, the PUC requirements state that the following areas of significance within 2 miles of the right of way must be identified:

- Archaeological
- Geologic
- Historic
- Scenic
- Wilderness areas
- Cultural resources

The collection and mapping of this data is known as the Environmental Inventory and is the basis for identifying suitable line routes and substation sites. Refer to the Guideline for Environmental Inventories for further guidance (included as Attachment 2).

3. Governmental Contacts

It is advisable to meet with municipal, county, and locally elected state officials. These meetings should be held early in the process before line routing or substation site alternatives have been selected and before public meetings are held. These meetings have several benefits including:

- They frequently provide valuable information on local politics.
- They establish lines of communication with the company.
- They have the potential to provide partnership opportunities with the company.
- They provide officials with a “heads up” and allow them to effectively respond to concerns from their constituents.

These officials should be kept “up-to-date” as the project unfolds. Contact with governmental agencies shall be in accordance with the Public Outreach Plan.

4. Public Outreach Plan

PPL Electric understands the right and the need for residents in and around the project study area to be notified, informed, and to provide feedback to the Project Team on proposed PPL Electric facilities. To facilitate this exchange of information, the Siting Contractor is responsible for developing and implementing a Public Outreach Plan based on input from PPL Electric Utilities Communications Department.

The Public Outreach Plan is the blueprint that is followed to ensure the public is involved in the decision-making process as appropriate for new PPL Electric substations and new or relocated transmission lines.

The Public Outreach Plan details and identifies the audiences, key messages, the vehicle through which the message is to be delivered, and the timing of the communications. This plan is developed and executed by the members of the Project Team who have a stake in the results.

5. Alternative Analysis

Based upon all the information gathered and input received, alternative sites and line routes are developed. The Project Team evaluates and documents the environmental and land use impacts of each alternative. Costs for each alternative are also developed. The Project Team ranks the alternatives based upon their environmental and land use impacts, public and governmental input, and costs.

6. Public Outreach – Obtain Public Input

If Open Houses are identified in the Public Outreach Plan, The Siting Contractor shall prepare an Open House Plan that summarizes the details pertaining to the Open House. Letters to residences, news releases and advertisements are prepared and published that announce the meetings and briefly describe the project. A map should be included that outlines the project study area.

The public meetings should be viewed as two-way communications. The Project Team educates the public about the need for the project, describes the process utilized in identifying and selecting alternative substation sites and line routes, and describes the proposed facilities. The public will provide feedback on preliminary alternatives, identify new alternatives and update or correct the Environmental Inventory mapping. If appropriate, an EMF specialist is available to address concerns in that area.

On more complex projects a mailing list should be compiled of all meeting attendees. This mailing list can be utilized to keep the public informed of project progress and to announce other significant events such as the selection of the preferred line route.

7. Selection of the Preferred Alternative

The PUC recognizes the complex social issues encountered in siting high voltage transmission lines. Therefore, the PUC has determined through its decisions and orders that preferred line routes achieve a standard of reasonableness and are not held to some subjective higher standard.

Historically, PPL Electric has been highly successful in selecting preferred line routes that carefully balance public concerns, environmental impacts, engineering considerations and cost. PPL Electric applies these same standards to substation sites, which are exempt from PUC siting regulations.

8. Public Outreach – Announce the Preferred Alternative

All stakeholders are notified of the preferred line route or substation site alternative through additional public meetings and mailings as included in the Public Outreach Plan. Again, mailings, news releases and advertisements are prepared and published that announce the meetings and briefly describe their intent. During these meetings, the final alternatives, their

environmental impacts, and any mitigation plans and construction costs are reviewed with the public. Input and comments from the public are solicited for further consideration.

ATTACHMENT 2

ENVIRONMENTAL INVENTORY GUIDELINES

The environmental inventory shall list environmental factors considered when evaluating and selecting transmission line routes. These factors can be adversely affected by, or be compatible with, transmission facilities.

Major factors that shall be included within the environmental inventory and the reasons why they are inventoried are listed in the following table:

CATEGORY

WHY INVENTORIED

A. Linear Features

- | | |
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| 1. Turnpikes, Interstate Highways, Major U.S., Pennsylvania, and Legislative Routes (LR) | Paralleling existing linear features, particularly transmission lines, is often desirable for several reasons. Paralleling usually adds only incrementally to existing impacts, rather than creating new impacts. Narrower rights-of-way are needed because maximum utilization is made of land already encumbered. Existing access roads can be used, less tree clearing is needed, and, from a community planning perspective, the combination of linear features into a common corridor is desirable. |
| 2. Pipelines | |
| 3. Railroads | |
| 4. Floodwalls, Levees | |
| 5. Communication Facilities | |
| 6. Property Lines | |
| 7. Vacant Right-of-Way | |
| 8. Power Lines | |
| 9. Tree Rows | |

B. Land Use

- | | |
|------------------------|---|
| 1. Residential | Whenever possible, avoiding present and proposed residential development is desirable because land use impacts, potential visual intrusions and costs are minimized. Compatible joint uses of land are also explored. |
| a. Dwellings | |
| b. Subdivisions | |
| c. Developments | |
| d. Future Developments | |
| e. Urbanized Areas | |

CATEGORY

WHY INVENTORIED

- | | |
|------------------------------------|--|
| 2. Commercial and Industrial | Because these areas are generally compatible with transmission facilities, the possibility of routing through these areas is explored. |
| 3. Interference Zones | These are usually avoided, if feasible. If this is not feasible, undergrounding or mitigating measures are considered. |
| a. Radio Stations | |
| b. Microwave Towers | |
| c. Airports | |
| 4. Agricultural | Generally, this is a compatible land use. There is minimal impact at the borders of these areas. The number of structures is kept to a minimum, and irrigation equipment is avoided. |
| a. Cropland | |
| b. Pasture | |
| 5. Public Areas | Visual intrusions into these areas are avoided where possible. |
| a. Cemeteries | |
| b. Churches | |
| c. Hospitals | |
| d. Schools | |
| 6. Recreational Areas | Visual intrusions into these areas are avoided where possible. |
| a. Parks | |
| b. Golf Courses | |
| c. Ski Areas | |
| d. Preserves and Game Lands | |
| e. Tourist Recreational Facilities | |

CATEGORY

WHY INVENTORIED

7. Extractive

- a. Coal
- b. Limestone
- c. Peat Bogs

Areas where significant mineral resources can be economically extracted are generally avoided.

Where practical, lines span small areas and are routed along boundaries.

8. Orchards and Nurseries

Removal of productive trees and interference with orchard maintenance (spraying, irrigating, etc.) are avoided where possible.

C. Visual and Scenic Features

1. Unique Scenic Areas

It is preferable to avoid these areas.

2. Highpoints

- Prominent Slopes
- Ridge Lines
- Panoramic Views
- Scenic Highways
- Residential Areas

These features are avoided where practical to eliminate or minimize visual intrusion in areas of potentially high visual exposure and scenic quality. Views from residential areas are avoided, if possible.

D. Soils and Slopes

1. Soils

- a. Shallow Bedrock
- b. Stony Soils
- c. Wet Soils
- d. Erodible Soils

These soil types are generally avoided due to both construction and environmental constraints. High construction costs and disruption to the area may result from blasting, road construction, structure grading and setting, and material handling and hauling.

2. Slopes

Steep slopes (15 percent to 25 percent or greater) are avoided where possible to minimize the potential for soil erosion and slower revegetation.

CATEGORY

WHY INVENTORIED

Again, increased construction costs and environmental damage may occur when building on slopes due to road construction, vegetation clearing, and the handling, hauling and setting of structures.

3. 100-Year Floodplain

These areas are generally avoided to prevent potential disruption of floodplains and flood control facilities. Construction costs necessary to maintain reliability also are higher.

E. Cultural Features

1. Historic Sites

Visual intrusions on historic sites are avoided where possible.

2. Archaeological Areas

Known sites and areas of high potential are avoided to prevent damage to resources.

F. Geology

Bedrock type is determined to predict the potential presence of endangered species and other wildlife, and mineral resources are identified. Special attention is given to certain bedrock types with particular characteristics or problems. Caves, springs, and sinkholes are avoided.

1. Unique Geological Areas

Visual intrusions on unique formations and destruction of collection sites are avoided where practical.

CATEGORY

WHY INVENTORIED

G. Natural Features

1. Aquatic Resources, Water Bodies,
Streams, Rivers and Wetlands

a. Water Quality

The potential for siltation or obstruction with silt or mud, and temperature increases due to removal of bank vegetation are avoided to the greatest extent possible. Special caution is exercised near waters recognized for exceptional quality. Measures used to mitigate effects of crossing water bodies may result in reduced reliability or increased maintenance costs.

b. Fish, Aquatic Life

Major aquatic organisms present in potentially affected water bodies are identified to determine potential impacts.

Widely used fisheries are avoided. If this is not practical, caution is exercised in crossing to prevent decrease in water quality, especially due to siltation.

The presence or likely occurrence of endangered or threatened aquatic species is determined, and known locations of such species are avoided or impacts are mitigated.

2. Terrestrial Resources

a. Vegetation Types

Major types of vegetation are identified to characterize area habitats and predict the occurrence of wildlife species and potential

CATEGORY

WHY INVENTORIED

impacts of removing these vegetation types. Important areas are identified, especially vegetation not common in the area, and attempts are made to avoid them where possible (e.g., coniferous growth in a primarily deciduous woodland; trees in an urban area, etc.).

An attempt is made to minimize clearing of wooded areas, which is considered a constraint due to disruption of existing environment, costs of clearing, future maintenance, and reduced liability. However, clearing through areas of heavy woodland can benefit wildlife as open areas resprout and are widely used as browse and cover areas.

Attempts are made to avoid or minimize interference with commercially-used vegetation and tree plantations, lumbering operations, etc.

b. Wildlife

Positive and negative impacts on area species are predicted.

The presence or likely occurrence of endangered or threatened animal species or their critical habitat requirements are considered. Known areas of occurrence are avoided or impacts are mitigated.

c. Unique Natural Wilderness Areas

Visual intrusion and disruption of the natural environment should be avoided where possible.