North Dakota Transmission Authority

North Dakota Industrial Commission

BIL 40101(d) Application

Project Title: Three Phase Line Replacement

Applicant: Roughrider Electric Cooperative

Date of Application: 11/20/2023

Amount of Grant Request: $702,000

Total Amount of Proposed Project:

$1,170,000

Duration of Project:

3 years including waiting for cable

Point of Contact (POC):

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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

Roughrider Electric Cooperative, Inc. (RREC) provides electricity to rural members in Oliver, Mercer, Stark, Dunn, and Billings Counties in western North Dakota. RREC provides power to a small area of the Fort Berthold Indian Reservation in Mercer County ND. RREC has offices in Dickinson, North Dakota and Hazen, North Dakota. RREC's service territory is approximately 5,000 square miles and serves roughly 14,976 meters. The Cooperative owns 339 miles of transmission lines, 2,940 miles of overhead distribution line, 2,152 miles of underground distribution, and 44 distribution substations and 3 transmission substations. The Cooperative sells roughly 750,000 MWhs per year.

Project Description

RREC intends to replace 6.5 miles of aging three-phase overhead distribution line with 6.5 miles of three-phase underground cable. This line has excessively long spans and has one of the highest outage frequencies on RREC's system. The new underground cable will be 4/0AL 24.94/14.4kV.

Standards of Success

Replacing the overhead line will reduce the frequency of outages and momentary blinks from over 15 a year to nearly zero. This project will also increase capacity to allow for more load to be added for EV charging and will reduce the voltage swing caused by solar generation turning on and off.

This project is expected to positively impact 119 meters directly in Roughrider's northwestern service territory as well as decrease overtime hours for line crews and the cost of truck rolls. RREC has been working to convert three-phase overhead lines to underground. Three-phase overhead is more time intensive to restore after a storm than single-phase overhead is so the Cooperative has been focusing on converting three-phase to underground to reduce storm restoration times. This project is expected to utilize 2 engineers (temporary) for design and environmental and 8 contractors (temporary) during construction and retirement of the existing line. The new route will be adjacent to the existing overhead line. The cable will be plowed in using a single-blade plow to minimize ground disturbance.

Project Timeline

RREC plans to order the underground cable after grant approval and will complete easements, engineering, and environmental while waiting for the material to arrive. Construction will take place late summer or early fall of 2025.

Project Budget

The total project cost is estimated to be $1,170,000, of which the Cooperative asks for 60% in the form of grant funds. This includes cooperative or contract labor to install and retire existing overhead line, engineering design, and environmental review.