



Summary of Public Scoping Comments Received during the Scoping Period for the Solar Energy Development Programmatic Environmental Impact Statement

U.S. Department of Energy and Bureau of Land Management
Washington, D.C.

October 2008



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Final Report

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RECEIVED DURING THE SCOPING PERIOD
FOR THE SOLAR ENERGY DEVELOPMENT
PROGRAMMATIC ENVIRONMENTAL IMPACT STATEMENT**

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ACRONYMS

ACECs	Areas of Critical Environmental Concern
BLM	Bureau of Land Management
BMPs	best management practices
CEC	California Energy Commission
CEQA	California Environmental Quality Act
DOE	Department of Energy
GIS	Geographic Information System
MOU	Memorandum of Understanding
NEPA	National Environmental Policy Act of 1969
NOI	Notice of Intent
OHV	off-highway vehicle
PEIS	programmatic environmental impact statement
RMP	Resource Management Plan
ROD	Record of Decision
ROW	right-of-way
WGA	Western Governors' Association

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for the Solar Energy Development
Programmatic Environmental Impact Statement**

1 INTRODUCTION

In Executive Order 13212 (Actions to Expedite Energy-Related Projects, 2001), the President ordered that executive departments and agencies take appropriate actions “to expedite projects that will increase the production, transmission, or conservation of energy.” In addition, Title II, Section 211, of the Energy Policy Act of 2005 (Public Law 109-58) provides that the Secretary of the Interior (the Secretary) should, within 10 years of enactment of the Act, “seek to have approved non-hydropower renewable energy projects located on the public lands with a generation capacity of at least 10,000 megawatts of electricity.” The U.S. Department of Energy (DOE) and the Bureau of Land Management (BLM) (the Agencies) have identified solar energy development as a potentially critical component in meeting these mandates. The Agencies have determined that specific actions should be taken to further such energy development. The Agencies are considering the development and implementation of agency-specific programs that would establish environmental policies and mitigation strategies for utility-scale solar energy development.¹ At this time, the focus of study is on solar energy development in six Western states that have the highest solar resource (Arizona, California, Colorado, New Mexico, Nevada, and Utah).

A Notice of Intent (NOI) to prepare the Solar Energy Development Programmatic Environmental Impact Statement (PEIS) was published in the *Federal Register* on May 29, 2008. This NOI invited interested members of the public to provide comments on the scope and objectives of the PEIS, including identification of issues and alternatives that should be considered in the PEIS analyses. The DOE and the BLM conducted scoping for the PEIS from May 29, 2008, through July 15, 2008.

This report presents a summary of the comments that were received during the scoping period. The DOE and the BLM will use this report and the individual comments as part of a process to determine the scope of analysis in the PEIS. Specific comments and their context are not presented here; only the relevant issues raised in those comments as they apply to the preparation of the PEIS are presented. All comments, regardless of how they were submitted, will receive equal consideration in the development and conduct of the PEIS.

Copies of all written scoping comments submitted either by mail, via an online comment form, or in person at public meetings are available on the Solar Energy Development Programmatic Environmental Impact Statement project Web site (<http://solareis.anl.gov>). Transcripts from the public meetings are also available on the Web site.

¹ Utility-scale solar energy projects generate electricity that is distributed to consumers through the electric power transmission grid.

2 SCOPING PROCESS

2.1 APPROACH

The public was provided with three methods for submitting scoping comments or suggestions on the Solar Energy Development PEIS:

- Via the online comment form on the project Web site,
- By mail, and
- In person at public scoping meetings.

Public scoping meetings were held at 11 locations (Figure 1) in June and July 2008: Riverside, California (June 16); Barstow, California (June 17); Las Vegas, Nevada (June 18); Sacramento, California (June 19); Denver, Colorado (June 23); Phoenix, Arizona (June 24); Salt Lake City, Utah (June 25); Albuquerque, New Mexico (June 26); Tucson, Arizona (July 8); San Luis Obispo, California (July 9); and El Centro, California (July 10). At each meeting, the DOE and the BLM presented background information about the Solar Energy Development PEIS and representatives from the DOE's National Renewable Energy Laboratory presented information about solar energy resources and technologies. The presentation materials from these meetings, including slides and posters, are available on the project Web site (<http://solareis.anl.gov>).

2.2 SCOPING STATISTICS

Nearly 15,900 individuals, organizations, and government agencies provided comments on the scope of the PEIS by testifying at public scoping meetings, submitting comments via the project Web site, or by submitting comments by mail. Some people used more than one method to submit comments. Nearly 12,700 comment documents were received through the Wilderness Society as part of a comment campaign. Similarly, the Defenders of Wildlife sent approximately 2,280 comment documents. In addition, approximately 700 comment documents were received via the project online comment form, and 34 were sent by regular mail.

At the public scoping meetings held during June and July 2008, 595 people registered their attendance. The Riverside, California, meeting drew the most people (n = 90), followed by Las Vegas, Nevada (n = 75), and Barstow, California (n = 69). Approximately 110 individuals provided oral comments at one or more of the public meetings.

Comment documents were received from all 50 states and the District of Columbia. Comments were also received from Canada, American Samoa, Guam, and Puerto Rico. Approximately 40% of the comments originated from states within the study area. California (n = 3,430) and Colorado (n = 1,200) provided the most comments.



FIGURE 1 Solar Energy Development PEIS Planning Areas and Scoping Meeting Locations

Federal agencies that provided comments were:

- Air Force Western Regional Environmental Office
- National Park Service
- National Park Service, Geologic Resources Division
- U.S. Department of Energy, Office of Civilian Radioactive Waste Management
- U.S. Environmental Protection Agency
- U.S. Environmental Protection Agency, Region 8
- U.S. Geological Survey
- U.S. Fish and Wildlife Service, California and Nevada Region

- U.S. Fish and Wildlife Service, New Mexico Ecological Services Field Office

State agencies that provided comments included:

- Arizona Department of Water Resources
- Arizona Game and Fish Department
- California Department of Fish and Game
- California Department of Parks and Recreation—Off-Highway Motor Vehicle Recreation Division
- California Energy Commission
- California Native American Heritage Commission
- California Public Utilities Commission
- California Regional Water Quality Control Board
- California State Lands Commission
- Colorado Division of Wildlife
- Colorado Governor's Energy Office
- New Mexico Energy, Minerals and Natural Resources Department
- New Mexico Renewable Energy Transmission Authority

Local government agencies that provided comments included:

- Clark County Department of Aviation, Nevada
- Cochise County Planning Department, Arizona
- County of San Bernardino, California
- County of San Diego, California
- Imperial County, District 2 of the County Board of Supervisors, California
- Imperial County Planning & Development Services Department, California
- Indian Wells Valley Water District, California

- Metropolitan Water District of Southern California, California
- Nye County Board of Commissioners, Nevada
- Quadstate Local Governments Authority, Arizona, California, Nevada, and Utah
- Saguache County Board of County Commissioners, Colorado
- San Bernardino County Board of Supervisors, California
- San Luis Obispo County, Department of Planning and Building, California
- Santa Fe County, New Mexico

In addition, several elected officials (including Congresswoman Gabrielle Giffords of Arizona, Nevada State Representative Ed Goedhart, and New Mexico State Representative Kathy McCoy), more than 50 environmental groups, approximately 40 industry groups, and many other citizen groups and individuals provided comments.

3 SUMMARY OF SCOPING COMMENTS

Issues discussed in comments received during the public scoping period for the Solar Energy Development PEIS are summarized in this section. Issues included questions and concerns regarding the environmental and socioeconomic impacts of solar energy development, siting of solar energy facilities, technologies to be used, mitigation of impacts, cumulative impacts, and stakeholder participation in the National Environmental Policy Act (NEPA) process. The summary of comments is organized into the following main topics: environmental concerns, socioeconomic, siting and technology concerns, stakeholder involvement, cumulative impacts, mitigation, policy, land use planning, alternatives, coordination and cooperation among agencies, and other issues.

Most commentors supported the development of solar energy on public lands. They stated that the western states provide great potential for cultivating this renewable energy source, which, if developed, would reduce some of the adverse environmental impacts associated with the use of conventional sources of energy. For example, commentors pointed out that solar power plants do not emit carbon dioxide during their operation, and that use of this power source could alleviate global climate change. Many commentors from the solar energy industry stated that solar energy development would have environmental, public health, economic, and national security benefits.

Many commentors urged caution and requested that the DOE and the BLM proceed with the development of their respective proposed programs in an environmentally responsible manner. The most common topics of concern were the availability of water on desert lands and

the protection of wildlife. A summation of the scoping comments, both oral and written, is presented in Sections 3.1 through 3.11. Interested persons can view individual comments on the project Web site (<http://solareis.anl.gov>).

3.1 ENVIRONMENTAL CONCERNS

The following describes the main categories of environmental concerns identified by commentors.

Monitoring and Data Collection. A few of the commentors requested that the sites where the solar power plants are planned to be built be initially surveyed to obtain baseline information, and then monitored during the construction and operation phases of the projects to make sure that the impacts are within the anticipated ranges. The same commentors also requested that the baseline survey data be used in the design of the facilities and that the projects be implemented in a phased approach, so that additional appropriate mitigation measures can be adopted in subsequent phases of the project based on the results of monitoring. The types of information requested to be collected included various ecological indicators, emissions to air and water, and water use. Several commentors requested that such surveys and monitoring be mandatory.

Air Quality and Global Warming. The positive impacts of solar energy development in regards to decreased emissions of criteria air pollutants and greenhouse gases and the positive effect on global warming, as compared with the emissions from fossil fuel-based power plants, were mentioned in many comments. The commentors wanted these beneficial impacts to be quantified in the PEIS. Some of the commentors wanted the PEIS to examine the impacts from a life-cycle perspective. Many commentors requested that the PEIS provide an analysis of the regional and local climatic effects from solar plants as well as global effects. For example, several of the commentors mentioned potential changes in local wind patterns, temperatures, and precipitation from the operation of solar plants. There was also some concern that clearing of vegetation and land disturbance during construction of these plants could alter the ability of the landscapes to sequester carbon dioxide, which could affect global climate change. Other air quality and global climate change-related comments included the effects of emissions from the construction equipment and the vehicles driven by workers, and the impacts of natural gas or other fossil fuel-based plants that may be built to provide backup power during the times when the sun is not shining.

Ecology. Many comments touched on the potential effects of solar energy projects on the ecosystems in which they would be constructed. In general, the developers and industry groups pointed out that solar energy projects can coexist with, and in some cases benefit, the species that live in the ecosystems in which the solar energy facilities would be built. Environmental groups and others pointed out the potential harm that these projects could inflict on the ecosystems and urged that the delicate balances in the desert environment not be disturbed or destroyed. Many

comments cautioned against adversely affecting sensitive biological resources. Habitat fragmentation and destruction were most often mentioned as the likely causes of ecological damage. The commentors wanted the PEIS to address these issues in a holistic manner, with consideration of both the direct and indirect effects, and the potential connected actions, species interactions, and other ecological processes that occur not only in the immediate vicinity of the proposed power plants and associated transmission corridors, but beyond it. The issues that were specifically mentioned included destruction of wildlife habitat; habitat fragmentation; potential interruption of migration corridors; reduced access to watering holes; increased edge effects such as the proliferation of non-native, invasive, or predator species; changes in water flow patterns; availability of water; eolian processes (e.g., related to sand deposition at sand dunes); the effects of lighting (particularly at night) and glare during the day from the solar facilities; increased vehicular traffic; hazardous material releases; and increased fire risk. It was mentioned that the reflective solar energy devices could attract migratory birds that could mistake the devices for bodies of water, causing bird flocks to waste critical time and energy during their migration. It was also mentioned that this could lead to a large number of bird fatalities.

Commentors requested that the PEIS consider the impacts on all of the federal and state-listed threatened and endangered species, California species of special concern, and species of management interest. The species that were mentioned as needing special protection included the desert tortoise, the Mojave ground squirrel, the burrowing owl, the pygmy rabbit, the desert bighorn sheep, the greater sage-grouse, the branded Gila monster, the Amargosa toad, the three corner milkvetch, and sticky wild buckwheat. One commentor stated that large-scale translocation of the desert tortoise should be avoided and used only as a last resort. There were also mentions of several specific areas that belonged to the categories of lands that commentors urged the DOE and the BLM to avoid (see Section 3.3). There was a request to use geographic information system (GIS) data to analyze impacts to wildlife and habitats. Another commentor asked that third-party salvage of native plants, rather than transplantation, be considered due to supplemental water needs and aftercare.

Visual Impacts. Some commentors were concerned that solar energy development facilities may present negative visual impacts to viewers from adjacent lands used for recreation, including National and State Parks, National Forests, and fish and wildlife refuges. They requested that the PEIS consider such impacts in choosing the specific locations and technologies for future plants and associated transmission corridors. One area of concern was the potential lighting at the power plants for operations and security reasons. One commentor asked that renewable energy projects, including solar, not be derailed because of aesthetics.

Noise and Vibration. Several commentors mentioned the potential noise impacts from any turbines and cooling towers associated with certain types of solar power plants.

Waste Generation and Disposal. A few commentors expressed concern about potential hazardous chemical spills during operations of solar power plants and disposal of these chemicals after use. Substances of concern included heat transfer fluids (e.g., oils), engine fluids,

heat transfer system cleaners, molten salt, gases (hydrogen or helium), herbicides used for vegetation control, and batteries.

Water Use and Quality. Availability of water for cooling and other purposes (e.g., cleaning of solar reflectors or receivers, sanitary use, drilling, and makeup) at the solar power plants and the conflicts such uses may create in a desert environment were the major concerns expressed in many comments. There were many requests to analyze the water requirements for the types of technologies considered, including the quantity, quality, recyclability, and disposal of the water used. There were requests to consider the competing uses or demands for water by humans (e.g., for agriculture, livestock, and drinking) and other species and analyze both the environmental and economic impacts of projected water use. Preference was expressed by many commentators for dry-cooling technologies over wet-cooling technologies. In fact, some of the commentators stated that only those technologies that use dry cooling or no cooling at all should be allowed to proceed. They indicated that wet-cooled systems would not work in a desert environment. One commentator questioned the viability of dry-cooled systems. There were requests to make water use a primary consideration in the choice of technologies for future plants. One commentator also expressed concern about possible soil subsidence due to groundwater withdrawals.

In terms of conflicts with other human uses of water, several commentators mentioned the existing agreements among states, cities, towns, municipalities, and private owners and requested that such water rights be respected. One commentator asked that the PEIS analyze the degree to which the proposed activities may impair the public use of reserved waters covered by Public Water Reserve 107 (“PWR 107”), established by Executive Order in 1926. One metropolitan water district stated that solar energy projects may not rely upon it as a direct source of water. Another commentator asked that mineral and water rights not be included in any land use grants for solar power projects.

Numerous comments related to potential liquid discharges and effluents from solar power plants and the effect that they could have on (1) water quality in local streams and reservoirs and groundwater, (2) aquatic organisms, and (3) soil erosion. In particular, any chemicals released as part of boiler or cooling-tower blowdown and stormwater runoff were stated as potential concerns.

One commentator stated that he did not believe that water use will be a serious issue. He thought that there would likely be a sublayer of brackish water and that water, once used for turbine operation, could be condensed and turned into clean water that perhaps could support the local wildlife.

Cultural Resources. A number of commentators expressed concern that construction of solar power plants could destroy cultural, geologic, and paleontological resources. It was stated that these resources should be protected. There were requests to map these resources in the affected areas, although one commentator thought that such maps should not be made publicly

available because they could be used for the theft of cultural resources. It was suggested that Native American Tribes be consulted in these matters and their input requested.

Environmental Justice. There was a request to do an in-depth review of environmental justice issues in rural communities. Another commentor stated that the Tribes feel that there is an environmental justice issue and that they want to be consulted.

Other. Other environmental and safety-related issues that were raised by the commentors during the public scoping phase were:

- Public safety, especially in regards to safety of small plane operation and landing at smaller airstrips near the solar power plants and transmission lines.
- Military concerns about 1) the displacement of threatened and endangered species habitat onto Department of Defense installations and ranges; 2) thermal plumes over low-level military training routes and approach surfaces; 3) thermal plant impacts on regional water supply; 4) glare from heliostats in proximity to training routes and ranges; 5) solar equipment tolerances to sonic booms; 6) lighting and night vision impacts; 7) transmission interconnects; and 8) tracking and communication system spectrum.
- Impacts of increased traffic on rural roads leading to the project sites.
- Earthquake hazards.
- Fire hazards.
- Possible retinal damage or temporary blindness from looking at the solar concentrator at solar power tower facilities, and possible association with traffic accidents.
- Impacts of worker populations on sensitive desert resources during both the construction and operation phases of solar and transmission development.
- Impacts on resources that would follow from the introduction of new transportation routes.
- Light pollution from the solar arrays.
- Too much emphasis on individual organisms and species, and not enough on big-picture issues such as the need to reduce reliance on oil and increase the development of renewable energy.

3.2 SOCIOECONOMICS

Many specific comments addressed the potential socioeconomic impacts of solar power plants and associated transmission lines in the six-state study area. Foremost among them was a request to do a thorough analysis of the economic impacts, both for the short term and the long term, on the communities near the projected facilities. In particular, requests were made to analyze the impacts on recreation, tourism, agriculture, property values, jobs, income, infrastructure, and taxes. The opportunity costs associated with dedicating the lands for solar energy development facilities over an extended period of time should be evaluated. For undeveloped land, nonmarket values, such as the quality of life, aesthetics, recreational opportunities, and sense of place, should be included in socioeconomic analyses. Also included in the analyses should be the costs associated with facility decommissioning and site remediation/reclamation. The commentors asked that both the positive and negative impacts (e.g., strain put on local infrastructure and services during the periods when worker populations are high) be evaluated and that the economic potential of the proposed projects be balanced against the current and long-term needs of the communities and their available resources.

The matter of equity in lease terms on public lands versus private lands was an issue that was raised by many commentors. Many stated that the payments on public lands would be too low compared to private lands. They urged the government not to compete with private land holders or displace private-sector opportunities by offering public lands cheaply. Commentors felt that there are some private lands that may also be suitable for utility-scale solar power development.

There was a recommendation that the analysis performed for the PEIS not rely solely on IMPLAN (IMPact analysis for PLANning) or on other models derived from economic base theory to predict the economic impacts of solar energy development. It was stated that the relationship between public land management and local and regional economic prosperity and growth is far more complex than these models assume, and given the potentially significant impacts on many of the region's public lands, use of such models would result in an incomplete and inadequate analysis of the socioeconomic impacts.

One local government body requested that a meaningful percentage of the right-of-way (ROW) rental fees, and/or profit-sharing by the utilities, be directed locally to offset any environmental, recreational, and quality-of life-degradation of affected inhabitants.

One commentor requested that grants, tax breaks, and other incentives be provided to businesses and individuals who develop solar energy and other alternative energy technologies. In the evaluation of the tax credits, the duration of credits and what would happen if they were discontinued should be considered. Another commentor stated that when considering the need for grants or tax breaks for solar development, one should keep in mind that the oil industry receives a sizeable sum in preferential treatment every year.

3.3 SITING AND TECHNOLOGY CONCERNS

Siting. There were many comments and suggestions on where to site and where not to site the solar energy development facilities and associated transmission lines within the six-state study area. In general, suggestions for siting preferences included:

- Lands that are already degraded/disturbed such as:
 - Abandoned mines or quarries, producing or retired oil and gas fields, and closed landfills
 - Existing transmission corridors and water distribution canals. One commentator suggested that the entire Central Arizona Project canal system (336 miles) could be covered with solar panels. He stated that not only would that generate electricity in an already disturbed site, it would also shade the water and thereby greatly reduce evaporation.
 - Already degraded military lands or the former nuclear test areas (e.g., Nevada Test Site)
 - Brownfield and Superfund Sites
 - Abandoned/compromised/damaged agricultural lands
 - Urban areas such rooftops and parking lots
- Lands that are close to existing transmission lines, gas lines, water pipelines, major roads, and railroads
- Lands close to load centers
- Lands with available water
- Lands in close proximity to housing and infrastructure for the workers
- Lands that can accommodate multiple energy projects such as solar and wind

Many of the commentators stated that one or more of the following areas should be excluded from development:

- Wilderness Areas
- Wilderness Study Areas
- Citizen-proposed wilderness areas

- Other lands with wilderness characteristics
- National Monuments
- National Parks
- State Parks
- Local parks and environmentally sensitive areas
- Areas already proposed for protection from development in pending legislation
- Areas with known concentrations of cultural resources
- Special management areas that are inappropriate for or inconsistent with extensive surface-disturbing uses
- Lands that are currently under private conservation, municipal, state, or federal protection or designation
- Lands acquired and/or managed by the states as mitigation lands for prior project impacts and other state designations that envision conservation of their public lands
- Areas of high ecological value
- Agricultural lands
- Lands close to residences
- National Conservation Areas
- National Historic and National Scenic Trails
- National Wild, Scenic, and Recreational Rivers, study rivers and segments, and eligible rivers and segments
- Other lands within BLM's National Landscape Conservation System, such as Outstanding Natural Areas
- National Wildlife Refuges and Wildlife Habitat Management Areas
- Areas of Critical Environmental Concern (ACECs)
- Desert Wildlife Management Areas

- Habitat Conservation Plan Areas
- Threatened, endangered, and sensitive species habitat, as well as critical corridors and linkages for wildlife habitat

Some of the commentors also stated that areas immediately adjacent to the ones listed above should be excluded from development if development would degrade the viewshed for scenic areas or negatively affect the ecological values for which these areas were designated. Many commentors provided the names of specific areas that they believed should be excluded from development.

Some of the commentors suggested that the BLM and the DOE develop criteria for site selection and exclusion for solar power plants and transmission corridors in the future. They suggested that the criteria be developed so that environmental impacts are minimized. One commentor requested that the BLM clarify whether it is considering including ACECs in an exclusionary category or as lands available with restrictions.

Other commentors, mainly from industry, stated that appropriately restricted solar energy development on environmentally sensitive lands should be allowed. One commentor suggested that some of these lands can be compatibly used for solar energy production in an environmentally responsible, yet commercially viable, way, while another commentor suggested that a more flexible approach to the use of certain environmentally sensitive areas should be considered. He questioned the technical basis used to designate some of these areas as sensitive lands.

Technology. There were recommendations on how to select a technology and what specific technologies to use or not to use. Several commentors recommended that the technologies selected should minimize the amount of land and/or water used per unit of energy generated. There was a request to discuss and compare existing and potential technologies in the PEIS. Several commentors pointed out that the technology field is always changing and that the agencies should make allowance for changes in the technology. For example, one commentor stated that new solar dyes may revolutionize the generation of solar energy and that it may be cheaper and less environmentally destructive to install solar panels on the already built, and to-be-built, environment in the future.

The concentrating solar power technologies and the photovoltaic technologies were both recommended for consideration in the PEIS. One commentor talked about a new scalable technology that could be used to obtain the same amount of energy with much less land, but could not provide details on the technology because it is under patent review. However, he did want the PEIS to consider it. Another commentor recommended that solar tower technology using air-driven turbines be considered. A couple of commentors stated that Stirling engine technology is probably not ready for deployment and should be dismissed. One commentor asked that the potential for the accumulation of dust on solar panels to affect collection efficiency be factored into the technology evaluation process.

Transmission Lines. There were many comments concerning the relationship between the solar power plants and transmission lines. Commentors requested that siting decisions about the plants not be made without due consideration of how the electricity generated by the plants would be transmitted to the users. In fact, some of the commentors requested that applications not providing a clear path for the transmission of electricity not be approved. As stated previously in this section, there were also many comments about where to site or not site the transmission lines. There were requests to use the existing transmission lines and corridors as much as possible and a request that, if new transmission lines are needed, they be planned and constructed through strong coordination among the various federal, state, and local government agencies (see Section 3.10).

3.4 STAKEHOLDER INVOLVEMENT

Commentors requested that the BLM and the DOE work with other governmental agencies (see Section 3.10 for more information on coordination and cooperation among agencies), environmental groups, industry and industrial organizations, communities, and private citizens to develop their respective programs. There were several requests to more fully engage the Tribal communities in the site selection process. Similarly, there were requests to get industry more involved in the technology selection process.

One commentor suggested that when identifying the best sites or developing site-screening criteria for solar energy development, the two agencies should solicit input from a technical advisory committee or a stakeholder group, and possibly hold a series of workshops where people could provide input into what the most essential values are that need to be considered in this process. It was stated that the agencies need to make every attempt to encourage the public to participate in the PEIS process, including holding workshops, providing interim information regarding inventories of wilderness-quality lands and visual resources, and posting GIS files and analysis of comments submitted on the Draft PEIS to the Solar Energy Development PEIS project Web site. One commentor stated that the diversion of public lands for exclusive use by solar energy utilities would set a huge and lasting precedent and should not be done without full and open consideration of the significant benefits lost to the American public. Another commentor stated that the PEIS process should be withdrawn until meaningful alternatives are offered and vetted with the public and stakeholders. The same commentor continued to state that a meaningful stakeholder and public participation forum (such as community advisory groups) and process should be established to address the goals and purposes of the project before the PEIS process is restarted. There was also a request for the agencies to support educational programs with respect to the latest innovations in solar technology.

3.5 CUMULATIVE IMPACTS

There were many comments requesting that the PEIS consider the cumulative impacts on the environment resulting from the incremental impacts of future solar energy development projects, including their associated transmission lines and infrastructure improvements (such as roads) leading to them, when added to impacts from other past, present, and reasonably

foreseeable future actions. Among the other activities mentioned as potential contributors to cumulative impacts were livestock grazing; military base expansions; mining; urban sprawl; recreational activities such as hunting, camping, and off-highway vehicle (OHV) use; other energy development projects such as wind, geothermal, and fossil fuel-based power plants, and their associated transmission lines and infrastructure needs; and other commercial and industrial development activities. There were requests to include discussions of the solar projects that have already been applied for in the cumulative impacts analysis, and to discuss activities related to the development of the DOE's high-level waste repository at Yucca Mountain.

One commentor also wanted climate change to be considered in the assessment of cumulative impacts. Commentors wanted the PEIS to evaluate not only the direct impacts that could result from the multiple activities but also the indirect effects, such as introduction of invasive species, altered fire regimes, and induced population increases. They wanted the PEIS to evaluate the cumulative impacts for pollution, air quality, water use, water quality, sustainability of populations of desert species, habitats, and associated ecological processes. One commentor requested that the PEIS provide clear guidance on the need to balance the cumulative impacts resulting from multiple uses of the same lands and possibly eliminating some of those uses.

3.6 MITIGATION

Many commentors requested that the PEIS address mitigation measures for minimizing the impacts on environmental and cultural resources. There were also requests for the BLM to incorporate best management practices (BMPs) or appropriate terms, conditions, and stipulations into the ROW grants issued to developers of solar power plants and associated transmission lines. The commentors requested that such measures and practices be reasonable, consistent with changing laws and regulations, allow monitoring and be adaptive to changing conditions, and require restoration and reclamation after decommissioning. Avoidance of impacts was often mentioned as the preferred method of mitigation, followed by minimization of the effects, repair, or restoration of the affected area, and finally compensation, in that order. For example, the commentors wanted the projects to avoid certain areas and periods during development. They requested that the developers avoid areas of ecological sensitivity and rich in cultural resources (see also Section 3.3 comments under siting), avoid disturbance and harassment of wildlife, minimize the ecological footprint of the facilities, minimize the use of water, and avoid vegetation removal during the nesting/breeding season for migratory birds. They suggested that the developers instead use areas that are already disturbed (such as existing roads and ROWs) as much as possible (see also Section 3.3). There were also requests to incorporate certain design features into the facilities so that they would be able to withstand earthquake hazards and threats from wildfires. Many of the commentors wanted the BLM to issue a set of mandatory BMPs that apply to all future projects, while others requested that BMPs be standard, flexible, and not too prescriptive. Specific measures suggested by the commentors included:

- Creating secure funding sources, such as endowments or royalty payments from the developers, to pay for local habitat protection.

- Defining a gross limit—or analyzing an array of such limits—on the total acreage of public lands, or the acreage needed to generate a defined amount of electrical energy, to be made available within the planning horizon for solar-power generating facilities.
- Selective salvage and transplant of native plants that are removed during surface-disturbing activities.
- Incorporating buffers along surface waters and riparian zones.
- Following the Avian Protection Plan guidelines for the construction and operation of proposed transmission lines to reduce the potential of avian electrocution hazards.
- Closing of the gaps or narrowing of open hollow spaces in the proposed facilities and structures during construction to prevent bird entry and entrapment.
- Minimizing the number of small holes in sign and fence posts.
- Developing habitat compensation ratios based on habitat quality and function.

3.7 POLICY

Commentors identified a number of policy-related issues, including the following:

Best Management Practices (BMPs) or Environmental Guidelines. Many comments related to the establishment and use of BMPs or strong environmental guidelines. Several commentors from the solar industry supported the establishment of BMPs to facilitate future development but stated a preference for flexible BMPs applied on a project- and site-specific basis. Most BMPs/guidelines suggested by the commentors were related to the protection of the environment and cultural resources (see Section 3.6).

Receiving and Processing of Applications during the PEIS. In the NOI for this project published in the *Federal Register* on May 29, 2008, the BLM announced that it would not accept any new solar energy ROW applications until completion of the PEIS. The BLM received many comments regarding this moratorium on new applications during the first few weeks of the public scoping period. Most of the comments, especially from industry, objected to the moratorium, stating that the solar industry would be severely hurt by it and that some State Renewable Portfolio Standards might not be met because of it. Others expressed their support for the moratorium, stating that it gave the BLM and the DOE more time to process future applications in an orderly and consistent manner. In response to these comments, on July 2, 2008, the BLM announced that it would lift the moratorium and continue accepting applications

for future potential solar development projects on public lands, and would process these applications while the PEIS is being written. After the announcement of the decision to lift the moratorium, many new comments were received, with some approving the decision and others objecting to it.

Relationship of the PEIS to Individual Projects. Many comments addressed the relationship of the PEIS process and the approval process for individual projects in the future. Many of the commentors wanted the PEIS to set forth a clear, streamlined process that would help to expedite the approval of individual, site-specific projects. One commentor indicated that the PEIS should examine how procedures to expedite the application process for solar energy related projects would impose project-specific and cumulative environmental impacts.

Incorporating the California Environmental Quality Act (CEQA) Requirements into the PEIS. Several California state agencies and a number of individuals requested that the PEIS incorporate as many CEQA-specific elements as practical so that these agencies could use the PEIS to comply with portions of CEQA.

Process for Awarding ROWs. Several commentors asked that the process of awarding ROWs on a first-come basis be changed and made a competitive bidding process.

Site Decommissioning/Remediation. A number of commentors stated that bonding should be employed to ensure that an operator does not abandon a facility if it becomes unviable due to new technologies or other reasons.

Use of Government Subsidies/Incentives. A number of commentors requested that incentives be provided (e.g., tax breaks or favorable financing), similar to subsidies that the oil and gas industry receives, to promote the development of solar energy. Some of these commentors wanted the incentives to be used for both utility-scale and distributed (power generation from many small sources) energy development, while others wanted them to be limited to only distributed systems.

Tie Generation to Transmission of Electricity. There were several comments that asked the BLM to process only those applications that demonstrate a clear path from generation to use of electricity.

Integrated Energy Plan. Several commentors asked that the solar energy projects not be treated in isolation but be handled as part of an overall energy plan for the region and the United States. Some of the commentors suggested that solar and other renewable energy projects should be given preference over fossil fuel-based projects.

Base Decisions on Life-Cycle Impacts. Several commentors mentioned that in the comparison of the impacts of various energy options, the comparisons should be made on the basis of impacts over the life cycle of the options.

Consideration of National Security Threats. Several commentors wanted a consideration of national security threats in the development of the BLM's and the DOE's programs for solar energy facilities. Comments were mainly directed to approval of centralized, utility-scale large power plants versus small distributed sources. One commentor wanted the agencies to examine the national security threats posed by large, often foreign-owned or -financed corporations/consortiums/entities controlling power production on remote public lands.

Extension of Scoping Period. There was one request to extend the scoping period by a month, while a couple of other commentors wanted it to be extended past July 7, 2008.

The Need for the PEIS Process. There were several commentors questioning the need for the PEIS, while many other commentors agreed with the DOE's and the BLM's programmatic approach and the development of the PEIS. One commenter suggested that the BLM's existing policy in Instruction Memorandum No. 2007-097, in combination with a site-specific EIS, would be sufficient to handle utility-scale solar projects.

3.8 LAND USE PLANNING

Many commentors wanted the PEIS to consider the competing needs for the lands that would be used by the solar power plants and associated transmission lines, including recreation (e.g., horseback riding, bicycling, motorcycle riding, hunting, boating, camping), tourism, agriculture, grazing, conservation, and other renewable or conventional energy production. Several commentors stated that the public lands are intended for multiple uses and that they should not be devoted to a single use, such as a solar power plant, for long periods. There were requests to develop planning criteria to be used as part of the Resource Management Planning process. There were some requests to develop maps showing lands where solar development could occur and where development would not be permitted. A few of the commentors requested that the areas of potential development be further subdivided into areas where development could occur with few stipulations and where development could occur under restrictive stipulations. The maps were requested to be made available to the public in electronic, GIS format on a Web site.

There were requests to coordinate the planning efforts, particularly in regards to transmission lines, among different federal, state, and local agencies (see Section 3.10). In addition, it was requested that private lands also be considered in the planning process. One commentor suggested that all public land appropriated for solar power remain in public trust and not be transferred to private hands. Further, the commentor stated, at the end of the project's life or if the project is abandoned, the land should revert immediately to the public and the company

must rehabilitate it to its natural state (as documented prior to the project). Another commentor requested that the ROW leases not include the mineral rights under the lands.

Many comments were received on the internet from the OHV community expressing opposition to a specific proposed project in southern Nevada. They pointed out the conflict with the current use of the land by OHV users and asked that the solar project either be relocated or similar land be made available to OHV users. They indicated that the loss of the currently available OHV recreational area where races are often held would have a large negative socioeconomic impact on the OHV community and the local communities. They also pointed out that if the OHV community is squeezed into a smaller area, the safety of the sport may be adversely affected.

3.9 ALTERNATIVES

When the NOI for this project was published, one of the alternatives the BLM intended to analyze in the PEIS was a Limited Development Alternative under which the BLM would evaluate the impacts of solar energy development projects that had complete plans of development and were awaiting application approval as of that date. The BLM also announced that it would not accept any new solar energy ROW applications until completion of the PEIS, but lifted that moratorium on July 2, 2008 (see Section 3.7). The decision to lift the moratorium changed the applicability of the Limited Development Alternative in the PEIS.

Some commentors indicated that two or three alternatives were not enough and that more alternatives needed to be analyzed. Suggestions were made to consider:

- Different levels of development and/or different leasing and allocation systems
- Limiting development to only previously disturbed lands
- Excluding all sensitive areas (see Section 3.3)
- Allowing development in some of the designated sensitive areas with more restrictive stipulations
- Limiting development to areas that are near population centers
- Limiting development to near the existing transmission lines and roads
- Small-scale application of solar energy on rooftops of houses and commercial buildings, covered parking lots, highway medians, and other urban areas for electricity production. Some commentors suggested that this type of distributed generation, properly interconnected to the grid with two-way metering, be the preferred alternative, while one commentor asked that the PEIS maintain its focus on utility-scale development and large-scale solar

projects as opposed to smaller solar development (e.g., rooftop photovoltaic units).

- Using private lands as well as public lands
- Using private lands only
- Distributing or selling public lands to the private sector and allowing the construction of generation facilities only on private lands
- Using military lands
- An alternative where all power lines are buried
- Burying as many of the power lines as possible
- Different management structures and different BMPs and mitigation measures
- Options for demand-side management and conservation
- The possibility of hauling water (as ice) from other areas into the desert, storing it in underground tanks, and using it to run solar power plants
- Solar power facilities in space
- New and evolving technologies
- Scenarios in which prices for carbon-based generation rise significantly and technological improvements in solar generation create a very strong demand for land devoted to solar facilities and associated transmission
- Development with and without tax credits

Some commentors stated that the DOE should provide a broader range of alternatives than the BLM because it can fund projects on Tribal, state, private, and other federal lands in addition to BLM-administered lands and has no affirmative obligation to process ROWs. They stated that these alternatives could include prioritizing projects that have economic benefits, prioritizing projects that are the least environmentally destructive, prioritizing projects on already-degraded lands such as brownfield or Superfund sites, prioritizing projects that maximize the use of existing infrastructure, prioritizing projects on Tribal lands to secure economic benefits for Native Americans, or prioritizing projects with innovative technologies.

Other commentors requested that the PEIS consider all electricity generation options, including coal, nuclear, natural gas, geothermal, and wind and compare the impacts and benefits of these options. Some commentors also wanted a comparison of centralized versus distributed generation options.

3.10 COORDINATION AND COOPERATION AMONG AGENCIES

It was pointed out by many commentors that there are currently several other ongoing planning efforts being carried out by state agencies and the Western Governors' Association (WGA) within the six-state study area. Among them were the State of California's Renewable Energy Transmission Initiative, the WGA's Western Renewable Energy Zones, and the West-wide Energy Corridor PEIS projects. The commentors requested that the PEIS process be coordinated with these efforts, as well as others initiated by the States of Arizona, Colorado, Nevada, New Mexico, and Utah.

There were many requests for the DOE and the BLM to coordinate and cooperate with other federal, state, and local government agencies in the planning and implementation of their respective solar energy programs. The names of all of the government agencies that provided comments during the public scoping period are listed in Section 2.2. All of these agencies demonstrated willingness to be a part of the PEIS process and expressed willingness to participate in the future. The following agencies did not provide comments, but requests were made by others to involve them in the PEIS process:

- U.S. Forest Service
- Federal Energy Regulatory Commission
- Arizona Departments of Commerce, Lands, Energy, and Environmental Quality
- Colorado Clean Energy Development Authority
- Nevada Renewable Energy Transmission Access Authority
- New Mexico Renewable Energy Transmission Authority

There were requests by both Tribal representatives and others to coordinate with Tribal governments. There were also requests to get the local county, city, or township governments involved when the projects are within their jurisdictional boundaries. In addition, there were many requests from environmental and citizen groups and industry to be consulted in various phases of development. All of these groups offered their support and help to the DOE and the BLM.

There was a suggestion that the BLM establish its own interagency task force that would bring all affected and interested agencies' resources and expertise to bear on applications for solar energy development. One commentor asked the BLM and the DOE to host an interagency coordinating and advisory group in Southern Arizona with, at a minimum, representatives from the Arizona Department of Environmental Quality, Arizona Department of Water Resources, Arizona State Lands Department, Counties, and military air bases.

There were requests from several California agencies to incorporate specific items into the PEIS that would allow it to be CEQA-equivalent. One commentor suggested that the PEIS have a separate California section documenting results of any California-specific analyses. The same commentor suggested that the other five states in the study area might also find a similar section to be useful.

3.11 OTHER ISSUES

Other comments and issues raised include:

- Clarity, transparency, and flexibility of the BLM's approval process and decision making regarding the solar energy development projects. Many commentors, mostly from industry, requested that the BLM provide clear, predictable, transparent, and flexible criteria for efficiently processing future applications, particularly in regards to conducting environmental reviews in fulfillment of NEPA requirements.
- Concern over the ability of the BLM district offices to process the various applications within their districts in a timely manner due to limited staff availability.
- Requests from industry representatives and others that the PEIS also consider solar energy development on other federal lands.
- The length of assessment period. There was one request to change the time horizon considered in the PEIS from 20 years to some period less than that or make allowance to amend the PEIS and Resource Management Plans (RMPs) before the 20-year study period is complete.
- Schedule for the PEIS. There were requests to conduct the PEIS expeditiously. Some commentors asked that the 22-month PEIS schedule be maintained and that the RMP amendments be prepared concurrently with the PEIS.
- Relationship of the PEIS to the BLM's RMP amendments. There was a comment that the RMPs subject to amendment by the PEIS and its associated Record of Decision (ROD) must include the BLM's 2006 California Desert Conservation Plan (also known as the West Mojave Plan) and any other RMPs whose management prescriptions may affect the development of solar energy on BLM-managed lands.
- One commentor asked if the BLM intended to designate new wilderness areas as part of the PEIS. If so, the commentor stated that wilderness designations have their own processes and those processes should not be changed.

- Potential monopoly. Several commentors expressed concern that one corporation or big business owner may monopolize the installation and maintenance of solar collection devices and associated hardware. They wanted part of the work distributed to local installers and craftsmen.
- DOE funded projects. One commentor stated that there was some ambiguity about the types of projects the DOE would fund and what their impacts might be. He requested that the PEIS clarify them.
- Independent review of data from developers. One commentor asked that the DOE and the BLM check to make sure that the data they get from the power companies are unbiased.
- Incorporation of lessons learned from individual projects into the PEIS. One commentor suggested that since the PEIS is being developed while project-specific EISs are being prepared, each of those project leads should submit lessons learned from their projects so that these can be incorporated, as appropriate, into the PEIS.
- Credentials of experts preparing the PEIS. One commentor requested that the BLM employ experts with appropriate credentials to analyze the various impacts considered in the PEIS.
- Designation of new corridors. One commentor stated that the PEIS must clearly address whether it is merely determining the potential need for new corridors to facilitate new solar energy projects or if the PEIS will also be designating corridors based on projected development. The commentor recommended that the PEIS focus on existing and planned corridors, and coordinate with ongoing designation processes, rather than designate new corridors.

4 INTERAGENCY COOPERATION AND GOVERNMENT-TO-GOVERNMENT CONSULTATION

A request to participate as a cooperating agency was received from the California Energy Commission (CEC). The DOE and the BLM are in the process of communicating with federal, state, and local agencies that may have an interest in or responsibility related to solar energy development in the six-state study area. To date, a number of agencies have expressed an interest in participating as cooperating agencies, and efforts are underway to establish Memoranda of Understanding (MOUs).

In accordance with the requirements of Executive Order 13175, “Consultation and Coordination with Indian Tribal Governments,” the DOE and the BLM will coordinate and consult with Tribal governments, Native American communities, and Tribal individuals whose interests might be directly and substantially affected by activities being considered in the Solar Energy Development PEIS.

5 FUTURE OPPORTUNITIES FOR PUBLIC INVOLVEMENT

Scoping is the first phase of public involvement under the NEPA process. The public will have additional opportunities in the future to be involved in the preparation of the Solar Energy Development PEIS. The next phase of public involvement will involve public review and comment on the Draft PEIS. At this time, the DOE and the BLM anticipate releasing the Draft PEIS for public review in Spring 2009; a minimum of 90 days will be provided for commenting on the Draft PEIS. The public also will have an opportunity to review and comment on the Final PEIS when it is published. In addition, the BLM will provide a protest period of at least 30 days related to proposed RMP amendments. In accordance with Title 43, Part 1610.5-2, of the *Code of Federal Regulations*, any person who participates in the planning process and has an interest that is or may be adversely affected by the proposed amendment of an RMP may protest such amendment. A protest may raise only those issues that were submitted for the record during the planning process.

Information about all opportunities for public involvement in the Solar Energy Development PEIS, including announcements of public meetings and releases of documents for review, will be maintained on the project Web site (<http://solareis.anl.gov>). Individuals seeking e-mail notification of such opportunities can sign up for e-mail announcements.