

**STATE OF NORTH DAKOTA**  
**PUBLIC SERVICE COMMISSION**

Case No. PU-09-670

**IN THE MATTER OF THE APPLICATION  
OF MINNKOTA POWER COOPERATIVE,  
INC., FOR A CERTIFICATE OF CORRIDOR  
COMPATIBILITY AND ROUTE PERMIT TO  
CONSTRUCT THE CENTER TO GRAND  
FORKS 345 kV TRANSMISSION LINE  
PROJECT IN OLIVER, MCLEAN,  
BURLEIGH, SHERIDAN, WELLS, EDDY,  
FOSTER, GRIGGS, STEELE, NELSON,  
TRAILL, AND GRAND FORKS COUNTIES,  
NORTH DAKOTA**

**MINNKOTA POWER COOPERATIVE, INC.'S APPLICATION  
FOR WAIVER OF THE CORRIDOR WIDTH REQUIREMENT**

In accordance with Section 49-22-07.2 of the North Dakota Century Code and Chapter 69-06-06 of the North Dakota Administrative Code, Minnkota Power Cooperative, Inc. (Minnkota), the Applicant in the above-captioned action, submits to the North Dakota Public Service Commission (Commission) this application for a waiver of the corridor width requirement set forth in Section 69-06-04-02(1)(b) of the North Dakota Administrative Code. Minnkota submits this waiver application in connection with and in advance of its submission of an application for a Certificate of Corridor Compatibility for its Center, North Dakota, to Grand Forks, North Dakota, 345 kV Transmission Line Project (proposed Project).

Consistent with the Commission's Energy and Transmission Facility Guidelines, Minnkota provides the following information in support of its waiver request:

**A. Description of Proposed Project.**

1. **Type:** The proposed Project will consist of approximately 260 miles of 345 kV overhead high voltage transmission line, as well as the modification and/or expansion of three existing substations. Affidavit of Wally Lang (Lang Aff.), ¶ 2.

2. **Product:** The proposed Project will connect baseload power acquired from the Milton R. Young Station Unit 2 (Young 2) coal-fired electric generation facility near Center, North Dakota, to Minnkota's service area. Lang Aff., ¶ 2.

3. **Size and Design:** The proposed Project will consist of the following six major components:

- **345 kV High Voltage Transmission Line** – The proposed Project will include approximately 260 miles of new overhead high voltage transmission line. While final engineering and design have not been completed, it is anticipated that the line will be constructed with single-pole steel structures. Typical structures will be approximately 140-feet-high and will be placed approximately 1,000 feet apart. The typical right-of-way for a single pole 345 kV line is approximately 150-feet-wide. It is also anticipated that the proposed Project will use 795 kcmil (thousand circular mils (conductor diameter)) ACSR (aluminum conductor steel reinforced) or ACSR/TW (trapezoidal wire) conductors (bundled); however, conductor size and type are subject to modification pending completion of additional electrical optimization studies.
- **Center 345 kV Substation Upgrades** – The proposed Project will also include upgrades to the existing Center 345 kV Substation. The upgrades involve installing new 345 kV circuit breakers and 345 kV dead-end structures, a new 345/230 kV transformer and associated bus work, new 345 kV switches, and associated foundations, steel structures, and control panels. The existing 345/230 kV transformer will be replaced with a larger transformer for reliability improvement. A line reactor for open line voltage control may also be required. If the reactor is required, a 22,500 square foot addition to the north end of the substation would be needed; otherwise, all upgrades will occur within the existing substation's fenced boundary.
- **Second 230 kV Tie Line** – The proposed Project will also require a 1,500 foot kV tie line between the Center 345 kV Substation and the Square Butte 230 kV Substation, which will parallel the existing tie line on Minnkota-owned

property. The tie line is necessary to complete the transmission to transmission interconnection with the Square Butte 230 kV Substation.

- Square Butte 230 kV Substation – The proposed Project will include modifications to the Square Butte 230 kV Substation. Existing 230 kV circuit breakers and line terminal equipment will be reallocated from the existing high voltage direct-current (DC) tie line to the new 345 kV interconnection tie line as part of the agreement with Minnesota Power.
- Prairie Substation Upgrades – The proposed Project will include upgrades to the existing Prairie Substation, which involve installing new 345 kV circuit breakers and 345 kV dead-end structures, two new 345/230 kV transformers and associated bus work, new 345 kV switches, and associated foundations, steel structures, and control panels. New 230 kV circuit breakers will be added to accommodate the interconnection with the existing 230 kV ring bus. Certain existing transmission line terminations will be moved to convert the ring bus into a breaker-and-a-half bus arrangement. All upgrades will occur within the existing substation’s fenced boundary.
- Fiber Optic Regeneration Stations – Four fiber optic regeneration stations will be required along the transmission line route to re-amplify the protection and control signals carried in the optical ground wire (OPGW). Each station will require a 12 foot by 18 foot fenced area, small control building to house the electronic equipment, and a 75-foot-long by 16-foot-wide access road. These four stations will be placed at the base of a structure within the permanent 150-foot-wide right-of-way. They will be approximately 75 feet from the nearest section line road.

Lang Aff., ¶ 5. In addition, to the permanent Project components described above, the proposed Project will also require temporary workspace areas, such as staging areas, portable concrete batch plants (that, at the discretion of the foundation contractor, will either be co-located within the staging areas or independently located), temporary access roads, and temporary access locations near highway crossings, which will be utilized only during construction of the proposed Project. *Id.*

4. **Location:** The proposed Project will extend from the Center 345 kV Substation (near Young 2) near Center, North Dakota, to the Prairie Substation near Grand Forks, North Dakota. Lang Aff., ¶ 2. The proposed Project may cross approximately 400 parcels of land

located in Oliver, McLean, Burleigh, Sheridan, Wells, Eddy, Foster, Griggs, Steele, Nelson, Traill, and Grand Forks Counties in North Dakota. See Lang Affidavit, ¶ 3 and Exhibit A (map of proposed Project).

5. **Geographical Service Area**: The proposed 345 kV transmission line will serve eleven member-owner distribution cooperatives of Minnkota in North Dakota and Minnesota. Lang Aff., ¶ 4. These distribution cooperatives serve approximately 118,000 meters and 350,000 people in North Dakota and Minnesota. See *id.*, ¶ 4 and Exhibit B (map depicting locations of Minnkota cooperatives).

6. **Time Schedule**: Minnkota has a target completion date for the proposed Project of January 1, 2013. Lang Aff., ¶ 6. Minnkota proposes to develop the Project on the following schedule:

- Third quarter 2010 – Minnkota will file with the Commission an application for a Certificate of Corridor Compatibility, followed by a separate application for a Route Permit. In addition, Minnkota will, as needed, file applications for conditional use permits with local permitting authorities (counties and townships).
- First quarter 2011 – The Commission and the local permitting authorities grant appropriate certificates and permits for the transmission line.
- Second quarter 2011 – Minnkota will begin construction of the transmission line.
- January 1, 2013 – Minnkota will have completed construction of the transmission line.

*Id.*

7. **Future Plans**: The proposed Project utilizes a base design that will accommodate the output capacity of Young 2, with sufficient margins for outage contingencies. Lang Aff., ¶ 14. Minnkota has received interconnection requests for proposed wind projects seeking to interconnect to the proposed Project. *Id.* Future modifications and/or improvements to the base

design may be required in order to accommodate these interconnection requests, and the parties requesting interconnection would be financially responsible for any network upgrades or modifications required to facilitate interconnection. *Id.* However, due to the inherent uncertainty associated with large wind projects in the early stages of development, Minnkota must proceed with the base design in order to meet its obligations for reliability and load serving capability. *Id.*

**B. Need for Facility.**

Over the past ten years, Minnkota's load has grown at a rate of 2.9 percent annually. Lang Aff., ¶ 8. In addition, Minnkota's 2009 Load Forecast study showed that load is estimated to continue to grow at a rate of approximately 1.9 percent annually over the next 25 years. *Id.* In order to adequately serve this future load growth, Minnkota must increase its baseload generation resources. *Id.* In particular, additional baseload generation is needed by the winter of 2013 to address an increased need for electricity use to serve new residences, commercial accounts, and pipeline pumping projects. *Id.*

To address the need for additional baseload generation resources, Minnkota recently entered into an agreement to amend an existing power purchase agreement (PPA) with Minnesota Power, a division of ALLETE, and Square Butte Electric Cooperative (Square Butte). Lang Aff, ¶ 9. Pursuant to this agreement, Minnesota Power released to Minnkota the rights to its share of generation from the Square Butte-owned Young 2 power station. *Id.* This allows Minnkota to increase its allocation of generation from the Young 2 from 50 percent to 100 percent over the next several years. *Id.* In return, Minnkota has agreed to release its rights for transmitting power from Young 2 on the Square Butte high-voltage direct-current (HVDC) transmission line that terminates near Duluth, Minnesota. *Id.* Thus, as a result of the agreement,

Square Butte transferred ownership of the HVDC transmission line to Minnesota Power. *Id.* The agreement between Minnkota, Minnesota Power, and Square Butte provides Minnkota with an additional baseload power supply without the need to construct a new baseload plant, likely coal-fired, and provides Minnesota Power with existing transmission facilities to develop and deliver substantial wind energy from North Dakota to its consumers in Minnesota. *Id.*

The agreement with Minnesota Power and Square Butte enables Minnkota to begin acquiring additional baseload generation from Young 2 in early 2013. Lang Aff., ¶ 10. However, because the existing Square Butte HVDC transmission line will no longer be available to carry the full generation output of Young 2, the power generated by Young 2 will need to be transmitted via the alternating-current (AC) transmission system to Minnkota's service territory in eastern North Dakota and western Minnesota. *Id.*

Since 2005, regional transmission-system studies have shown that, even without additional load growth, system voltage stability and load serving issues exist in eastern North Dakota and northwestern Minnesota, and that the existing AC transmission system is already operating at capacity. Lang Aff., ¶ 11. System studies also indicate that additional transmission into the northeastern part of North Dakota from the area of concentrated generation in central North Dakota is the preferred alternative in order to address future load growth, system voltage stability, and load serving issues in Minnkota's service territory. *Id.*

Minnkota conducted an Alternative Evaluation Study (AES) for the Rural Utilities Service (RUS) (an agency of the United States Department of Agriculture and primary lender for the proposed Project), which discussed different system alternatives for addressing Minnkota's Young 2 output transmission requirements utilizing the AC transmission system. Lang Aff., ¶ 12. As discussed in the AES, regional transmission studies and Minnkota-specific system

studies have shown that the best solution for addressing Minnkota's transmission requirements, as well as for meeting the voltage stability criteria and load-serving capability needs of the Red River Valley region, is to construct a new transmission facility. *Id.* Furthermore, as discussed in the AES, an analysis of specific alternatives to the proposed Project, such as a no-action alternative, a 230 kV transmission line from Center to Grand Forks, and various configurations of a 345 kV transmission line from Center to the Red River Valley (including an easterly terminus of Fargo, rather than Grand Forks), indicates that a 345 kV transmission line between Center and Grand Forks, North Dakota, is the optimal alternative to address Minnkota's and the region's needs. *Id.* Thus, the proposed Project would not only provide a direct link to Minnkota's service territory, but would also provide a major improvement to the regional transmission grid and a sound technical solution to the well-documented northern Red River Valley voltage stability issue. *Id.*

For additional analysis of the need for the proposed Project, including further discussion of the alternatives evaluated and the system studies that support the need for the proposed Project, please see the AES. *See* Lang Affidavit, Exhibit C (AES).

The proposed Project was discussed in both Minnkota's 2009-2019 Ten-Year Plan and its 2010-2020 Ten-Year Plan. *See* Lang Aff., ¶ 13; *see also* Minnkota Power Cooperative, Inc.'s 2009-2019 Ten-Year Plan, Docket No. PU-09-367, filed June 22, 2009, at 4-5, and Minnkota Power Cooperative, Inc.'s 2010-2020 Ten-Year Plan, Docket No. PU-10-178, filed May 27, 2010, at 4-5. The only difference between the Project as currently proposed and as discussed in the 2009-2019 Ten-Year Plan is that the length of the line is currently anticipated to be approximately 260 miles, rather than the 225 miles noted in the 2009-2019 Ten-Year Plan. Lang Aff., ¶ 13. The line length noted in the 2009-2019 Ten-Year Plan was based upon an initial

cross-country estimate of length, while the current estimated line length reflects Minnkota's commitment to follow section and quarter-section lines, to the extent practicable, in response to discussions with landowners. *Id.* The proposed Project does not deviate from Minnkota's 2010-2020 Ten-Year Plan. *Id.*

**C. Cost.**

The total capital cost of developing the proposed Project is estimated to be in the range of approximately \$309,800,000 to \$349,400,000, depending on the length of the route ultimately approved by the Commission. Lang Aff., ¶ 7.

**D. Waiver Request.**

Minnkota requests that the Commission waive or modify the corridor width requirement set forth in Section 69-06-04-02(1)(b) of the North Dakota Administrative Code with respect to the proposed Project. Section 69-06-04-02 provides as follows: "The width of a corridor must be at least ten percent of its length, but not less than one mile [1.61 kilometers] or greater than six miles [9.66 kilometers] unless approved by the commission." Minnkota requests that it be allowed to present a 1,000-foot-wide corridor in its application for a Certificate of Corridor Compatibility for the proposed Project.<sup>1</sup> Allowing Minnkota to propose a 1,000-foot-wide corridor in its application for a Certificate of Corridor Compatibility would take into account the extensive corridor analysis done to-date in connection with the RUS' environmental review of the proposed Project, and would be consistent with prior comments provided by the Commission with respect to routing of the proposed Project.

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<sup>1</sup> Please note that certain temporary workspace areas, such as staging areas and portable concrete batch plants, may be located outside of the 1,000-foot-wide corridor that Minnkota would propose in its Certificate of Corridor Compatibility application. Minnkota will work with landowners when selecting locations for the temporary workspace areas, and the locations ultimately selected will conform to the requirements set forth in Chapter 49-22 of the North Dakota Century Code and Section 69-06-08-02 of the North Dakota Administrative Code.

1. **The Extensive Corridor Analysis Conducted In Conjunction With the RUS Review Process Supports Granting Minnkota's Waiver Request.**

In connection with obtaining funding for the proposed Project from the RUS, Minnkota has been and continues to be involved in a federal review process to determine the proposed Project's compliance with the National Environmental Policy Act (NEPA). Lang Aff., ¶ 15. The extensive corridor analysis conducted by Minnkota prior to and during the RUS review process supports granting Minnkota's corridor waiver request and allowing Minnkota to propose a 1,000-foot-wide corridor in its application for a Certificate of Corridor Compatibility. The various types of corridors analyzed in connection with the RUS process, as well as the numerous opportunities for public input regarding the corridors analyzed, both prior to and during that process, are discussed below.

a. **Preliminary Study Corridors – Designation and Analysis.**

In order to initiate the RUS review process, Minnkota was required to prepare and submit to the RUS the AES and a Macro-Corridor Study (MCS) for the proposed Project. Lang Aff., ¶ 15. The AES analyzed system alternatives and identified the best end points for the proposed Project (*i.e.*, the Center 345 kV Substation (Center, North Dakota) and the Prairie Substation (Grand Forks, North Dakota)). *Id.* The MCS identified macro-corridors in which the proposed Project could be constructed between the endpoints identified in the AES. *Id.*

As the first step in preparing the AES and the MCS, Minnkota initially identified six-mile-wide preliminary study corridors, which were selected to allow for consideration of multiple corridor routing options. Lang Aff., ¶ 16. Minnkota then sought public input from residents in and near the preliminary study corridors, as well as a host of federal, state, and local agencies and governmental representatives, to assist Minnkota in identifying the most

appropriate macro-corridors within the preliminary study corridors. *Id.* Minnkota's efforts included the following:

- On April 13, 2009, Minnkota launched a website developed to provide information to the public regarding the proposed Project, as well as a toll-free Project information line, both of which could be utilized by the public, agencies, and tribes to provide comments regarding the proposed Project.
- In April and May 2009, Minnkota presented an overview of the proposed Project at thirteen County Commissioners' meetings. Additionally, in April 2009, Minnkota presented an overview of the proposed Project and requested a review of resources and potential Project impacts within the preliminary study corridors at the monthly inter-agency meeting of state and federal agencies in Bismarck, North Dakota.
- Minnkota conducted a series of six open house meetings (five in May 2009 and one on August 3, 2009) to announce the proposed Project and to begin a dialog with and seek input from the residents within the preliminary study corridors. Prior to the May meetings, approximately 12,800 postcards announcing the open house meetings were mailed to known residents within one mile of the preliminary study corridors, and newspaper advertisements were published in seventeen different newspapers. Because some of the mailings with respect to the western part of the state were delayed and not received in time to provide advance notice of the May public meetings, and because the corridors for the proposed Project changed in the western part of the Project, Minnkota held an additional public open house meeting in Center, North Dakota, on August 3, 2009. Notice of the meeting was published in thirteen different newspapers and approximately 938 invitation letters were sent to addresses within the preliminary study corridors west of the Missouri River and addresses within the preliminary study corridors that were 10 miles east of the Missouri River.

*Id.*

b. Macro-Corridors – Designation and Analysis.

Utilizing the feedback provided from residents, federal, state, and local agencies, and governmental representatives, Minnkota prepared the MCS, which identified potential transmission line corridors (*i.e.*, macro-corridors) that use existing linear features/field lines, while avoiding residences and environmentally and culturally sensitive areas. Lang Aff., ¶ 17. Macro-corridors of generally six miles wide were selected in order to allow for identification and consideration of multiple potential routes that might meet the proposed Project's purpose and

need. *Id.* The macro-corridors were developed based on an analysis of available land use/land cover data, existing infrastructure, economic considerations, and environmental, permitting and engineering constraints and limitations (*e.g.*, cultural resources, surface waters, wetlands, federal and state lands, native prairie and woodlands, sensitive natural resources, human environment, and agriculture). *Id.*

Minnkota submitted both the AES and MCS to the RUS in August 2009. Lang Aff., ¶ 18. The AES and MCS were approved by RUS on October 22, 2009, and made available to the public for review and comment (including on Minnkota's website). *See id.*, ¶ 18, Exhibit C (AES), and Exhibit D (MCS).

c. 1,000-Foot-Wide Corridors – Designation and Analysis.

Minnkota's submission to the RUS of the AES and the MCS initiated the RUS environmental review process for the proposed Project. Lang Aff., ¶ 19. As part of that process, RUS conducted one governmental agency scoping meeting and a series of six public scoping meetings at various locations along the proposed macro-corridors in November 2009. *Id.* The purpose of the scoping meetings was to gather public input regarding the potential environmental impact of the proposed Project within the identified macro-corridors for RUS to use to prepare an Environmental Assessment with scoping (EA) for the proposed Project, as well as to answer questions regarding the proposed Project. *Id.* In March 2010, the RUS prepared its Scoping Report for the proposed Project, which discussed the agency and public scoping meetings and materials, and summarized the public and agency comments received. *See id.*, ¶ 19 and Exhibit E (RUS Scoping Report).

Utilizing the information gathered by Minnkota in connection with preparing the AES and the MCS, as well as during the RUS environmental review scoping process, Minnkota began

working to identify specific route alternatives. Lang Aff., ¶ 20. Minnkota started by identifying over 180 different route segments, and then eliminated route segments that were unworkable from an environmental, natural resource, land use, engineering, and economic perspective. *Id.* With the segments that remained, Minnkota identified three route alternatives, as well as various route segment alternatives that could be utilized, if necessary. *Id.*

During the November 2009 RUS scoping meetings, Minnkota indicated that it would notify the public once it had identified specific route alternatives. Lang Aff., ¶ 21. Thus, in April 2010, Minnkota held a series of six public information meetings, during which Minnkota provided an update regarding the status of the proposed Project, an overview of the right-of-way acquisition process, and maps that depicted the three 1,000-foot-wide route alternatives and route segment alternatives identified by Minnkota. *Id.* At the April 2010 public information meetings, Minnkota had GIS mapping stations available so that landowners could obtain maps depicting their property in relation to the three 1,000-foot-wide route alternatives and route segment alternatives. *Id.* Minnkota also provided an update regarding the proposed Project at the April 2010 inter-agency meeting in Bismarck, North Dakota, and updated its website to identify the three 1,000-foot-wide route alternatives, as well as the various route segment alternatives. *Id.* Additionally, throughout the NEPA review process, the RUS has provided updated information regarding the proposed Project to tribal representatives in accordance with Section 106 of the National Historic Preservation Act. *Id.* The three route alternatives and route segment alternatives are currently being analyzed by the RUS in conjunction with preparation of the EA. *Id.*

2. **Granting Minnkota's Request Is Consistent With the Commission's Prior Comments With Respect Routing Of the Proposed Project.**

On February 3, 2010, Minnkota submitted a letter to the Commission requesting guidance with respect to a routing proposal for the proposed Project, which included designation of an up to 1,000-foot-wide route. Following a working session on April 7, 2010, the Commission issued a response to Minnkota's routing proposal letter on May 13, 2010. In its response, the Commission indicated that a preferable approach to Minnkota proposing a 1,000-foot-wide route may be for Minnkota to request a 1,000-foot-wide corridor in its Certificate of Corridor Compatibility application for the proposed Project, and noted that Minnkota could then request approval of a specific route within the approved corridor in its Route Permit application. Thus, Minnkota's waiver request is consistent with the Commission's prior comments regarding routing of the proposed Project.

3. **Under the Circumstances Presented, Minnkota's Request To Identify a 1,000-foot-wide Corridor In Its Application For a Certificate of Corridor Compatibility For the Proposed Project Should Be Granted.**

Minnkota requests that it be allowed to identify a 1,000-foot-wide corridor as its preferred corridor for the proposed Project in its application for a Certificate of Corridor Compatibility. The 1,000-foot-wide corridor would be the same as one of the 1,000-foot-wide route alternatives presented to the public, agencies, and governmental representatives at the public information and inter-agency meetings held in April 2010, and to tribal representatives during the RUS' Section 106 consultations. Such an approach effectively utilizes the information gathered by Minnkota for preparation of the AES and the MCS, as well as the information provided throughout the RUS environmental review process. Identifying one 1,000-foot-wide corridor is consistent with what landowners, federal, state, and local agencies,

governmental representatives, and tribal representatives would expect as the next step in the route selection process, and is also consistent with the Commission's prior routing comments.

On the other hand, requiring Minnkota to present a six-mile-wide corridor would be a significant step backwards in the corridor analysis process -- one that would essentially require Minnkota to present in its application one or more of the macro-corridors it identified for the proposed Project back in October 2009. Going back to the macro-corridor stage would not only be redundant, but would be confusing and frustrating for landowners, agencies, governmental representatives, and tribal representatives who have already commented upon the preliminary corridors, the macro-corridors, and the three 1,000-foot-wide route alternatives and route segment alternatives identified for the EA.

Considering the in-depth environmental review of potential corridors provided during the RUS process, allowing Minnkota to present in its application for a Certificate of Corridor Compatibility one of the 1,000-foot-wide corridors identified as a result of the RUS process will ensure that the proposed Project is designed and located in a manner that will minimize any potential adverse effects, as well as avoid confusion for landowners, agencies, governmental representatives, and tribal representatives. Thus, under the circumstances presented, granting the requested waiver is appropriate.

Finally, Minnkota respectfully requests prompt action on its waiver application. To meet its proposed time schedule, Minnkota intends to submit its application for a Certificate of Corridor Compatibility by mid-August 2010, and will need to begin preparation of the application in advance of that date. Minnkota needs to have a ruling on its waiver request prior to submitting its application for a Certificate of Corridor Compatibility for the proposed Project; otherwise, Minnkota runs the risk of expending significant time and money preparing and

