

Cascabel Working Group  
6590 N. Cascabel Road  
Benson, AZ 85602  
June 13, 2013

Ms. Frances Martinez, Reality Specialist  
Bureau of Land Management  
Las Cruces District Office  
1800 Marquess Street  
Las Cruces, NM 88005-3371

Re: Southline Transmission Project

Dear Ms. Martinez:

I want to thank you for extending the comment period for the Southline Transmission Project. I was unaware that the deadline for commenting was so soon after public scoping and was unable to submit comments in the time allotted.

I am co-chair of the Cascabel Working Group, whose mission is to educate others about the Middle San Pedro River Valley and to advocate for the protection of the valley's environment, culture and traditional land uses. Our area of concern lies to the north of Benson, Arizona. We have been particularly concerned about the impact of large infrastructure projects proposed for the valley such as the I-10 bypass and the SunZia Southwest Transmission Project. Much of our perspective on the Southline Project comes from our experiences with SunZia.

### **Impacts of the Southline Project on the San Pedro Valley**

We find the Southline Project to be more carefully and thoughtfully conceived and more focused than SunZia. We strongly support its concept of rebuilding and upgrading existing transmission capacity to strengthen grid reliability in southeastern Arizona and to supply increasing power needs, especially for growth centers such as Tucson and Sierra Vista. This is the most efficient and pragmatic way of achieving this goal. This strategy greatly reduces environmental impacts while substantially increasing power delivery for this part of the state. Because of this, we have few concerns about the Southline project's impact on the San Pedro Valley.

Neither of the two possible Southline alternatives for crossing the San Pedro River north of Benson, Arizona, particularly concerns us (upgrading the Western Area Power Administration's 115-kV line to the south or following the Southwest Transmission Cooperative's 230-kV line to the north). Disturbing the mesquite woodlands adjacent to the river is usually the most sensitive issue for us. For either route, we would strongly encourage stringing the new transmission lines without clear-cutting the vegetation beneath them. This should be possible because the mesquite trees are short. Leaving as much of this shrubby forest intact preserves habitat and natural values, even if these river crossings are close to population centers. Using the five-year trim procedure for vegetation management would continue to protect the riparian area and natural viewsheds.

Overall, building the Southline Project would forestall or eliminate the environmental impacts associated with building the new transmission capacity needed to meet growing power consumption on the east and south sides of Tucson. Currently, Tucson Electric Power Company (TEP) cannot provide this needed power without building other lines that would have much more damaging impacts. Alternatives that TEP is considering include adding new 345-kV lines in existing corridors that cross the Sonoran Desert and Ironwood Forest National Monuments, adding a new 500-kV line down the San Pedro Valley, and building a new 345-kV line into the city from east of Tucson. The Southline Project would greatly reduce the need for any of these lines and would thus help protect the environment. This is one of the most important reasons that we support the Southline Project.

Being able to rebuild the Western 115-kV line through Tucson would make power distribution for the city much more robust, which is needed. TEP also has great difficulty getting power to the south side of the city from northerly power sources such as the Palo Verde generating station, and rebuilding the Western line would significantly ease this problem. Being able to upgrade the Western line to achieve these goals would result in much less environmental impact than any of TEP's current solutions. In addition, the short new line that the Southline will build to connect Western's line to TEP's Vail Substation will substantially increase system reliability and provide additional power for the southern part of Tucson and the surrounding area. SunZia provides none of these benefits to southeastern Arizona.

### **Other Sensitive Environmental Areas**

A particularly sensitive area within Tucson that the project affects is Tumamoc Hill, home of the University of Arizona's Desert Laboratory. (Please see the attached aerial view from Google Earth with the Western line shown in orange, with additional comments.) Western's line crosses the natural area associated with the Hill, which will be a major concern. This natural area is one of the longest-studied plots in the U.S., along with the Santa Rita Experimental Range south of Tucson, and has a continuous, detailed biological record more than 100 years long.

The Southline Project will have to work closely with the University of Arizona to reduce construction impacts as much as possible to protect the area. It will be important to avoid or minimize improving the current access road, which is four-wheel-drive, discontinuous in places, and overgrown to some degree. This area will be one of the most sensitive that the project crosses (approximately 10,000 feet or 2 miles in total length), and removing existing transmission towers and lines and installing new ones will require more careful and less invasive construction procedures. The use of helicopter support may be necessary to achieve this.

In addition, the crossing of Davidson Canyon and Cienega Creek east of Tucson will be sensitive, and Southline will need to work closely with Pima County to minimize environmental impacts there, in particular across the Bar V Ranch, which the county owns. Mitigation strategies include spanning these canyons with the lines and minimizing service road widening and improvement. In its comments to the BLM on the project, Pima County has undoubtedly expressed more specific concerns about these areas and ways to approach them.

Within Tucson, the route will affect several other sensitive areas where more careful construction procedures will be needed. North of Tucson the route parallels the Santa Cruz River, a concern especially for nocturnal foraging and migrating bats and birds, and it parallels the Ironwood Forest National Monument, where it will be a visual issue as well. In the southwestern part of Tucson it crosses the lower part of Pima County's additions to Tucson Mountain Park, where impacts will need to be minimized.

### **Important Social Concerns**

The most sensitive issues associated with rebuilding existing transmission lines in southeastern Arizona will be social concerns in neighborhoods or developments that Western's line currently crosses. While no additional right-of-way would be required, the increased height of transmission towers and the doubling of lines will cause concern, as will increased magnetic and electric field strengths around them.

Although the electric and magnetic field strengths surrounding Southline's new higher-voltage lines may be below national standards for nearby human habitation, stating this will not alleviate everyone's concern. I thus strongly recommend providing diagrams that show how these field strengths decay with distance from the lines, comparing current field strengths with them. This would allow residents to see how much, if any, these fields will increase in homes, schools and business. If the increase in field strengths is negligible or if they are less than present, this will be far more reassuring than simply stating that the new levels are "safe." The most important reference point for determining these field strengths is the edge of the right-of-way.

The most sensitive area in this regard will be where Western's 115-kV line traverses Midvale Park and other neighborhoods on the west side of downtown Tucson. Other sensitive areas will be the Mescal Community west of Benson and the Vail community east of Tucson. It is worth modeling field strengths adjacent to the lines to determine how these fields will affect surrounding homes, schools, and businesses. The current Western line through the west side of Tucson follows a very tight pathway through parts of these neighborhoods and will be of great concern. The impact upon human habitation in the Mescal and Vail areas will be less because building density is lower and buildings are farther from the lines.

Using compact line technology would reduce electric and magnetic field strengths significantly as well as the height and width of transmission towers. Although this technique is predominantly used in Europe, using it may be worth considering in tight and sensitive areas within Tucson. This technology makes use of very rigid insulating arms that hold the three separate cables carrying the three phases of an alternating current (AC) in a fixed geometry. Managing the interactions between the three electrical phases in this way allows transmission cables to be much closer together and transmission towers to be shorter. This also reduces associated electric and magnetic field strengths.

### **Advantages of the Southline Project over the SunZia Southwest Transmission Project**

While both SunZia and the Southline Project argue that they are needed to increase grid reliability, reduce congestion, and provide capacity for renewable energy generation across

southwestern New Mexico and southeastern Arizona, the Southline Project is the stronger and more realistic option. Although both projects state that their objectives are unique, to be economically and physically viable they must compete for the same power generation sources in these areas, whether renewable or nonrenewable. Both SunZia and Southline will need any new generation sources to use their lines to make the money required to pay back loans and be profitable. It thus seems imprudent and duplicative to build both systems.

We believe that the Southline Project is the stronger option because it will provide far more interconnections with the current grid in southeastern Arizona. Southline will connect with up to 11 substations here, while SunZia will connect with only 1. Southline is designed to fully service southeastern Arizona, both in terms of delivering power and distributing it from more dispersed generation facilities, whether renewable or nonrenewable. This gives it an economic advantage for potential new power suppliers.

In addition, SunZia is much larger in scope, which increases its overall financial vulnerability. The power generation sources it claims will use it are almost entirely speculative, which substantially increases any investment risk in the project. While the Southline Project faces risk as well, it is not nearly as great as that for SunZia. Building both projects across southwestern New Mexico and southeastern Arizona is redundant and thus potentially weakens both. The Southline is more appropriately scaled for the transmission needs of the area, making it more likely to succeed financially. Both projects could fail, and building both will increase the chances that both will. Overall, the Southline Project appears more reasonably scaled and designed and thus less vulnerable, making it the project to favor if one must be built.

The overlap of these projects in southwestern New Mexico and southeastern Arizona and their inevitable competition for the same generation resources is a matter of concern. While the BLM may be legally compelled to consider them separately at this time and issue separate decisions for them, physical and financial constraints may ultimately require that the most viable and unique parts of each to be combined to create a successful project. Federal, state, county and local decision-makers; utilities; and the public will want to consider them in this way in order to reduce impacts and increase the chances that some transmission alternative succeeds. Comparing the overall impacts and requirements of each will be essential, and this may need to be done segment by segment.

### **A Cautionary Note**

One could argue here that the money spent by the federal government in partnering with the Southline to upgrade Western's line might be better spent to support local generation, that this should be put first. This argument carries some weight, especially with solar technology advancing so rapidly. While we understand that it may be difficult for federal officials to accept this as the better choice, it underscores how rapidly solar technology is changing and how quickly this could make new long-distance transmission lines obsolete and uneconomical. Such a transformation could happen in the next ten years.

Anyone considering building new long-distance transmission lines, especially for renewable energy, must consider this. Technological transformations take place with great speed, making

plans that seem reasonable now ill-considered and obsolete in a few years' time. If solar research projects such as the National Renewable Energy Laboratory's SunShot Program and Robert Angel's REhnu venture lead to anticipated economic breakthroughs, this could transform energy generation and distribution. Just as cell phones make it far more economical to build repeater towers than long, new land lines in new areas of the world, solar energy technology could overtake the utility industry in the same way. In some respects, we must hope this happens, both for environmental reasons and because these new technologies would lack the enormous overhead associated with building long-distance transmission lines to deliver power from remote sources.

## Summary

The Cascabel Working Group strongly supports the Southline Project for many of the reasons discussed above, although we are sensitive to the environmental concerns of those communities it will affect. We cannot speak for those communities, and the project must satisfactorily address their concerns for the project to proceed. Nevertheless, we find much about the Southline to favor:

- Its minimal overall environmental impact, especially when compared with SunZia's.
- Its ability to forestall TEP's need to build additional transmission lines and thus prevent associated environmental impacts.
- Its efficient and carefully considered design.
- Its greater ability to strengthen power distribution and grid reliability in southeastern Arizona because of multiple substation connections.
- Its greater ability to facilitate renewable energy generation in southeastern Arizona, again because of these multiple grid interconnections.
- Its more conservative scope and thus its greater potential to succeed financially.

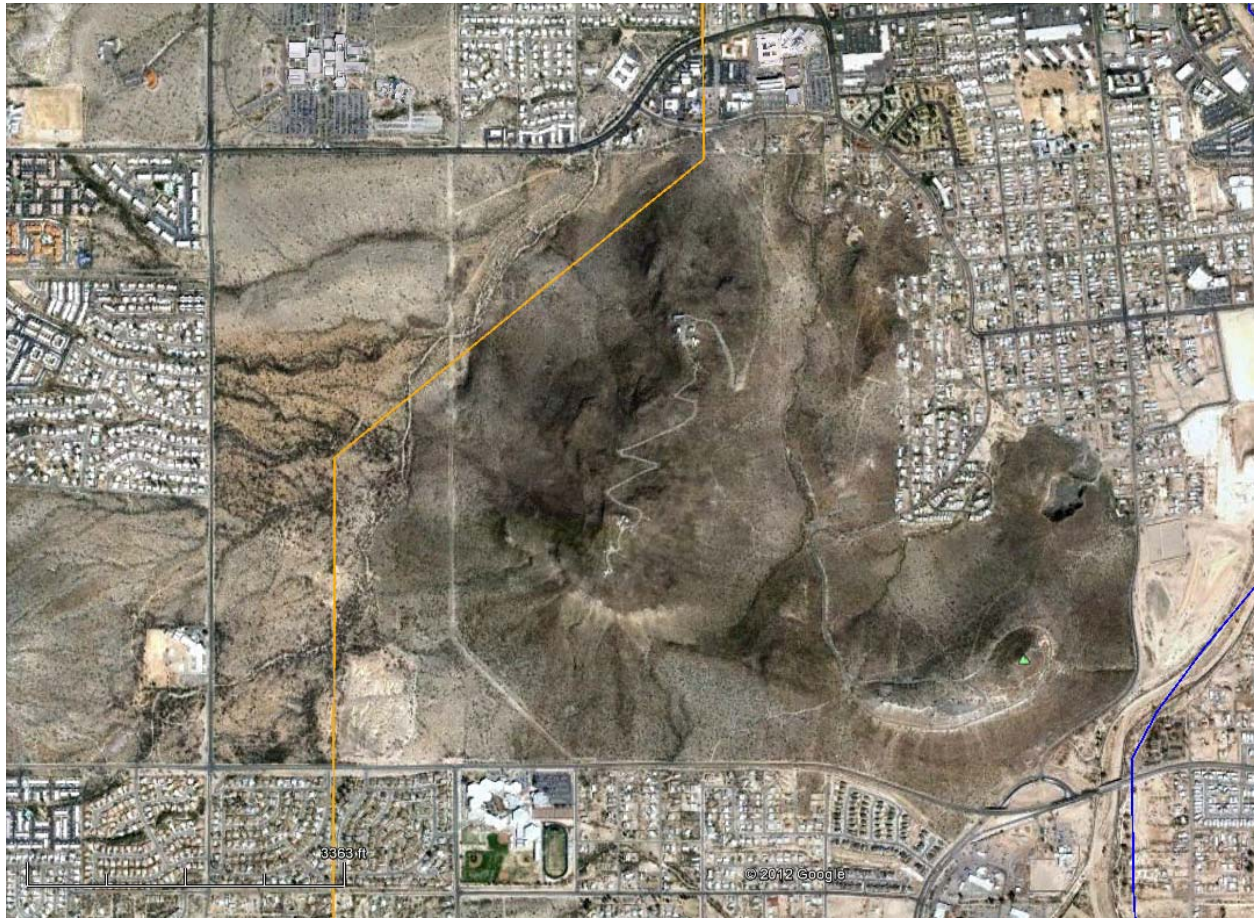
We request that these issues be considered in the ongoing environmental impact analyses and in the resultant environmental impact statements released for public review. Please keep me on your mailing list.

We thank you for the opportunity to provide these comments and hope they are helpful.

Sincerely,



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Aerial view of Tumamoc Hill with the Western line shown in orange (from Google Earth). The blue line in the lower right is Tucson Electric Power Company's 138-kV line, which follows the Santa Cruz River. The light line that crosses the area from south to north on the west side of Tumamoc Hill is Kinder Morgan's gasoline pipeline. The zig-zag line in the center of the photo is the current access road for the Desert Laboratory. This road is well maintained. The access road beneath Western's line has not been maintained for many years.

Directly north of the hill where Western's line exits the natural area is St. Mary's Hospital. Western's line passes directly over parking lots associated with medical buildings here. In the block immediate to the south of Tumamoc Hill, Western's line passes over the back yards of several homes. This emphasizes the sensitivity and difficulty of completing the upgrade of Western's line in this portion of the route.