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Mr. Adrian Garcia, Project Manager
SunZia Southwest Transmission Project
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Dear Adrian:

I would like to submit the following supplementary comments to the SunZia Draft Environmental Impact Statement. Although the deadline for comments has past, I believe that these comments are substantive and potentially important to assessing the need for this project. These comments address the statement in the SunZia DEIS that Path 47 in southern New Mexico is congested and that SunZia will address this issue. I have now had time to review the source of this statement, the Department of Energy's 2009 *National Electric Transmission Congestion Study*¹, as well as documents referenced in this study and elsewhere. This conclusion is very misleading, and the attached report clarifies this.

Review of DOE's report and supporting documents shows that, in reality, Path 47 is one of the least congested and most reliable paths in the western United States, and no additional transmission capacity is needed to meet current power needs in this region. What is occurring is that the utilities and power generators that use Path 47 have scheduled much of the path's transmission capacity for themselves but are not using it. Such a situation needs to be resolved by the Federal Energy Regulatory Commission. A physical power-delivery problem does not currently exist.

In addition, calculations by Public Service Company of New Mexico show that path 47 has sufficient transmission capacity to export approximately ~1,000 MW of power². Currently, development of solar resources in southwestern New Mexico is not limited by insufficient transmission capacity. Rather, these resources are not being developed because potential power generators cannot obtain power purchase agreements from utilities. That is, utility companies are unwilling to buy the power. This heightens the financial risks for a project like SunZia if it intends to support itself by selling transmission capacity to deliver this power.

¹ U.S. Department of Energy, *National Electric Transmission Congestion Study*, December 2009 (hereinafter DOE 2009). Available from http://energy.gov/sites/prod/files/Congestion_Study_2009.pdf. Accessed September 4, 2012.

² Public Service Company of New Mexico, Electric Services, Transmission Development and Contracts, *Path 47 Export Rating*, May 5, 2004 (hereinafter PNM 2004). Available from http://www.mrlc.gov/nlcd2006_downloads.php. Accessed September 4, 2012.

To fully update the SunZia DEIS regarding Path 47, the BLM needs to access the Western Electricity Coordinating Council's *2012 Path Rating Catalog*. I strongly urge the BLM to obtain the assistance of the Department of Energy and the Western Electricity Coordinating Council with this to ensure that the information in the DEIS regarding Path 47 is the most up to date possible. This catalog is available for \$90 at the following URL: <http://www.wecc.biz/library/Pages/Path%20Rating%20Catalog.aspx>. I cannot access this catalog without purchasing it and thus cannot provide the most up-to-date information for the BLM to use.

The problem with congestion on Path 47 is not one that I immediately recognized when I read through the DEIS, and I was unable to research it before the SunZia DEIS comment deadline. I believe that the information I provide is substantive and important to incorporate into the SunZia environmental impact statement if the EIS is to be reliable and accurate.

Because this information applies equally to the Southline Project, I am providing this to Tom Hurshman, BLM manager for that project. I am also copying this to Lauren Azar, Senior Adviser to Department of Energy Secretary Steven Chu, who may be able to direct you to the appropriate person to fully update the congestion ratings for Path 47.

Sincerely,

A handwritten signature in cursive script that reads "Norm 'Mick' Meader".

Norm "Mick" Meader
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Attachments (3)

cc: Mr. Jesse Juen, Director, BLM New Mexico State Office, jjuen@blm.gov
Mr. Tom Hurshman, BLM Southline Transmission Project Manager, thurshman@blm.gov
Ms. Lauren Azar, Senior Adviser to Department of Energy Secretary Steven Chu,
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Review of Path 47 Congestion in Southern New Mexico

The most critical document to review in researching the issue of transmission congestion in southern New Mexico is Part 3 of the Western Electricity Coordinating Council's 2008 Annual Report, *Western Interconnection Transmission Path Utilization Study: An Analysis of Path Flows and Schedules on the WECC Transmission System During 2007*³. This report is the basis for statements regarding path 47 in DOE's 2009 transmission congestion report.

In the WECC report, four methods are used to assess congestion, and it is critical to understand each and which is most important. Two are related to actual power flow and two to scheduling. Actual power flows determine how much reserve transmission capacity exists and whether additional physical capacity is needed. In terms of actual power flow, current transmission capacity in southern New Mexico is lightly utilized and uncongested. These four methods are discussed below (adapted from this report). For these methods, U75 refers to a 75% utilization level for a path, and U90 refers to a 90% utilization level.

1. **Actual flow grouping.** For each path, sum the magnitude of all individual U75 and U90 actual flow metrics for all seasons and heavy- and light-load hours. This summed number represents the path-usage ranking number for the path.
2. **Actual flow grouping.** For each path, identify the highest U75 actual flow metric calculated for each season and heavy- and light-load hours. This maximum number represents the path-usage ranking number for the path.
3. **Net Schedule grouping.** For each path, sum the magnitude of all individual U75 and U90 net schedule metrics for all seasons and for heavy- and light-load hours. (It was felt this schedule ranking method might produce ranking results similar to the actual flow ranking Method #1.) This summed number represents the path-usage ranking number for the path.
4. **Maximum directional schedule grouping.** For each path, identify the highest U75, U90 and U99 directional schedule metrics calculated for all seasons and for heavy- and light-load hours. This maximum number represents the path-usage ranking number for the path.

Twenty-three western U.S. paths were considered here, and the path-usage ranking numbers for Path 47 are, respectively: Method 1: 19, Method 2: 19, Method 3: 21, and Method 4: 1 (see Figures VI-1 to VI-4 in the attached figures). For method 4, Path 47 ranks 1 at the U75 and U90 levels. Only by method 4 is this path considered congested, and this ranking is suspect for a number of reasons. This ranking is based solely on data provided by El Paso Electric Company and does not include data from Public Service Company of New Mexico, and path rankings radically reverse between methods, unlike any other path. What appears to be occurring is that power operators using path 47 are reserving much of its transmission capacity for themselves without fully utilizing it. I am attaching the most important diagrams from this report to demonstrate this.

³Western Electricity Coordinating Council, Transmission Expansion Planning Policy Committee, Historical Analysis Work Group, *2008 Annual Report, Part 3, Western Interconnection Transmission Path Utilization Study, An Analysis of Path Flows and Schedules on the WECC Transmission System During 2007*, April 2009 (hereinafter WECC 2009). Available from <http://www.wecc.biz/library/StudyReport/Documents/2008%20Western%20Interconnection%20Transmission%20Path%20Utilization%20Study.pdf>. Accessed September 4, 2012.

In terms of actual power flow, in 2007 the 75% utilization level was exceeded on Path 47 only 2.4% of the time, and the 90% utilization level was exceeded only 0.1% of the time⁴. Full usage (U99) is essentially never achieved. For more than 95% of the time, the utilization of this path is less than 75% of its operational transfer capacity (how much power it can carry), and this constitutes a light level of utilization. Net directional scheduling also indicates that this path is lightly used.

In addition, the WECC 2008 report shows that power flow on Path 47 dropped approximately 30% between 2005 and 2007 (Figure II-42 in the attached diagrams), in part because of the integration of the Luna Energy Facility into the path. Path flow data for 2010 for Path 47 indicate an average power flow in the path of 533 MW with a path rating of 1048 MW (calculated from path data available from the WECC). Again, these figures greatly reduce the concern about congestion on this path.

The high utilization for maximum direction scheduling indicates that power operators, very likely El Paso Electric, are reserving excess transmission capacity for their use and are then not utilizing it. This is revealed in the maximum direction scheduling utilization for heavy-load and light-load periods (Figure III-12 in the attached diagrams). Even during light-load periods, the maximum directional scheduling remains just as high as for heavy-load periods, indicating that the transmission capacity is merely being reserved. It is not being used. Thus transmission capacity is only contractually limited. It is not physically limited.

Through this scheduling mechanism, power operators can monopolize transmission capacity and maintain control over it for their own use. This can force other utilities to purchase more expensive power through other paths. This situation is one for the Federal Energy Regulatory Commission to address through regulatory measures, not one to address by adding additional transmission capacity to carry more power. The latter would further increase the underutilization of transmission capacity.

WECC 2011 Report on Path 47 Transmission Capacity

In 2011, the Western Electricity Coordinating Council (WECC) again studied congestion on Path 47 (copy attached)⁵. This study is the most up-to-date publically available and the most relevant to use in assessing congestion in the SunZia DEIS, in particular because it analyzes the impact of SunZia transmission capacity on Path 47. Although this study notes that Path 47 was historically congested in the WECC's 2007 study⁶, subsequent studies show that this congestion has entirely dissipated. A 2009 study showed that the path is no longer congested, and for the expected

⁴ From Table 2, DOE 2009.

⁵ Western Electricity Coordinating Council, *Discussion of WECC Paths, Southern New Mexico (NMI) Path 47* (draft), WECC Path Report, 2011. Available from http://www.wecc.biz/committees/BOD/TEPPC/External/2011_WECC_PathReport_Path47.pdf. Accessed September 4, 2012.

⁶ Western Electricity Coordinating Council, Transmission Expansion Planning Policy Committee (TEPPC), Historical Analysis Working Group, *Western Interconnection Transmission Path Flow Study, 1998 thru 2005*, September 2007. Available from <http://www.wecc.biz/library/StudyReport/Documents/2007%20Western%20Interconnection%20Transmission%20Path%20Utilization%20Study.pdf>. Accessed September 4, 2012.

future the path is projected to be uncongested. Part of the reason for this stems from incorporating the 570-MW Luna Energy Facility at Deming, New Mexico, into Path 47 in 2006.

Indeed, the Path 47 duration plot for 2019 in this study shows that this path will be lightly utilized. The report states the following: “There are no combinations of assumptions that caused the path to be highly utilized.” In addition, the report says “Path 47 is not heavily utilized in the base case or the resource allocation case. Change in flows caused by the implementation of the incremental transmission [SunZia or Centennial West Clean Line] was not significant.” This shows that that for 2019, Path 47 would exceed the 75% utilization level just 2.43% of the time for the base case, and just 6.19% of the time for the resource allocation case. Thus congestion is not an issue on Path 47.

SunZia-Related Transmission Congestion in Central Arizona

The Department of Energy’s 2009 *National Electric Transmission Congestion Study*⁷ noted that the Phoenix-Tucson area was until recently a national area of concern for congestion. This concern was greatly reduced, however, partly by construction of new transmission capacity linking the Palo Verde hub west of Phoenix with the Pinal Central substation, where SunZia will terminate. If SunZia users were to successfully market large amounts of New Mexico renewable energy to California – what is needed to make the project viable – this would exhaust much of this new capacity, again increasing transmission congestion within central Arizona.

To avoid this, SunZia should be required to extend a 500-kV line from the Pinal Central substation to the Palo Verde hub, the key distribution point in Arizona for power going to California. This additional line is vital to protecting Arizona’s in-state transmission capacity. In addition, SunZia should also negotiate with California and Arizona utilities to add additional transmission capacity from the Palo Verde hub to California to complete the circuit. Adding a 500-kV line directly to the Palo Verde hub from Pinal Central and providing additional transmission capacity to California are both needed to fulfill SunZia’s plan of operation without burdening Arizona ratepayers with several hundred million dollars of excess costs.

Existing Transmission Capacity for Exporting Southern New Mexico Power

In 2004 Public Service Company of New Mexico conducted a study⁸ to determine how much power could be exported from southern New Mexico using Path 47. With the Luna Energy Facility in operation (originally called the DENA facility, put on-line in 2006), Path 47 was given a thermally limited export rating of 880 MW with the Arroyo phase shift transformer (PST) in service and 1,132 MW with the PST bypassed. The export rating is defined as “the maximum real power than can flow out of southern New Mexico over Path 47 while maintaining an acceptable level of reliability.”

Although somewhat dated, this study indicates that a lack of transmission capacity is not currently limiting renewable energy development in southwestern New Mexico. While

⁷ DOE 2009.

⁸ PNM 2004.

insufficient transmission capacity could limit future development if significant development of solar and natural gas generation does take place in the region, what currently limits solar development is the lack of power purchase agreements, that is, utilities will not buy the power. An August 25, 2009 article in *The El Paso Times*⁹ quotes the developer of a SolarReserves solar project near Lordsburg, New Mexico, as saying that the project cannot be built because the company cannot get a power purchase contract with a utility. The inability to complete power purchase agreements has inhibited the construction of not just this project but also solar projects by EnXco Development (Afton), Iberdrola Renewables (Lordsburg), and New Solar Ventures (Deming), all given as supporting reasons for building SunZia.

This means that renewable energy development in southern New Mexico is likely to occur much more slowly than anticipated or desired and that it will be difficult to support a project as large as SunZia with it within the time frame required. That is, slowed resource development will sharply reduce the revenue available to SunZia from this source. In addition, the rapid development of renewable energy resources closer to load in Arizona and California further reduces the rate at which New Mexico's renewable resources are likely to be developed. It is thus possible that the full transmission capacity of SunZia will not be utilized, making a project on this scale very risky and hard to justify.

Use of Renewable Portfolio Standard Requirements to Justify SunZia

Much of the justification for SunZia is based upon meeting the renewable energy portfolio standards (RPS) of adjacent states, most importantly California. Indeed, it has been assumed that California cannot possibly meet its 33% RPS requirement stipulated for 2020 with in-state resources and that California utilities will be forced to purchase thousands of megawatts of renewable energy from adjacent states at a premium cost. The success of SunZia is predicated largely on California utilities purchasing all of this energy as soon as it is available, rapidly filling SunZia's lines and thus ensuring the project's financial success. The rapid development of renewable energy resources in California and Arizona, however, brings these assumptions into question and is yet another reason for concern.

In addition to the development of more local resources, 75% of the energy required to meet the 33% renewable portfolio standard for California must come from within California. Thus only 8.25% of this RPS requirement can be met with energy from outside the state. For Arizona, 30% of its 2025 15% renewable portfolio standard must be met with distributed in-state generation. Thus only 10.5% of the state's standard can be met with power transported by transmission systems, whether from in-state or out of state. This further constrains the market for New Mexico renewable energy and reduces SunZia's viability.

Also, the SunZia DEIS does not address what percentage of these requirements has already been met. In California, somewhat more than 20% of its energy now comes from renewable sources. In Arizona, the percentage should be ~4%, the target percentage for 2012, with an eventual goal of 15% by 2025 (this does not include preexisting hydropower capacity), and Nevada's target for

⁹ Vic Kolenc, "Solar power boom: Applications for projects filed, as BLM designates areas for study," *The El Paso Times*, August 25, 2009. Available from <http://shapleigh.org/news/3567-solar-power-boom-applications-for-projects-filed-as-blm-designates-areas-for-study>. Accessed September 4, 2012.

2013 is 15%, with an eventual goal of 25% by 2025. All three of these factors influence SunZia's viability: (1) rapid development of in-state resources closer to load, (2) the percent of renewable energy mandated to be generated within state, and (3) the percentage of the renewable energy portfolio standards that has already been met. In assessing the need for SunZia, these figures should be included in the SunZia Environmental Impact Statement.

Conclusions

The conclusions regarding congestion of Path 47 drawn from the Department of Energy's 2009 *National Electric Transmission Congestion Study* are very misleading because they do not distinguish actual physical congestion from scheduling congestion. In reality, Path 47 is one of the least congested and most reliable paths in the western United States. The problem with overscheduling and underutilization of transmission capacity is one that the Federal Energy Regulatory Commission should address with regulatory oversight. Use of Path 47 was sharply reduced in 2006 with the incorporation of the Luna, New Mexico, Energy Facility into the path. In addition, a 2011 study by the Western Electricity Coordinating Council shows that the path is lightly utilized and will remain so until at least 2019. Thus there is no need to construct SunZia specifically to address this problem.

A rating study by Public Service Company of New Mexico shows that approximately 1,000 MW of transmission capacity is available in southern New Mexico to export power using Path 47. Solar development in that part of the state is currently not limited or inhibited by a lack of transmission capacity. Rather, it is the inability to negotiate power purchase agreements that has prevented solar development in the area. This inability to obtain power purchase agreements, even with sufficient transmission capacity, is also likely to strongly influence wind-energy producers in central New Mexico and affect the viability of SunZia there as well.

While renewable energy producers may have expressed interest in using SunZia capacity, whether they will use it depends entirely on pre-construction power purchase agreements. Thus such interest is not a reliable measure of SunZia's potential use. The same holds for anchor tenant agreements. These agreements are presumably contingent upon power purchase agreements as well and are thus not an actual confirmation of transmission use. Another measure of projected SunZia usage in the DEIS is current interconnection requests. Many of these requests are entirely speculative, and potential power providers make them to reserve a position in the interconnection queue in case they can convince a utility to purchase their power.

Three additional factors strongly influence whether New Mexico renewable energy providers can sell power to out-of-state utilities: (1) the extent to which Arizona, California, and Nevada develop their own in-state resources to meet renewable energy portfolio standards, (2) legislative mandates to produce a given percentage of renewable energy to meet those standards within state, and (3) the percentage of the renewable energy portfolio standards that has already been met. The BLM should quantify these three factors to more fully assess the need for SunZia.