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BEFORE THE
ARIZONA POWER PLANT AND TRANSMISSION LINE SITING COMMITTEE

IN THE MATTER OF THE APPLICATION OF SOUTHLINE TRANSMISSION, L.L.C., IN CONFORMANCE WITH THE REQUIREMENTS OF ARIZONA REVISED STATUTES 40-360, ET SEQ., FOR A CERTIFICATE OF ENVIRONMENTAL COMPATIBILITY AUTHORIZING CONSTRUCTION OF THE NON-WAPA-OWNED ARIZONA PORTIONS OF THE SOUTHLINE TRANSMISSION PROJECT, INCLUDING A NEW APPROXIMATELY 66-MILE 345-KV TRANSMISSION LINE IN COCHISE COUNTY FROM THE ARIZONA-NEW MEXICO BORDER TO THE PROPOSED SOUTHLINE APACHE SUBSTATION, THE ASSOCIATED FACILITIES TO CONNECT THE SOUTHLINE APACHE SUBSTATION TO THE ADJACENT AEPCO APACHE SUBSTATION, AND APPROXIMATELY 5 MILES OF NEW 138-KV AND 230-KV TRANSMISSION LINES AND ASSOCIATED FACILITIES TO CONNECT THE EXISTING PANTANO, VAIL, DEMOSS PETRIE, AND TORTOLITA SUBSTATIONS TO THE UPGRADED WAPA-OWNED 230-KV APACHE-TUCSON AND TUCSON-SAGUARO TRANSMISSION LINES IN PIMA AND PINAL COUNTIES.	DOCKET NO. L-00000AAA-16-0370-00173 Case No. 173 STATEMENT OF LIMITED APPEARANCE FOR NORM "MICK" MEADER

Arizona Corporation Commission
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Pursuant to A.R.S. § 40-360-05(B) and A.A.C. R14-3-204(B) I hereby provide a Statement of Limited Appearance regarding the above-referenced proceedings before the Arizona Power Plant and Transmission Line Siting Committee to be held starting on Tuesday, November 29, 2016 at the Tucson Convention Center.

I am Co-Chair of the Cascabel Working (CWG), a non-profit conservation advocacy group located on the San Pedro River about 25 miles north of Benson, Arizona, and have been a full-time Arizona resident since 1986. I am retired from the University of Arizona and currently work full time on conservation issues for the Lower San Pedro Valley. I represented myself as an intervenor in the ACC proceedings for the SunZia Southwest Transmission Project.

The CWG's mission is to "serve as a voluntary community organization to educate governmental organizations and individuals within the government, non-governmental organizations and individuals within those organizations, and the public about environmental, archaeological, cultural, recreational, agricultural, economic and other features of the San Pedro River Valley and its tributaries with a focus on the Middle San Pedro River Watershed."

The CWG was fully involved in federal proceedings for the Southline Transmission Project. Southline contacted us, as they did other community groups, prior to commencement of NEPA proceedings and BLM scoping to familiarize us with the project and obtain feedback on their potential plans. We subsequently attended the BLM's official scoping meetings for the project and the public review meeting for the Draft Environmental Impact Statement. We then provided extensive comments on the DEIS. I am thus very familiar with the project and its negative and positive aspects.

My Statement of Limited Appearance is here attached as Exhibit A. Health permitting, I would like to summarize this statement at the Public Comment session to be held at 6:00 pm on Tuesday, November 29, 2016 at the Tucson Convention Center.

RESPECTFULLY SUBMITTED this 18th day of November, 2016.

Sincerely,

Norm "Mick" Meader

Norm "Mick" Meader

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EXHIBIT A

Statement of Limited Appearance
Norm "Mick" Meader, Co-Chair, Cascabel Working Group
for Southline Transmission Project
Arizona Corporation Commission Docket Number L-00000AAA-16-0370-00173

I. Introduction

The following is a Statement of Limited Appearance regarding the Southline Project's Certificate of Environmental Compatibility application before the Power Plant and Transmission Line Siting Committee. While Southline will likely cover many of the points raised below in testimony before the Committee, I hope to provide additional, clarifying perspectives on them as well as address new issues. The issues I address are enumerated in the following sections.

II. Background and Environmental Concerns

Before applying for a federal right-of-way and entering the NEPA review process, Southline engaged in extensive outreach to potential stakeholders along the general project route they were proposing. Southline directly contacted me as Co-Chair of the Cascabel Working Group and other local interests and arranged small group meetings to review the project. These meetings were more extensive and personal than the public scoping meetings that the Bureau of Land Management later undertook for the project. It was through this process that I first became informed of the project.

The Cascabel Working Group was interested in the project because it crossed the San Pedro Valley, a principal area of concern, and because it appeared to partly compete with the SunZia Southwest Transmission Project, offering a much less environmentally impactful means of transferring regional power. Overall, Southline uses existing right-of-ways or utility corridors to the maximum extent possible, minimizing new impacts, which is the most environmentally advantageous way of expanding our transmission system. Southline would acquire new right-of-

way only in limited cases and only to widen existing right-of-ways where required. The rebuild section of the project would cross the San Pedro River in an existing right-of-way and would have little or no additional impact on riparian habitat. The additional lines and height of the towers across the river are a concern, as this will result in increased collisions with birds and bird mortality. However, this impact would be far lower overall than opening a new corridor down the San Pedro Valley through remote and relatively pristine areas. The great environmental concern for the Southline Project is its potential impact on the birdlife of Willcox Playa. This issue will presumably be covered in detail in Southline testimony.

III. Reduction of Congestion on Southern Arizona and Tucson Electric Power Co.System

A major benefit of the Southline Project is the project's ability to deliver or schedule more power into Tucson Electric Power Company's service area. SunZia would not be able to do this. While ACC staff Exhibit ACC-2 (Ray Williamson Testimony, slide 10) stated that SunZia would "reduce existing transmission congestion" around the Tucson metropolitan area, served by TEP, this conclusion was a misunderstanding of what congestion is and what must be done to relieve it.

As defined by the Western Electricity Coordinating Council, congestion results most importantly when peak demand exceeds the physical capability of the transmission system to deliver sufficient power to meet demand. Secondarily, congestion also refers to the inability to schedule sufficient power into a service area, that is, sufficient transmission capacity is not available for sale even though the lines may physically be able to carry the power.

Under this definition, TEP's transmission system technically is not currently congested. Sufficient power can be scheduled and delivered to TEP's service area during peak demand. To say that SunZia or Southline would alleviate actual congestion on TEP's system is thus a

misunderstanding of the physical state of that system. However, what is important is the potential ability of a new transmission system to deliver additional power into TEP's service area or to schedule additional power into it. This capacity can play an important role in meeting future demand without TEP having to augment its own transmission system.

SunZia cannot meet this need because its grid connections do not allow the project to deliver or schedule more power into TEP's service area (Figure 1). While SunZia can bring

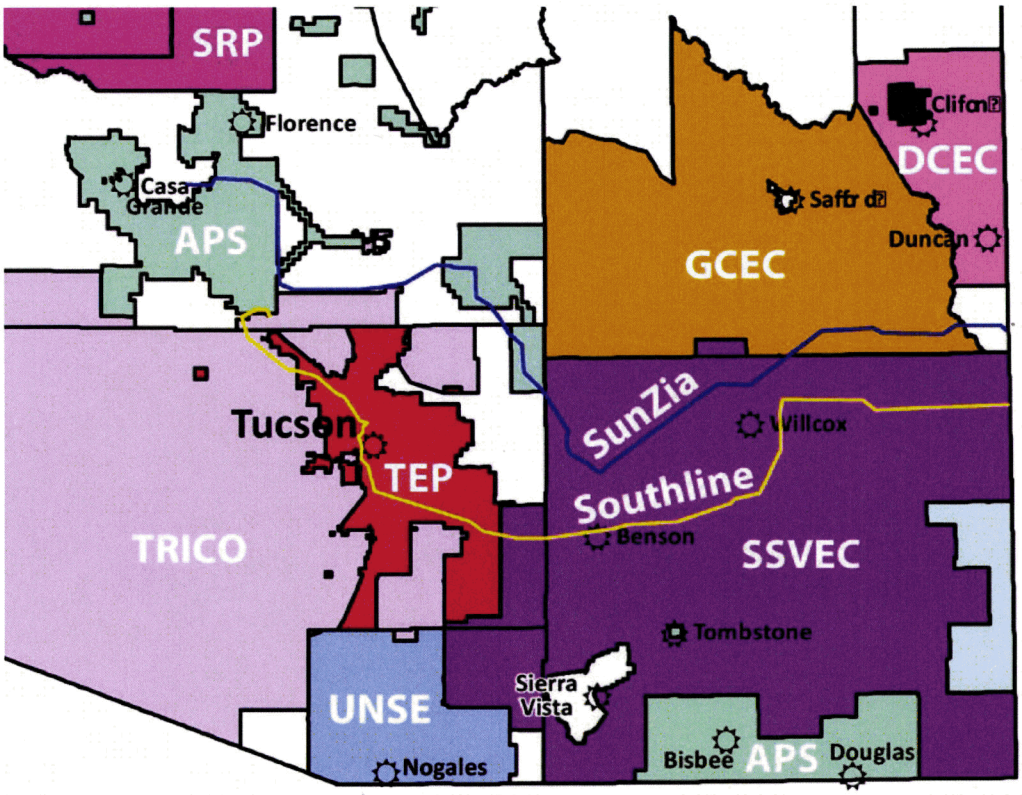

Figure 1. SunZia (blue line) and Southline (yellow line) routes with respect to southern Arizona electric utility service areas. SunZia cannot provide any congestion relief to TEP's service area because the project cannot deliver or schedule additional power into it. In contrast, Southline traverses the heart of TEP's service area and has seven interconnections with it. Southline would also be fully integrated with transmission lines in the Sulphur Springs Valley Electric Co-op (SSVEC) service area in Cochise and eastern Pima County and the APS service area in the Bisbee-Douglas area. SunZia would lack connections with transmission lines serving these areas. Background map is from the Arizona Corporation Commission[1].

[1] Website reference https://www.azcc.gov/divisions/utilities/electric/map-elect.pdf.

additional power to an area outside TEP's service area, any power that SunZia brings to that point must be delivered to TEP's service area through TEP's existing grid. SunZia would not increase that capacity. TEP has traditionally scheduled both of its 345-kilovolt lines that lead from the Four Corners area and its Springerville generating station to Tucson to capacity. Any SunZia power would have to be delivered on one of these lines via transfers at SunZia's proposed Willow substation or via TEP's new 500-kilovolt line from Pinal Central to the Tortolita substation. While TEP could switch power sources from coal-fired generation to supposed New Mexico wind-generated electricity brought in by SunZia from the east, TEP cannot deliver any additional power to its customers because of SunZia. TEP would have to build new transmission capacity for that purpose.

In contrast, Southline is fully integrated with TEP's grid in the Tucson area, providing the capacity to deliver an additional 1,000 megawatts of power or more directly to TEP customers. Southline connects with both of TEP's 345-kilovolt lines at the Vail substation, six 138-kilovolt substations within Tucson, and TEP's 500-kilovolt substation at the Tortolita/Saguaro substations. This provides an enormous advantage to TEP. These interconnections would allow TEP to transfer additional power fully across the city from the north and permit access to existing and proposed conventional power sources in southwestern New Mexico, El Paso and Albuquerque. SunZia's lack of New Mexico grid connections would not permit this latter capability.

If one were to call this capacity for power delivery "congestion relief," it is Southline that can provide it. SunZia cannot, as the project does not enter TEP's service area and connect with any power distribution points within it. In addition, Southline's multiple connections to the more rural grid in southeastern Arizona at several substations (Figure 2) would permit both greater

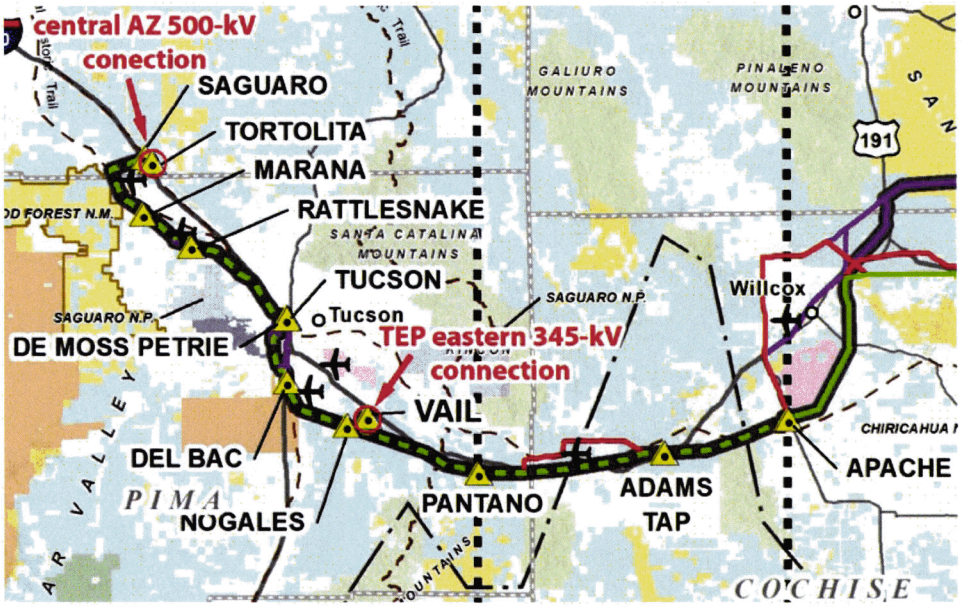

Figure 2. Substations with which Southline will interconnect. Southline will connect with the central Arizona 500-kilovolt system at Tortolita and both of TEP's 345-kilovolt lines at Vail. These connections provides a major reliability benefit for TEP, in some respects stronger than any reliability benefit provided by SunZia's potential link these two systems. Southline will connect with both of TEP's 345-kilovolt lines, whereas SunZia will connect with only one, and Southline can bring in additional conventional power from existing sources into the TEP service area from the east, which SunZia cannot. (Background figure is a more preliminary map from the Southline Draft Environmental Impact Statement of March 2014.)

delivery of power to providers in those areas as well as permit uploading and distribution of power from existing or new facilities, including renewable generation. Again, SunZia lacks the grid connections to do this.

IV. Reliability Increase on Southern Arizona Transmission System

A major advantage of the Southline project is that it would connect with 11 existing substations in southern Arizona and provide a new connection to TEP's 345-kilovolt substation at Vail (Figure 2). Thus Southline would be fully integrated with the southern Arizona grid. SunZia in contrast largely bypasses this grid and does not provide a reliability benefit to it other than to one of TEP's 345-kilovolt lines. Southline would interconnect with transmission lines

owned by Arizona Public Service, Southwest Transmission Cooperative (G&T Cooperative), and Tucson Electric Power Company. These connections would position Southline to become the backbone of the future power supply in southeastern Arizona, most importantly for more rural communities, and would greatly increase the reliability of the broader southern Arizona grid.

While SunZia personnel and ACC staff have noted the reliability benefit of connecting the 500-kilovolt substation at Pinal Central with TEP's 345-kilovolt line northeast of Willcox via SunZia, Southline would provide an equal if not greater reliability benefit to TEP's system through a similar cross connection. It makes no difference whether the connection between the 500-kilovolt lines north of Tucson with TEP's 345-kilovolt lines east of Tucson occurs via a path north or south of the Santa Catalina Mountains. The reliability benefit is the same. The belief that routing SunZia through Tucson would not result in a reliability benefit to the Tucson metropolitan area, as stated by Charles Hains in his closing arguments at the SunZia Line Siting Hearing, is a misunderstanding of the physical system (SunZia Line Siting Hearing Proceedings Transcripts, Vol. XIII, page 2526, lines 20-25, and page 2527, lines 1-6). All that matters is that the cross connection is made no matter the path it follows across the landscape.

Southline does provide this full connection between the 500-kilovolt lines north of Tucson and TEP's 345-kilovolt lines east of Tucson by connecting the Tortolita substation and the Vail substation (Figure 2), providing a major reliability benefit to TEP's system. While directly connecting the Pinal Central substation to TEP's 345-kilovolt lines north of Willcox at Willow as SunZia would do may provide a somewhat greater reliability benefit from power sources north of Tucson, Southline would still provide a major reliability benefit by being able to bring power fully across the city from the north, linking the 500-kilovolt and 345-kilovolt systems also.

Southline's reliability benefit to TEP potentially exceeds that of SunZia by providing access to conventional, replacement power sources to the east, which SunZia would be unable to do because SunZia would lack a connection to the New Mexico grid. In addition, Southline would connect to *both* of TEP's 345-kilovolt lines at the Vail substation, while SunZia proposes to connect with only one TEP 345-kilovolt line at the proposed Willow substation, providing no reliability benefit for TEP's second 345-kilovolt line. Southline would provide a reliability benefit to both of those lines by being able to bring additional power across the city from the north and additional power in from the east, a capacity that SunZia would lack.

While both projects would provide a reliability benefit to TEP's system, neither would address any outstanding reliability issue on the southern Arizona extra-high-voltage grid. This is to say, neither Tucson Electric Power nor the Salt River Project has any plans to build such a connecting line merely to increase reliability, as building a line for solely this purpose cannot be economically justified. Such a line can be built only when an increase in power along that path is required to meet demand.

V. Reduction of Congestion on Southwestern New Mexico Transmission System (Path 47) and Facilitation of Regional Power Transfers

A fundamental difference between Southline and SunZia is that Southline would connect with the 345-kilovolt grid in southwestern New Mexico, known as Path 47 (Figure 3), at two locations, whereas SunZia now would have no such connections. These connections would allow a full interchange of conventional power between Arizona and New Mexico utilities and energy providers and convey a significant advantage to Southline.

SunZia was to have connected to the New Mexico grid in this way also (Figure 3), but late in the permitting process, El Paso Electric and SunZia's Project Review Group expressed

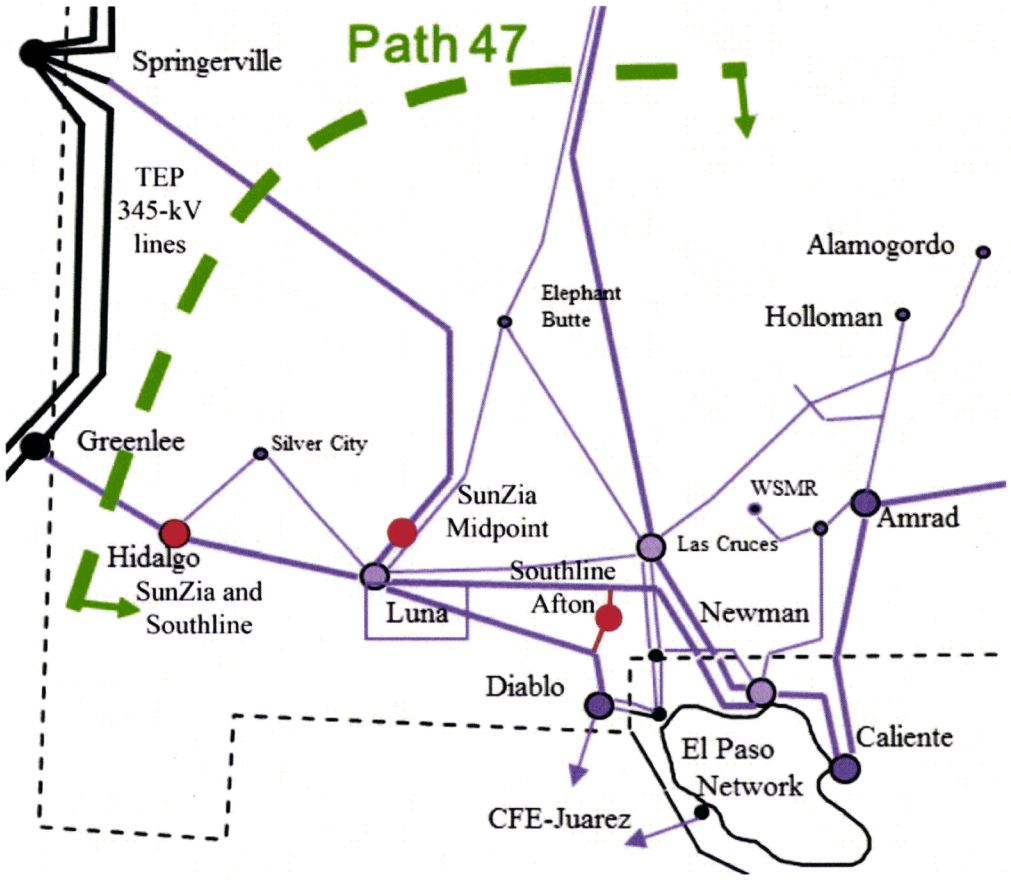

Figure 3. Schematic figure of transmission Path 47, southwestern New Mexico, showing proposed Southline and SunZia substation connections. The heavy purple and black lines are 345-kilovolt transmission lines, and the thin purple lines are 115-kilovolt transmission lines. SunZia was to connect to the Hidalgo substation at Lordsburg and to build a new substation northeast of Deming. In 2013 El Paso Electric and the SunZia Project Review Group asked SunZia not to make these connections, favoring Southline instead. These connections give Southline a major advantage in regional power transfers. Background figure is from Public Service Company of New Mexico (2014)[2].

concern about the dual connection with Southline and asked that SunZia abandon its proposed connections. SunZia had intended to connect with the Hidalgo substation at Lordsburg, which Southline would do, and had proposed a new substation northeast of Deming (Luna) to connect with the 345-kilovolt grid there. Southline's second connection would be to the southeast of this at the Afton substation and would connect with two 345-kilovolt lines. The Bureau of Land

[2] Public Service Company of New Mexico, *PNM Integrated Resource Plan, 2014-2033*, July 2014. Available from https://www.pnm.com/irp. Accessed October 21, 2016.

Management approved the two SunZia substations at the locations where SunZia proposed them even though SunZia cannot now use them for energy exchanges.

Southline's connection would address the long-standing conventional congestion issue in southwestern New Mexico, which SunZia would not now do. The principal issue with Path 47 has been directional scheduling of power toward El Paso, not the physical limits of the transmission system. El Paso Electric (EPE) has traditionally used the Path 47 grid to draw power from the Four Corners power plants and Arizona generating facilities, including the Palo Verde Generating Station. Public Service Company of New Mexico (PNM) also draws power from this path northward, and Tucson Electric Power Company uses it to draw power to Tucson from the Luna Energy Facility at Deming.

Of particular importance is that Southline's connections would permit the interchange of power between Arizona utilities, such as TEP, and utilities and providers in southwestern New Mexico and the El Paso and Albuquerque area. Both EPE and PNM are planning major expansions of natural gas generation in their service areas over the next 15 years[3,4], and excess capacity may be available to APS, SRP and TEP through Southline. Conversely, Southline's connections would permit New Mexico utilities greater access to Arizona power sources. While current policy interests have been intensely focused on renewable energy development, the capacity to exchange conventional energy in this way is currently of much greater value to regional utilities. SunZia cannot now provide this capability, which reduces the project's regional usefulness and conveys a significant physical and economic advantage to Southline.

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[3] *Integrated Resource Plan for El Paso Electric Company for the Period 2015-2034*, 142 pp., 2015. Available at https://www.epelectric.com/document/integrated-resource-plan-2015-2034-07-16-2015. Accessed September 28, 2015. Heretofore referred to as EPE 2015.

[4] *PNM Integrated Resource Plan, 2014-2033*, July 2014. Available at https://www.pnm.com/irp. Accessed October 11, 2015. Heretofore referred to as PNM 2014S.

While new generation sources could still use SunZia to export power westward from southwestern New Mexico, Southline also has an advantage in this by being connected to the full southwestern New Mexico grid, which means that new power providers need not connect directly to Southline to deliver power through the project. They can connect to more local and convenient transmission lines that will feed into Southline connections. In contrast, projects that might use SunZia must build transmission lines to SunZia and 500-kilovolt substations to upload their power. Southline and SunZia would be built immediately adjacent to each other for more than 100 miles across southwestern New Mexico (Figure 4), giving neither a particular advantage based merely on location.

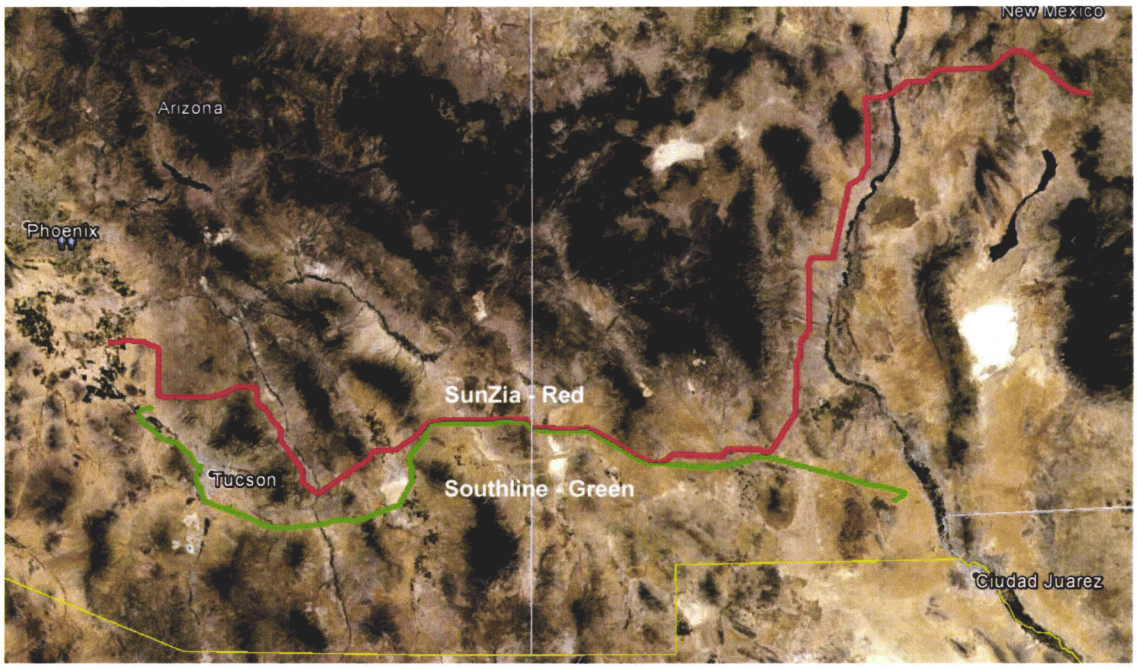

Figure 4. Comparison of SunZia and Southline routes showing the physical coincidence of the projects in southwestern New Mexico. Physical location itself gives neither a physical advantage in accessing resources. The advantage is provided by actual connections to the grid, a capacity granted to Southline. The Southline route has been modified at the New Mexico line in the Final EIS and now comes farther south in Arizona.

VI. Construction Challenges

Southline is perhaps the strongest possible transmission project one could propose to strengthen the southern Arizona grid and would be a huge boon to Tucson Electric Power Company, adding enormous strength and flexibility to their system. The project also has potential benefits for the Salt River Project and Arizona Public Service by making power sources available to them from the east and opening New Mexico markets for their excess power. SunZia cannot approach the magnitude of this benefit because the project largely bypasses the southeastern Arizona grid and would not connect with the New Mexico grid.

Western (WAPA) must replace the proposed rebuild section from the Apache Power Plant to the Saguaro Generating station no matter what the Corporation Commission decides regarding Southline and no matter the economics of that portion of the project. The existing 115-kilovolt line is more than 50 years old and composed of outdated conductor hung from wooden poles. Western must replace this for the sake of security and reliability no matter Southline's fate. Using the most robust technology and transmission system possible for the existing right-of-way makes great sense. Rebuilding this line would position Western to provide the backbone of the future power supply for southeastern Arizona, most importantly to its rural counties.

The new-build section between the Apache Power Plant on the Willcox Playa and the Afton generating station in New Mexico is different matter, however. As with SunZia, this portion of Southline cannot be built without 75% or more of the transmission capacity being contractually committed before construction begins. This level of commitment is needed to obtain financing, a very high and difficult bar to meet for any project. Thus the question remains as to whether meeting this bar will be possible. Whereas developers have expressed capacity

interest that exceeds Southline's capacity (Southline CEC application pages 10-11), the majority of this interest will be speculative and much of it will not materialize. Thus this factor alone cannot assure financing and construction of the project.

In addition, El Paso Electric (EPE), which owns and oversees the 345-kilovolt system in southwestern New Mexico and uses it most extensively, currently has no need to expand that capacity. They are abandoning their share in the Four Corners Power Plant, and current generation plans show no need to import additional power from far-away power plants, which has been the power-generation and distribution paradigm in the region for the past 50 years. EPE is instead planning to site all new conventional generation, which will be exclusively natural gas, within its service area in the El Paso area[5]. EPE's transmission plans are thus focused almost entirely on strengthening this more local grid. Public Service Company of New Mexico, which has traditionally imported power from far-away power plants, has similar plans.[6]

Of special note is the reduction from double-circuit 345-kV lines on the new-build section to double-circuit 230-kilovolt lines on the upgrade section. The capacity of the 345-kilovolt lines would be approximately double that of the 230-kilovolt lines, far more than the 1,000-megawatt rating of the overall project, which is determined by the 230-kilovolt lines. This means that the new-build section in New Mexico would have far more capacity than the Arizona upgrade portion of the project could deliver. This excess capacity could provide for later grid expansion in Arizona, although that may not be the express purpose of constructing two 345-kilovolt lines.

[5] EPE 2015.
[6] PNM 2015.

VII. Concluding Remarks

Southline cannot survive on new renewable generation alone and must facilitate conventional power delivery to be viable. Renewable energy projects in the area the project traverses would be almost entirely solar and likely too small individually and too dispersed in their construction time to provide the full support needed to finance and build the project. Some combination of conventional and renewable generation sources and acquisition of existing contractual commitments would be required. Will this work? In spite of this uncertainty, Southline is the strongest possible project one could propose to bolster the southeastern portion of the Arizona grid, and the Cascabel Working Group urges the Line Siting Committee and Corporation Commission to support this project even though its future may be uncertain. The completion of this project appears more likely than SunZia and would be of much greater benefit to Arizona.