



TRI-STATE

Generation and Transmission
Association, Inc.

A Touchstone Energy Cooperative



BIG SANDY—LINCOLN—MIDWAY 230-kV Transmission Line

Project Overview

Project Description

Tri-State is proposing to modify portions of the existing 79-mile Big Sandy—Lincoln—Midway 230-kV transmission line to meet the current Tri-State structure loading standards and allow a maximum thermal operating temperature increase from 50°C to 100°C. The Midway Substation is located near Fountain, Colorado, and the Big Sandy Substation is located near Limon, Colorado. The project area includes portions of El Paso, Elbert, and Lincoln counties.

The upgrades will occur within the existing transmission right-of-way (ROW), on an existing transmission line. The voltage and configuration will remain unchanged as a single circuit 230-kV transmission line. The upgrades and modifications may include:

- Replacement or addition of transmission line bracing
- Structure replacement or pole jacking to increase ground clearance
- Installation of an overhead optical groundwire (OPGW) along the line concurrently with the other construction activities

Purpose & Need

The existing 230-kV Big Sandy—Lincoln—Midway transmission line was originally energized in 1977 and the average structural life of a wooden H-frame transmission line structure is approximately 30 years. After this length of time, the fiber strength of the pole has deteriorated to a point where the integrity of the structure is compromised. The Big Sandy—Lincoln—Midway transmission line has had two catastrophic failures in the last 5 years:

- 2005: 17 miles of the original construction failed during a spring storm that resulted in an 8-week outage of the circuit
- 2007: 6 miles of the original line failed again as a result of a spring storm. The circuit was unavailable for another 6 weeks while the failed section was replaced



These 23 miles of the original Big Sandy—Lincoln—Midway 230-kV transmission line were replaced in 2005 and 2007 and rebuilt to accommodate the higher thermal operating capacity and to withstand higher anticipated structural loading. The remaining 56 miles of original structures do not meet safe ground clearance levels required for the higher operating limits, and are a reliability risk that needs to be remedied.

Benefits

This project would:

- Upgrade the Big Sandy—Lincoln—Midway 230-kV transmission line for operation at the higher thermal limit and increase overall structural integrity of the line
- Increase reliability of the Tri-State Transmission System
- Decrease the economic risk of extended outages caused by catastrophic failures
- Provide an opportunity for a least cost addition to the Tri-State communications system with the concurrent installation of the OPGW



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