



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IX

75 Hawthorne Street  
San Francisco, CA 94105-3901

January 16, 2008

George R. Meckfessel  
Planning and Environmental Coordinator  
Bureau of Land Management  
Needles Field Office  
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 NEEDLES FIELD OFFICE

Subject: Notice of Intent to Prepare a Joint Environmental Impact Statement and Final Staff Assessment and Amend the California Desert Conservation Area Plan in conjunction with the Ivanpah Solar Electric Generating System, San Bernardino County, California.

Dear Mr. Meckfessel:

The U.S. Environmental Protection Agency (EPA) has reviewed the November 6, 2007 Notice of Intent (NOI) to prepare a Joint Environmental Impact Statement (EIS) and Final Staff Assessment for the Ivanpah Solar Electric Generating System (ISEGS) in San Bernardino County, California. Our review is pursuant to the National Environmental Policy Act (NEPA), Council on Environmental Quality (CEQ) regulations (40 CFR Parts 1500-1508), and our NEPA Review authority under Section 309 of the Clean Air Act.

EPA supports increasing the development of renewable energy resources, as recommended in the National Energy Policy. Using renewable energy resources such as solar power can help the nation meet its energy requirements without generating greenhouse gas emissions. To assist in the scoping process for the project, we have identified several issues for your attention in the preparation of the EIS. We are most concerned about the following issues: air quality, water resources, and biological resources.

We appreciate the opportunity to review this NOI and are available to discuss our comments. Please send one hard copy of the Draft EIS and two CD ROM copies to this office at the same time it is officially filed with our Washington D.C. Office. If you have any questions, please contact me at (415) 972-3545 or at [mcpherson.ann@epa.gov](mailto:mcpherson.ann@epa.gov).

Sincerely,

Ann McPherson  
Environmental Review Office

Enclosures: Detailed Comments

**US EPA DETAILED COMMENTS ON THE SCOPING NOTICE FOR THE JOINT ENVIRONMENTAL IMPACT STATEMENT (EIS) AND FINAL STAFF ASSESSMENT AND AMENDMENT OF THE CALIFORNIA DESERT CONSERVATION AREA PLAN IN CONJUNCTION WITH THE IVANPAH SOLAR ELECTRIC GENERATING SYSTEM, SAN BERNARDINO COUNTY, CALIFORNIA, JANUARY 16, 2008**

Project Description

The Ivanpah Solar Electric Generating System (ISEGS) would consist of three solar concentrating thermal power plants and related facilities in southern California's Mojave Desert, approximately 4.5 miles south of Primm, Nevada. The ISEGS would utilize distributed power tower and heliostat (mirror) technology, in which heliostat fields focus solar energy on power tower receivers near the center of each heliostat array. The ISEGS would be constructed in three phases: 1) Ivanpah 1 - 100 megawatts (MW); 2) Ivanpah 2 - 100 MW; and 3) Ivanpah 3 - 200 MW. Each 100 MW phase would require approximately 850 acres (1.3 square miles) and three tower receivers and arrays. The entire project would utilize 13 power towers and approximately 272,000 heliostats (each heliostat is 7 square meters in size). Each of the three proposed plants would have an individual power block with steam turbine, an air-cooled condenser, switchyard, and a generation tie-line. The three plants would share access roads, two groundwater wells and water lines, and a new 5.3 mile natural gas pipeline. The Applicants have requested a right-of-way (ROW) for each of three solar power plants and a ROW for related shared facilities on approximately 3,400 contiguous acres of public lands in San Bernardino County.

Statement of Purpose and Need

The Draft Environmental Impact Statement (DEIS) should clearly identify the underlying purpose and need to which the Bureau of Land Management (BLM) is responding in proposing the alternatives (40 CFR 1502.13). The *purpose* of the proposed action is typically the specific objectives of the activity, while the *need* for the proposed action may be to eliminate a broader underlying problem or take advantage of an opportunity. The purpose and need should be a clear, objective statement of the rationale for the proposed project. This section of the DEIS should discuss the proposed project in the context of the larger energy market that this project would serve and should discuss how the project will assist the state in meeting its renewable energy portfolio standards and goals.

Alternatives Analysis

EPA urges a creative and flexible approach be taken in the development of potential alternatives. Note that the National Environmental Policy Act (NEPA) requires evaluation of reasonable alternatives, including those that may not be within the jurisdiction of the lead agency (40 CFR Section 1502.14(c)). The DEIS should describe how each alternative was developed, how it addresses each project objective, and how it will be implemented. The DEIS should clearly describe the rationale used to determine whether impacts of an alternative are significant or not. Thresholds of significance should be determined by considering the context and intensity of an action and its effects (40 CFR 1508.27). Furthermore, there should be a clear discussion of the reasons for the elimination of alternatives which were not evaluated in detail. Reasonable

alternatives should include, but are not necessarily limited to, alternative sites, capacities, and technologies. Alternative sites and configurations for access roads should also be evaluated.

### Air Quality

The DEIS should provide a detailed discussion of ambient air conditions (baseline or existing conditions), National Ambient Air Quality Standards (NAAQS), criteria pollutant nonattainment areas, and potential air quality impacts of the project (including cumulative and indirect impacts) for each fully evaluated alternative. Such an evaluation is necessary to assure compliance with State and Federal air quality regulations, and to disclose the potential impacts from temporary or cumulative degradation of air quality.

The DEIS should describe and estimate air emissions from potential construction and maintenance activities, as well as proposed mitigation measures to minimize those emissions. EPA recommends an evaluation of the following measures to reduce emissions of criteria air pollutants and hazardous air pollutants (air toxics).

#### *Construction Emissions Mitigation*

- Reducing emissions of diesel particulate matter (DPM) and other air pollutants by using particle traps and other technological or operational methods. Control technologies such as traps control approximately 80 percent of DPM. Specialized catalytic converters (oxidation catalysts) control approximately 20 percent of DPM, 40 percent of carbon monoxide emissions, and 50 percent of hydrocarbon emissions.
- Ensuring that diesel-powered construction equipment is properly tuned and maintained, and shut off when not in direct use.
- Prohibiting engine tampering to increase horsepower.
- Locating diesel engines, motors, and equipment as far as possible from residential areas and sensitive receptors (schools, daycare centers, and hospitals).
- Requiring low sulfur diesel fuel (<15 parts per million), if available.
- Reducing construction-related trips of workers and equipment, including trucks.
- Leasing or buying newer, cleaner equipment (1996 or newer model), using a minimum of 75 percent of the equipment's total horsepower.
- Using engine types such as electric, liquefied gas, hydrogen fuel cells, and/or alternative diesel formulations.
- Adopting a *Construction Emissions Mitigation Plan* to reduce construction emissions.
- Working with the local air pollution control district(s) to implement the strongest mitigation for reducing construction emissions.

#### *Fugitive Dust Source Controls:*

- Stabilize open storage piles and disturbed areas by covering and/or applying water or chemical/organic dust palliative where appropriate. This applies to both inactive and active sites, during workdays, weekends, holidays, and windy conditions.

- Install wind fencing and phase grading operations where appropriate, and operate water trucks for stabilization of surfaces under windy conditions.
- When hauling material and operating non-earthmoving equipment, prevent spillage and limit speeds to 15 miles per hour (mph). Limit speed of earth-moving equipment to 10 mph.

*Mobile and Stationary Source Controls:*

- Reduce use, trips, and unnecessary idling from heavy equipment.
- Maintain and tune engines per manufacturer's specifications to perform at EPA certification levels and to perform at verified standards applicable to retrofit technologies. Employ periodic, unscheduled inspections to limit unnecessary idling and to ensure that construction equipment is properly maintained, tuned, and modified consistent with established specifications.
- Prohibit any tampering with engines and require continuing adherence to manufacturers recommendations
- Require that leased equipment be 1996 model or newer unless cost exceeds 110 percent or average lease cost. Require 75 percent or more of total horsepower of owned equipment to be used by 1996 or newer models.
- Utilize EPA-registered particulate traps and other appropriate controls where suitable to reduce emissions of diesel particulate matter and other pollutants at the construction site.

*Administrative Controls:*

- Identify where implementation of mitigation measures is rejected based on economic infeasibility.
- Prepare an inventory of all equipment prior to construction and identify the suitability of add-on emission controls for each piece of equipment before groundbreaking. (Suitability of control devices is based on: whether there is reduced normal availability of the construction equipment due to increased downtime and/or power output, whether there may be significant damage caused to the construction equipment engine, or whether there may be a significant risk to nearby workers or the public.)
- Utilize cleanest available fuel engines in construction equipment and identify opportunities for electrification. Use low sulfur fuel (diesel with 15 parts per million or less) in engines where alternative fuels such as biodiesel and natural gas are not possible.
- Develop a construction, traffic and parking management plan that minimizes traffic interference and maintains traffic flow.

Water Resources

The DEIS should fully disclose potential beneficial and/or adverse direct, indirect and cumulative impacts to surface and groundwater quality and quantity, wetlands, and aquatic

ecosystems. The DEIS should describe the original (natural) drainage patterns in the project locale, as well as the drainage patterns of the area during project operations. Also, the DEIS should identify whether any components of the proposed project are within a 50 or 100-year floodplain.

The DEIS should estimate the quantity of water the project will require and describe the source of this water and potential effects on other water users and natural resources in the project's area of influence. Assuming groundwater is used, the DEIS should clearly depict reasonably foreseeable direct, indirect and cumulative impacts to this resource. Specifically, the potentially-affected groundwater basin should be identified and any potential for subsidence and impacts to springs or other open water bodies and biologic resources should be analyzed. At a minimum, the DEIS should include:

- An analysis of the potential for alternatives to cause adverse aquatic impacts such as impacts to water quality and aquatic habitats.
- A discussion of compliance with Clean Water Act Section 404(b)(1) Guidelines (40 CFR 230) if alternatives propose to place fill in water of the U.S. (WOUS)
- A detailed discussion of cumulative impacts to groundwater supply from hydrographic basins that would support the alternatives.
- A description of the water right permitting process, including whether water right permits contain special conditions; measures to mitigate direct, indirect, and cumulative impacts; and provisions for monitoring and adaptive management.

In addition, EPA suggests that BLM include a jurisdictional delineation for all WOUS, including ephemeral drainages, in accordance with the 1987 *Corps of Engineers Wetlands Delineation Manual* and the December 2006 *Arid West Region Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region*. A jurisdictional delineation will confirm the presence of WOUS in the project area and help determine impact avoidance or if state and federal permits would be required for activities that affect WOUS.

The DEIS should address the potential effects of project discharges, if any, on surface water quality. The specific discharges should be identified and potential effects of discharges on designated beneficial uses of affected waters should be analyzed. If the facility is a zero discharge facility, the DEIS should disclose the amount of process water that would be disposed of onsite and explain methods of onsite containment. If evaporation ponds will be used, the DEIS should identify chemical characteristics of the pond water and how seepage into groundwater will be prevented. Identify the storm design containment capacity of ponds, explain how overflow in larger storm events will be managed, and discuss potential environmental impacts (drainage channels affected, water quality, biological resources) in the event of overflow.

We also recommend the DEIS include information on the functions and locations of ephemeral washes in the project area, because of the important hydrologic and biogeochemical role these washes play in direct relationship to higher-order waters downstream. The DEIS should provide information on CWA Section 303(d) impaired waters in the project area, if any,

and efforts to develop and revise Total Maximum Daily Loads. It should describe existing restoration and enhancement efforts for those waters, how the proposed project will coordinate with on-going protection efforts, and any mitigation measures that will be implemented to avoid further degradation of impaired waters.

### Biological Resources

The DEIS should identify all petitioned and listed threatened and endangered species and critical habitat that might occur within the project area. The document should identify and quantify which species or critical habitat might be directly, indirectly, or cumulatively affected by each alternative and mitigate impacts to these species. Emphasis should be placed on the protection and recovery of species due to their status or potential status under the Endangered Species Act (ESA). We recommend that the DEIS include a biological assessment, as well as a description of the outcome of consultation with the U.S. Fish and Wildlife Service under Section 7 of the ESA. Analysis of impacts and mitigation on covered species should include:

- Baseline conditions of habitats and populations of the covered species;
- A clear description of how avoidance, mitigation and conservation measures will protect and encourage the recovery of the covered species and their habitats in the project area;
- Monitoring, reporting and adaptive management efforts to ensure species and habitat conservation effectiveness.

The DEIS should indicate what measures will be taken to protect important wildlife habitat areas from potential adverse effects of proposed covered activities. We encourage habitat conservation alternatives that avoid and protect high value habitat and create or preserve linkages between habitat areas to better conserve the covered species.

### Invasive Species

Executive Order 13112, *Invasive Species* (February 3, 1999), mandates that federal agencies take actions to prevent the introduction of invasive species, provide for their control, and minimize the economic, ecological, and human health impacts that invasive species cause. The DEIS should include a project design feature that calls for the development of an invasive plant management plan to monitor and control noxious weeds. Executive Order 13112 also calls for the restoration of native plants and tree species. If the proposed project will entail new landscaping, the DEIS should describe how the project will meet the requirements of Executive Order 13112.

### Indirect and Cumulative Impacts

Per guidance provided by the Council on Environmental Quality (CEQ), the cumulative impacts analysis should provide the context for understanding the magnitude of the impacts of the alternatives by analyzing the impacts of other past, present, and reasonably foreseeable projects or actions and then considering those cumulative impacts in their entirety (CEQ's Forty Questions, #18). The DEIS should focus on resources of concern – those resources that are “at

risk” and/or are significantly impacted by the proposed project, before mitigation. In the introduction to the Cumulative Impacts section, identify which resources are analyzed, which ones are not, and why. The analysis for this project should include air quality, biological resources including habitat, visual resources, and cultural resources. For each resource analyzed, the DEIS should:

- Identify the current condition of the resource as a measure of past impacts. For example, the percentage of species habitat lost to date. Include a baseline for the resources or concern with an explanation as to why that baseline was selected.
- Identify the trend in the condition of the resource as a measure of present impacts. For example, the health of the resource is improving, declining, or in stasis.
- Identify all other on-going, planned, and reasonably foreseeable projects in the study area that may contribute to cumulative impacts.
- Identify the future condition of the resource based on an analysis of the cumulative impacts of reasonably foreseeable projects or actions added to existing conditions and current trends.
- Assess the cumulative impacts contribution of the proposed alternatives to the long-term health of the resource, and provide a specific measure for the projected impact from the proposed alternatives.
- Disclose the parties that would be responsible for avoiding, minimizing, and mitigating those adverse impacts.
- Identify opportunities to avoid and minimize impacts, including working with other entities.

As an indirect result of providing additional power, it can be anticipated that this project will allow for development and population growth to occur in those areas that receive the generated electricity. The DEIS should describe the reasonably foreseeable future land use and associated impacts that will result from the additional power supply. The document should provide an estimate of the amount of growth, its likely location, and the biological and environmental resources at risk.

### Recreational Use

EPA recommends that there be full disclosure of the impacts to recreational users in the project area. An accurate and complete route inventory may be necessary to complete this evaluation; routes that would be closed or re-routed should be clearly identified.

### Coordination with Tribal Governments

#### *Executive Order 13175*

Executive Order 13175, *Consultation and Coordination with Indian Tribal Governments* (November 6, 2000), was issued in order to establish regular and meaningful consultation and collaboration with tribal officials in the development of federal policies that have tribal implications, and to strengthen the United States government-to-government relationships with Indian tribes. The DEIS should describe the process and outcome of government-to-government consultation between the BLM and each of the tribal governments within the project area, issues

that were raised (if any), and how those issues were addressed in the selection of the proposed alternative.

#### *National Historic Preservation Act and Executive Order 13007*

Historic properties under the National Historic Preservation Act (NHPA) are properties that are included in the National Register of Historic Places (NRHP) or that meet the criteria for the National Register. Section 106 of the NHPA requires a federal agency, upon determining that activities under its control could affect historic properties, consult with the appropriate State Historic Preservation Officer/Tribal Historic Preservation Officer (SHPO/THPO). Executive Order 13007, *Indian Sacred Sites* (May 24, 1996), requires federal land managing agencies to accommodate access to, and ceremonial use of, Indian sacred sites by Indian Religious practitioners, and to avoid adversely affecting the physical integrity of such sacred sites. It is important to note that a sacred site may not meet the National Register criteria for a historic property and that, conversely, a historic property may not meet the criteria for a sacred site.

The DEIS should address the existence of Indian sacred sites in the project area. It should address Executive Order 13007, distinguish it from Section 106 of the NHPA, discuss how the BLM will avoid adversely affecting the physical integrity of sacred sites, if they exist, and address other requirements of the Order. The DEIS should provide a summary of all coordination with Tribes and with the SHPO/THPO, including identification of NRHP eligible sites, and development of a Cultural Resource Management Plan.

#### Environmental Justice

Executive Order 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations* (February 11, 1994), directs federal agencies to identify and address disproportionately high and adverse human health or environmental effects on minority and low-income populations, allowing those populations a meaningful opportunity to participate in the decision-making process. Guidance<sup>1</sup> by CEQ clarifies the terms low-income and minority population (which includes American Indians) and describes the factors to consider when evaluating disproportionately high and adverse human health effects.

The DEIS should include an evaluation of environmental justice populations within the geographic scope of the project. If such populations exist, the DEIS should address the potential for disproportionate adverse impacts to minority and low-income populations, and the approaches used to foster public participation by these populations. Assessment of the project's impact on minority and low-income populations should reflect coordination with those affected populations.

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<sup>1</sup>Environmental Justice Guidance under the National Environmental Policy Act, Appendix A (Guidance for Federal Agencies on Key Terms in Executive Order 12898), CEQ, December 10, 1997.



### Coordination with Land Use Planning Activities

The DEIS should discuss how the proposed action would support or conflict with the objectives of federal, state, tribal or local land use plans, policies and controls in the project area. The term "land use plans" includes all types of formally adopted documents for land use planning, conservation, zoning and related regulatory requirements. Proposed plans not yet developed should also be addressed if they have been formally proposed by the appropriate government body in a written form (CEQ's Forty Questions, #23b).

### Hazardous Materials and Hazardous Waste

The DEIS should address potential direct, indirect and cumulative impacts of hazardous waste from construction and operation. The document should identify projected hazardous waste types and volumes, and expected storage, disposal, and management plans. The DEIS should also discuss and characterize all waste generated from both plant operations and from associated activities such as vehicle maintenance, etc. The DEIS should discuss the environmental impacts associated with management and disposal of this waste including the projected amount annually, where disposal will occur, regulatory requirements associated with storage and disposal, and whether it would be considered hazardous under Federal, or State law. Appropriate mitigation should be evaluated, including measures to minimize the generation of hazardous waste (i.e., hazardous waste minimization). Alternate industrial processes using less toxic materials should be evaluated as mitigation. This potentially reduces the volume or toxicity of hazardous materials requiring management and disposal as hazardous waste.

### Mitigation and Pollution Prevention

The DEIS should evaluate the feasibility of adopting mitigation to avoid, reduce or compensate for adverse environmental impacts from construction and operation. NEPA does not require that an impact be "significant" before mitigation can be presented in an EIS. "All relevant, reasonable mitigation measures that could improve the project are to be identified." "Once the proposal itself is considered as a whole to have significant effects . . . mitigation measures must be developed where it is feasible to do so." (CEQ's Forty Questions, #19a)

CEQ also issued guidance<sup>2</sup> on integrating pollution prevention measures in NEPA documents. Many strategies can reduce pollution and protect resources, including using fewer toxic inputs, altering manufacturing and facility maintenance processes, and conserving energy. Consistent with CEQ's guidance, we recommend presenting all reasonable mitigation and pollution prevention measures.

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<sup>2</sup>Memorandum to Heads of Federal Departments and Agencies Regarding Pollution Prevention and the National Environmental Policy Act, CEQ, January 12, 1993.