



Williston to Tioga Transmission Line Project

Environmental Assessment for
Pre-approval Review

DOE/EA - 1635



March 2010

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Acronyms and Abbreviations

°C	degrees Celsius
AAQS	Ambient Air Quality Standards
AIRFA	American Indian Religious Freedom Act of 1978
amsl	above mean sea level
APLIC	Avian Power Line Interaction Committee
BEPC	Basin Electric Power Cooperative
BFE	Base Flood Elevation
BGEPA	Bald and Golden Eagle Protection Act
BMP	best management practice
CFR	Code of Federal Regulations
CO ₂	carbon dioxide
Council	Advisory Council on Historic Preservation
CRP	Conservation Reserve Program
CWA	Clean Water Act
DOE	Department of Energy
DOT	Department of Transportation
EA	Environmental Assessment
EFH	essential fish habitat
EIS	Environmental Impact Statement
EMF	electric and magnetic fields
EO	Executive Order
ESA	Endangered Species Act
FEMA	Federal Emergency Management Agency
GLO	General Land Office
HPTP	Historic Properties Treatment Plan
kV	kilovolt
MBTA	Migratory Bird Treaty Act
Metcalf	Metcalf Archaeological Consultants, Inc.
MLRA	Major Land Resource Area

MW	megawatt
NAGPRA	Native American Graves Protection and Repatriation Act
NDCC	North Dakota Century Code
NDGFD	North Dakota Game and Fish Department
NDNHI	North Dakota Natural Heritage Inventory
NDPSC	North Dakota Public Service Commission
NEPA	National Environmental Policy Act of 1969
NESC	National Electrical Safety Code
NFIP	National Flood Insurance Program
NHPA	National Historic Preservation Act
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
OPGW	optical groundwire
Project	Williston to Tioga Transmission Line Project
ROW	right-of-way
SFHA	Special Flood Hazard Area
SHPO	State Historic Preservation Officer
SPCC Plan	Spill Prevention, Control, and Countermeasures Plan
SSURGO	Soil Survey Geographic database
SWPPP	Storm Water Pollution Prevention Plan
TCPs	traditional cultural properties
U.S.	United States
USC	United States Code
USDA	United States Department of Agriculture
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
Western	Western Area Power Administration

Executive Summary

Basin Electric Power Cooperative (BEPC) proposes to construct and operate a new 230-kilovolt (kV) transmission line to meet existing and future electric power requirements in northwestern North Dakota, and to interconnect this new transmission line to the Western Area Power Administration's (Western) transmission system. BEPC's proposed new Williston to Tioga Transmission Line Project (hereafter referred to as BEPC's Proposed Project) would transfer power from Western's transmission system at Williston, North Dakota, to the Montana-Dakota Utilities Tioga Substation, near Tioga, North Dakota, in Williams and Mountrail counties.

Western is mandated to respond to requests for interconnection and is required to identify and evaluate potential environmental impacts of its Federal action and the potential impacts of the applicant's Proposed Project in compliance with the National Environmental Policy Act (NEPA). Western has determined that, if the interconnection request is granted, Western would need to make modifications within its existing Williston Substation. The environmental impacts of the substation modification were analyzed in the Wolf Point to Williston Transmission Line Rebuild Environmental Assessment (EA) (prepared August 2003) and are considered part of Western's Federal action for this Project. Western's Federal action is limited to making a determination to approve or deny BEPC's interconnection request, and to make any necessary system modifications to accommodate the interconnection of BEPC's Proposed Project. It does not include the Williston to Tioga Transmission Line Project, although this EA analyzes and discloses the potential environmental impacts of BEPC's Proposed Project.

BEPC is required to obtain a permit from the North Dakota Public Service Commission (NDPSC) for construction and operation of the proposed transmission line. Permitting requirements include avoidance of residential structures, parks, and important ecological resources. BEPC's NDPSC environmental and Western's NEPA requirements are integrated into this EA.

Western's Federal Action

Western's Open Access Transmission Service Tariff (Tariff) provides open access to its transmission system. Open access is provided through an interconnection, if transmission system capacity is available. BEPC has applied to interconnect to Western's power transmission system at the Williston Substation. Western must make a determination that the requested interconnection can be made. In order to make that determination, the potential environmental effects need to be determined and evaluated through the preparation of this EA.

Western must consider BEPC's request for interconnection at Williston Substation and, if the action alternative is adopted, make modifications to the substation necessary to accommodate the interconnection. If Western adopts the No Action Alternative, Western would not approve the interconnection request, and no modification of the Williston Substation would take place. In response to the Need for Agency Action, Western must adhere to the following:

- Provide Transmission Service. Under Western's Tariff, the agency offers capacity on its transmission system to deliver electrical power when such capacity is available. The Tariff complies with the Federal Energy Regulatory Commission's Final Order Numbers 888, 888A, 888B, and 888C, which are intended to ensure non-discriminatory transmission system access.
- Protect Transmission System Reliability and Service to Existing Customers. Western needs to ensure that existing transmission system reliability and service would not be degraded. Western conducts transmission and system studies to ensure that system reliability and service to existing customers are not adversely affected by proposed new interconnection.
- Consider the Applicant's Objectives. Since the statement of Purpose and Need affects the extent to which alternatives are considered reasonable, it is important to understand both Western's Purpose and Need and that of the applicant.

The expansion of Williston Substation was evaluated for potential environmental impacts in this analysis and in the Wolf Point to Williston Transmission Line Rebuild EA (prepared August 2003). If Western approves the interconnection request, the Williston to Tioga Transmission Line Project would interconnect to substation equipment within this expansion.

BEPC's Proposed Project Location and Description

BEPC's Proposed Project would be located in northwestern North Dakota, almost entirely in Williams County. Williston Substation is located west of the City of Williston, in Williams County; Tioga Substation is located northeast of the City of Tioga, less than two miles into western Mountrail County. The Project location is shown on **figure ES-1**.

BEPC proposes to construct, own, operate, and maintain a 230-kV, single-circuit transmission line using steel single-pole self-supporting structures within a 125-foot-wide right-of-way (ROW). If an interconnection is approved, Western would be responsible for modifying the 230-kV bay at Williston Substation to accommodate interconnection of the new transmission line. Modifications at the Williston Substation also were addressed as part of Wolf Point to Williston Transmission Line Rebuild EA (prepared August 2003).

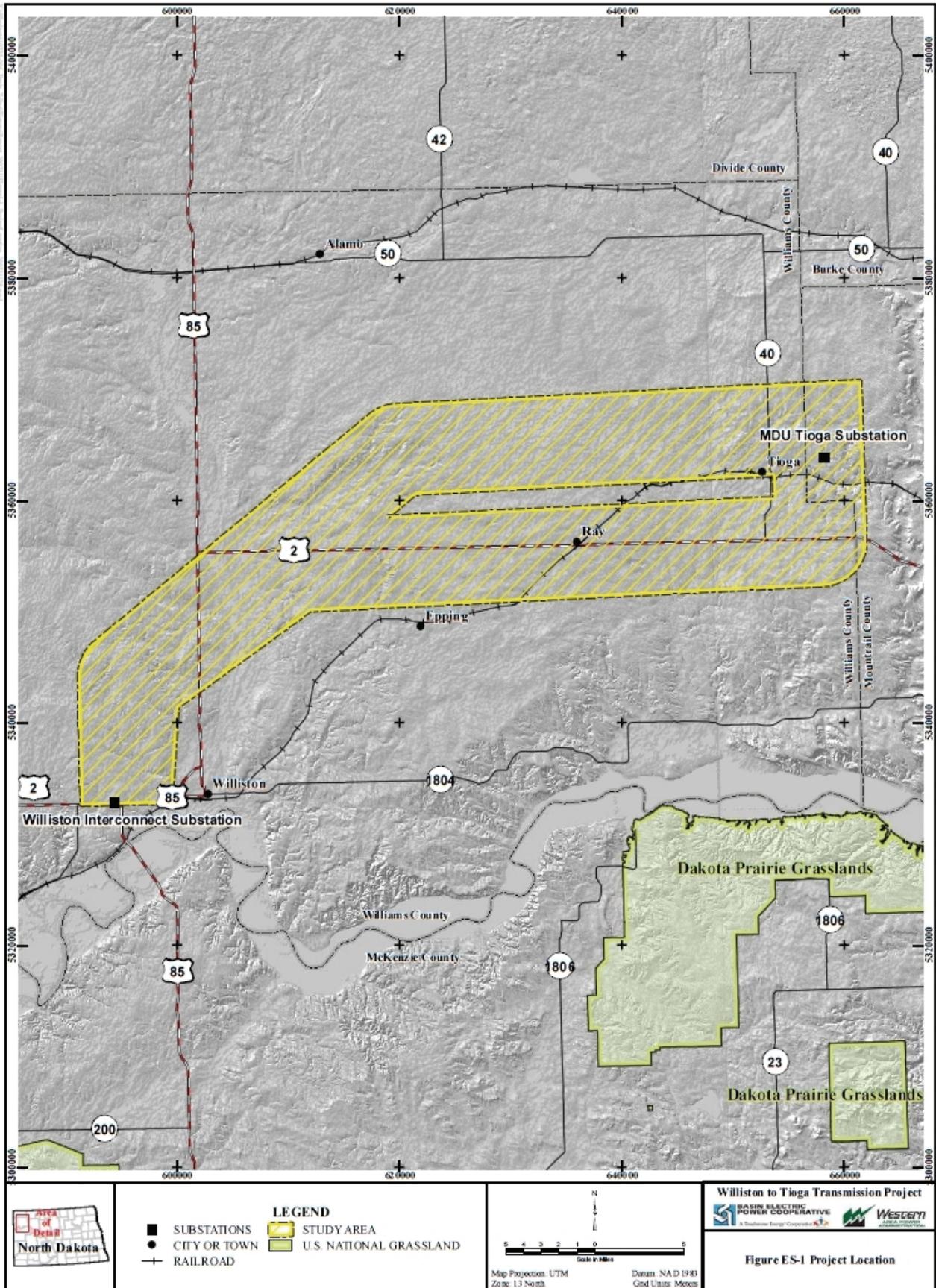
The single-pole transmission line structures would range in height from approximately 95 to 120 feet and average 110 feet, depending on span distances between structures and area topography. The span between structures would range from 700 feet to 950 feet and average approximately 800 feet, depending on topography; taller structures could be used for crossing existing distribution and transmission lines or where unusual terrain exists. The single-pole structures would be designed to support three conductors and an overhead optical groundwire (OPGW). The OPGW would provide lightning suppression and fiber optic communications between the Williston and Tioga substations for systems control. Tangent structures would be free-standing and directly imbedded into the soil. Angle structures (used where the transmission line changes direction) and dead-end structures (used to provide longitudinal stability along the length of the line) would be steel with concrete foundations. Guy wires and anchors would not be used.

BEPC's transmission line design and construction would meet the requirements of the National Electrical Safety Code for the Heavy Loading District, BEPC design criteria, and other applicable local or national building codes. The Heavy Loading District refers to those areas (including North Dakota) that are subject to severe ice and wind loading.

Project Scoping

Scoping meetings were held at two locations, Williston and Tioga, North Dakota, to provide Project information and to receive comments from the public and agencies. Meeting announcements were sent to potentially affected landowners, governmental officials, tribes, and the media. Paid meeting announcements were advertised through radio and newspapers. Additional meetings were held with local community commissioners and county planning and zoning boards. Flyers were posted in storefronts and other community gathering places in the towns of Williston, Tioga, Epping, Springbrook, Ross, Stanley, and Ray.

The "owner's preferred route" presented during the scoping period was revised in response to public comments. As a result of the changes, landowners that could be affected by the new Preferred Route were identified. Advertisements notifying the public of the proposed changes were placed in the newspaper. Additionally, BEPC representatives visited with every landowner along the new route to discuss the Proposed Project and obtain survey permission.



Corridor Identification

A six-mile-wide corridor was initially identified from the Williston Substation to the Tioga Substation in accordance with NDPSC requirements. Sensitive environmental resources were identified within the corridor in accordance with NDPSC exclusion and avoidance criteria. Potential optional transmission line routes were then identified within the corridor.

Routing Analysis

BEPC identified preliminary transmission line routes within the previously referenced corridor and presented them to the public during the scoping meetings. Input from the public resulted in the selection of a Preferred Route and two Route Options for further consideration, referred to as Route Options A, B, and C. BEPC engineers, lands specialists, and environmental specialists worked with landowners intensively to identify and refine a Preferred Route in response to landowner concerns. The selected route avoided residential structures, most cropland, and environmentally sensitive areas such as wetlands and cultural resources.

The Preferred Route, or Route Option C, would be approximately 61.1 miles in length and would permanently affect less than 0.2 acre. Construction of the Proposed Project along the Preferred Route would result in temporary impacts to approximately 273 acres, needed for structure pads (work sites), a 12-foot-wide access trail between structure sites, pulling and tensioning sites, and splicing sites. Temporary use areas would be needed for three material staging areas. Project-specific mitigation measures were identified and would be followed by BEPC to minimize environmental impacts.

Impacts of Western's Federal Action

Operation of the Williston – Tioga Transmission Line would require an interconnection at Western's Williston Substation. Expansion of the substation was evaluated for potential environmental impacts as part of this EA and in the Wolf Point to Williston Transmission Line Rebuild EA (prepared August 2003). The 230-kV bay within Williston Substation would be modified to accommodate the interconnection and all modifications would be within the existing substation footprint.

Impacts of BEPC's Proposed Project

Jurisdictions, Land Use and Agricultural Practices

Temporary construction impacts of BEPC's Proposed Project were determined based on the need for access trails, pulling and tensioning sites, splicing sites, and structure work sites. Construction of Route Option C (Preferred Route) would temporarily affect 273 acres. A total of 0.2 acre would be permanently impacted by structure bases. Temporary impacts to prime and unique farmlands are expected to total 3.0 acres.

Actual impacts to agricultural practices would be similar among the three Route Options. Use of single-pole structures would minimize impacts to agricultural activities and allow cultivation to take place immediately adjacent to each structure footprint. The final alignment would avoid sensitive resources.

Although croplands and planted herbaceous perennials were avoided to the extent practicable, more of these areas would be temporarily affected by construction of Route C (175 acres) than by construction of Route Options A or B (147 or 132 acres). Construction of the Preferred Route also would affect more scrubland and barren land than would be affected by construction of either Route Option A or B. Wetlands and riverine areas would be avoided or spanned, regardless of route. The Preferred Route is longer than Route Options A or B, largely due to minor route adjustments that were made to accommodate landowner wishes. The Preferred Route would impact more cropland and herbaceous perennial lands as a result of its longer length, and because greater portions of Route Options A and B would cross pastureland and rangeland diagonally. Route Option C would mostly parallel road and property lines within cultivated lands.

Physiology, Geology, Soils, and Minerals

Previous mining activities have created localized subsidence that could affect structure placement. The potential for soil compaction and erosion is relatively low; impacts to soils would be reduced by BEPC scheduling construction activities to avoid wet conditions. The Proposed Project is not expected to impact area mineral resources, including active oil and/or natural gas wells.

Hydrology and Drainage

Impacts to floodprone areas and drainages are not anticipated because they would be avoided or spanned.

Vegetation and Wetland Resources

Construction of Route Option C would temporarily affect 153 acres of cropland. However, cultivation would return croplands to their pre-construction condition. Wetlands would not be impacted because they would be avoided or spanned.

Wildlife and Fisheries

Construction of BEPC's Proposed Project would result in the temporary displacement of highly mobile game and non-game species. Direct impacts to low-mobility species could result in some loss of individuals, primarily due to crushing. BEPC would carry out pre-construction surveys to identify the presence of migratory species; active nests would be avoided during construction. Structure design, conductor-to-conductor spacing, and conductor-to-ground spacing exceed the wingspan of avian species and would be sufficient to preclude electrocution of raptors that could use the area for nesting and/or foraging.

Fisheries resources are minimally present in the Project area; those that are present would be spanned. Therefore, impacts to such resources are not expected.

Special Status Species

Impacts to federally listed species (whooping crane [*Grus americana*] and piping plover [*Charadrius melodus*]) are expected to be minimal due to project location and lack of habitat. The Project site is located within the western edge of the whooping crane flyway and habitat that would support the species is considered marginal. Western and BEPC will comply with mitigation measures required by the U.S. Fish and Wildlife Service for their respective actions. Habitat that would support piping plover also is marginal along the preferred transmission line route. Most ponds are of marginal quality and not suitable for the species. The Dakota skipper is not found in western Mountrail County or Williams County; therefore, the species would not be impacted.

Archaeological Resources

A total of 55 archaeological and historic sites and nine isolated finds were recorded during Class III pedestrian surveys of Route Option C (Preferred Option). All nine isolated finds were recommended as not eligible for the NRHP and no further work is recommended for the sites. The NRHP-eligibility of the 55 archaeological and historic sites is currently unknown; however, the sites would be either spanned or otherwise avoided during line construction.

Changes in the original route necessitated an additional Class III cultural resource survey that was carried out during the spring 2009. The additional survey covered approximately 22.08 miles of transmission line right-of-way, totaling approximately 535.26 acres. Twelve new cultural resource sites were recorded and three previously known sites were relocated and the site forms were updated. Thirteen of the 15 sites were considered to be potentially eligible for the National Register of Historic Places. The remaining two sites consisted of remnants of a school house and an historic dwelling, which were determined not to be eligible. The proposed transmission line would avoid all sites that were identified during the fall 2008 and spring 2009 field surveys. Therefore, no adverse effects to archaeological or historic resources are expected to occur as a result of BEPC's Proposed Project. The North Dakota State Historic Preservation Officer reviewed the Class III

report and recommended that “no historic properties (would be) affected” and that “no significant sites (would be) affected” by construction and operation of the proposed transmission line.

Native American Setting

Western initiated Native American consultation with letters to ten tribes on August 1, 2008. The Rosebud Sioux tribe, the only tribe to respond to the letters, indicated that they had no objection to the Project.

Paleontological Resources

Although paleontological resources may be present within the area, the preferred transmission line route is predominantly located on surface glacial deposits where there is low potential for finding important fossils.

Transportation

BEPC's Preferred Route is located near two public airports and a private landing strip. Analyses of proposed alignments indicate that the Preferred Route would not penetrate airspace of any of the three airports. The proposed transmission line would parallel and cross area highways and the Burlington Northern – Santa Fe Railroad. BEPC would utilize temporary H-frame structures to elevate the conductors at highway and railroad crossings during construction. The H-frame structures would be removed following construction and each site would be returned to preconstruction conditions.

Socioeconomics

Potential socioeconomic impacts would be minimal, primarily due to BEPC's use of single-pole structures, avoidance of cultivated fields to the extent practicable, and scheduling construction activities to avoid periods of relatively high precipitation. BEPC's Proposed Project would provide short-term beneficial impacts to the local economy. Direct impacts to individuals would be limited to approximately 96 landowners.

Environmental Justice, Visual Impacts, and Noise

BEPC's Proposed Project would not impact a disproportionate number of minority individuals. Therefore, environmental justice issues are not anticipated. Visual impacts would be limited to rural areas with relatively low population numbers. Potential visual and noise impacts are expected to be temporary and minimal and only present in scattered locations.

Cumulative Impacts

NEPA requires the identification and consideration of incremental impacts that are related to the Proposed Action when added to other past, present, and reasonably foreseeable actions (40 CFR 1508.7). Reasonably foreseeable future actions that could contribute to cumulative impacts include the proposed Belfield to Rhame Transmission Line Project, MDU T1 – T2 Reconductoring Project, Williston to Watford Rebuild Project, Watford to Charlie Creek Rebuild Project, the T2 230/115-kV Transmission Line Replacement Project, and ongoing development of oil and gas fields.

BEPC's construction, reconductoring, and rebuilding of these transmission lines in the area would result in some impacts that are similar to those identified for the proposed Project. The proposed Belfield to Rhame Project would have a greater contribution to cumulative impacts than reconductoring, rebuilding, or replacement projects because it would require new ROW, structures, and conductor. Reconductoring, rebuilding, and replacement projects generally are limited to the use of existing ROWs and may use existing structures.

Impacts that would be considered to contribute to cumulative effects of the Belfield to Rhame Transmission Line Project and the Williston to Tioga Transmission Line Project include the combined temporary impacts to approximately 570 acres within the two project areas. In combination, the two projects also would result in temporary impacts to nearly 300 acres of cropland and 231 acres of rangeland/grassland. Long-term impacts associated with the Williston to Tioga Transmission Line Project would contribute minimally (less than 0.2 acre) to land use impacts.

BEPC's Proposed Project would not contribute to global warming because fossil fuel combustion would be limited to construction and maintenance activities. Opportunities for intentional acts of destruction would be increased within the region as a result of a new transmission line.

None of the expected environmental impacts of BEPC's Williston to Tioga Transmission Line Project were found to be significant, and it also is not anticipated that the cumulative effects, when considered with the development discussed above, would be significant.

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