

Thank you for your comment, Michael Cipra.

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Solar Energy Development PEIS
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Comment Submitted:

NATIONAL PARKS CONSERVATION ASSOCIATION

Protecting Parks for Future Generations

Submitted via electronic form

September 14, 2009

RE: Comments for the Department of Energy/Department of the Interior Solar Energy Study Area Maps

To Whom It May Concern:

The National Parks Conservation Association (NPCA) would like to thank both the Department of the Interior (DOI) and the Department of Energy (DOE) for the opportunity to provide scoping comments on these agencies' Solar Programmatic Environmental Impact Statement (PEIS), which aims to further develop solar energy resources in strategic locations throughout Arizona, California, Colorado, New Mexico, Nevada and Utah. The Bureau of Land Management (BLM) has announced the availability of maps that identify 24 tracts of BLM-administered land for in-depth study for solar development, and the comments in this letter are broken into two sections:

1. Principles for moving forward in the process, and
2. Concerns specifically focused on the BLM Solar Energy Study Area maps.

NPCA is a non-profit organization dedicated to the protection and enhancement of National Parks, Monuments, and Historic Sites for current and future generations. NPCA currently has a membership of 325,000 individuals including 73,000 members in the six-state region being considered for utility-scale solar development. Our members care deeply for America's shared natural and cultural heritage that is preserved by units of the National Park System and Park Service affiliated areas.

NPCA recognizes and supports the pressing need to increase renewable energy production. The development of renewable energy is a critical component of efforts to reduce greenhouse gas emissions and to avoid the worst consequences of climate change, which imperils our national parks, and our economic and environmental future. However, the development of renewable energy should not take place in such a way that harms our national park treasures. Accordingly, we urge the agencies to work with the National Park Service (NPS) to avoid the inappropriate siting of solar energy infrastructure within important wildlife corridors and within viewsheds. Furthermore, we ask that you adopt a policy that will protect critical water resources by discouraging the use of wet-cooling technology for power plants. We appreciate the opportunity to participate in this process to identify strategic locations for the production of renewable energy in a way that protects our natural, cultural, and historic resources while operating with the most technologically effective and water-conscious methods available.



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Section 1. Cross-cutting principles for the PEIS process

- a. Maximize use of areas that are already degraded and near existing infrastructure.

In addition to avoiding ecologically-sensitive lands, we commend BLM for selecting SESAs based on proximity to existing roads and existing or designated transmission corridors. We also recommend that BLM obtain and incorporate information on lands that are already impaired and/or are slated for other development uses. Fallow agricultural lands, developed oil and gas fields, entitled lands and other brownfields, which are not being restored to ecological function, provide opportunities for solar energy development without loss of other uses and values. Such sites are often close to existing infrastructure, so these two criteria work well together.

The Arizona BLM is conducting a specific process to identify lands that are both suitable for renewable energy development and require remediation or do not have other high resource values. The Restoration Energy Design Project is seeking to identify lands such as:

- hazardous material sites;
- brownfields;
- former landfills, mineral sites or gravel pits;
- sites damaged or disturbed to the extent that restoration potential is limited; and
- sites that otherwise have very limited productivity due to a disruption of natural processes.

The BLM could undertake a similar process, both internally and by seeking information from industry and the public, to identify such lands for solar energy development. The categories in use by the Arizona BLM could also permit coordination with adjacent landowners, to establish coordinated management of lands so that there would be sufficient acreage to support large-scale solar energy development.

Recommendation: In addition to accepting information from the public regarding areas to be excluded, BLM should solicit and incorporate information on severely degraded lands and disturbed habitat that could be additional SESAs.

- b. Discourage the use of wet-cooled or other water-intensive technologies

Water is a major concern in the arid regions of the West where the proposed SESAs are located and we urge the BLM to take a proactive approach to this issue in the PEIS.



Electric generation from solar (and other) thermal power plants is most efficient when a source of cooling – typically water – is available to remove waste heat from the thermal cycle.¹ Unfortunately, the SESAs that are the focus of the PEIS are located in arid areas where intense competition already exists between the use of limited supplies of water for urban areas, fossil fuel production and agriculture.² Permitting water-cooled production of energy from solar resources would add to that competition,³ presenting a clear threat to protected lands and their wildlife and plant communities due to over-allocation and drawdown. Desert rivers, seasonal seeps and springs are lifelines for wildlife, plants and humans alike. As water is removed from aquifers, seeps and springs do not reach the surface and are unable to be utilized by species that are dependent upon them, including threatened or endangered desert fish.⁴ The BLM should explore ways to avoid these results in the PEIS, including the options identified below:

- (1) *Adopt a policy which would discourage the use of wet-cooling for power plants.* Both California and Nevada have adopted such policies.⁵ California's policy states that the Energy Commission "will approve the use of fresh water for cooling purposes by power plants only where alternative water supply sources and alternative cooling technologies are shown to be 'environmentally undesirable' or 'economically unsound'."⁶ There is broad acceptance of this policy in California, including among the solar industry,⁷ where alternatives considered to date have included use of brackish water as well as dry-cooling.⁸ Although Arizona does not have an explicit policy, it has moved to strictly regulate water use in solar projects.⁹

¹ See, e.g., Renewable Energy Transmission Initiative Phase 1B Final Report (January 2009), Chapter III – Environmental Assessment of Competitive Renewable Energy Zones, p. 3-3 (hereinafter "RETI Phase 1B Report").

² See, e.g., Colorado River Project, River Report – Summer 2009, p. 8. See also *id.*, pp. 4-5, 6.

³ The amount of water used for wet cooling a power tower plant is about 500 gallons of water per MWh of electricity, similar to a typical coal or nuclear plant. U.S. Department of Energy, Report to Congress, "Concentrating Solar Power Commercial Application Study: Reducing Water Consumption of Concentrating Solar Power Electricity Generation, p. 4 (hereinafter "DOE Report on Water Use") (accessible at http://www1.eere.energy.gov/solar/pdfs/csp_water_study.pdf). A water-cooled parabolic trough plant consumes about 800 gal/MWh, or about four times what a combined-cycle natural gas plant consumes. *Id.* Because wet-cooled plants are more efficient than dry-cooled, see text at note 6 *supra*, more land would be required to produce a given amount of energy.

⁴ <http://www.fws.gov/endangered/bulletin/2002/03-06/20-21.pdf>

⁵ See, e.g., California Energy Commission 2003 Integrated Energy Policy Report.

⁶ California Energy Commission, Preliminary Staff Assessment, Beacon Solar Energy Project, Application For Certification (08-AFC-2), Kern County (Posted April 1, 2009) (hereinafter "Beacon Staff Draft"), p. 4.9-5.

⁷ See, e.g., RETI Phase 1B Report, p. 3-3, describing agreement of all RETI stakeholders, including solar generators, to the assumption, for RETI purposes, that dry-cooling would be used except when reclaimed water from communities of a certain size is available.

⁸ In the case of the Beacon project, CEC analysis revealed that dry-cooling could "reduce ... consumption of potable water by up to 97 percent." Beacon Staff Draft, p. 1-6. In addition, the analysis revealed that not only were both of these options economically feasible, but also that dry cooling might "actually result in lower project operating costs." *Id.*, p. 4.9-48.

⁹ See <http://www.azwater.gov/AzDWR/WaterManagement/documents/SolarPowerPlantsSummaryFINALPublic.pdf>



- (2) *Adopt a performance standard that specifies the amount of water that is acceptable per MW generated.* Rather than tie solar development to one specific technology, such an option would allow for any technology that would meet the standard and could in fact result in technology improvements.¹⁰
- (3) *Adopt a technology-forcing standard that would continue to elevate the bar regarding water use and, simultaneously, encourage the use of new, innovative technologies.* For an example, the Department of Energy's project selection criteria for renewable energy projects "seeks to give priority consideration to "new or significantly improve[d] technologies" that are not extensively used in the marketplace, *See*, "Federal Loan Guarantees for Projects That Employ Innovative Energy Efficiency, Renewable Energy, and Advanced Transmission and Distribution Technologies," Loan Guarantee Solicitation Announcement, July 29, 2009, pp. 35-36.

Recommendation: The PEIS should examine several options related to guidelines on water use, including those described above, so that the generation of energy does not create severe environmental impacts resulting from unnecessary water drawdown. Wet-cooled projects that do not purchase existing water rights should not be permitted in the southwest.

c. Coordinate PEIS with other processes

It is critical that the BLM coordinate the Solar PEIS with ongoing processes that share the same overarching goal – i.e., facilitating the development of solar and other renewable resources in an environmentally responsible manner that minimizes the need for new transmission corridors.

The Western Renewable Energy Zones Initiative (WREZ) is a cooperative initiative between the WGA and the US Department of Energy. It is a project to address transmission barriers to increased renewable energy production in the West. WREZ intends to "generate (1) reliable information for use by decision-makers that supports the cost-effective and environmentally sensitive renewable energy development in specified zones, and (2) conceptual transmission plans for delivering that energy to load centers" (*see* <http://www.westgov.org/wga/initiatives/wrez/>) Importantly, the WREZ effort combines solar resource data from government and industry with lands, wildlife and natural resource information from state agencies and the conservation community. Most of the states within the scope of this PEIS have initiatives to identify locations and provide incentives for renewable energy development and transmission:

- New Mexico's Renewable Energy Transmission Authority was created to "stimulate clean energy production and create high-paying jobs, capital investment and greater economic development in rural areas." (www.nmreta.org)

¹⁰ For additional options, *see* DOE Report on Water Use, *supra*.



- Colorado's Clean Energy Development Authority is directed to "facilitate the financing of renewable energy projects in Colorado."
- Nevada's Renewable Energy Transmission Access Authority is tasked to "propose recommendations for improved access to the grid system by which renewable energy industries can set up and have market access in Nevada and neighboring states."

The increased focus on renewable energy in this planning area also increases the importance of the WREZ process. Accordingly, the Solar PEIS should coordinate with this parallel effort, and in particular, incorporate information and data when there is consensus reached between the environmental, renewable energy industry and utility and other stakeholders on zones/areas that are appropriate for large-scale solar energy development on public lands.

Recommendation: The BLM should coordinate with any on-going or proposed energy corridor processes including the Western Governors Association's Western Renewable Energy Zones. Additionally, the BLM should continue its careful review of existing transmission corridors and prioritize zones that utilize existing transmission.

Section 2. Concerns specifically focused on the BLM Solar Energy Study Area maps.

Like any project, proposed solar power projects should be thoughtfully planned to minimize impacts to the environment. In particular, renewable energy projects should avoid adverse impacts to sensitive species and habitat, and the siting of these projects should not compromise the integrity of National Park Service units that Congress and the American people have identified as crucial for the preservation of our natural and cultural heritage; including those established and/or expanded by the California Desert Protection Act of 1994.¹¹ In evaluating the Bureau of Land Management's Solar Energy Study Area maps, we have identified specific and pressing concerns about the potential for adverse impacts to National Park Service units, which we urge the agency to avoid when drafting the final Solar PEIS.

a. Potential adverse impacts to Joshua Tree National Park and associated resources

The BLM's "Riverside East" Solar Energy Study Area (SESA) in California is currently defined as contiguous with Joshua Tree National Park's boundary, and surrounding the park's Coxcomb Mountains wilderness on three sides. Development of this solar energy zone as currently conceived would effectively cut off or "island" a biologically significant portion of Joshua Tree National Park, threatening the ecological health and viability of park habitat. A species of particular concern in the area is the desert bighorn sheep. Recent bighorn sheep genetics and

¹¹ 16 U.S.C. §§ 410aaa through 410aaa-83, October 31, 1994.



movement studies conducted in the region¹² clearly delineate an established wildlife corridor between the Eagle Mountains and the Coxcomb Mountains of Joshua Tree National Park. This crucial wildlife corridor for desert bighorn sheep is situated in the Chuckwalla Valley just north of the Colorado River aqueduct—an area currently included in the Riverside East SESA. This area should be avoided in order to protect the wildlife movement corridor necessary for the continued health of Joshua Tree National Park's bighorn sheep herd. In addition, a purported Papago Creation site north of Desert Center has been identified based upon public concern for the location. Research regarding the site needs to be conducted in order to analyze the appropriateness of this area for solar energy development.¹³

Immediately to the east of Joshua Tree National Park's Coxcomb Mountains lies the Palen Valley, an area that contains significant Native American cultural resources and a unique microphyll woodland habitat. Sidewinder Well Area of Critical Environmental Concern (ACEC) and Palen Dry Lake ACEC shoreline both contain prehistoric habitation sites, mesquite processing sites and lakeshore sites.¹⁴ Most of the western portion of the Riverside East SESA is a unique microphyll woodland—arboreal desert that includes ancient ironwood trees. The area is also on the transition zone between the Sonoran and Mojave ecoregion, meaning that rare plants occur with frequency in the area. The sand dune habitats at the eastern end of the Eagle Mountains currently support 2 California Native Plant Society (CNPS) listed rare plants (*Cryptantha costata*, *Eriastrum harwoodii*), and one watchlist plant (*Astragalus aridus*). Other CNPS listed species that could be adversely impacted include: *Cryptantha costata*, *Proboscidea althaeifolia*, *Colubrina californica*, *Senna covesii*, *Ditaxis californica*, *Ditaxis claryana*, *Abronia villosa* var. *aurita*, *Hymenoxys odorata*, *Teucrium cubense* ssp. *depressum*, *Wislizenia refracta* ssp. *refracta*, *Grusonia parishii*, *Astragalus insularis* var. *harwoodii*, *Corypantha alversonii*, and *Castela emoryi*. Rare plants, ancient ironwood trees and archeological sites of national significance should be avoided when prioritizing areas for energy development, and the high potential for adverse impact to these resources, as well as the significant potential for disrupting a wildlife corridor for Joshua Tree National Park's largest herd of bighorn sheep make the western portion of the Riverside East SESA a problematic area for solar energy development.

Recommendation: NPCA recommend that the BLM refine what is by far the largest SESA in the set of maps to avoid impacts to Joshua Tree National Park's wildlife and the significant cultural and natural resources of the immediate area.

b. Potential adverse impacts to Death Valley National Park and associated resources

¹² Epps, Clinton W. et al. "Optimizing dispersal and corridor models using landscape genetics." *Journal of Applied Ecology* 44 (2007): 714-724.

¹³ Mojave Desert Land Trust. (2008). *A Constraints Study of Cultural Resource Sensitivity within the California Desert*. Unpublished manuscript.

¹⁴ *Ibid.*



The “Amargosa Valley” Solar Energy Study Area (SESA) in Nevada lies just to the east of Death Valley National Park. The potential for the development of water-intensive, “wet-cooled” solar thermal facilities in this region presents a significant threat to the resources of Death Valley National Park. The source of the majority of Death Valley’s springs and natural water sources is an aquifer commonly called the Death Valley Flow System, which travels under southern Nevada and the Amargosa Valley to emerge as surface features such as springs inside the park. Wet-cooled solar power plants sited in this area could significantly draw down groundwater and put the park’s springs and wildlife at risk. Drawdown would have an immediate impact on the Devils Hole Pupfish (*Cyprinodon diabolis*), an endangered species which survives only in the Devils Hole unit of Death Valley National Park. Federal courts, including the Supreme Court in 1976, have ruled that the National Park Service (NPS) has a federal reserved water right in Devils Hole.¹⁵ NPCA’s position continues to be that “wet-cooled” solar projects are inappropriate in the southwest because of the threat to natural springs and the widespread ecological damage that occurs when these crucial water resources are depleted; it is particularly important in this area because of the NPS’ mandate to protect plant and animal species in Death Valley National Park. It is not in the public interest for the BLM to facilitate a process that draws water from resources specifically set aside for protection by Congress and the American people, and violates a senior water right that has been upheld by the Supreme Court of the United States of America.

Recommendation: NPCA recommends that the Amargosa Valley SESA be linked in the PEIS with a specific provision that no net water drawdown occur as a result of any solar development, and that new applications for groundwater rights be consistent with the Nevada State Engineer’s Order 1197 of November 4, 2008, outlining specific conditions for maintaining sustainability of the Devils Hole resource and stating that “conditions warrant the curtailment of future appropriations of underground water and additional regulation of change applications within a portion of the Amargosa Desert Hydrographic Basin.”

In summary, NPCA thanks the Department of the Interior for the opportunity to comment on and contribute to the Solar PEIS process and the Solar Energy Study Area maps. Please feel free to contact us with any questions that you may have concerning the comments made here. Thank you again for the opportunity to engage in this important environmental review process that will help our nation transition quickly and responsibly to a renewable energy future, for the benefit of our national parks and for our children’s and grandchildren’s futures.

Sincerely,

Mike Cipra
California Desert Program Manager

¹⁵ *Cappaert v. United States*, 426 U.S. 128, (1976).



