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TO: Amy Leuders
Regional Director, U.S. Fish and Wildlife Service

CC: Melanie Barnes, Director
New Mexico State Office, Bureau of Land Management

FROM: Tri-State Generation and Transmission Association, Inc.
SunZia Transmission, LLC

DATE: March 24, 2023

RE: Comparison of Potential Impacts on Sevilleta National Wildlife Refuge From
Proposed and No-Blowout Designs for Rebuild of Existing Bernardo-Socorro
Transmission Line

SunZia Transmission, LLC (SunZia) and Tri-State Generation and Transmission Association (TSGT) have proposed rebuilding TSGT's existing Bernardo-Socorro 115-kV line where it crosses the Sevilleta National Wildlife Refuge (Sevilleta) on TSGT's existing easement, adding a nominal 525-kV High-voltage Direct Current (HVDC) line for the SunZia Southwest Transmission Project (SunZia Line) which was disclosed and analyzed in the Final Environmental Impact Statement. TSGT's existing 50-foot easement crosses approximately 11.4 miles within the Sevilleta managed by the U.S. Fish and Wildlife Service (USFWS). SunZia has worked with TSGT to develop engineering specifications for the colocation of the two lines. SunZia has also worked with the USFWS to jointly develop a reclamation plan specific to the Sevilleta, which has been submitted as part of its Plan of Development (Appendix F, Attachment F7).

The draft Plan of Development (POD) for the SunZia Project (January 2023) describes the proposed design through the Sevilleta, where the planned rebuild project will consist of monopole structures supporting the HVDC wires (two DC conductors, a set of metallic ground return conductors (MRC) and optical ground wires (OPGW)) and the TSGT 115-kV conductors. In addition, avian flight diverters will be installed on the SunZia Project wires across the Sevilleta. POD Figure 10 shows the proposed configuration of the two lines on monopole structures, with the conductors for the two lines on opposite sides of the structure.

Application for Special Use Permit for Blowout

By a joint communication dated February 13, 2023, SunZia and TSGT applied to USFWS for a special use permit 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.

As described in SunZia’s previous submissions to USFWS and the Bureau of Land Management (BLM), modeling has been conducted to determine the potential extent of blowout from the rebuilt lines where they pass through the Sevilleta. The modeling assumed strong, steady winds (48.4 MPH) and a wire temperature of 60°F, 170-foot typical structure heights and 900-foot spans. With these modeling assumptions, the two conductors for the HVDC line (affected by winds from the east) are not projected to sway beyond the edge of the TSGT easement, although MRC and OPGW wires may do so. However, under steady western winds, the 115-kV conductors are projected to sway up to 9.3 feet beyond the edge of the easement. The actual blowout would vary depending upon wind conditions, temperature, and the span between structures.

To facilitate the agency’s evaluation of the February 13, 2023, application, and to allow USFWS to properly evaluate the anticipated impact of the proposed design, the companies are providing USFWS with a separate description of the potential impacts of an alternative design that would not result in any blowout beyond the easement boundaries. Below is a description of the anticipated temporary and permanent impacts of the proposed design in the POD, as well as a preliminary estimate of the additional impacts which would result from a no-blowout design. To produce estimates for the no-blowout design, SunZia consulted with the design engineers, Power Engineers, for the proposed project. However, given the extensive timeline and cost which would be required to complete a full design package for such alternative, design engineering and detailed construction plans have not been developed for a no-blowout design. Accordingly, the estimates of impacts associated with the no-blowout design are necessarily preliminary and subject to change but are conservative in nature in order to accommodate a broader range of final, detailed technical design decisions.

Impacts of the Proposed Design

As described in the POD, the proposed design replaces 95 existing H-frame structures within the Sevilleta with between 60 and 70 monopoles. POD at 3-20. 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. (See POD Figure 13). 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. POD at 3-20. To reduce avian collision risk in the Sevilleta, dynamic avian flight diverters will be installed an approximately ten meter spacing on the entirety of the SunZia Project overhead ground wires in the Sevilleta as well as other areas of the SunZia Project.

The access plan for the Refuge would use existing roads/trails, new roads located within the existing right-of-way, and new spur roads to allow access to the structures. All permanent disturbance within the Refuge would occur within the existing TSGT easement. Temporary disturbance during construction would occur inside and outside of the easement. Former H-frame locations also would be reclaimed. A robust reclamation plan has been developed specifically for reclamation of the temporarily disturbed areas within the Refuge. This reclamation plan exceeds industry standard best management practices applicable to the rebuild and operations of transmission infrastructure. It has been tailored to the specific environmental and conservation objectives of the Seville through consultation with USFWS.

Based upon the elements of the construction process just described, project construction is expected to result in approximately 72.3 acres of temporary ground disturbance, of which approximately 57.4 acres would be outside of the easement boundaries. No permanent disturbance will occur outside of the existing easement; those areas will be fully reclaimed. After reclamation of temporarily disturbed areas within the easement, approximately 15.1 acres of new permanent disturbance will remain around the foundation of new structures and through modifications to existing access roads.

Additional Impacts of No-Blowout Design

To avoid blowout completely, based on the modeling discussed above, the length of the span of the TSGT conductors between structures would have to be reduced. This would entail adding additional structures, most likely designed specifically for the TSGT line but potentially including MRC and OPGW wires as well.

Based on discussion with the project's design engineers, the preliminary estimate is that at least 35 percent more structures would be needed. Since the TSGT conductors will be strung at a lower height than the SunZia line's conductors, structures that are added specifically for the TSGT line could be shorter than the SunZia line's monopole structures. Some of the currently designed spans could require more than one structure.

As a result of these new structures, the total temporary and permanent ground disturbance would increase proportionately.

Temporary Ground Disturbance for Construction

- The temporary construction disturbance would likely be approximately the same 200-by-200-foot area for each of the additional structures as needed for the proposed structures.
- Temporary disturbance may be marginally reduced if some of the additional structures could be placed near where existing H-Frame structures are being removed and no new structure currently is planned. This could result in a net reduction in temporary disturbance, if the construction pad overlaps with the 50-by-70-foot disturbance area needed for removal of the existing H-frame structure.

- Temporary disturbance could be marginally increased for additional spur roads to reach additional structure locations but temporary disturbance for improvements to access roads would be the same.
- Additional structures would likely increase interference with the existing underground utilities within the easement (communications fiber and natural gas). Any relocation of those existing underground lines to avoid conflicts with new structures would add to temporary disturbance within the easement.
- A 35 percent increase in the number of structures could increase temporary disturbance outside the Tri-State easement by roughly 30 percent, if limited to additional construction areas around the additional structures, more if additional spur roads required temporary disturbance outside the easement or if needed for relocation of existing underground utilities. The temporary disturbance outside the easement would be greater if more structures were needed to avoid blowout.

Permanent Impacts

- The increase in permanent impacts would be limited to additional permanent pads around the new structures.
- Any new structures added specifically for the TSGT line could be shorter and somewhat smaller than the planned structures for both TSGT and SunZia lines, so their foundations could be smaller and permanent pads around those structures could be slightly smaller. This could mean 10 to 20 percent less ground disturbance for any of those additional structures. However, a conservative estimate would anticipate the same 50-by-50-foot disturbance as for the currently proposed structures.
- All permanent disturbance would be within the existing easement.
- Most of the permanent disturbance within the easement is associated with access roads. A 35 percent increase in the number of structures would result in about 1.5 acres more of permanent disturbance within the easement. The permanent disturbance would be greater if more structures were needed to avoid blowout.

Conclusion

Based upon the companies' design review, periodic blowout in certain wind conditions does not present a safety risk for this project due to the absence of potential obstructions. The project also has been designed to minimize impacts to the maximum extent practicable. The significant land use restrictions within the Sevilleta and the maximum tree height of the tree species found within and adjacent to the existing TSGT easement eliminate the risk. Nor does blowout appear to have any impact on refuge resources. In contrast, as outlined above, an alternative no-blowout design would increase temporary and permanent impacts to the Sevilleta.