PEER
Public Employees for Environmental Responsibility
2000 P Street, NW • Suite 240 • Washington, D.C. 20036 • 202-265-PEER(7337) • fax: 202-265-4192
e-mail: info@peer.org • website: www.peer.org

April 20, 2010

Christopher Meyer
Project Manager/CEC
1516 Ninth Street, MS-15
Sacramento, CA 95814

RE SES Solar Two SA/DEIS in Imperial County

Dear Mr. Meyer,

Following are the comments of Public Employees for Environmental Responsibility (PEER) on the subject SA/DEIS. PEER's summary opinion is that accelerating approval of so massive a project that uses a technology with no commercial track record is not appropriate. Any consideration of this project, and its companion proposal, should be abandoned or placed on hold until practical tests of the efficacy and impacts of the technology on the environment are made on a reasonable scale.

GENERAL COMMENTS

Authority and goals. Section 211 of the EPAct indicates only that the Secretary of the Interior seek to have approved a minimum of 10,000 MW of renewable energy generating capacity on public lands by 2015. This only grants an authority not a mandate to approve projects to achieve such capacity; it does not specify any particular type of renewable energy. If it is technically infeasible to meet the target date, or alternatives other than use of public lands provide greater benefits to the public, there is no requirement in EPAct to create the generating capacity on public lands. The term "capacity" is carelessly used throughout the document as is "nominal" production, neither clearly specified as to meaning. Both should be clearly defined and consistently used.

The CPUC, CEC, and EAP pledge of meeting an accelerated goal of 20% sales of renewable energy by 2010 is just that—a pledge, not a mandate or a requirement as stated. How to meet the pledge, if it is practical, is the central question. The same holds for the EO S-14-08 goal of 33% renewable energy sales by 2020—it is a goal, not a mandate.

Objectives, Purpose and Need. CEQA requires a statement of objectives, to include the underlying purpose of the project (Section 15126.6(a)), and NEPA requires the Federal

authority (BLM) to provide a statement of the underlying purpose and need to which the agency is responding in proposing alternatives (40 CFR §1502.13)

The **CEQA Objectives** statement does not include or imply an underlying purpose or need for the project, only development details.

The **BLM Purpose and Need** statement is frivolous and wrong. Response to an application is not an "underlying purpose" of the project and demonstrates no "need" other than the applicant's need for a project approval—this relates only to paper work. EPAct does not require approval of at least 10,000 MW of renewable energy on public lands by 2015, as indicated in the comments on Authority and Goals above.

The **DOE Purpose and Need** statement assumes that the proposed project will avoid, or reduce air pollutants, including greenhouse gases, and employ a new or significantly improved technology compared to technologies in current service, none of which are demonstrated. Moreover, EPAct does not provide a mandate for DOE to select this, or any, project, as indicated in the above comment on Authority and Goals.

The **USACE Purpose and Need** statement addresses the substance of the CEQA and NEPA requirements for this statement, unlike the above agency statements.

Inappropriate procedure. Fast-tracking a major project which has no commercial track record and needs ARRA funding to be viable is bad policy. This deficiency makes full assessment of potential impacts, alternatives, and closure protocols impossible. For example, on p. C.2-3 it is stated "In summary, even with the implementation of staff's proposed conditions of certification, it is unknown if construction and operation of the SES Solar Two project would comply with all applicable laws, ordinances, regulations, and standards (LORS) relating to biological resources, and would be able to mitigate potential impacts to biological resources to less than CEQA significant levels. Similarly for purposes of NEPA compliance, it is unknown if the proposed SES Solar Two project would result in adverse impacts to biological resources due to the lack of information regarding mitigation of Waters of the U.S. These deficiencies call into question the wisdom of fast-tracking a project that has no significant track record.

Inadequate assessment of alternatives. It is asserted (p. B.2-2) that distributed PV placed on surfaces such as rooftops and parking facilities would require extensive acreage, and increasing distributed solar "faces challenges in manufacturing capacity, cost, and policy implementation." The adequacy of rooftop PV to supplant the Solar Two power production is well-demonstrated by NREL reports[1] not cited in this document. Inclusion of distributed generation on brownfields,[2] and small near-urban power plants directly serving local customers also has high potential, as does passive building design and retrofitting.[3] So such developments face challenges, so do utility-scale PV and concentrating solar facilities, plus other major challenges such as transmission facilities not shared by distributed solar. The position taken by CEC and BLM is narrow and unimaginative.

Lack of a list of references. References made in text should be cited in a list of references

Inadequate closure protocols and Surety bonding. p. E-11 states that "Laws, Ordinances, Regulations and Standards (LORS pertaining to facility closure are identified in the sections dealing with each technical area" (Sections C-1 through 15 and D-1 through 5). The promised discussions relating to closure protocols are largely missing from technical area assessments. Specific guidelines for achievement of "restoration" of land post-closure are lacking and the Surety Bonding does not protect the public from the abuses of mine reclamation bonding, which are well known.[4] Restoration in the sense of returning the land to its pre-development condition is probably impossible, as discussed below.

The level of Surety bonding is placed in the hands of the BLM Authorized Office. This is not adequate for the very complex matter of reclaiming severely disturbed arid lands. The cost, and therefore the level of bonding required, needs to be judged by an independent expert group fully knowledgeable of the problems involved, the time that will be required for the best possible results, the detailed nature of an adequate monitoring program and the actions required based on monitoring results, and the time interval over which restoration activities and monitoring are to be maintained specified. Responsibility for reclamation should be in the hands of independent land restoration specialists, not the BLM, which is insufficiently staffed (as is amply demonstrated by failure to enforce mandated mitigations in numerous projects, including, for example, transmission lines).[5]

COMMENTS LINKED TO SPECIFIC DOCUMENT CITATIONS

p. B.2-2. Rejection of all offsite alternatives deemed unreasonable by the BLM because, as discussed below, none would accomplish the purpose and need for the proposed action. Considering that the BLM statement of Purpose and Need addresses only paper-work requirements, not real underlying purposes and needs as required by NEPA, this rejection is unreasonable.

p. B.2-2. Out of hand rejection of other generation technologies simply underscores impact issues of the proposed project. For example, this document does not demonstrate differences in greenhouse gas releases on any rigorous basis, including effects of release by land disturbance to create the facilities, the GHG cost of producing the hydrogen to be used by Solar Two, and the actual extensive use of natural gas as at existing concentrating solar power plants.

p. B.2-5. Alternatives Table 1. The statement "While it will very likely be possible to achieve 750 MW of distributed solar energy over the coming years, the limited numbers of existing facilities make it difficult to conclude with confidence that this much distributed solar will be available within the timeframe required for the SES Two project" is absurd on two counts: 1) there is no existing SunCatcher facility to rely on either; and 2) the only requirement that Solar Two meet the chosen timeframe is to qualify the

builders for free federal dollars. Moreover, distributed solar power does not require grid interconnection, except for local small plant operations, which is much more limited than remote power plants.

p. B.2-5. Alternatives Table 1. Why is the discussion of wind energy restricted to Imperial and eastern San Diego counties? While environmental impacts could also be significant, they might also be less—and wind is much more compatible with many agricultural land uses than solar.

p. B.2-6. Re conservation, energy saved is worth more than energy newly generated. There is huge potential to reduce energy demand, and plumbing that source could have substantial impact on CRPS demand.

Distributed Solar Technology

This entire section is clumsily organized and incomplete

p. B.2-110. In connection to the statement on p. B.2-5 re achieving 750 MW of distributed solar energy, why is the California record of distributed PV (with the Nellis AFB facility in Nevada thrown in) relevant to a viable alternative to Solar Two? There are many other such facilities operating in other states.

p. B.2-111. So, how good is the assumed 30% capacity factor for solar thermal? The 9 SEGS parabolic mirror facilities climb that high only by liberal use of natural gas in non-solar periods—22% is closer to what they get from solar alone.

p. B.2-111. The SDSE plan, including maximizing Demand Reduction through Energy Efficiency upgrades sounds like a plan. Why not promote such approaches as vigorously as degrading unused desert lands? The DOE assumptions of a majority of installed capacity, 75%, will be commercial facilities over 100 kW need not be the goal.

p. B.2-112. Distributed solar thermal not only uses less land per MW, it requires less road-building than the proposed project, thus eliminating ancillary impacts. Substituting for Solar Two does not require that 750 MW capacity has to all be in one facility, thus maintaining the advantage of short transmission distances.

p. B.2-113 to 114. The feasibility argument is not relevant. In the same way that BLM is standing on its head to promote rapid development of renewables on public land, a serious program of distributed solar is possible—and for most of the reasons given in the SA/DEIS a distinct benefit to the public notwithstanding the "challenges." That is, distributed solar is the superior alternative.

p. B.2-114. Is it to be assumed that the discussion here constitutes a rejection of a distributed solar power alternative? If that is the intention, it should be explicitly stated and a section Rationale for Elimination provided as for other rejected alternatives.

Wind Energy

p. B.2-115 to 116. Wind Energy alternative. It should be obvious from the wind potential map of the U.S. that the California desert (and most of the western public lands) are not the places to promote wind developments, certainly not to fast-track their development—most favorable locations in the west are mountain crests, which have major erosion and ecosystem segmentation problems with wind farm development.[6] The nation's prime wind potential lies in a N-S belt east of the Rocky Mountains, mostly on private lands. This is where the discussion should focus and a clear assessment of the comparative compatibility of wind energy development and agriculture and lack thereof of solar development. Restricting the scope of discussion to SES Solar Two's contract to sell electricity to San Diego is not pertinent.

Geothermal Energy

p. B.2-117. The assumption that 5-10 projects smaller than 750 MW would be required to create a capacity equivalent to SES Solar Two has a very shaky foundation of effectively only two examples. Geothermal has a much higher capacity factor than solar, so would require much less land than solar for equivalent electricity production.

Water Use

p. C.7-2. It is stated that the primary water use of the facility would be for mirror washing, estimated to require 33,550 gallons per day. If this is the primary use of water, why is it necessary to upgrade the Seeley Waste Water Treatment Plant to provide six times as much water per day (200,000 gallons)? If it is decided instead to use groundwater, what supply level will be sought?

p. C.7-3. The statement claiming less than significant impacts on groundwater is not supported. Use of tertiary-treated water (Title 22 standard; p. C.7-15) imports numerous toxic contaminants onto the site that were not removed by treatment of the water. The proposed uses of this water, including dumping residual waste water, in which contaminants have been concentrated into evaporation ponds is likely to lead to progressive contamination of the unsaturated zone, and ultimately groundwater contamination by infiltration through the unsaturated zone. This can continue long after site closure. Monitoring of the concrete-lined evaporation ponds for leakage would do no more than validate contamination of the unsaturated zone if leakage is detected.

p. C.7-15. Further treatment of imported waste water is said to "demineralize" the water for mirror washing by RO. Tertiary treated water contains many contaminants in addition to "minerals" so the actual composition of the water after on-site treatment must be stated.

Joint Agency General Conditions Including Compliance Monitoring and Closure Plan

p. E-2. Definitions section is incomplete. A closure plan that requires "restoration" of landforms and "revegetation" of complex arid lands ecosystems must define those terms carefully. Restoration in the sense of returning the land used by the facility to its pre-development condition is probably not possible.[7] The definition of Grading, Boring, and Trenching in covering such activities as soil removal, removing topographic highs and filling lows, and drainage modifications underscore the impossibility of restoration *sensu stricto*. The more appropriate term is "reclamation," which can and should be defined rigorously.

p. E-7 states that "...the project owner shall post a surety bond adequate to cover the cost of decommissioning and restoration, including the removal of the project features that have been constructed for that that [sic] portion of the site and restoring the native topography and vegetation...This surety bond will apply to all site disturbance features".

"The project owner shall provide the surety bond to the BLM AO [Authorized Office] for approval and to the CPM [Compliance Project Manager] for review with written evidence indicating that the surety bond is adequate to cover the cost of decommissioning and removing the project features constructed, allowing for site restoration. The written evidence shall include a valid estimate showing that the amount of the bond is adequate to accomplish such work."

The second paragraph quoted is not as inclusive as the first, apparently implying that only removal "of project features constructed" is to be bonded. The following phrase, "allowing for site restoration" is ambiguous. This must be restated to make it clear, and consistent with the first paragraph quoted.

Considering the major difficulties of reclaiming severely disturbed arid lands to an acceptable condition, the costs, and therefore the level of bonding, should be done in consultation with independent specialists fully knowledgeable with arid lands reclamation who do not have an economic interest in the project. Guidelines and standards for reclamation and revegetation must be fully specified in the SA/DEIS, including the nature and longevity of monitoring, with specific actions tied to monitoring findings. In other words, if monitoring reveals problems, there should be specific plans in place to deal with them in a timely manner. Reports on degree of successful reclamation fully explained, monitoring, and actions taken in response to monitoring results should be made public annually. Estimates of costs can and should be made now so that potential facility owners are aware that this is not a small cost item or time commitment.

Bonding should be done in a way that the owner cannot escape paying the costs of reclamation.[8]

p. E-11. Where is the "Closure, Revegetation and Restoration Plan"? This document must be provided in the SA/DEIS for public review.

p. E-11. It is stated that "Laws, Ordinances, Regulations and Standards (LORS) pertaining to facility closure are identified in the sections dealing with each technical area." This does not appear to be true, particularly in regard to standards.

p. E-11. It is stated that "Closure would be conducted in accordance with Condition of Certification **BIO-14** that requires the project owner to develop and implement a Closure, Revegetation and Rehabilitation Plan." In the first page E-11 citation above, it is called Revegetation and Restoration Plan, not Revegetation and Rehabilitation. Restoration and Rehabilitation are not the same. Assigning development of such a plan should be performed by an independent fully qualified consulting group assigned by the BLM, not the project owner. And, the language of this statement should be mandatory, not permissive.

Section D was searched for LORs relevant to site "restoration" in keeping with the statement made on page E-11 cited above about the location of LORS pertaining to facility closure, with the following results:

D.1 – Facility Design
p. D.1-1 "The California Energy Commission staff concludes that the design, construction, and eventual closure of the project and its linear facilities would likely comply with applicable engineering laws, ordinances, regulations and standards. The proposed conditions of certification, below, would ensure compliance with these laws, ordinances, regulations and standards.

p. D.1.2 Notes Facility Design not intended as a CEQA or NEPA analysis. The LORS applied to engineering design and construction relate only to assurance of public safety—thus have nothing to do with environmental impacts or reclamation upon closure.

D.1.3 Laws, Ordinances, Regulations and Standards
p. 5.3-2 [Note, inclusion of boiler plate statements/discussions without repagination in this SA/DEIS is confusing and unnecessary]. Applicable LORS:

Federal. Title 29 Code of Federal Regulations, Part 1910, Occupational Safety and Health Standards

State. 2007 California Building Standards Code (also known as Title 24, California Code of Regulations)

Local. Imperial County regulations and ordinances

General. American National Standards Institute, American Society of Mechanical Engineers, American Welding Society, American Society for Testing and Materials

p. 5.3-2 D.1.4.2 **Assessment of Impacts and Discussion of Mitigation**
Relates only to assurance of public health and safety

D.4 Reliability
Has nothing relevant to environment

D.5 Transmission System Engineering
Has nothing relevant to environment

Section C also was searched for discussion of LORS relevant to site "restoration" in keeping with the statement made on page E-11 cited above about the location of LORS pertaining to facility closure, with the following results

C.2 – Biological Resources
p. C.2-28 Impact analysis characterizes "effects to plant communities as temporary or permanent, with a permanent impact referring to areas that are paved or otherwise precluded from **restoration to a pre-project state** [emphasis added]...Natural recovery rates from disturbance in these systems depend on the nature and severity of the impact. For example, creosote bushes can resprout a full canopy within five years after damage from heavy vehicle traffic (Gibson et al. 2004), but more severe damage involving vegetation removal and soil disturbance can take from 50 to 300 years for partial recovery; complete ecosystem recovery may require over 3,000 years (Lovich and Bainbridge 1999). In this analysis, an impact is considered temporary only if there is evidence to indicate that pre-disturbance levels of biomass, cover, density, community structure, and soil characteristics could be achieved within five years."

This statement means that disturbances from virtually all road-building, structure installation, including placement of SunCatchers, transmission and pipe lines, retention and evaporation basins disturbance will be "permanent" and thus "precluded from restoration to a pre-project state."

C.4 – Geology and Paleontology
p. C.4-1. It is stated that "Based on its independent research and review, "It is staff's opinion that the Stirling Energy Systems Solar Two Project will be designed and constructed in accordance with all applicable laws, ordinances, regulations, and standards and in a manner that both protects environmental quality and assures public safety."

This is not consistent with the biological opinion cited above, which indicates that virtually all development activities will result in non-temporary—i.e. permanent—impacts that degrade environmental quality.

p. C.4-1. The above staff opinion is also inconsistent with the following staff objective on the same page: "Staff's objective is to ensure that there will be no consequential adverse impacts to significant geological and paleontological resources during the project construction, operation, and closure of the proposed project."

There nothing relevant to application of LORS to "restoration" following closure in this section, and only indirect inferences can be made as in the above comments.

C.7 – Hydrology, Water Use, and Water Quality (Soil and Water Resources)
This section simply states that the project conforms to all applicable LORS, with no discussion of what LORS, if any, apply to soil loss from grading and erosion, or soil

contamination by leakage of evaporation ponds and other spillage absorbed by the soils. It is appropriately admitted (p. C.7-1, 2) that the effects of changed morphology and the nature of sediment carried offsite by runoff are not known. Thus, it cannot be accurately stated that the project conforms to all applicable LORS, and the effects beyond closure cannot be predicted.

C.8 – Land Use, Recreation, and Wilderness
This section contains no information on application of LORS to post-closure "restoration"

C.12 – Transmission Line Safety and Nuisance
This section contains no information on application of LORS to post-closure "restoration"

C.14 – Waste Management
This section contains no information on application of LORS to post-closure "restoration"

Search of the technical sections did not yield substantive information pertaining to LORS application to facility closure as stated on p. E-11. Full discussion of compliance of closure protocols with applicable LORS should be provided.

REFERENCES

[1] J. Paidipati et al., Rooftop Photovoltaics Market Penetration Scenarios, *National Renewable Energy Laboratory*, NREL/SR-581-42306, February 2008

[2] U.S. Government Accountability Office, *Brownfields Redevelopment: Stakeholders Report That EPA's Program Helps to Redevelop Sites, but Additional Measures Could Complement Agency Efforts*, GAO-05-94 (Washington, D.C.: December 2, 2004)

[3] U.S. Green Building Council, Green Building Research, 2010. http://www.usgbc.org/DisplayPage.aspx?CMSPageID=1718

[4] J. R. Kuipers, *Hardrock Reclamation Bonding Practices in the Western United States* (Boulder, Colorado: National Wildlife Federation, 2000)

[5] H. G. Wilshire, Environmental effects of pipeline corridors in the Mojave Desert: Geol. Soc. America, Abstracts with Programs, v. 24, 1992; H. G. Wilshire, Environmental Impacts of Pipeline Corridors in the Mojave Desert, California. *U.S. Geological Survey* Open-File Report 92-447 (1992); H. G. Wilshire et al. Geologic Processes at the Land Surface. *U.S. Geological Survey* Bulletin 2149 (1996)

[6] Howard Wilshire and Douglas Prose. 1987. Wind Energy Development in California, USA. *Environmental Management* 11:13-20; H. G. Wilshire et al. Geologic Processes at the Land Surface. *U.S. Geological Survey* Bulletin 2149 (1996):

Howard Wilshire, Jane Nielson, and Richard Hazlett. The American West at Risk: Science, Myths, and Politics of Land Abuse and Recovery (New York, Oxford University Press) 2008, Chapter 12.

[7] R. H. Webb et al., Perennial Vegetation Data From Permanent Plots on The Nevada Test Site, Nye County, Nevada, *U. S. Geological Survey* Open-File Report 03-336 (2003)

[8] See J. R. Kuipers, *Hardrock Reclamation Bonding Practices in the Western United States* (Boulder, Colorado: National Wildlife Federation, 2000)

Sincerely,

Howard G. Wilshire Ph.D. (Geology)
Chairman, Board of Directors
Public Employees for Environmental Responsibility