From: Peter Warshall and Associates

To: Bureau of Land Management, New Mexico Office NMSunZiaProject@blm.gov
Re: Draft EIS for the SunZia Southwest Transportation Project
Date: August 20, 2012

Dear BLM:

Attached are our comments of the Draft SunZia environmental impact statement. Please confirm receipt of this email.

We have been asked by various organizations and individuals to prepare comments. Because of time and resources, we decided to do this work pro bono and of limited scope. Our general conclusions are as follows:

1. The DEIS does not meet NEPA standards and has grave inadequacies and incomplete and unavailable information which make a clear preferred action alternative impossible to evaluate. Some of the evidence is presented in a clearly biased format.

2. The best action at this time would be a Deferred No Action Alternative, an alternative not considered by the agency. The Deferred No Action Alternative would give the applicant and consultant (EPG) enough time to decide if they want to proceed and return with a new (greatly revised) DEIS in the future or choose the No Action alternative.

3. The only other alternative that appears reasonable is a Phased Alternative, which was not considered by the BLM/EPG. This also requires a new (revised) DEIS to be issued to the public and might address the inadequacies of the present DEIS.

4. The major problems with this DEIS are: poorly defined project and project purpose; project phasing and timing; inadequate presentation of needs and the scale and timing of project development and its environmental impacts; an economic feasibility statement that is incomplete, unavailable and remote in time and speculative in presentation; an unreasonable elimination of alternatives and mitigation measures; extensive unavailable or unobtainable information that is needed to evaluate adverse environmental and socio-economic impacts; a poor understanding of crucial NEPA terms such as “significance” as as well poor (or non-existent) definition of terms necessary for understanding a transmission line project (e.g.. transfer capacity, congestion); and apparent biases in the presentation of evidence and evaluations.

In short, we recommend a No Action Deferred Alternative as the least expensive; or the Phased Alternative with a completely revised DEIS re-issued to the public or a No Action alternative.

Please place us on all notification lists. Thank you, Peter Watshall, PhD

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COMMENTS ON THE PROPOSED SUNZIA TRANSMISSION LINE DRAFT ENVIRONMENTAL IMPACT STATEMENT BY PETER WARSHALL AND ASSOCIATES, August 20, 2012

Caveat: Although we understand that NEPA has no precise requirements for indexing, we note that tiering, indirect and cumulative impacts, HVTL energy conservation, significance and many other crucial terms do not appear in the index. This makes full it difficult for us and the public to fully evaluate this DEIS and we may have missed some material.

1.0 PROJECT (Section 1502.13)

The project description is inadequate and incomplete as to who, what, when and why. These are standard requirements of the EIS process.

1.1 Who wants this project?

This project appears to be a project of the private business firm Southwestern Power Group (SPG), which is a subsidiary of MMR. But, the DOE 2009 lists the following partners: Salt River Project, Tucson Electric Power, Energy Capital Partner, Shell WindEnergy Inc. Are these financial partners still in the project (see Socio-economic Impacts)? What is their relation to SPG? Are they responsible for construction, operations and/or mitigation?

1.2 What exactly is the project? Why does this DEIS not say which of the two options is the preferred alternative of the BLM?

The preferred project is not resolved in the DEIS. The Sun Zia project has two preferred projects with different impacts — both of which can be built:

1. Two single-circuit 500 kV AC lines that have an approved rating of 3,000 MW from the Western Electricity Coordinating Council.

2. One single-circuit 500 kV AC line and one single circuit 500 kV DC line with an estimated power transfer capacity of up to 4,500 megawatts. This option does not have approval from the Western Coordinating Council or approval is not disclosed.

The DEIS tries to resolve the preferred pathway of the high voltage transmission lines (HVTLs) and the location of four or more substations but does not indicate which of the HVTL options will be chosen. The two options have different scales (ranging from 3,000 to 4,500 MW) and will have very different indirect and cumulative impacts, impacts on HVTL energy conservation, number of substations, long-term inducement of growth, etc. that are not addressed and analyzed in this DEIS (see Environmental Impacts) for the preferred alternative.

1.3 Will there be a supplemental BLM EIS?

It is not stated if a Supplemental EIS will be issued once the final project and right-of-way is chosen. Other EISs and permits are required; it is not stated how tiering (linked EISs) will occur. The proposed project appears to be a planning document (more than a "ripe" project) since many permits, licenses and EISs are not in place and there is no Table of expected completion of these additional requirements and the financial feasibility of the project has not been demonstrated (see other sections). The route could easily change if private landowners or other landholders refuse easements or to sell, or SPG could not meet their asking price.

The DEIS, under the No Action Alternative, can defer the completing an EIS until the actual project is known (see below), permits and licenses have been approved or in the line for approval, tiering is known, private property owners have been notified and agreements are in process, and financial feasibility has been established. We suggest that BLM defers the DEIS until SPG makes clear its actual project (which Option) and clarifies what components, connections and configurations will actually be built and when.

1.4 What is the timing and phasing of this project?

The project description is inadequate and incomplete because the timing and phasing is

not clearly revealed and will have different environmental and socio-economic impacts. The timing and phasing are scattered in the DEIS and at times appear contradictory. Timing and phasing do not appear in the index.

There appear to be three timing periods. *Construction* of the complete project is supposed to take place in three years (?) from the issuing of decision document (all described components, connections and configurations). But, at times, this is contradicted and the construction period is implied to be longer since the BLM does not know if SPG wants to build option A or option B. For instance, it states: "Configuration number 2 will depend on how much power transfer capacity is in demand by the energy market in the Desert Southwest." When will this be decided and when will the stringing of lines or the second series of towers be built? In the next three, ten, twenty or fifty years? Or, it says: "The project's construction will likely occur in phases (e.g.: line number 1 being built prior to line number 2, etc.) and segment (e.g.: portions between substations may be built and energized before subsequent similar segments, etc.)." This highly incomplete and unclear statement implies that construction is much more than three years and does not indicate whether supplemental EAs or EISs will be required.

The second timing period/s is a *planning period for connections* to power generators and "portions between substations may be built and energized before subsequent similar segments, etc." It is supposed to be known for each ten-year planning horizon. Ten years appears to have been chosen by BLM based on "usual" or "normal" planning periods for infrastructure development, though alternative time periods are not discussed. **The first ten-year planning period for connections and power generation is NOT described in the DEIS and the public does not know if any connections would be made as no agreements for use of the line have been signed or reported.** Readers do not know which substations will be built.

The third or *operating period* (duration of right-of-ways) appears to be from the day BLM issues the permit and lasts for fifty years (though this not explicitly stated). At the end of 50 years, the permit can be denied or renewed. The DEIS does not state how this process will occur. If denied, no time-line or required bond for land restoration is given.

As will be repeated many times in these comments, the project application seems premature (see Incomplete and Unavailable Information) and the DEIS should be deferred until a more complete and adequate understanding of the timing and phasing and impacts are known (see Alternatives). At the moment, it is more like the "bridge to nowhere" project in Alaska.

1.5 Is this a more adequate and complete project description?

At the moment a more accurate and adequate project description would read:

SPG, a private business firm with XX financial and operational partners, has requested a 50-year right-of-way to construct two HVTLs and up to five substations. The project, at this time, has no signed agreements with power generators to utilize these lines nor with other land holders for a 50-year right-of-way. As a planning document, the timing and phasing of the construction phase as well as the connections to power generators that desire to utilize these lines have not been defined for the first ten years. Once more information is available to BLM, additional EAs or supplemental EISs will be required for each ten-year period to analyze indirect and cumulative impacts and technological alternatives that may further mitigate impacts not addressed in this DEIS. At the termination of the 50-year period, SPG may be required to remove and restore right-of-way but no arrangements have been made with BLM at this time.

SPG has proposed two options for cabling HVTLs. Both require right-of-ways for two parallel arrangements of towers and cables. This DEIS will not express a preferred option even though it recognizes that the two options have significantly differing environmental and socio-economic impacts. After SPG chooses its preferred option and before any groundbreaking, a supplemental EIS will be issued. This DEIS only addresses alternative HVTL routing and potential locales for potentially constructed substations.

Please use this project description in any revised drafts.

2.0 NEEDS

The DEIS does not make a clear distinction between the needs for this project and the purposes of the project. In this section, we comment on the needs. The needs allegedly include:

2.1 the need to relieve line congestion
2.2 the need to increase access to HVTLs for nearby new or expanded power generators
2.3 the need to provide additional electricity to meet demands, reliability and security within or near corridor especially to Las Cruces, Albuquerque, Tucson, and Phoenix
2.4 the need to provide for increased electricity demand, reliability and security within other parts of the states of AZ and NM
2.5 the need to fulfill electricity demand from adjacent Western power markets and load centers of the "Desert Southwest" — southern CA, NV, UT, CO.

2.1 Is their Line Congestion?

This need is a false claim within the DEIS and should be removed. The DEIS cites the 2009 DOE report and distorts its information and conclusions. The DOE report says: 'The ACC concluded in its order approving the Fifth Biennial Assessment that "The existing and planned transmission systems serving the Phoenix, Santa Cruz County, Tucson and Yuma areas are adequate and should reliably meet the local energy needs of the respective areas through 2017.' *The Department [of Energy] agrees with this conclusion and no longer identifies the Phoenix-Tucson area as a Congestion Area of Concern* [italics added]." The area has been further down listed with respect to line congestion with the recession, lowering of electricity demand, changes in generation patterns and export demands. The need for a 500 kV HVTL does not appear on DOE Map 5-14. The DEIS claims there is severe line congestion.

The DEIS does not present its criteria for congestion as defined by the DOE or its consultants (see definition in DOE report). Is it U90 or U75 of the safe operating limit? Is it number of hours or percentage of year above the safe operating limit? For which lines in the DEIS study area? How many times over the last decade have transmission lines in

the geographic corridor been unable to safely deliver all scheduled or desired wholesale electricity? Was this caused by line congestion or a force majeure? Amazingly, the DEIS glossary does not give a definition of "congestion" as used in this DEIS and does not refer to it in the Index.

We could not find any letters or documents from El Paso Electric, TEP, PNM, Xcel's Southwest Public Service or any of the 20 coops that defined their line congestion concerns. The only other pathway deemed a pathway of concern is Pathway 47 in southern NM, which is not addressed by this DEIS.

2.2, 2.3 and 2.4. What is the need for increased reliability in the SunZia geographic area?

Electric system reliability has two components—adequacy and security. Adequacy is the ability of the electric system to supply customers' aggregate electric demand and energy requirements at all times, taking account scheduled and un-scheduled outages of system facilities. Security is the ability of the electric system to withstand sudden disturbances, such as electric short circuits or unanticipated loss of system facilities. The degree of reliability can be measured by the frequency, duration and magnitude of adverse effects on electricity delivery to customers. We provide this definition to the consultants and BLM because it does not appear in the text or Glossary and is not indexed. The use of the word in the DEIS is inadequately explained for the purposes of a neutral document, the need for the proposed project and public disclosure.

The DEIS has not identified specific customers and their aggregate electric demand with reliability concerns (needs) nor does it supply any quantitative information on reliability (e.g., loop flows, outages, frequency of adverse effects on customers) that SunZia would mitigate.

The *future* need for reliable electricity (since present congestion and reliability are not an issue) requires the SunZia line to demonstrate that future reliability needs cannot be met

by (1) a smaller scale project (such as a 375 kV line); (2) already existing (or upgraded) line/s; (3) demand-side management, roof-top ("wireless micropower") and/or "energy park" production; (4) cheaper imports that do not require SunZia; or (5) a combination of the above. Otherwise, the need for the project because of future (10? 20? 40? year) reliability issues is not demonstrated.

2.2, 2.3 and 2.4. What is the need for new generators that requires the SunZia HVTL?

The DEIS says that the SunZia line will provide increased transmission capacity. It does not demonstrate that there is a need for this size of project. Stating that there are power plants in the Southwest that need transmission lines is too vague. They can chose other lines at perhaps cheaper prices. The DEIS does not have a phasing or timeline for when 3,000 to 4,500 MW transmission might be needed by the load centers or the power generators near the SunZia geographic area and if load center needs must be transmitted by HVTLs of 500 kV.

The DEIS makes incomplete and inadequate references to SunZia geographic area needs/demands. As will be clarified below, there is no way for the reader to reasonably understand why the HVTLs should not be 375 kV or 765 kV. The existing safe operating limits of parallel or redundant lines have not been revealed. The operating capacity of existing power plants that might have reached full capacity (and perhaps encourage new generators to build new plants in the geographic area in the next ten years) has not been presented. Power generators that may close down and reduce demand for the HVTL over the 50-year life span of the project are not presented.

In short, increased production of electricity des not automatically transmit via SunZia and other options/alternatives and their capacities are not revealed. The establishment of the size of the need and its urgency is crucial to this DEIS. Deferral may delay construction long enough that new technologies with lower impacts and less need for SunZia as to become part of any future grid design. Urgency for this scale of project and commitment

of public lands is not demonstrated.

In summary, the DEIS does not accurately or adequately present the needs for this scale of project. This failure triggers subsequent failures in the NEPA process. The DEIS does not consider a smaller project that would meet load-center 10-20 year needs but cause lower enviro and socio-economic impacts (see Alternatives). The lack of urgency and adequate information means that a No Action Deferral, a Smaller Alternative or a Phased Alternative (see Alternatives) should be considered.

2.5 What are the export needs? What are import needs? Do they need the SunZia line?

The DEIS does not adequately describe the demand or need for electricity export or import that requires the SunZia line. There is no table with anticipated export need for CA, NV, UT, and CO by decade and no indication of how much of that export would come from AZ and NM via the SunZia HVTL. There is no table indicating if AZ/NM might need to import more of their electricity from other States and if the SunZia line will be used to transmit imported power.

NM, for instance, imports electricity from Palo Verde Nuclear Power, WAPA, El Paso Electric, and Tri-State Coop. We could find no documentation that any of these utilities needs the SunZia line or plans to utilize it in the coming decade/s for transmission. Building SunZia would create irreversible and irretrievable adverse impacts when they may not be necessary.

Changes in near future generation patterns and effective load could reduce the need for and economics of long-distance transmission imports and exports, as SCE recently discovered with the Devers-Palo Verde 2 project. The DEIS has no scenarios, models or descriptions of area-wide transmission that might alter the BLM's choice of alternatives or favor a phased alternative.

An example of recent changes in generation patterns is the recent drop in natural gas prices, which have also changed the need for HVTLs. Transmission of gas by existing pipelines may be a viable alternative to transmission of electrons by new HVTLs. The pipeline alternative to HVTLs is not mentioned as an energy development that reduces the need for SunZia.

The DEIS biases information about need for SunZia. For instance, it does not quote the DOE report that reduces the urgency for such a large-scale transmission project to be approved at this time: "The cumulative effect of these and similar energy efficiency, demand response, and distributed generation measures indicate that the utilities, policy-makers and communities of the Phoenix-Tucson area are now working to manage and limit loads through customer-oriented, *non-wires* [italic added] solutions." Smaller base loads may reduce the need for SunZia.

Do the contract paths limit the need or use of SunZia? The DEIS does not describe (or we could not find them) the "contract paths" (as opposed to the "infrastructure paths") that limit wheeling electrons through the Western grid. This could be a major limit to the actual use of the SunZia line over the next 25 years. Many contract paths are fixed for this period of time.

What is the transfer capability of SunZia? We could not find any pragmatic description of transfer capability ("The measure of the ability of interconnected electric systems to move or transfer power in a reliable manner from one area to another over all transmission lines (or paths) between those areas under specified system conditions.") We note that the transfer capability from area "A" to area "B" is generally not equal to the transfer capability from area "B" to area "A." The DEIS does not mention these limitations which can reduce the need (MWs) for export/import transmission (see Unavailable and Incomplete Information).

The DEIS does not define transfer capacity (Glossary, index, text) and uses it somewhat capriciously or, at least, not in conformity with meaningful public disclosure. For

instance, it says: "This approach would reduce the Project's ability to meet the intended minimum transfer capacity of approximately 3,000 MW, because a portion of the capacity of one of the two proposed transmission lines for the Project would be reserved for service to local transmission owners, and would require a more robust system to achieve the total transfer capacity." But, no where in the needs section does the DEIS say that the purpose of the project is for transfer capacity and nowhere does it describe which interconnected transfer systems that would connect to SunZia or which lines have the capacity to use commercially viable volumes of 3,000 to 4,5000 new MW and in which direction.

How does SunZia HVTLs work with the three regional organizations that "govern" transmission — WECC (and its overseer the North American Reliability Corporation), Southwestern Public Services (Southwestern Power Pool), and WAPA? The DEIS do not describe how the SunZia line options work with previous WECC transmission planning, especially Option B. WECC has not approved Option B and no explanation could be found. For Option A or B to be of value to export, the paths must be commercially important and physically possible. It's a fast-changing world and "lock-in" of a HVTL grid for 50 years for import/export transmission needs to be evaluated and compared to a more modular and flexible approach with fewer harmful side-effects. For instance, southern CA has recently rejected an inter-connection, which might have been used with the SunZia line to export electricity. The SunZia project appears too speculative (see below) for an uncertain world of technology, markets and policy changes and locks-in an energy inefficient design for transmission. Speculation is one criteria for rejection in the BLM Handbook.

2.6 Will SunZia hurt or help meeting Renewable Energy Needs?

The SunZia is required by FERC to accept all applications for transmission. It does not matter if it is from renewable or non-renewable sources. Arizona's Renewable Energy Standard requires 15% of the state's total electricity *consumption* to come from renewable resources by 2025, with 30% of that amount to be generated from distributed

sources such as rooftop solar installations. The NM mandate is 20 percent renewables by 2050. Neither State has regulations regarding *production or transmission*. Neither State has rules for what percentage of electricity transmitted by HVTLs needs to come from renewable or non-renewable sources.

The AZ requirement for distributed generation reduces the need for this scale of HVTLs as it is likely that "roof-top" production will occur in the load centers. The DEIS does not address whether this required reduction also reduces the need for two 500 kV transmission lines in terms of total MW that need to be transmitted by HVTLs.

The DEIS says: "The proposed Project would help to achieve these goals [of increased percentage of renewables]." But, it does not clearly distinguish between consumption, production and transmission. The whole presentation is not demonstrated or logical. The proposed Project could also stimulate the increase the number of coal-fired and a natural-gas-fired power plants, which would decelerate attaining the objective of reduced greenhouse gases production and has little direct impact on consumption.

There are pending applications for coal-fired power plants, including the San Juan plants, and for natural gas power plants, which are not aggregated in this DEIS. The DEIS is biased in that it does not reveal all (renewable and non-) applications or projected power plants for transmission but only those for renewable power plants. It does not emphasize that the SunZia line could facilitate an increase in greenhouse gas emissions, consumption and transmission of non-renewable energy and depletion of related water resources (see Environmental Impacts). Please delete all sections on renewable energy production that imply it will reduce greenhouse gases AND add all potential non-renewable power plants in the foreseeable future that might use SunZia. In addition, note power plants that might wheel electricity through SunZia from infrastructure and contract paths.

2.7 Is Peak load or Base load the need for the SunZia?

The DEIS does not distinguish between base load and peak load needs or demands by ten-year periods. The Southwest sometimes imports electricity to meet peak loads during hot spells when air conditioning is maximal. If the need is peak load then many alternatives not mentioned in the DEIS exist and the HVDC may not be a good alternative. As mentioned, if it is base load then the DEIS needs to show phasing by decades on anticipated increases in base loads, load centers and how SunZia is required to transmit the base load. The unanswered question in this DEIS is: **What are the economics of load balancing and what need is there for SunZia (what role would SunZia play) in wide area load balancing, if any?**

3.0 PURPOSE

The purpose of a project, as conceived by the applicant SPG, is not identical with the need for a project. The general goal of any business firm is to gain market share and increase revenues. This is the *un-stated* purpose of the SunZia project. The DEIS requires some details of this purpose because it has environmental and socio-economic impacts, raises cost/benefit issues, causes irreversible and irretrievable impacts, and because the BLM is required to deny speculative and "remote" projects.

3.1 Does the proposed project give SPG a natural monopoly over in-corridor, State and inter-State transmission?

Will SPG become the largest transmission line broker (the largest supplier or wheeler of MW) with a price advantage over competitors and the ability to exclude other transmission lines from southern AZ and NM? Will the barriers to enter the electricity transmission market become so great that more energy efficient, reliable transmission lines with lower environmental and socio-economic impacts will be dismissed as duplicative by BLM? Is "lock-in" environmentally harmful? The DEIS is silent on these direct, indirect and perhaps irreversible impacts.

The BLM NEPA Handbook warns against projects that are speculative. Given the lack of customers and huge gaps in knowledge concerning options, demands, timing and phasing, and tiering, the SunZia line appears speculative. The DEIS does not address adverse impacts of the proposed project on future growth because it does not reveal that SPG's purpose is to build HVTLs of such a scale as to eliminate future competitors and future construction of other transmission lines. A smaller scale project or a deferred project may fulfill the needs for the next ten-twenty years without creating a natural monopoly (lock-in) that would limit BLM choices in the future and reduce impacts. An irreversible (50 year?) impact of this project is to preempt and limit, if not eliminate, actions that could be less environmentally (e.g., underground lines, co-located lines) harmful.

3.2 Isn't the connection to the Tres Amigos project a purpose of this project? Where is the inter-connection and Options addressed?

Another purpose of SPG (and probably the reason for Option B) is the possibility of connecting to the Tres Amigos project. This project is not mentioned (or we could not find it, not in Index) in the DEIS yet Tres Amigos is the inter-connector that allows transfer capability to the Eastern and Texas grid systems and greatly influences the choice for or against the HVDC line. In short, the present DEIS is not acting as a full disclosure document, does not meet tiering and "outside-of-jurisdiction" requirements, and has inadequate long-term impact analysis without consideration of the Tres Amigos project.

4.0 ALTERNATIVES (Section 1502.14)

4.0 Who analyzed technical aspects of alternatives for the consultants and BLM? (Section 1502.17)

Many of the alternatives and mitigation technologies considered and eliminated were based on DEIS comments without references, In addition, there are NO civil engineers with an expertise on HVTLs and grid networks listed for either the BLM or the consultants (Chapter V). This obviously raises the question of technical expertise and the choice of the preferred alternative or components.

Section 1502.17 usually contains the name, contribution AND degrees and number of years of experience of each consultant and contributor. This DEIS lacks degree and experience and puts into question the credibility of the technical analysis.

Did SPG, for instance, supply the information that led to the elimination of alternatives or mitigation technologies? Who else (since no civil engineer – except ADOT on transportation) supplied analysis in the DEIS? If the source of information was SPG then this is a violation of NEPA requirements for full disclosure and BLM/EPG to take a neutral position in analyzing alternatives. Please send us names of civil engineers consulted for DEIS and add them to any further DEIS versions. Please add references to elimination sections.

4.1 No Action Alternative: Where is the deferred no action alternative considered?

The no action alternative has three common meanings in the NEPA process: (1) continue the present activities but do not do the proposed project; (2) continue the present activities but defer the proposed action; and (3) do not do anything.

The DEIS is inadequate because it does not consider the second meaning – the deferral of the project. The No Action Deferral Alternative seems most appropriate because (1) needs are not clear at this time; (2) significant aspects of the project are not clearly defined (e.g., the options, number of substations); (3) significant environmental impacts cannot be analyzed (e.g., the indirect and cumulative impacts of the production of greenhouse gases and water needs for power plant cooling); (4) the financial feasibility of the project has not been demonstrated (e.g., no contracts for use of the line; federal

funding; ten-year financial planning); (5) technical aspects of components that could increase energy efficiency (e.g., decrease line losses) have not been subjected to a cost/benefit analysis; and much more. We suggest that the No Action Deferred Alternative is the best alternative from the point of view of NEPA compliance.

4.2 Phased Alternative

The DEIS does not consider a Phased Alternative. Phase 1 would construct a single line with about half the land disturbance, a different route that reduced impacts, allow for a "window" of time for fast changing transmission technologies to mature (described in Environmental Impacts and below); allow a window to see if upgrades can meet needs for various time periods, allow a window to see if base loads for transmission actually increased to the extent that two HVTLs were necessary, allow time to see if Tres Amigos happens and its implications for SunZia, and allow time to see if SunZia needs five substations and other issues mentioned in these comments.

Phase 2 would be a tiered EIS after the first ten-years of operation that evaluates the need for a second line and the advancements in technology that might mitigate or eliminate its need. If demand or need for a HVTL of HVDC or HVAC does emerge, then perhaps in ten years there will be more experience with a superconducting cable system or co-locating AC/DC lines or some other technology that will eliminate the need for a second set of towers. *No other alternative is flexible enough to accommodate technological advances.*

4.3 Capacity of SunZia Line Alternative

Given the unavailable and incomplete information about needs and whether the purpose is to meet local demand (within or near corridor demand vs. wide-area transfer), a smaller SunZia requires consideration. The DEIS says: "Operation of higher voltage transmission lines will result in the overbuild of facilities for the existing transmission system. Higher voltage levels would result in excess capacity and increased costs, whereas lower voltage

levels would require construction and operation of additional lines. Therefore, alternative voltage levels would not be technically feasible and have been eliminated from further evaluation."

This short dismissal of the smaller (or any alternative) related to size is arbitrary and capricious. The DEIS provides no evidence of what "overbuilt" means and only suggests that a range of 3,000 to 4,5000 MW is acceptable**. Is this a business decision or an infrastructure decision?** It does not say that 6,000 MW or 2,000 MW is unacceptable. It does not address an alternative of a single 745 kV HVTL in any detail.

What is the threshold for "excess" capacity over what time period and how was that decided? What is the threshold for "under built" capacity over what time period and how was that decided? Where is a cost-benefit analysis? How do EPG/BLM contributors know that lower voltage levels (375 kV) will require additional construction of lines? We could not find any information of capacity of existing lines. If a 375 kV project does require additional lines, then when, where (which segment) and how many? Instead of new lines, there may be locations (segments) for upgrades, which require no new land disturbances? There may be segments that include enough alternate routes to eliminate construction shutdowns of electricity.

The bias for SPG's proposal with little critical appraisal in this DEIS can be seen in sentences like: "Since DSM and energy**--**efficiency programs do not address these needs [of transfer capacity}, they were eliminated from further consideration." But, DSM and energy-efficiency directly influence the appropriate sizing of the HVTL needed in any planning decade. If DSM, energy efficiency programs and other actions reduce the need for base load, they reduce demand and they reduce the need for a 500 kV HVTL.

4.4 What are the differences between Option A and B and why isn't one option selected as the preferred project in the DEIS?

As already stated, this DEIS does not suggest a preferred alternative for the components, connections and configurations of Option A vs. Option B. It presents no preferred alternative for the project, only for its routing. It does not fully compare environmental and socio-economic impacts and does not state if any additional NEPA work will be required once SPG decides. Not choosing between Options A and B, not providing the criteria for how the choice will be made, not presenting when it will be made and what further NEPA documents will be required opens the DEIS to severe legal difficulties.

For instance, a DC line can skip substations and thereby reduce environmental impacts; it can help management loads; and it can more efficiently (fewer line losses) transmit electricity. But, the DC option apparently depends on whether the wind energy generated in NM has a market to the west (the wind power might connect to Denver or Tres Amigos). The AC line can more easily connect to substations. Two AC lines assume there are other inter-connects or load centers that have an increased demand for electricity along SunZia. The DEIS does not break down these demands by substation (see Unavailable and Incomplete Information). The above are just examples.

4.7 Replacement of Existing Towers

The DEIS says: **"**Given the limited redundancy of the existing system, a tear--down and rebuild in--place is considered unreasonable as it could expose consumers to significant power outages for the duration of the upgrade process." We don't deny this statement but we note that there are no references or backing for it. The description of existing environment does not address where there are limited redundant lines. NEPA warns against using phrases like "couId" without any justification. What if there are specific redundant lines with ample future capacity, then consumers would not be subject to "significant" power outages. NEPA also warns against use of the word "significant" (which has a long legal history in NEPA) without providing context and intensity.

4.5 Substation Components

We do not have resources to go over all substation components in terms of cost/benefit analysis as we decided to provide our comments pro bono. A quick review makes it appear that this review may suffer the same issues as above: bias, incomplete and unavailable information that is not connected to alternatives and phasing.

5.0 ENVIRONMENTAL IMPACTS (1502.16)

Below are concerns about the presentation of some of the environmental impacts. We note that the DEIS is not clear on the context and intensity of impacts it considers "significant (1508.27)." Nor does it include some significant impacts that were outside the scoping process but the responsibility of the preparers.

5.1 Direct impact: inducing power plant growth
5.2 Indirect and cumulative impact: greenhouse gas emissions
5.3 Indirect and cumulative impact: water resources for cooling
5.4 Reducing line losses and energy efficiency: temperature
5.5 System efficiency: communication systems
5.6 Wind

5.1 Direct impact: inducing power plant growth

A direct impact of SunZia will be inducing power plant growth within the corridor, within the States and outside the States. A maximum and minimum scenario for the first ten years is not provided. No estimations for the following decades are provided. This renders any analysis of resulting impacts impossible. The power plant growth must be for renewable, nuclear and non-renewable sources. The DEIS uses the word "probable" with no evidence of how probable or timing.

5.2 Indirect and cumulative impact: greenhouse gas emissions

The major indirect impact of the SunZia is the increase in production of greenhouse gases by power plants that connect to its HVTL. About 30-40% of the electricity generated in NM is exported. About two-thirds of the greenhouse gases generated within NM are associated with export. 40% of the mined NM coal goes to AZ where it is used in power plants. Less than 10% of NM's natural gas is used within the State. In addition, an unknown but significant volume of greenhouse gases escape from pipeline leaks, gas injection plants, fluid-cracking plants and refinery processes. This leads to complications within the DEIS in describing the affected environment. How does one calculate greenhouse gases responsibilities for NM? By production, transmission or consumption? Is NM "responsible" or accountable for greenhouse gas emissions produced or consumed or that are exported by gas pipelines, coal trains or transmission lines?

While we sympathize with BLM difficulties in calculating greenhouse gas emission impacts, it is required by Section 1502.22 to state what information is unavailable or incomplete and why, if the information is relevant and significant to future adverse impacts, and how it clouds any reasonable choice of the preferred alternative. This has not been done. The DEIS has not asked for letters from Tri-State Coop, TEP, Xcel or El Paso Electric about their future generation plans and desire to connect through SunZia. They have not used models or more theoretical analyses to compensate for the extreme lack of information. The DEIS fails in its responsibility for public disclosure and analysis of greenhouse gas indirect and cumulative impacts as well as unavoidable and long-term impacts.

We also note the bias in reporting greenhouse houses. In discussing the Bowie natural gas plant, the DEIS compares its emissions to national volumes. This is not the reasonable comparison by NEPA rules about significance, context and intensity (1508.27). The DEIS uses a national context when it should be either percentage SunZia line capacity the Bowie plant would use to transmit non-renewable energy and its potential negative impact on the use of renewables via the SunZia line, especially with a priority contract. There are also other more local (county) contexts that can provide a clearer metric for the Bowie impact.

5.3 Indirect and cumulative impact: water resources for cooling

The growth inducing impact of SunZia and the construction of any nuclear, solar thermal, natural gas and coal-fired power plants will require additional volumes of water for cooling. These impacts can be significant given the tight water resource context of both AZ and NM and the incomplete adjudications (e.g., Gila river basin). Water resources can limit electricity growth and the need for SunZia. Water use in energy production has its own impacts on the environment and other projects may need tiering to SunZia. As in 5.2, the DEIS makes little effort to quantify the indirect and cumulative impacts or explain which alternative best addresses the unavailable and incomplete information about water resources. As stated, we believe the No Action Deferred Alternative best fits this situation.

5.4 Reducing line losses and energy efficiency: temperature, cables and coolants

Line losses from transmission lines average about 7%. But, in the Southwest, with its extreme temperatures and predicted increase in temperatures, the lines losses are higher and have reached over 12%. Since SunZia will use non-insulated overhead cables, somewhere around 250 to 450 MW will be lost through transmission each year. This is conservative since there will also be losses at the substations. The direct impacts are energy efficiency and reliability. The DEIS does not adequately address these issues.

Distributed Temperature Sensing using optical fibers can provide real-time thermal ratings on power lines. This allows the controller to safely utilize the network to its maximum efficiency and helps predict changes that might warn of over-heating. We could find no references to “thermal” or “heat” in the index. We are not sure if a DTS is part of SunZia as a mitigating measure.

We were also unable to find (it may be there!) any reference to how to mitigate inefficiencies, control reactive power flow for reduction of losses and stabilize system

voltage and safety issues with cable bundling, use of nitrogen or other wire coolants, capacitor banks, phase-shifting transformers, static VAR compensators; physical transposition of the phase conductors; and flexible AC transmission systems.

5.5 System efficiency: communication systems

A sophisticated control system is required to ensure electric generation very closely matches the demand. If the demand for power exceeds the supply, generation plants and transmission equipment can shut down which, in the worst cases, can lead to a major regional blackout, such as occurred in the US Northeast blackouts of 1965, 1977, 1996, 2003 and 2011. In addition, equipment failures can bring down significant segments of area wide transmission grids such as occurred in San Diego. In fact, over 90% of the nation's (region's) problems with electric service come from brownouts and blackouts, forced interruptions, distant line congestions, weather and equipment failures. This significant fact (which demonstrates the reliability benefits of distributive systems with grid back-up) is not addressed in this DEIS (see also Socio-Economic impacts). The DEIS also does not address service problems that may increase from SunZia and how SunZia will ensure spare capacity is available should there be a failure in another part of the network.

Communication systems can utilize microwaves, optical fibers and power line communication. We could find no section on the choices between these components and the benefits for transmission in the Southwest. The impacts include health, safety, reliability, energy efficiency and socio-economics.

5.6 Wind

Although the DEIS spends considerable interest on wind erosion, we could not find (index, text, Glossary) any information on wind impacts on SunZia cables. There is no map or reference to wind speed and cable tolerances that we could find. Wind speeds over 43 km/hr are considered potentially harmful on most transmission lines, which can

impact safety, reliability, and wildlife and fire ignition. Where is the discussion of this impact and mitigation?

6.0 SOCIO-ECON IMPACTS

6.1 Relationships with BLM

We have indicated (see nest section) that there is no reason to believe this project is economically feasible. Its implementation and completion, in the language of the BLM NEPA Handbook, are "remote or speculative." The prospect of bankruptcy is a red flag and could leave BLM (taxpayers) with clean up costs should the project break ground and then fail.

We have tried to show (following BLM NEPA Handbook) that the SunZia HVTL would be ineffective because the needs and purposes are not clearly defined and demand for its product (electricity) may be remote in time or not materialize in the next 25-50 years. We have modified the Handbook in stating that the project may have substantially similar effects to another alternative that could become commercially and technically feasible in the next 20 years yet would produce less severe environmental impacts; and advocated for a deferred or phased project in order, in part, to protect the BLM from legal challenges and future law suits should the project fail.

We emphasize that BLM is the lead agency that may be granting a natural monopoly in the Southwest and should probably have this project reviewed by federal agencies (Securities and Exchange Commission?) concerned with monopoly issues and the relationship between NEPA and locked-in private and public economic partnerships.

6.2 Is the proposed project financially feasible?

The DEIS fails to demonstrate that the SunZia line is economically feasible. There is no reference to "costs," "cost/benefits," "economics" or "finances" in the Index. The text has

no plan for the first 10 to 20 years with specific objectives or indications of financial feasibility. The DEIS documents no agreements to purchase line capacity for this period of time. The DEIS documents no agreements with load centers in and out of NM and AZ to purchase electricity through SunZia. It has not presented to the public a financing plan with specific investors and customers or any agreement for loans and/or loan-guarantees from the Federal government. It has not stated its predicted return on investment, which is linked to its ability to find investors, users of the HVTL and economic feasibility. The DEIS does not give estimated costs for the construction and operation periods which would allow for a cost/benefit analysis of alternate components, connections and configurations of the HVTL. It has not demonstrated that SPG has previous substantial experience in building and managing an HVTL project of this size nor whom it would contract to ensure its feasibility. The process requires a new draft DEIS to be issued to the public or a deferred No Action.

6.3 What are the costs? Who decides if the cost is too high and how?

The DEIS fails to provide cost/benefit analysis for every component or configuration of this project. For instance, when broaching AC lines, it says: "Converter substations require more land and are *significantly more expensive* than a typical 500 kV AC substation, rendering intermediate interconnections *cost-prohibitive* [italics added]." To determine if any component is significantly more expensive or cost-prohibitive it is necessary to know the total costs of both the substation and the project and how much the converter substations add to total costs. In addition, it is necessary to know the capital or financial resources of SPG. One company's "cost-prohibitive" component can be a small item for another company. While the evidence may be somewhere in the Appendices, we could not find it.

It is unclear in this DEIS who decided which costs are too high or, more important, what methodology was used to determine relative costs. Many alternatives and mitigation equipment are kind of capriciously dismissed because of "high" costs. Did SPG decide and tell EPG/BLM that it was cost-prohibitive and did EPG and BLM accept their word

without further analysis? It is not disclosed how these decisions to eliminate alternative equipment and grid patterns based on cost were arrived at. The failure to reveal the methodology and the lack of cost/benefit analysis is an unacceptable NEPA process.

6.4 Costs of grid failure

A reasonable adverse impact of the SunZia line in the future is grid shut downs from outages. Credit card companies, for instance, lose about $2.6 million per hour during outages. Brokerage firms can lose S6.5 million. The DEIS is required to address as best it can these catastrophic outage, the potential financial losses per decade (it describes potential revenues but not losses) and how SunZia, by connecting vulnerable businesses, may actually foster adverse economic impacts. Many business firms are building on-site micropower systems to avoid these catastrophes and these micropowers, in turn, reduce the need for HVTLs. The adverse impact is not discussed.

7.0 UNAVAILABLE AND INCOMPLETE INFORMATION (1502.22)

A major disappointment with this DEIS is its avoidance of Section 1502.22. Proper consideration of this aspect of the NEPA process would probably change the choice of preferred alternative. 1502.22 makes clear that when an agency is evaluating reasonable foreseeable impacts and there is incomplete or unavailable information, the agency must make clear that such information is lacking. When this occurs, the agency has the obligation to tell the public (1) the cost of obtaining the information was beyond a reasonable budget (cost should be indicated); (2) the means to obtain the information are unknown; (3) the relevance of the missing information to determining adverse impacts and evaluating the project, mitigations or alternatives; (4) a listing of the credible scientific and socio-economic evidence it consulted in trying to find or compensate for the lack of information; and (5) the agency's reliance on theoretical approaches, models or research methods generally accepted by the academic community that can partially indicate the scale of adverse impacts and the uncertainty of the prediction. The legal benchmarks include that the decisions not be based on conjecture, are not arbitrary and

capricious, have demonstrated a sincere effort at evaluation and fall within the court's understandings of the rule of reason. This DEIS fails in this regard.

We note that 1502.21 prevents material based on proprietary data that is not available for review or comment by the public to be incorporated by reference. There appears to be substantial financial data incorporated into the DEIS, especially for rejecting mitigation measures and alternatives that is based on proprietary data. When an item is "too expensive" or "cost prohibitive" this is based on the financial resources of SPG and that data are not supplied.

Here is a partial list related to reasonable foreseeable impacts that violate some of the above understandings: the description of the project (e.g., capacity of lines), the need and purpose of the project, the future needs of segments, the life-span of the project (duration of various permits, licenses and right-of-ways), connection to other EISs and how they will be handled, feasibility and inter-connected transmission systems, out-of-jurisdiction projects (including private land purchase), transfer capacity, the indirect and cumulative impacts of power plants, greenhouse gas emissions, water resources, energy conservation, land use disturbances, foreseeable mitigation technology, tiered projects, long-term growth, irreversible impacts, financial feasibility, period of construction and ten-year connection infrastructure, and line communication systems.

—END —