

North Dakota Transmission
Authority

North Dakota Industrial Commission

BIL 40101(d) Application

Project Title: Three Phase Line
Replacement

Applicant: Slope Electric Cooperative

Date of Application: 11/20/2023

Amount of Grant Request:
\$315,000

Total Amount of Proposed Project:
\$450,000

Duration of Project:
3 years including waiting for material

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Applicant Description

Provide a description of the applicant (i.e., type of entity, corporate structure, MWh sold annually, etc.).

Project Description

Provide a description of the project with enough detail to allow the reviewers to adequately evaluate the project.

Standards of Success

Provide a description of how the proposed project will fulfill any or all of the program objectives.

Project Timeline

Provide a project timeline including anticipated start date, significant project milestones, and anticipated project completion date or project duration.

Project Budget

Provide a total project budget, clearly describing the amount of funding requested from NDTA.

Applicant Description

Slope Electric Cooperative, Inc. (Slope) provides electricity to rural members in Bowman, Adams, Slope, and Hettinger Counties in south-western North Dakota. Slope has an office in New England, North Dakota and an outpost in Bowman, North Dakota. Slope's service territory is approximately 4,509 square miles and serves roughly 4,049 meters. The Cooperative owns 94 miles of transmission lines, 2,278 miles of overhead distribution line, 734 miles of underground distribution, and 18 distribution substations and 3 transmission substations. The Cooperative sells less than 300,000 MWhs per year.

Project Description

Slope intends to replace the 115kV high-side fuses at their Centipede Substation with a 115kV circuit switcher. The cost to replace the 115kV high-side fuses is approximately \$9,000 every time there is an operation. The duration of time out will be significantly less with a circuit switcher.

Slope also intends to install two 3-way pad mounted switchgear between substations to allow for improved switching capabilities during planned and unplanned outages. The switchgear will be equipped with motor operators to allow Slope to operate remotely once their SCADA system is implemented. This will reduce frequency of outages mostly due to planned work and will reduce duration of outage with increased switching capability.

Standards of Success

Replacing the 115kV high-side fuses with a circuit switcher will reduce the duration and cost of outages. A circuit switcher will also give the cooperative more flexibility in coordination to allow for varying changes in load which may occur from increased installations of EV charging and distributed generation. This project is expected to positively impact 243 meters in Slope's service area. Slope has high-side circuit switchers at several other substations and has the skill and expertise to operate the device long term. The work will take place inside the existing substation fence and no new ground disturbance is expected.

The 3-way pad-mounted switchgear will reduce the outage frequency caused by planned work and will reduce the duration of unplanned outages due to increased switching capabilities. Switchgear will be installed within the existing utility right of way. The switchgear will improve backfeeding possibilities to 1,939 meters by allowing for faster remote switching during planned and unplanned outages. There are 243 meters affected by the circuit switcher project and the switchgear project, so the total meters positively affect is also 1,939.

It is estimated that Slope will have one engineer working on the projects (temporary) and will have 6 contractors (temporary) working to install the circuit switcher and switchgear.

Project Timeline

Slope plans to order the switchgear and circuit switcher after grant approval and will complete engineering while waiting for the material to arrive. Construction of the circuit switcher at Centipede will take place in the fall of 2025 while the pad-mounted switchgear will be installed in 2026.

Project Budget

The total project cost is estimated to be \$450,000 with \$150,000 budgeted for the circuit switcher and \$150,000 budgeted for each of the two switchgears. This includes cooperative or contract labor to install and engineering design and planning.