

Tri-State Generation and Transmission Association Inc.

### **Project Description- Periodic Wind Driven Line Sway**

SunZia Transmission, LLC (“**SunZia**”) and Tri-State Generation and Transmission Association, Inc (“**TSGT**”) have proposed rebuilding a portion of TSGT’s existing Bernardo-Socorro 115-kV transmission line where it crosses the Seville National Wildlife Refuge (“**Seville**”) on TSGT’s existing easement, adding a nominal 525-kV High-Voltage Direct Current (“**HVDC**”) transmission line for the SunZia Southwest Transmission Project (“**SunZia Line**”) on a shared set of transmission towers (the “**Co-Located Line**”). The Co-Located Line was disclosed and analyzed in the SunZia Transmission Final Environmental Impact Statement and Proposed Resource Management Plan Amendment published February 2023. TSGT’s existing 50-foot easement crosses approximately 11.4 miles within the Seville, which is managed by the U.S. Fish and Wildlife Service (“**USFWS**”). SunZia has worked with TSGT to develop engineering specifications for the Co-Located Line.

#### **Proposed Project**

The proposed design of the Co-Located Line replaces 95 existing H-frame structures within the Seville with approximately 71 monopole structures. The monopole structures of the Co-Located Line will be supporting the HVDC positive and negative pole conductors (each pole consisting of three sub-conductors), two metallic ground return conductors (MRC), optical ground wires (OPGW) and the TSGT 115-kV conductors. There would be a 200-by-200-foot temporary construction disturbance area for each monopole structure. After reclamation, the anticipated permanent disturbance would be a 50-by-50-foot area around the base of each structure. Where existing H-frame structures will be removed and no new monopole will be located, a 50-by-70-foot temporary disturbance area would be required. No permanent disturbance will occur outside of the existing easement as all temporary impact areas will be fully reclaimed. To reduce avian collision risk in the Seville, dynamic avian flight diverters will be installed at approximately ten meter spacing on the SunZia Project overhead ground wires (OPGW) in the Seville, as well as other areas of the SunZia Line.

#### **Right-of-Way Request**

TSGT is applying to USFWS for a Right-of-Way Authorization for the limited purpose of authorizing the wind-driven lateral swing of wires, commonly referred to as “blowout,” beyond the boundary of the TSGT easement. All crossbars, insulators and wires would be constructed within TSGT’s existing 50-foot easement. However, periodically and under certain conditions, wind will cause the wires to sway, which is a normal occurrence for any transmission line, and the wires that would be placed near the edge of the easement are likely to sway beyond the easement boundary.

The potential for line sway from the rebuilt Seville segment was modeled using National Electrical Safety Code (NESC) Section 23 criteria for maintaining horizontal clearances for electrical conductors. NESC Rule 234A2 provides that, when considering the horizontal displacement of wires, conductors, or cables, the displacement distance is to be calculated based upon wind pressure of 6 pounds per square foot, which equates to a steady wind speed of 48.4 MPH, and bare conductors at 60° F. Per NESC Rule 230.I, the resulting clearances are not intended to reflect displacement that may occur during the course of abnormal events, such as extreme weather.

An initial round of wire displacement modeling was conducted to support the NEPA process for SunZia's BLM ROW amendment application, using the NESC parameters and typical structure heights of 170 feet and 900-foot spans. Under the modeled parameters, winds from the west were projected to cause the 115-kV conductors to sway up to 9.3 feet beyond the eastern edge of the existing TSGT easement. The same modeling for winds from the east projected that HVCD lines would not sway beyond the western edge of the easement boundary but that MRC and OPGW wires could do so, although not as far beyond the boundary as the 115-kV lines under the opposite wind direction. These modeling results were representative of the project design at that stage of development.

Modeling using the same wind and temperature parameters has now been completed for the final project design, using the planned individual structure heights and span distances. A table providing the output from that modeling accompanies this application. The projected horizontal displacement varies between spans. To the west, the furthest displacement modeled using the NESC standard across the span length distance is about 7 feet (6.97) with the average displacement across the span lengths being about 4 feet (3.9 feet). To the east, the furthest modeled displacement using the NESC standard across the span length distance is about 16 feet (15.99 feet), with the average displacement across the span lengths being about 10 feet (10.3 feet). , Greater displacement may occur with more intense combinations of wind pressure and line temperature, including extreme weather events as contemplated by NESC Rule 230I. Based on the minor additional swing on the east side, there is no reason to believe there would be any different impacts from those described in the previously submitted March 24, 2023, and April 19, 2023, memos.