

Memorandum

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To: Jeffery Byron, Presiding Member
James D. Boyd, Vice Chair

From: California Energy Commission - *Simon Allen for Jack W. Caswell*
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Subject: **IVANPAH SOLAR ELECTRIC GENERATING SYSTEM ISSUES IDENTIFICATION REPORT (07-AFC-5)**

Attached is the California Energy Commission (Energy Commission) and U.S. Bureau of Land Management (BLM) staff Issues Identification Report for the Ivanpah Solar Electric Generating System (ISEGS). This report serves as a preliminary scoping document of the potential project issues that have been identified to date. Energy Commission and BLM staff will discuss the issues in this report at the Informational Hearing and Site Visit scheduled for January 4, 2008 at the Primm Valley Golf Resort, located in the Mojave Desert, San Bernardino County, California.

The ISEGS project is being reviewed under a joint state and federal process by the Energy Commission and BLM. Although the project qualifies for and will be conducted according to the Energy Commission's 12-month process, the joint agency review will require additional steps and time in order to integrate the federal review process under the National Environmental Policy Act (NEPA) with the Energy Commission's process according to the California Environmental Quality Act (CEQA). A discussion on the joint agency process and scheduling issues is provided in the body of this document. Meeting the proposed schedule will require resolving issues expeditiously and working closely and efficiently with the BLM as co-lead agency. The agencies intend to develop a joint document that will ensure that the Final Staff Assessment (FSA)/Final Environmental Impact Statement (FEIS) fully addresses the issues and responsibilities of both agencies.

cc: Proof of Service List

Attachment

PROOF OF SERVICE / REVISED 12/7/07 FILED WITH
ORIGINAL MAILED FROM SACRAMENTO ON 12/28/07

ISSUES IDENTIFICATION REPORT

IVANPAH SOLAR ELECTRIC GENERATING SYSTEM (07-AFC-5)

**JACK W. CASWELL, PROJECT MANAGER
Energy Facilities Siting Division**

December 28, 2007

ISSUES IDENTIFICATION REPORT
IVANPAH SOLAR ELECTRIC GENERATING SYSTEM
(07-AFC-5)

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ISSUES IDENTIFICATION REPORT

This report has been prepared by the Energy Commission and BLM staff to inform the Energy Commission Committee assigned for the ISEGS project and all interested parties of the potential issues that have been identified to date. Issues of greater concern or that may delay the process have been identified as a result of discussions with federal, state, and local agencies, including the BLM in our combined review of the ISEGS Application for Certification (AFC), Docket Number 07-AFC-5. This Issues Identification Report contains a project description, summary of potentially significant environmental issues, and a discussion of the proposed project schedule. The staff will address the status of potential issues and progress towards their resolution in periodic status reports to the Committee.

PROJECT LOCATION

The proposed project would be constructed in three phases: two 100-megawatt (MW) phases (known as Ivanpah 1 and Ivanpah 2) and a 200-MW phase (Ivanpah 3). The three plants are collectively referred to as the ISEGS project and would be located in:

- San Bernardino County 4.5 miles southwest of Primm, Nevada, 3.1 miles west of the California-Nevada border
- Southern California's Mojave Desert, near the Nevada border, to the west of Ivanpah Dry Lake
- Township 17N, Range 14E, and Township 16N, Range 14E

PROJECT DESCRIPTION

The proposed project includes three solar concentrating thermal power plants, based on distributed power tower and heliostat mirror technology, in which heliostat (mirror) fields focus solar energy on power tower receivers near the center of each heliostat array. Each 100-MW site would require approximately 850-acres (or 1.3 square miles) and would have three tower receivers and arrays; the 200-MW site would require approximately 1,600 acres (or 2.5 square miles) and would have 4 tower receivers and arrays. Given that the three plants would be developed in concert, the proposed solar facilities would share common facilities including an administration building, operations and maintenance building, substation, access road, and the reconducted transmission lines for all three phases. The total area required for all three phases including the shared facilities would be approximately 3,400-acres (or 5.3 square miles). Depending on the time needed to certify the project, construction of the entire project could begin as early as the first quarter of 2009, with construction being completed in the last quarter of 2012.

In each solar plant, one Rankine-cycle reheat steam turbine receives live steam from the solar receiver boilers and reheated steam from one solar reheater located in the power block at the top of its own tower. The reheat tower would be located adjacent to the turbine. Additional heliostats would be located outside the power block perimeter road, focusing on the reheat tower. Final design layout locations are still being developed. The solar field and power generation equipment would be started each

morning after sunrise and insolation build-up, and shut down in the evening when insolation drops below the level required for keeping the turbine online.

Each plant also includes a partial-load natural gas-fired steam boiler, which would be used for thermal input to the turbine during the morning start-up cycle to assist the plant in coming up to operating temperature more quickly. The boiler would also be operated during transient cloudy conditions, in order to keep the turbine on-line and be ready to resume production from solar thermal input, after the clouds pass. After the clouds pass and solar thermal input resumes, the turbine would be returned to full solar production. Each plant uses an air-cooled condenser or “dry cooling,” to minimize water usage at the site’s desert environment. Water consumption at the facility would predominantly be used for washing heliostats. Auxiliary equipment at each plant includes feed water heaters, a deaerator, an emergency diesel generator, and a diesel fire pump.

Electricity would be produced by each plant’s solar receiver boiler and the steam turbine generator. The heliostat mirrors would be arranged around each solar receiver boiler. Each mirror tracks the sun throughout the day and reflects the solar energy to the receiver boiler. The heliostats would be 7.2-feet high by 10.5-feet wide (2.20-meters by 3.20-meters) yielding a reflecting surface of 75.6 square feet (7.04 square meters). They would be arranged in arcs around the solar boiler towers asymmetrically.

Each solar development phase would include:

- a natural gas-fired start-up boiler to provide heat for plant start-up and during temporary cloud cover;
- an air-cooled condenser or “dry cooling” to minimize water usage in the site’s desert environment;
- one Rankine-cycle reheat steam turbine that receives live steam from the solar receiver boilers and reheat steam from one solar reheater located in the power block at the top of its own tower adjacent to the turbine; and
- a raw water tank with a 250,000 gallon capacity; 100,000 gallons to be used for the plant and the remainder to be reserved for fire water.
- a small onsite wastewater plant located in the power block that treats wastewater from domestic waste streams such as showers and toilets;
- auxiliary equipment including feed water heaters, a deaerator, an emergency diesel generator, and a diesel fire pump.

ENERGY COMMISSION AND BUREAU OF LAND MANAGEMENT JOINT REVIEW PROCESS

The BLM and Energy Commission have executed a Memorandum of Understanding for conducting a joint environmental review of thermal generating projects such as the ISEGS project proposed on BLM managed federal lands. The joint document will be a single document that addresses both the National Environmental Policy Act (NEPA) and California Environmental Quality Act (CEQA) review procedures. The state and federal agencies coordination for the development of a joint environmental analysis of the proposed project avoids duplication of staff efforts, shares staff expertise and

information, promotes intergovernmental coordination at the local, state, and federal levels, and facilitates public review by providing a joint document in an efficient environmental review process.

Under federal law, the BLM is responsible for processing requests for rights-of-way to authorize the proposed project and associated transmission lines and other facilities to be constructed and operated on land it manages. In processing applications, the BLM must comply with the requirements of NEPA, which requires that federal agencies reviewing projects under their jurisdiction consider the environmental impacts associated with the proposed project's construction and operation.

As the lead agency under CEQA, the Energy Commission is responsible for reviewing and ultimately approving or denying all applications to construct and operate thermal electric power plants, 50 MW and greater, in California. The Energy Commission's facility certification process carefully examines public health and safety, environmental impacts and engineering aspects of proposed power plants and all related facilities such as electric transmission lines and natural gas and water pipelines.

The first step in the Energy Commission's process was for the Commission to determine whether or not the AFC contained all the information required to meet its data adequacy regulations, at which point the staff analysis process can proceed. On October 31, 2007, the Energy Commission determined that the AFC was complete, thus beginning the joint agency staff's data discovery and issue analysis phases of the review process.

POTENTIAL MAJOR ISSUES

This portion of the report contains a discussion of the potential issues the Energy Commission and BLM staffs have identified to date. This report may not include all the significant issues that may arise during the case, as discovery is not yet complete, and other parties have not had an opportunity to identify their concerns. The identification of the potential issues contained in this report was based on our judgement of whether any of the following circumstances will occur:

- Significant impacts may result from the project which may be difficult to mitigate;
- The project as proposed may not comply with applicable laws, ordinances, regulations or standards (LORS);
- Conflicts may arise between the parties about the appropriate findings or conditions of certification for the Commission decision that could result in a delay to the schedule.

BUREAU OF LAND MANAGEMENT SCHEDULING ISSUES

There are several potential scheduling issues that must be resolved in order for the ISEGS project to meet the proposed licensing process schedule. The BLM has notified the Energy Commission that the requirements and mandates established under NEPA for completing an Environmental Impact Statement (EIS) for the project may result in a

longer time period to process than one year. Several components of the BLM NEPA process are not within the direct control of the agency. For example, BLM is required to publish Notices of Availability for the Draft Environmental Impact Statement (DEIS) and FEIS in the Federal Register (FR). Departmental policy requires all FR Notices to be reviewed and approved by the Assistant Secretary for Lands and Minerals (ASLM). BLM does not control the timing of reviews outside the agency. BLM also is required to have a 90-day comment period on a DEIS after which all comments must be addressed in the FEIS and Decision. The time necessary to respond to comments and incorporate responses into a FEIS is a function of the number and complexity of comments. Because of the extent of the area affected by the project, BLM anticipates a high level of interest in the project. Additionally, the BLM requires a completed Biological Opinion from the US Fish & Wildlife Service (USFWS) before providing the Record of Decision (ROD). BLM may not be able to complete its portions of a Preliminary Staff Assessment (PSA)/DEIS and FSA/FEIS within estimated time frames due to the requirements identified above.

As a result of the BLM noticing requirements, the Energy Commission and BLM staffs have developed a 13-month schedule that meets the minimum BLM noticing requirements and is close to the Energy Commission's standard 12-month schedule. It should be noted that BLM has significant concerns regarding their ability to thoroughly address NEPA requirements in a 13-month schedule. We share their concerns and believe that additional time may be required to address and resolve all issues and ensure adequate participation by all parties from the perspective of both the BLM and Energy Commission staff. However, notwithstanding these reservations, the staffs of both agencies recommend adoption of this 13-month schedule, recognizing the challenges presented by this review period. We will provide the required periodic status reports to report any future delays in the proceeding.

SUMMARY OF ISSUES AND DATA REQUESTS

The following table lists all the subject areas evaluated and notes those areas where critical or significant issues have been identified in this Issues Identification Report and if data requests have been prepared. Even though an area is identified as having no significant issues, it does not mean that an issue will not arise related to the subject area. For example, disagreements regarding the appropriate conditions of certification may arise between staff and applicant that will require discussion at workshops or even subsequent hearings. Staff currently believes such issues are likely to have an impact on the schedule.

Issues Report	Data Req.	Technical Subject Area	Issues Report	Data Req.	Technical Subject Area
No	No	Alternatives	No	No	Socioeconomics
Yes	Yes	Air Quality	Yes	Yes	Soils and Water
No	Yes	Biological Resources	No	Yes	Traffic & Transportation
No	Yes	Cultural Resources	No	No	Transmission Safety
No	No	Geo/Paleo Resources	No	Yes	Transmission Sys. Eng.
No	No	Hazardous Material	Yes	Yes	Visual Resources
Yes	Yes	Land Use	No	Yes	Waste Management
No	No	Noise	No	No	Worker Safety & Fire Protection

ISSUES DISCUSSION

AIR QUALITY

MITIGATION MEASURES

Since staff is still determining project emissions and potential impacts, staff has not reached a conclusion on the need for mitigation. The applicant believes that the Ivanpah project represents a net emission reduction for all air contaminants. Despite producing some emissions from the natural gas start-up boiler, the majority of the ISEGS power production would be accomplished without emissions and its electrical power is expected to displace fossil-fuel based power plants. Therefore, the applicant implies that no additional offset mitigation is needed, and no mitigation is proposed for the project.

Staff has concerns because of incomplete data on project emissions, the underlying assumptions used and the joint agencies' inability to enforce displacement. The applicant's assumptions require broader considerations including: 1) not all new electrical power is generated from fossil fuel fired power plants; 2) neither staff nor the applicant can accurately identify where and when such avoided emission reductions occur; and 3), the avoided air emission may be in an area, or for an air pollutant, that does not need reductions and therefore may not represent an air quality benefit. If it is determined that it is appropriate to require mitigation for this project the schedule would likely be impacted. Staff has issued data requests to determine the actual emissions of the facility and its impacts and will work closely with the BLM and the local air pollution control district and other regulatory agencies such as the Air Resources Board and the Federal Environmental Protection Agency to address and resolve any issues necessitating use of offset mitigation. It is the intent of the BLM and Energy Commission to find resolution to the issues identified.

LAND USE

The following information summarizes the BLM's concerns on the allocation of federal lands for the proposed solar project. It is the intent of the BLM and Energy Commission to find resolution to the issues identified.

- The ISEGS project requests the BLM to issue a right-of-way grant that would preclude other public use on 3,400 acres (5.3 square miles) or more of public land. Existing land uses such as livestock grazing, recreational use for off-highway vehicles (OHVs), hiking, and wildlife habitat would be eliminated within the boundary of the facility.
- Other proposals for land uses in the vicinity must be considered and analyzed from a cumulative impact basis. Adjoining the ISEGS site is a proposed 4,160-acre photovoltaic solar project.

The BLM and Federal Aviation Administration are in the preparation phase of an Environmental Impact Statement addressing the impacts of the proposed Ivanpah Valley Airport immediately north of Primm. At this time, both agency staffs are in the early stages of assessing the application request and cannot make clear determinations on the above issues or suggest appropriate mitigation for the potential cumulative land use impacts of these proposed projects. Staff has issued data requests regarding the issues summarized above.

SOILS AND WATER

The project proposes disturbing approximately 3,400 acres of land. An estimated 156,875 cubic yards of material will be cut and reused as fill at the site. The cut soil will have to be stockpiled at a staging area prior to use as fill, with the topsoil separately stockpiled from the underlying soil. In addition, native vegetation would be removed from the site to accommodate the solar field equipment and reduce the fire hazard. The vegetation would be harvested and reduced in size to provide approximately 412,600 yards of mulch for erosion control. The potential for water and wind erosion of the soil will be high.

The Ivanpah Dry Lake is located offsite, east of the proposed power plant. This lakebed (playa) is a nationally recognized recreational wind powered sports area that receives heavy recreational use throughout the year. The Bureau of Land Management (BLM) is highly concerned that removing the vegetation and grading 3,400 acres immediately up hill from the dry lakebed will change drainage and runoff patterns that would adversely affect the playa.

Improper erosion control measures could result in significant impacts to soil and biological resources onsite and offsite. To mitigate the potential for improper control measures, BLM and Energy Commission staff concur that the principles of Low Impact Development should be used. These principles include:

- Helping maintain natural drainage paths and landscape features to slow and filter runoff and maximize groundwater recharge.

- Reducing the impervious ground cover created by development of the project and the associated transportation network.
- Managing runoff as close to the source as possible.

Staff is working with the project applicant, Lahontan Regional Water Quality Control Board, and BLM to ensure that proper erosion control measures for potential wind and water erosion are used for the project. Staff has issued data requests addressing the above topics.

VISUAL RESOURCES

The Bureau of Land Management (BLM) has expressed concerns with the AFC visual impact analysis. These include the need for a much more thorough analysis of recreational visitors in the California Desert Conservation Area (CDCA) and other nearby recreational destinations. A visual analysis that conforms to BLM regulations, including development of Interim Visual Resource Management (VRM) classifications for the viewshed is being developed by the BLM and Energy Commission staffs. The applicant has presented its interpretation of the applicable interim VRM classifications in the visual setting discussion of the AFC. However, the applicant's interpretation does not adequately address the concerns of the agencies.

The BLM and Energy Commission will require a wider range of sensitive receptors and associated Key Observation Points requiring additional visual simulations from some of these observation points. It is the intent of Energy Commission staff to work closely with BLM staff to develop the Interim VRM mapping needed to evaluate the project under the BLM VRM methodology. Additional data requests for new simulations representing recreational viewers on federal lands may increase the amount of time needed to complete the joint analysis. The joint agency Visual Resources team will be discussing the broad concepts that will help frame additional data requests at the January 4, 2008 Data Request and Issue Workshop.

This process of developing interim VRM mapping together with BLM staff must be completed prior to preparation of the Preliminary Staff Assessment/Draft Environmental Impact Statement (PSA/DEIS) visual analysis and be consistent with both the Energy Commission and BLM visual assessment methodologies. It is our intent to develop conditions of certification to address both BLM and Energy Commission approval and monitoring procedures. The agency staffs are scheduled to meet on January 4th and 15th, 2008, to begin this coordinated effort.

SCHEDULING ISSUES

The schedule on page 12 requires additional days beyond the Energy Commission staff's standard review process schedule for key events. This schedule focuses on Energy Commission and Bureau of Land Management staff document publications and event noticing requirements. Meeting this ambitious schedule will require: resolving issues expeditiously, working closely and efficiently with the Bureau of Land Management as co-lead federal agency, and the applicant providing timely and comprehensive responses to staff's information requests.

BUREAU OF LAND MANAGEMENT INFORMATION

BLM noticing requirements and the associated dates are in Blue in the following proposed project schedule.

BLM Schedule Acronyms:

ASLM - Assistant Secretary for Lands and Minerals

BA - Biological Assessment

BLM - Bureau of Land Management

BO - Biological Opinion

EIS - Environmental Impact Statement

DEIS –Draft Environmental Impact Statement

FEIS - Final Environmental Impact Statement

FR - Federal Register

IBLA - United States Interior Board of Land Appeals

NOA - Notice of Availability

NOI - Notice of Intent

ROD - Record of Decision

USFWS - United States Fish and Wildlife Service

WO - BLM Washington Office

Ivanpah Solar Electric Generating System Proposed Schedule

Activity	Day	Date
Petition filed by project owner	-45	Aug 31, 07
Project Deemed Data Inadequate	-5	Oct 10, 07
Project Deemed Data Adequate	0	Oct 31, 07
Energy Commission Committee assigned to oversee petition AFC process	0	Oct 31, 07
BLM publishes NOI in FR (45-day scoping)	6	Nov 6, 07
CEC/BLM staff files data requests	42	Dec 12, 07
CEC/BLM staff files Issues Identification Report	57	Dec 27, 07
Informational hearing and site visit/BLM scoping meeting	65	Jan 4, 08
Staff data request and issue workshop	65	Jan 4, 08
Applicant provides data responses	72	Jan 11, 08
CEC/BLM Staff files data requests (round 2, if necessary)	89	Jan 28, 08
BLM NOA on PSA/DEIS to WO and ASLM (6-8 wks)	107	Feb 15, 08
Applicant provides data responses (round 2, if necessary)	120	Feb 28, 08
Local, state, and federal agency determinations	120	Feb 28, 08
BLM submit BA to USFWS (Start 135-day federal consultation)	120	Feb 28, 08
Data response and issue resolution workshop	135	Mar 14, 08
PSA/DEIS filed (90-day comment period required)	166	Apr 14, 08
PSA Workshop/DEIS public mtgs	216	Jun 3, 08
Local, state and federal agency final determination	194	May 12, 08
Close BLM comment period	257	Jul 14, 08
NOA FEIS to WO and ASLM (6-8 wks)	257	Jul 14, 08
Prepare responses to comments add to FSA/FEIS	264	Jul 21, 08
USFWS issues BO (requirement in BLM process)	275	Aug 1, 08
NOA of FSA/FEIS in FR	315	Sep 10, 08
Final Staff Assessment/FEIS filed	315	Sep 10, 08
Prehearing/Evidentiary hearings start	*TBD	
Energy Commission Committee files proposed decision	*TBD	
Hearing on the proposed decision	*TBD	
BLM ROD (start 60-day federal review, 30-day protest, IBLA appeal)	*TBD	
Close of public comments on the proposed decision	*TBD	
Addendum/revised proposed decision	*TBD	
Commission Decision	*TBD	

*To Be Determined (TBD)

**BEFORE THE ENERGY RESOURCES CONSERVATION AND DEVELOPMENT COMMISSION OF THE
STATE OF CALIFORNIA**

**APPLICATION FOR CERTIFICATION
FOR THE *IVANPAH SOLAR ELECTRIC
GENERATING SYSTEM***

Docket No. 07-AFC-5

**PROOF OF SERVICE
(Revised 12/7/2007)**

INSTRUCTIONS: All parties shall 1) send an original signed document plus 12 copies OR 2) mail one original signed copy AND e-mail the document to the web address below, AND 3) all parties shall also send a printed OR electronic copy of the documents that shall include a proof of service declaration to each of the individuals on the proof of service:

CALIFORNIA ENERGY COMMISSION
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DECLARATION OF SERVICE

I, Maria Sergoyan, declare that on December 28, 2007, I deposited copies of the attached Ivanpah Solar Electric Generating System Issues Identification Report (07-AFC-5) in the United States mail at Sacramento, California with first-class postage thereon fully prepaid and addressed to those identified on the Proof of Service list above.

OR

Transmission via electronic mail was consistent with the requirements of California Code of Regulations, title 20, sections 1209, 1209.5, and 1210. All electronic copies were sent to all those identified on the Proof of Service list above.

I declare under penalty of perjury that the foregoing is true and correct.



Maria Sergoyan