

Before the Public Service Commission
of
The State of North Dakota

In the Matter of the Application of
BASIN ELECTRIC POWER COOPERATIVE

Consolidated Application to the North Dakota Public Service Commission for a
Certificate of Corridor Compatibility and Route Permit
Pioneer Generation Station to Judson Substation 345-kV Transmission Line Project
Williams County, North Dakota

Case No. PU-23-338

Pre-filed Testimony
of
Philip Westby

I. Introduction and Overview

Q.1. Please state your name, business address and your occupation.

A.1. My name is Philip Westby. I am employed as the Manager of Transmission Services at Basin Electric Power Cooperative. My business address is 1717 East Interstate Avenue, Bismarck, North Dakota.

Q.2. Please state your educational background.

A.2. I earned a Bachelor of Science degree in Computer Engineering from North Dakota State University in 2008. I am a licensed professional engineer in North Dakota.

Q.3. Please describe your employment history and work experience.

A.3. I have been employed by Basin Electric Power Cooperative since 2009 in the Transmission Planning Division. I was hired as an Electrical Engineer and was promoted to Manager of Transmission Services in April of 2023. My responsibilities include the supervision of Basin Electric's transmission studies. This includes completing and reviewing studies that would affect existing and new electric transmission facilities for Basin Electric.

Q.4. What have been your responsibilities in connection with the Pioneer Generation Station (PGS) to Judson substation transmission line Project (Project)?

A.4. The Project is needed to connect the previously approved PGS Phase 4 facilities to the electrical grid. I have been involved in siting the generation and determining the ideal way to interconnect PGS IV and the Project to the regional transmission system. I am also responsible for reviewing transmission studies applicable to this generator interconnection.

Q.5. What information will you provide in your testimony?

A.5. The purpose of my testimony is to provide information related to the need for the Project.

II. NEED for the PROJECT

Q.6. **Why is this 345 kV transmission line from PGS to Judson needed?**

A.6. The Project is needed to interconnect the PGS IV facilities to the electrical grid that serves Basin Electric's member cooperatives in the area. Basin Electric identified the need for PGS Phase IV and subsequently the Project through its power supply planning process. As a result of that process, it became apparent that there was a need for additional capacity in the region to meet the growing demand and provide an adequate supply of electrical power to the Williston Basin. The Project will transmit power from the new PGS IV units.

The PGS Phase IV project is approximately 583 megawatts (**MW**) and the existing 115kV infrastructure in the area is not able to handle this amount of power. Upgrading or rebuilding those facilities would create more negative impacts and be more costly than building a direct line at a higher voltage from the PGS IV Switchyard to the Judson substation.

III. ALTERNATIVES

Q. 7. **What alternatives did Basin Electric consider besides the proposed Project?**

A. 7. Basin Electric considered a no-action alternative and transmission system alternatives. A no-action alternative would leave the region constrained by limited generation capacity and does not serve the load growth in the area, jeopardizing reliability. For these reasons, Basin Electric rejected the no-action alternative.

Q.8. **What system alternatives did Basin Electric consider?**

A.8. Basin Electric considered interconnecting in to the existing 115 kV transmission lines in the vicinity of PGS. These lines can only handle about 200 MW of power injection. The existing infrastructure is undersized and is already being utilized by existing electric generation. Expanding the 115 kV system to accommodate the additional generation from PGS is not cost effective, practical, or safe due to the number of existing lines and substations that would need to be upgraded on the 115 kV system. Basin Electric concluded that the only feasible option to interconnect the new generation from PGS IV to serve the area is to build a direct line from the PGS IV site to the Judson 345 kV substation.

IV. TRANSMISSION PLANNING PROCESS

Q.9. Please describe the studies Basin Electric has conducted to determine the need for this Project.

A.9. Per requirements from the Federal Energy Regulatory Commission (**FERC**), Basin Electric conducts an annual NERC TPL-001-5 assessment on its transmission system. The TPL-001-5 is a required reliability assessment in which transmission planners review their system over a broad spectrum of system conditions and potential contingencies. Basin Electric also conducts two annual studies in summer and winter specifically related to reliability in the Bakken region. In addition to these compliance and operating studies, Basin Electric works closely with the Southwest Power Pool (**SPP**) on their Definitive Interconnection System Impact Study (**DISIS**) study processes.

Q.10. Have Basin Electric's studies shown issues in the Bakken area?

A.10. Yes. Through the annual NERC TPL-001-5 assessments process Basin Electric has identified the Bakken area as a potential weak spot for reliability. The recent load forecasts continue to show growth in this region which will continue to stress the existing generation and transmission infrastructure in the region.

Q.11. Please describe the expected schedule for SPP approval of the Project.

A.11. Basin Electric submitted three separate SPP generator interconnection requests as part of the 2022 Definitive Interconnection System Impact Studies (**DISIS**) process. Basin Electric submitted an interim generator interconnection application to SPP for the PGS Phase IV generation facilities in September 2023 and expects approval in 2024. The official Generation Interconnection Agreement is expected to be signed in 2025 after the completion of the 2022 DISIS cycle.

Q.12. Will the Project be a part of the SPP Tariff?

A.12. No, the Project is a radial transmission addition required for the outlet of the Pioneer IV Generation Station to meet customer demand. It will not be operated under functional control of the SPP tariff.

Q.13. How does this Project affect the reliability of the transmission system in northwestern North Dakota?

A.13. A dispatchable resource such as PGS allows Basin Electric to continue to meet its forecasted resource obligations as well during unexpected system events, such as transmission or generation outages. PGS Phase IV and this Project provide additional flexibility to take planned maintenance outages on the existing generation and transmission system in the local area. SPP market congestion has been high in the area and this Project will provide relief to the congestion in the area especially when it's not windy, ensuring reliable low cost energy for Basin Electrics membership.

Q.14. If the Project is not built, what will happen to the electrical transmission system in northwestern North Dakota?

A.14. The existing transmission and generation capacity in this region is insufficient and unless the Project is constructed, future load growth will be restricted. Without the Project, Basin Electric will not be able to meet its obligation to serve electric load to its membership.

Q.15. Is the proposed location, construction, and operation of the Project such that it will ensure continued system reliability and integrity?

A.15. Yes. The Project will support existing system needs and increase transmission system capacity while meeting NERC reliability criteria.

V. CONCLUSION

Q.16. Does the Project ensure that the energy needs of the area will be fulfilled in an orderly and timely fashion?

A.16. Yes

Q.17. Will this transmission line benefit the area through which Basin Electric is proposing to construct?

A.17. Yes. This transmission line will provide a direct benefit for service into the area by continuing reliable service to all area consumers. Specifically, dispatchable resources such as the PGS Phase IV allows for the system to be better positioned to maintain reliable service for unexpected system events (such as outages) or maintenance activities on the existing transmission system.

Q.18. Are there any plans for expansion of this transmission line?

A.18. There is no plan to expand this transmission line beyond this Project but additional transmission may be needed in the area if electric load requirements continue to grow or the generation station is expanded further.

Q.19. **Does this conclude your testimony?**

A.19. Yes.